আমিষ
Aamis

অধিবাস্তৱবাদেৰে সমৃদ্ধ চলচ্চিত্ৰ

ড° সুব্রত জ্যোতি নেওগ

লেখক-পৰিচালক ভাস্কৰ হাজৰিকাৰ 'আমিষ' চলচ্চিত্ৰখন ভাৰতীয় চলচ্চিত্ৰৰ ঐতিহ্যময় পৰম্পৰাত এক গুৰুত্বপূৰ্ণ সংযোজন। সমগ্ৰ ভাৰতীয় চলচ্চিত্ৰত অধিবাস্তৱবাদী ধাৰাৰ চলচ্চিত্ৰ অত্যন্ত কম। এখন উচ্চস্তৰীয় অধিবাস্তৱবাদী (surrealist film) চলচ্চিত্ৰ হিচাপে ভাৰতীয় চলচ্চিত্ৰৰ পৰম্পৰাত 'আমিষে' নিঃসন্দেহে বিশিষ্ট স্থান অধিকাৰ কৰিছে। সাধাৰণতে অধিবাস্তৱবাদী চলচ্চিত্ৰত মানৱ অভিজ্ঞতাৰ যুক্তিসিদ্ধ অস্তিত্বৰ ঊৰ্ধ্বত অৱস্থিত কোনো চৈতন্যময় সত্তাৰ অভিব্যক্তি সাৰ্থক ৰূপত প্ৰকাশ পায়। 'আমিষ'ৰ কথাবস্তুলৈ যদি লক্ষ্য কৰোঁ তেন্তে দেখিম কেন্দ্ৰীয় চৰিত্ৰ সুমনে নিজৰ দেহৰ মাংস কাটি প্ৰেয়সীৰ ভোক নিবাৰণৰ চেষ্টা কৰি এক বিমল আনন্দ লাভ কৰিছে। লোকদৃষ্টিত ই অদ্ভুত আৰু যুক্তিসিদ্ধ নহয়, কিন্তু অধিবাস্তৱবাদী চলচ্চিত্ৰ নিৰ্মাণ কৰাসকল এই অদ্ভুত আৰু অতিযৌক্তিক (Non-rational) দিশটোৰ প্ৰতিহে বেছি কৌতূহলী। আচলতে অধিবাস্তৱবাদী চলচ্চিত্ৰত চলচ্চিত্ৰকাৰে কথাবস্তুৰ বিকাশত এনেবোৰ ভাব বা প্ৰতীতিৰ সৃষ্টি কৰে যিবোৰ আপাতদৃষ্টিত অৰ্থহীন, কিন্তু কথাবস্তুৰ পৰিণতিতহে তাৰ প্ৰকৃত তাৎপৰ্য উদ্‌ঘাটন হয়।

ভাস্কৰ হাজৰিকাৰ প্ৰথমখন ছবি 'কথানদী'তে অধিবাস্তৱবাদী উপাদানৰ এটি সৰু ৰেঙনি দেখিবলৈ পোৱা গৈছিল। 'কথানদী'ত জেৰিফা ৰাহিদে অভিনয় কৰা তেজীমলাৰ মাহীয়েকৰ চৰিত্ৰটো অধিবাস্তৱবাদী উপাদানেৰে সজাই তোলা হৈছিল। 'কথানদী'ত মাহীয়েকৰ মাজত নিহিত দুখন জগত দেখুৱাইছে। মাহীয়েকৰ বহির্জগতখন প্ৰতিনিধিত্ব কৰিছে মাহীয়েকৰ বাহ্যিক কাম-কাজে আৰু অন্তর্জগতখন প্ৰতিনিধিত্ব কৰিছে মাহীয়েকে দুপৰ নিশা নাৰেৰে গৈ অসুৰ আকৃতিৰ মানুহটোৰ লগত হোৱা কথোপকথন আৰু অংগ-ভংগীয়ে। পৰিচালক হাজৰিকাই 'কথানদী'ৰ মাহীয়েকৰ চৰিত্ৰটোৰ দৰেই 'আমিষ'তো সুমন-নিৰ্মালিৰ চেতন আৰু অৱচেতনক, অন্তর্জগত আৰু বহির্জগতৰ মাজত থকা ভৌতিক আৰু মনোজগতৰ দুয়ো প্ৰকাৰৰ ব্যৱধান দূৰীভূত কৰি এনে এটা বাস্তৱৰ সৃষ্টি কৰিছে— য'ত বাস্তৱ আৰু অবাস্তৱ, কাৰ্য আৰু চিন্তা এক হৈ জীৱনক প্ৰভাৱিত কৰিছে। এইখিনিতে অধিবাস্তৱবাদী

সাম্প্রতিক ভাৰতীয় আঞ্চলিক চলচ্চিত্ৰৰ উত্তৰণ

ড° সুব্রত জ্যোতি নেওগ

প্রতিবছৰে ভাৰতত এহাজাৰতকৈও বেছি চলচ্চিত্র নির্মাণ হয়। ভাৰতীয় চলচ্চিত্র বুলি ক'লে কেবল বলিউডেই নহয়, ভাৰতত প্রচলিত প্রত্যেকটো আঞ্চলিক ভাষাৰ চলচ্চিত্রকে বুজা যায়। ভাৰতত নির্মিত প্রত্যেকটো ভাষাৰ চলচ্চিত্রই ভাৰতীয় চলচ্চিত্র। হিন্দী চলচ্চিত্র উদ্যোগৰ উপৰি তামিল, তেলুগু, মাৰাঠী, বাংলা, অসমীয়া, কানাড়া, মালায়ালম, পাঞ্জাবী আদি চলচ্চিত্র উদ্যোগে সম্প্রতি ভাৰতীয় চলচ্চিত্রৰ পৰিসৰ বৃদ্ধি কৰিছে। সুখৰ কথা, সম্প্রতি ভাৰতীয় চলচ্চিত্রই আন্তৰাষ্ট্রীয় প্রেক্ষাপটত এক বিশেষ সমাদৰ লাভ কৰিছে।

বলিউডত নির্মিত হিন্দী ভাষাৰ ছবিবোৰৰ বজাৰ ব্যাপক। বলিউডৰ ছবিৰ বাবে সমগ্র ভাৰতত যিবোৰ সুবিধা আছে সেইবোৰ সুবিধা আন আঞ্চলিক ছবিবোৰৰ বাবে নাই। উদাহৰণস্বৰূপে, বলিউডৰ ছবিবোৰ হিন্দীত নির্মিত বাবে ভাৰতৰ প্রায়বোৰ অঞ্চলতেই ইয়াৰ বজাৰ আছে। এইক্ষেত্রত আঞ্চলিক ভাষাৰ ছবিবোৰ সীমাবদ্ধ। দ্বিতীয়তে ভাৰতৰ সবল অর্থনৈতিক স্নায়ুকেন্দ্র বোম্বেৰ ধনিক শ্রেণীৰ দ্বাৰা বলিউডৰ ব্যয়বহুল ছবিবোৰ নির্মিত হয়। এইটো দিশতো আঞ্চলিক ভাষাৰ ছবিবোৰ সীমাবদ্ধ। তেলুগু আৰু তামিল ছবিৰ বাহিৰে ভাৰতৰ আন আঞ্চলিক ছবিবোৰৰ বাজেট কম আৰু বজাৰখনো সীমিত। বলিউড বা তামিল ছবিৰ দৰে তাৰকা-সংস্কৃতি (star-culture)ৰ উপস্থিতি আন আঞ্চলিক ছবিৰ ইতিবাচক দিশ নহয়। ইয়াৰ উপৰি আঞ্চলিক ছবিবোৰত সাধাৰণতে বিশেষ স্থানীয় সংস্কৃতি আৰু স্থানীয় ভাববস্তুৰেহে প্রাধান্য পায়। যদিহে স্থানীয় ভাববস্তুক বিশ্বজনীন ৰূপ চলচ্চিত্র পৰিচালকে দিব নোৱাৰে তেন্তে ইয়াকো আঞ্চলিক ছবিৰ দুৰ্বল দিশ বুলি গণ্য কৰিব পাৰি। এইদৰে দেখা গমি চালে দেখা যায় বহুতো দিশত আঞ্চলিক ভাষাৰ ছবিৰ সীমাবদ্ধতা আছে। কিন্তু সম্প্রতি এই সীমাবদ্ধতাবোৰ নেওচি ভাৰতৰ আঞ্চলিক ছবিবোৰ উত্তৰণৰ পথত আগবাঢ়ি গৈছে। সম্প্রতি মাৰাঠী, মালায়ালম, তামিল, তেলুগু, অসমীয়া

নতুন ইতিহাসবাদ আৰু ইয়াৰ প্ৰাসংগিকতা

জুৰি দত্ত

সাহিত্যৰ সমালোচনা আৰু সাহিত্যতত্ত্ব— দুয়োটাই সাম্প্ৰতিক সময়ৰ গুৰুত্বপূৰ্ণ বিষয়। গ্ৰীক দাৰ্শনিক পণ্ডিত এৰিষ্টটল, প্লেটোৰ যুগৰ পৰাই অতিসাম্প্ৰতিক যুগৰ উত্তৰ-ঔপনিৰেশিকতাবাদী সমালোচনালৈকে যুগে যুগে সাহিত্য, দৰ্শন, জীৱন আৰু জগত সম্পৰ্কীয় চিন্তাৰ বিভিন্ন ধৰণৰ বিশ্লেষণ হৈ আহিছে। এই ধৰণৰ বিশ্লেষণক ভেটি কৰিয়েই গঢ়ি উঠিছে বিভিন্ন তত্ত্ব আৰু পদ্ধতি। এনে ধৰণৰ সমালোচনা তত্ত্ব আৰু মতবাদবোৰৰ বিষয়ে এটা অতি তাৎপৰ্যপূৰ্ণ কথা ক'ব পাৰি যে একোটা সময়ত সৰ্বাধিক গ্ৰহণযোগ্য আৰু সত্য বুলি গৃহীত একোটা চিন্তাধাৰা বা মতাদৰ্শক ইয়াৰ পাছৰ সময়খিনিত অসত্য আৰু অগ্ৰহণীয় ৰূপতো ব্যাখ্যা কৰা হয়। সমালোচনা সাহিত্যৰ পিতৃপুৰুষ গ্ৰীক দাৰ্শনিক প্লেটো আৰু তেওঁৰ 'কাল্পনিক ৰাষ্ট্ৰ'ৰ ধাৰণাত কবি আৰু কবিতাৰ স্থান নাছিল। প্লেটোৱে বিশ্বাস কৰিছিল যে কবিতা মিথ্যা আৰু সৰল চিন্তাধাৰাৰ পৰিচায়ক— যি মানৱ জাতিৰ বাবে অনিষ্টকাৰক। আনহাতে প্লেটোৰ শিষ্য-দাৰ্শনিক, পণ্ডিত এৰিষ্টটলৰ মতে কবিতা বা যিকোনো কাল্পনিক সাহিত্যই হৈছে সুগভীৰ চিন্তাৰ পৰিচায়ক এক প্ৰয়োজনীয় সত্য। সমালোচনা তত্ত্বৰ আৰম্ভণিৰে পৰা এইদৰে একো একোটা ধাৰণা বা মতবাদৰ বিৰোধ, বিশ্লেষণ আৰু পৰিশোধন হৈ আহিছে। উল্লেখযোগ্য কথা এয়ে যে এটা নিৰ্দিষ্ট সময়ত এটা মতাদৰ্শই যেতিয়া ব্যাপ্তি আৰু প্ৰচাৰৰ তুংগত উঠে, তেতিয়াই জন্ম হয় ঠিক তাৰ বিপৰীতমুখী ধ্যান-ধাৰণাৰে আন এক মতাদৰ্শ। সাহিত্য সমালোচনা আৰু তত্ত্বৰ ক্ষেত্ৰখনত সততে দেখিবলৈ পোৱা যায় এনে ধৰণৰ সম্পূৰ্ণ বিপৰীতমুখী মতাদৰ্শৰ উত্থান।

কুৰি শতিকাৰ চল্লিছৰ পৰা ষাঠিৰ দশকত সমালোচনাতত্ত্বৰ পথাৰত বিশেষ ঠাই অধিকাৰ কৰিছিল নতুন সমালোচনাই (New Criticism)। নতুন সমালোচনাৰ মূল কথা হ'ল ই সাহিত্যৰ সামাজিক প্ৰসংগ আৰু সাহিত্যিকৰ জীৱনক সাহিত্যকৰ্মৰ বিশ্লেষণত সম্পূৰ্ণৰূপে অৱজ্ঞা কৰে। একোটা পাঠ অৰ্থাৎ একো একোটা কবিতা, গল্প, এখন উপন্যাস, নাটক বা যিকোনো সাহিত্যকৰ্ম নিজেই সম্পূৰ্ণ আৰু সেয়ে ইয়াৰ বিশ্লেষণৰ বাবে সামাজিক পৰিৱেশ, সাহিত্য সৃষ্টিৰ সময়, সাহিত্যিকৰ জীৱন আৰু দৰ্শন বা আন যিকোনো বাহ্যিক প্ৰভাৱৰ ভূমিকা তাৎপৰ্যহীন। নতুন সমালোচনাই গুৰুত্ব দিয়ে মূল সাহিত্যকৰ্মক। সেয়ে ইয়াৰ মূল নীতি মূলতে শাব্দিক। শব্দ, চিত্ৰকল্প,

প্রতীক, ৰূপক আদিৰ সূক্ষ্ম বিশ্লেষণেৰে নতুন সমালোচনাই সাহিত্যকৰ্ম অধ্যয়ন কৰে।

নতুন সমালোচনাৰ 'সাহিত্যকৰ্মৰ স্বয়ংসম্পূৰ্ণতা'ৰ ধাৰণাক সম্পূৰ্ণৰূপে মষিমূৰ কৰি ইয়াৰ ঠিক পিছৰ সময়ছোৱাত জন্ম হৈছিল 'নতুন ইতিহাসবাদী' ধাৰণাৰ। নতুন ইতিহাসবাদী ধাৰণাই একোটা সময়ৰ সৃষ্টি, সাহিত্য আৰু সেই সময়ৰ সংস্কৃতিৰ মাজত এক ওতপ্ৰোত সম্পৰ্ক প্ৰত্যক্ষ কৰে। একোটা পাঠ (Text)ক অৰ্থাৎ একো একোটা সাহিত্যকৰ্মক স্বয়ংসম্পূৰ্ণৰূপে অকলশৰীয়াকৈ আলোচনা কৰাৰ বিপৰীতে ই সেই পাঠৰ উৎপাদন অৰ্থাৎ সৃষ্টিক প্ৰভাৱিত কৰা ঐতিহাসিক আৰু সাংস্কৃতিক অৱস্থা/চৰ্ত (condition)বোৰৰ পাঠৰ আলোচনাৰ ক্ষেত্ৰত অতি গুৰুত্বপূৰ্ণ বুলি বিবেচনা কৰে।

নতুন ইতিহাসবাদৰ ভেটিটো গঢ় লৈ উঠিছে ইতিহাসৰ এক নতুন মূল্যায়নৰ ধাৰণাত। এই ধাৰণা মতে ইতিহাস কোনো সুনিৰ্দিষ্ট নিৰপেক্ষ ঘটনা বা ঘটনাক্ৰমৰ বিন্যাস নহয়। ইয়াৰ বিপৰীতে যি সাহিত্যকৰ্মৰ সৈতে ইতিহাসৰ আন্তঃক্ৰিয়া (inter-action) চলি থাকে, সেই সাহিত্যকৰ্মৰ দৰে ইতিহাসে বিশ্লেষণযোগ্য। ইতিহাস ব্যাখ্যাৰ অতীত নহয়। সাহিত্যিক অথবা ঐতিহাসিক যিকোনো পাঠেই এনে এক বাক্‌স্ৰোত (discourse) যি আপাততঃ বাহ্যিক সত্য (external reality) প্ৰতিফলন কৰা যেন লাগিলেও মূলতঃ প্ৰতিটো পাঠেই কিছুমান উপস্থাপনৰ সমষ্টি মাথোঁ। অৰ্থাৎ এইবোৰ হৈছে একোটা নিৰ্দিষ্ট সময়ৰ সাংস্কৃতিক নিৰ্মাণ নতুন ভাবাদৰ্শগত উৎপাদকৰ বাচিক গঠন।

> A text whether literary on historical, is a discourse which, although it may seem to present, or reflect an external reality, in fact consists of what are called 'representations'- that is verbal formulations which are the ideological products' on 'cultural constructs' of a particular era. (১৯৯৩ঃ২৪৯)

পাঠে কেৱল সামাজিক বাস্তৱতাক প্ৰতিফলন নকৰে, বৰঞ্চ ই সেই বাস্তৱতাৰ সৃষ্টিও কৰে।

সমালোচক-পণ্ডিত হীৰেন গোহাঁইদেৱে তেখেতৰ 'নতুন সমালোচনাৰ যৱনিকা' শীৰ্ষক প্ৰবন্ধটোত উল্লেখ কৰা এযাৰ বাক্যই নতুন ইতিহাসবাদী চিন্তাৰ ক্ষেত্ৰত এক স্পষ্ট খোজৰ ইংগিত বহন কৰে। তেখেতে কৈছে—

> পাঠকৰ মানসিক গঠনৰ সাঁচ তৈয়াৰ হয় ইতিহাসৰ গতিত। ইতিহাসে একোটা পাঠৰ ৰূপ নিৰ্ধাৰণত প্ৰভাৱ পেলায়। একোটা কবিতাৰ অৰ্থ সৃষ্টি হ'বৰ সময়তো ইতিহাসৰ প্ৰভাৱ থাকে। সেইবোৰ সমূলি বাদ দিও কবিতাটো পঢ়িব পাৰি হয়তো। কিন্তু তেতিয়া কবিতাটো এক বিমূৰ্ত শব্দঝংকাৰ বা শব্দৰ এক বিচিত্ৰ লীলাতে আবদ্ধ হৈ যায়। পাঠকে কবিতাত তাতে সন্তুষ্ট নহয়, তেওঁ বিচাৰে জীৱনবোধৰ প্ৰকাশ। আৰু জীৱনবোধ লেখকৰ হওক, পাঠকৰ হওক— ইতিহাসৰ ঊৰ্ধ্বত নহয়। (১৯৯৩ ঃ ৭৮-৭৯)

নতুন ইতিহাসবাদী ধাৰণাত বিশ্বাসী দাৰ্শনিকসকলে নতুন সমালোচনাৰ ৰূপকল্পবাদ, ইয়াৰ সৈতে জড়িত সাহিত্যৰ, কাব্যৰ স্বয়ংসম্পূৰ্ণতা আৰু সকলো সাহিত্যই কেৱল শব্দ, চিত্ৰকল্প, প্ৰতীক বুলি বিবেচনা কৰা ধাৰণাৰ বিৰোধিতা কৰে। নতুন সমালোচনাৰ ধাৰণাত এক শক্তিশালী অনৈতিহাসিক পক্ষপাতিত্ব অনুভূত হয়। নতুন সমালোচনাৰ সমৰ্থকসকলে পাঠৰ ঐতিহাসিক প্ৰসংগক আওকাণ কৰাৰ বিপৰীতে নতুন ইতিহাসবাদীসকলে সাহিত্যিক পাঠৰ গুৰুত্ব উপলব্ধি কৰিও প্ৰতিটো পাঠক ইতিহাসৰ দৃষ্টিৰে ব্যাখ্যা কৰি চায়।

নতুন ইতিহাসবাদৰ মূল চিন্তাচৰ্চাই কেইটামান উল্লেখযোগ্য কথা সামৰি লৈছে। প্ৰথমতেই, এই চিন্তাত বিশ্বাসীসকলে মত পোষণ কৰে যে একো একোটা সাহিত্যিক পাঠধৰ্মীয়, দাৰ্শনিক, ন্যায়িক, বৈজ্ঞানিক আদি বিভিন্ন বেলেগ বেলেগ পাঠৰ মাজৰ এক পাঠহে মাথোন আৰু এই সকলোবোৰ পাঠেই ইয়াৰ সৃষ্টিৰ সময়, পৰিস্থিতি আৰু নিৰ্দিষ্ট অৱস্থাৰ ওপৰত নিৰ্ভৰশীল।

সেয়ে নান্দনিকভাৱে স্বয়ংসম্পূৰ্ণ পাঠৰ গোটেই ধাৰণাটোৱেই হৈছে এক পুৰাকথা (myth)। তৃতীয়তে, বুৰঞ্জী বা ইতিহাস কোনো সমসাত্ত্বিক, সুস্থিৰ তথ্য আৰু ঘটনাৰ চানেকি নহয়, যাক কোনো এক বিশেষ সময়ৰ সাহিত্যৰ বিশ্লেষণৰ পটভূমিৰূপে ব্যৱহাৰ কৰিব পাৰি নাইবা যাক সাহিত্যই সহজে প্ৰতিফলিত কৰে বুলি ক'ব পাৰি। আচলতে নতুন ইতিহাসবাদীসকলে ইতিহাসক তেওঁলোকৰ পূৰ্বসূৰীসকলতকৈ অধিক বহল দৃষ্টিৰে অৱলোকন কৰিছে। পূৰ্বৰ ইতিহাসবাদী সমালোচনাই একোটা সৃষ্টিয়ে কিদৰে একোটা সময়ক প্ৰতিফলিত কৰে সেয়া বিশ্লেষণ কৰে। কিন্তু নতুন ইতিহাসবাদে কেনেকৈ একো একোটা পাঠ অথবা সৃষ্টি ইয়াৰ সৃষ্টিৰ সময়ৰ দ্বাৰা প্ৰভাৱিত, সেয়া মূল্যায়ন কৰে। সেই সামাজিক স্থিতি, যি লেখকক পৰিচালিত কৰিব পাৰে অথবা লেখকৰ সামাজিক, মানসিক পটভূমি আৰু লেখকক প্ৰভাৱিত কৰা কিতাপ অথবা তত্ত্ব-দৰ্শন, মূলতঃ সৃষ্টিকৰ্মক প্ৰভাৱিত কৰিব পৰা যিকোনো কাৰকৰ বিশ্লেষণও একোটা সৃষ্টিকৰ্মৰ সফল মূল্যায়ন বাবে প্ৰয়োজনীয় বুলি নতুন ইতিহাসবাদে দাবী কৰে। হীৰেন গোহাঁইৰ জ্যোতিপ্ৰসাদ আগৰৱালাৰ আলোচনাৰ প্ৰসংগত তেখেতৰ বামপন্থী ভাবধাৰাৰ প্ৰভাৱ নিশ্চয় সুস্পষ্ট। সেইদৰে হেমচন্দ্ৰ বৰুৱাৰ *কানীয়াৰ কীৰ্ত্তন* আৰু গুণাভিৰাম বৰুৱাৰ *ৰাম-নৱমী*ৰ বিশ্লেষণৰ সময়ত লেখক দুজনৰ ব্যক্তিগত জীৱন আৰু জীৱনাদৰ্শক নিশ্চয়েই উলাই কৰিব নোৱাৰি। একেদৰেই আঙুলিয়াব পাৰি গোহাঁইদেৱৰ জ্যোতিপ্ৰসাদৰ 'সুন্দৰ কোঁৱৰ'ৰ চৰিত্ৰটোৰ বিশ্লেষণলৈ। ড° গোহাঁইৰ মতে জ্যোতিপ্ৰসাদ "এক অনৈতিহাসিক আৰু প্ৰাণহীন সুন্দৰৰ আপোনভোলা উপাসক নহয় যে জনগণ সেই আৱতিৰ মূক স্তব্ধ দৰ্শক"। তাৰ বিপৰীতে তেওঁ লক্ষ্য কৰিছিল জ্যোতিপ্ৰসাদৰ চিন্তাত, তেওঁৰ লিখনীত এক সংগ্ৰামী গণতান্ত্ৰিক বিচাৰৰ লক্ষ্য (১৯৯৩ ঃ ২৩০)। জ্যোতিপ্ৰসাদৰ চিন্তা আৰু আদৰ্শৰ এনে মূল্যায়ন মাৰ্ক্সবাদী চিন্তাপুষ্ট গোহাঁইদেৱৰ দ্বাৰাহে সম্ভৱ।

চতুৰ্থতে, লেখক— যিসকলে সাহিত্যিক পাঠ সৃষ্টি কৰে তেওঁলোকৰ দৰে তেওঁলোকৰ পঢ়ুৱৈসকলো একো একোটা বিষয়বস্তু (subject), যি তেওঁলোকৰ যুগৰ অৱস্থা আৰু ভাবাদৰ্শগত গঠনৰ দ্বাৰা অৱস্থিত আৰু গঢ়িত।

আন এটা তাৎপৰ্যপূৰ্ণ কথা এয়ে যে ইতিহাসবাদৰ এই নতুন পদ্ধতিটোৱে সাহিত্যিক আৰু অনা-সাহিত্যিক (non-literary) পাঠৰ সমান্তৰাল পঠনৰ ধাৰণাক প্ৰতিষ্ঠা কৰে। ই ইতিহাসক পাঠৰূপে বিশ্লেষণযোগ্য বুলি বিবেচনা কৰে আৰু

বিশেষভাৱে গৃহীত (canonical) সাহিত্যিক পাঠ আৰু অন্য সাংস্কৃতিক তথ্যসমূহৰ মাজত এক আন্তঃপাঠ সম্পৰ্কৰ কথা ঘোষণা কৰে। এইখিনিতে নতুন ইতিহাসবাদে literary text, অর্থাৎ সাহিত্যিক পাঠৰ বিশেষাধিকাৰৰ ধাৰণাক অস্বীকাৰ কৰে। ই এনে এক অধ্যয়নৰ পোষকতা কৰে য'ত, সাহিত্যিক আৰু অনা-সাহিত্যিক পাঠত সমান গুৰুত্ব দিয়া হয়। দার্শনিক লুই মণ্টোজৰ সংজ্ঞাই নতুন ইতিহাসবাদৰ এই পাৰস্পৰিক সম্বন্ধৰ কথাই দোহাৰে। তেওঁৰ মতে নতুন ইতিহাসবাদ হ'ল পাঠৰ ইতিহাসত্ব আৰু ইতিহাসৰ পাঠত্বৰ মাজৰ এক পাৰস্পৰিক সম্বন্ধৰ আলোচনা (New Historicism is a reciprocal concern with 'the Historicity of texts and Texuality of history) [১৯৮৯ ঃ ২৩], অর্থাৎ এওঁলোকে ইতিহাস আৰু পাঠ এই দুয়োটাৰে অন্যোন্যক্রিয়াৰ নতুন বিশ্লেষণ আগবঢ়ায়। ইতিহাস যিদৰে কেৱল কিছুমান ঘটনাৰে পোনপটীয়া, সহজ প্রতিফলন নহয়; সেইদৰে পাঠ সমাজ, পৰিৱেশ, সংস্কৃতি, ইতিহাস, ৰীতি-নীতি, আদর্শ আদিৰ পৰা মুক্ত এক একক অৱস্থিতি নহয়। পাঠ আৰু ইতিহাস দুয়োটাই ইটো আনটোৰ দ্বাৰা প্রভাৱিত আৰু প্রৰোচিত। সেয়ে যিকোনো এটা ঐতিহাসিক ঘটনাৰ দৰে সকলো পাঠেই বিশ্লেষণযোগ্য।

'নতুন ইতিহাসবাদ' (New Historicism) শব্দটো পোনপ্রথমবাৰৰ বাবে ষ্টিফেন্ গ্রীনব্লাটে তেখেতৰ *Genre* Vol 15 (১৯৮২) শীর্ষক জার্নেলখনৰ পাতনিত উল্লেখ কৰে। এই চিন্তাৰ প্রধান গুৰি ধৰোঁতা গ্রীনব্লাটে নিজে অৱশ্যে তেওঁৰ সমালোচনাত্মক তত্ত্বক 'কাল্চা�ৰেল্ পয়েটিক্ছ' (Cultural poetics) বুলিহে কৈছিল। তেওঁৰ মতে নতুন ইতিহাসবাদ সেইবোৰ সামূহিক বিশ্বাস, সামাজিক দস্তুৰ আৰু সাংস্কৃতিক বাক্স্রোতক লৈ উদ্বিগ্ন, যি একো একোটা নির্দিষ্ট কর্মক গঢ় দিয়ে। সহজ ভাষাত যিকোনো এটা সৃষ্টিকর্মৰ গঠনৰ সমগ্র প্রক্রিয়াটোতে আৰু মূলতঃ সেই সৃষ্টিকর্মটোৰ সৈতে ওতপ্রোতভাৱে জড়িত থাকে সেই সময়ৰ ধ্যান-ধাৰণা, বিশ্বাস, মূল্যবোধ, সামাজিক-সাংস্কৃতিক অৱস্থা ইত্যাদি। সেয়ে একোটা সৃষ্টিৰ মূল্যায়নৰ সময়ত এই সম্পর্কবোৰ উপেক্ষা কৰা সম্ভৱ নহয়।

সাহিত্যৰ বিদ্যায়তনিক ক্ষেত্রখনত নতুন ইতিহাসবাদৰ জন্ম হয় মুখ্যতঃ ইতিহাসক নকৈ চোৱাৰ এক আহ্বানৰ ফলত। ইতিহাসৰ এই নতুন ধাৰণাটো পুৰণি ইতিহাসৰ ধাৰণাতকৈ ভালেখিনি পৃথক। সেই কথা ওপৰত উল্লেখও কৰা হৈছে। আশীৰ দশকত ইউৰোপীয় আৰু আমেৰিকাৰ বিশ্ববিদ্যালয়সমূহৰ বহুতো পণ্ডিতে নতুন ইতিহাসবাদী চিন্তাৰ এই আন্দোলনৰ প্রতি পূর্ণ সমর্থন আগবঢ়াইছিল। তেওঁলোকৰ ভিতৰত উল্লেখযোগ্য নামকেইটা হ'ল— ফ্রেডেৰিক ক্র'জ, জর্জ ৰাট্ছন, ফ্রেডেৰিক জেমচন, টেৰী ইগল্টন আৰু ফ্রেংক্ লেংটিছিয়া, কেথেৰিন গেলাগাৰ, ডি এ মিলাৰ, লুই মণ্টোজ আদি। উল্লেখযোগ্য কথা এয়ে যে নতুন ইতিহাসবাদ এটা একক মত বা আদর্শ নহয়। ই সাহিত্যৰ সমালোচনাতত্ত্বৰ বিভিন্ন মতাদর্শ আৰু দর্শনৰ এক সন্মিলিত চিন্তা। ই হৈছে সামাজিক, ৰাজনৈতিক আৰু ঐতিহাসিক সমালোচনামুখী এক নতুন মতাদর্শ— যি সংযুক্তিবাদ, উত্তৰ-সংযুক্তিবাদ, নির্গঠনতন্ত্রবাদৰ ধাৰণা আৰু মূলতঃ ফুকোৰ ওচৰত ঋণী। তত্ত্ববিদ আৰাম্ ভিজাৰে সেয়ে হয়তো 'নতুন ইতিহাসবাদ' শব্দটো সকলো বয়বস্তু সামৰি লোৱা এক প্রকাণ্ড বেগৰ লগত তুলনা কৰি কৈছে যে এই শব্দটো এটা Portmanteau শব্দ। ই সাহিত্য, নৃতত্ত্ব, কলা, ইতিহাস, ভূগোল, সমাজবিদ্যা আদি কঠিন-কোমল সকলোবোৰ শৃংখলাকে সামৰি লয়। সেইফালৰ পৰা নতুন ইতিহাসবাদ এটা উত্তৰ-সংযুক্তিবাদী ধাৰণা।

নতুন ইতিহাসবাদৰ আন এটা তাৎপর্যপূর্ণ বৈশিষ্ট্য হৈছে ই সাহিত্য আৰু সংস্কৃতিৰ মাজৰ এক ওতপ্রোত সম্পর্ক প্রত্যক্ষ কৰে। গ্রীনব্লাটে এই বিষয়ে এক সুন্দৰ উক্তি দিছে— "যদি এক বিশেষ সংস্কৃতিৰ উদ্ঘাটনে সেই সংস্কৃতিত সৃষ্ট কোনো সাহিত্য সৃষ্টিৰ উচ্চতৰ ধীশক্তিৰ সহায়ক হয়, তেন্তে তেনে সাহিত্যৰ এক সুন্দৰ নিখুঁত গঠন সেই নির্দিষ্ট সংস্কৃতি, অর্থাৎ যি সংস্কৃতিত সেই সাহিত্য সৃষ্টি হয় বা হৈছিল সেই সংস্কৃতিৰ উচ্চতম বুজাবুজিত সহায়ক হ'ব।" (If an exploration of a particular culture will lead to a hightened understanding of a work of literature produced within that culture, so too a careful reading of a work of literature will lead to a heightened understanding of the culture within which it was produced.) (গ্রীনব্লাটৰ 'Culture' শীর্ষক প্রবন্ধৰ পৰা উদ্ধৃত, প্রবন্ধটো *Critical Terms for Literary Study* শীর্ষক গ্রন্থখনত সন্নিৱিষ্ট।)

ষ্টিফেন গ্রীনব্লাটে বিশ্ববিখ্যাত নাট্যকাৰ উইলিয়াম শ্বেইক্সপীয়েৰৰ 'হেনৰী ছিৰিজ'ৰ নাটসমূহৰ উল্লেখ কৰি কৈছে যে এই নাটসমূহ ইয়াৰ সৃষ্টিৰ সময় আৰু পাৰিপার্শ্বিকৰ প্রভাৱৰ পৰা মুক্ত নহয়। তেওঁৰ মতে 'হেনৰী ছিৰিজ'ৰ নাটকসমূহ প্রকৃততে এক নির্দিষ্ট মাত্রালৈ ৰাজকীয় ক্ষমতাৰ প্রকাশ— যি ক্ষমতা ঠগ-প্রৱঞ্চনা, ভণ্ডামি, লুণ্ঠণ, প্রতাৰণা বা শোষণ আধাৰিত। একে সময়তে এই নাটকবোৰত ফলছ্টাফ্ আদি আন যিকোনো এলিজাবেথৰ যুগৰ উপ-সংস্কৃতিৰ (তথাকথিত উপ-সংস্কৃতি) প্রতিনিধিৰ বেসুৰা আৰু ৰাষ্ট্রদ্রোহী কণ্ঠও নিঃসংকোচে অভিলেখিত হৈছিল। মুঠতে গ্রীনব্লাটে ফঁহিয়াই দেখুৱাইছিল কিদৰে শ্বেইক্সপীয়েৰৰ নাটকত এলিজাবেথৰ যুগৰ ৰাজকীয় ব্যৱস্থা আৰু সেই সমাজৰ তথাকথিত নিম্ন শ্রেণীৰ মানুহৰ জীৱনযাত্রাৰ সুন্দৰ আভাস ফুটি উঠিছিল।

ইতিহাসৰ পৰম্পৰাগত ধাৰণাৰ সৈতে নতুন ইতিহাসবাদীসকলৰ সহজ বিৰোধ এইখিনিতে যে প্রকৃতিতে কি ঘটিছিল সেই সত্য নিখুঁত আৰু নিৰপেক্ষভাৱে জনাটো; তাতোকৈ অধিক সেই কথা, সেই ঘটনাক নিৰপেক্ষ ৰূপত উপস্থাপন কৰাটো সম্ভৱপৰ হয়নে— সেই লৈ নতুনসকল সদায়েই সন্দিহান। হয়তো সেয়ে নতুন ইতিহাসবাদীসকলে বিশ্বাস নকৰে যে যিকোনো সাহিত্যিক পাঠৰ একক বা সহজে চিহ্নিত কৰিব পৰা ঐতিহাসিক পটভূমি থাকে। 'ইতিহাস'— সমগ্র বিষয়টোৱেই তেওঁলোকৰ মানত এক জটিল ধাৰণা, যি ইয়াৰ লগত সামৰি লয় অনেক তুচ্ছ যেন লগা তাৎপর্যপূর্ণ কথাও। এগৰাকী উচ্চ বর্ণহিন্দুৰ বিশ্লেষণত 'অসমৰ মানুহ'ৰ সংজ্ঞা আৰু এজন জনগোষ্ঠীয় নৃতত্ত্ববিদৰ বিশ্লেষণত 'অসমৰ মানুহ'ৰ সংজ্ঞা কি কাৰণে বেলেগ বেলেগ হ'ব পাৰে সেয়া আমাক সুন্দৰকৈ বুজাই দিয়ে নতুন ইতিহাসবাদী চিন্তাই। এজন মানুহ, এজন লেখক তেওঁৰ সময়, সমাজ, সংস্কৃতি আৰু পাৰিপার্শ্বিকতাৰ দ্বাৰা কিদৰে পৰিচালিত বা পৰিশীলিত সেয়া বিশ্লেষণ কৰাত আমাক সহায় কৰে নতুন ইতিহাসবাদে। জ্যোতিপ্রসাদ আগৰৱালাদেৱৰ কাৰেঙৰ লিগিৰী আৰু সুন্দৰ কোঁৱৰৰ চৰিত্রটোক যদি আমি নতুন ইতিহাসবাদী ধাৰণাৰে বিশ্লেষেণ কৰিব খোজোঁ তেন্তে আমি যুকিয়াই চাব

লাগিব জ্যোতিপ্রসাদৰ চিন্তাধাৰা আৰু জীৱন। জ্যোতিপ্রসাদৰ ব্যক্তিগত জীৱন আৰু সুন্দৰ কোঁৱৰ চৰিত্রটোৰ মাজত অনেক সাদৃশ্য আছে। এই সাদৃশ্যৰ কথা ড° হীৰেন গোহাঁইদেৱে তেখেতৰ 'জ্যোতিপ্রসাদৰ চিন্তাধাৰাৰ বিৱর্তন আৰু সাম্প্রতিক চেতনাত জ্যোতিপ্রসাদ' শীর্ষক প্রবন্ধটোত উল্লেখ কৰিছে। গোহাঁইদেৱে জ্যোতিপ্রসাদৰ আত্মীয় এজনৰ পৰা শুনা কথাৰ উদ্ধৃতি দি কৈছে যে যৌৱনত জ্যোতিপ্রসাদে চাহ বাগিচাৰ বনুৱা ছোৱালী এজনীক ভাল পাইছিল আৰু তাইৰ লগত বিভোৰ হৈ ঘূৰি ফুৰিছিল। পিছে বংশমর্যাদাত চেকা লাগে বুলি শংকিত হৈ ঘৰৰ পৰা তেওঁৰ আসক্তিক এনেদৰে দমন কৰিবলৈ ওলোৱাত জ্যোতিপ্রসাদ জাঙুৰ খাই উঠিল। গোহাঁইদেৱৰ কথাৰে— "তেওঁ ছোৱালীজনীক হেনো এটা ঘৰলৈ আনি তাইৰ লগত চৌব্বিশ ঘণ্টা থাকিবলৈ ল'লে। উপায়ন্ত হৈ জ্যোতিপ্রসাদৰ অভিভাৱকসকলে ছোৱালীজনীৰ পিতৃ-মাতৃৰ ওপৰত হেঁচা দিলে আৰু ছোৱালীজনীকো ভাবুকি দিয়ালে। জ্যোতিপ্রসাদে নির্বিকাৰচিত্তে প্রতিৰোধ কৰিবলৈ ধৰিলে সেই সম্মিলিত আক্রমণ। কিন্তু তেওঁৰ ভৱিষ্যৎ এই মিলনে ধ্বংস কৰিব পাৰে বুলি শংকা কৰি বনুৱা ছোৱালীজনী নিজে এদিন কাকো নোকোৱাকৈ ক'ৰবালৈ গুচি গ'ল। জ্যোতিপ্রসাদৰ কাৰণে থৈ গ'ল মাথোঁ ৰাশি ৰাশি ৰঙা ফুল।" কাৰেঙৰ লিগিৰীতো সুন্দৰ কোঁৱৰলৈ শেৱালিয়ে শেষ স্মৃতিচিহ্ন হিচাপে ৰাখি থৈ গৈছিল ৰঙা ফুলৰ থোপা (পৃষ্ঠা ঃ ২০, *বিশ্বায়তন*)। এইখিনি কথা আমাৰ আলোচনাত জ্যোতিপ্রসাদ আৰু সুন্দৰ কোঁৱৰৰ সাদৃশ্যৰ সপক্ষে বেছ সবল যুক্তি।

নতুন ইতিহাসবাদীসকলৰ মূল যুক্তি 'যিকোনো গল্প, কবিতা, উপন্যাস বা নাটকক ইয়াৰ নাট্যকাৰ অথবা নাট্যকাৰজনৰ জীৱন, মতাদর্শ, তেওঁৰ সময় আৰু তেওঁৰ চৌপাশৰ পৰা পৃথক কৰি নহয়, বৰঞ্চ এই সকলোবোৰৰ আধাৰতহে বিশ্লেষণ কৰা সম্ভৱ'— এই কথাৰ সুন্দৰ উদাহৰণস্বৰূপে জ্যোতিপ্রসাদদেৱৰ ব্যক্তিগত জীৱন আৰু তেওঁৰ লিখনীৰ উপৰিউক্ত উল্লেখনীয় ঘটনাৰাজি বিশেষভাৱে খাপ খাই পৰা বুলিব পাৰি।

পুৰণি ইতিহাসবাদীসকল আৰু নতুন ইতিহাসবাদীসকলৰ মাজৰ এটা বিশেষ পার্থক্য ইও যে নতুনসকলৰ পূর্বৰসকলৰ তুলনাত এক ধৰণৰ নিশ্চয়তাৰ অভাৱ। পুৰণিসকলে দৃঢ়তাৰে বিশ্বাস কৰে যে যিকোনো মানৱীয় বিষয় (human subject), যিমানেই বিচিত্র অথবা বিশাল নহওক— শিল্প বা সাহিত্যই তাক প্রতিফলন অথবা প্রকাশ কৰে। এই প্রতিফলন বা প্রকাশ (reflection and expression)ৰ সহজ অর্থটোত নতুন ইতিহাসবাদীসকলে দৃঢ়ভাৱে বিশ্বাস কৰিব নোৱাৰে। এই দৃঢ় বিশ্বাসৰ অভাৱত তেওঁলোক সদায় সন্দিহান, সেয়ে ইতিহাসে কেৱল অতীতক বর্ণনা কৰে বুলি তেওঁলোকে সহজকৈ মানি ল'ব নোৱাৰে। তেওঁলোকে বিশ্বাস কৰে ই অতীত নির্মাণো কৰে।

নতুন ইতিহাসবাদৰ আন এটা তাৎপর্যপূর্ণ কথা এই যে ই বিভিন্ন সাহিত্য-সংস্কৃতিৰ তত্ত্ব অথবা লিখনীৰ পৰা ইয়াৰ বিভিন্ন ধ্যান-ধাৰণা আৰু মতাদর্শ গ্রহণ কৰিছে। সেইফালৰ পৰা ই এনে এক বৈচিত্র্যময়, পাণ্ডিত্যপূর্ণ ধাৰণা, যি সাহিত্যৰ বহুবোৰ তত্ত্ব আৰু আন লেখা কিছুমানৰ সাধাৰণ বৈশিষ্ট্যও সাঙুৰি লয়। গ্রীনব্লাটে তেওঁৰ *Renaissance Self-Fashioning* (১৯৮০) শীর্ষক গ্রন্থখনৰ পাতনিত তেওঁৰ সাহিত্যিক প্রকল্পক কাল্চাৰেল পয়েটিক্ছ (Cultural Poetics) নাম দিছে। গ্রীনব্লাটৰ কাল্চাৰেল্ পয়েটিক্ছে যিকোনো সাহিত্যকর্ম এটিৰ সৃষ্টি বা গঠনত সামাজিক আৰু সাংস্কৃতিক বুজাবুজি, আদান-প্রদান আৰু লেনদেন (negotiation, transaction and exchange)ৰ প্রভাৱ স্বীকাৰ কৰে। এইখিনিতে নতুন ইতিহাসবাদে নৃতত্ত্বৰ সংস্কৃতিৰ ধাৰণাকো সাঙুৰি লোৱা যেন অনুভৱ হয়। নৃতত্ত্ববিদ এডৱার্ড বি টেইলৰৰ সংস্কৃতিৰ সংজ্ঞা হৈছে, "সমাজৰ সদস্য হিচাপে মানুহে যি জ্ঞান, বিশ্বাস, কলা-কৌশল, নীতি-শিক্ষা, আইন-কানুন, নীতি-নিয়ম আদি অভ্যাস আৰু সামর্থ্য আহৰণ কৰে সেই সমস্ত জটিল প্রক্রিয়াটোৱেই হৈছে সভ্যতা বা সংস্কৃতি" (Culture or civilization taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and other capabilities and habits acquired by man as a member of society.) [গ্রীনব্লাট ঃ ১৯৯৫]। যিকোনো সাহিত্যকর্ম অধ্যয়নৰ ক্ষেত্রত গ্রীনব্লাটে নিজেও সংস্কৃতিৰ এই ধাৰণাক গ্রহণ কৰিছে।

যিকোনো পাঠত বিদ্যমান এই সাংস্কৃতিক আৰু ভাবাদর্শগত উপস্থানপনবোৰে প্রকৃততে এখন নির্দিষ্ট সমাজৰ শাসন-শোষণৰ ক্ষমতাশৈলী (power stmucture)ৰ সৃষ্টি, নির্ণয় আৰু প্রসাৰৰ উদ্দেশ্যহে সাধন কৰে। সেয়েহে সাহিত্যিক পাঠৰ এই উপস্থাপনবোৰে বাস্তৱক প্রতিফলন নকৰে, বৰঞ্চ এইবোৰ হৈছে কিছুমান ভাবাদর্শৰ সাকাৰ (concretized) ৰূপ। এটি সাহিত্যকর্ম প্রকৃততে এজন লেখকৰ কল্পনাশক্তিৰ সৃষ্টি হোৱাতকৈ সেই সাহিত্যকর্ম সৃষ্টিৰ সময়ৰ পাৰিপার্শ্বিকতাৰ সৃষ্টি বুলি কোৱাটোহে অধিক যুগুত। নতুন ইতিহাসবাদীসকলে এইক্ষেত্রত এনে কিছুমান অন্তর্নিহিত আদর্শ, মত অথবা সামাজিক-ৰাজনৈতিক প্রভাৱক গুৰুত্ব দিয়ে যি প্রভাৱ সম্বন্ধে লেখকজন সম্পূর্ণ অজ্ঞ।

মার্ক্সবাদী দার্শনিক লুই এলথুজাৰৰ ভাবাদর্শ (ideology)ৰ ধাৰণায়ো নতুন ইতিহাসবাদীসকলৰ চিন্তা-দর্শন আদিৰ ওপৰত ভালেখিনি প্রভাৱ পেলাইছে। এলথুজাৰৰ ভাবাদর্শৰ ধাৰণাই মনোবিশ্লেষণৰ জটিল প্রক্রিয়াকো সাঙুৰি লৈছে। সেই ধাৰণা মতে ভাবাদর্শ উপস্থাপনৰ এক অভিজাত প্রক্রিয়া যি ব্যক্তিক এক সামাজিক বিষয় (social subject) হিচাপে গঢ় দিয়াত সহায় কৰে আৰু ভাবাদর্শৰ দ্বাৰা প্রভাৱিত হৈ এক সামাজিক ব্যক্তি হিচাপে তেওঁ চৌপাশৰ সামাজিকতাৰ এখন সম্যক ছবি অন্তঃগ্রহণ (internalize) কৰে আৰু নিজকে তাত খাপ খুৱাই সজাই তোলে। ভাবাদর্শ (ideology) এনে এক বস্তু যাৰ বাবে ব্যক্তিয়ে সম্পূর্ণ কাল্পনিক ৰূপৰ পৃথিৱী এখন প্রত্যক্ষ কৰে, অথচ ই যে এক কাল্পনিক ৰূপ সেই বিষয়ে ব্যক্তিৰ কোনো ধাৰণা নাথাকে। এটা সহজ, সুন্দৰ উদাহৰণেৰে ভাবাদর্শৰ ধাৰণাটো ব্যাখ্যা কৰিব পাৰি। এটা সভাঘৰত সজাই থোৱা চকীবোৰ দেখি সভাৰ বাবে যোৱা প্রত্যেকজন ব্যক্তি অথবা চিটীবাছত পুৰুষ-মাহিলা আৰু বৃদ্ধৰ বাবে সংৰক্ষিত আসনবোৰ দেখি যাত্রীসকলে কোনেও নোকোৱাকৈ একোখন চকী বা নির্দিষ্ট আসনত বহি লয়। এইক্ষেত্রত খালী চকীকেইখনে বা আসনকেইখনে যেন অদৃশ্য হাতেৰে সভাঘৰত উপস্থিত প্রতিজন থিয় হৈ থকা ব্যক্তিক আমন্ত্রণ জনায়— আহা, মোৰ কোলাত বহি লোৱা। আৰু খালী চকীবোৰৰ এই অদৃশ্য আহ্বান ক'ব নোৱৰাকৈয়ে গ্রহণ কৰে প্রতিজন ব্যক্তিয়ে। ভাবাদর্শ অর্থাৎ আইডিয়'লজীয়ে এনে এক অদৃশ্য ৰূপত এজন ব্যক্তিৰ আচৰণ, ব্যৱহাৰ-পাতি নির্দিষ্ট কৰে। ব্যক্তিয়ে জন্মৰে পৰা দেখি-শুনি অহা ৰীতি-নীতি, বিশ্বাস-

এজন মানুহ, এজন লেখক তেওঁৰ সময়, সমাজ, সংস্কৃতি আৰু পাৰিপাৰ্শ্বিকতাৰ দ্বাৰা কিদৰে পৰিচালিত বা পৰিশীলিত সেয়া বিশ্লেষণ কৰাত আমাক সহায় কৰে নতুন ইতিহাসবাদে। জ্যোতিপ্রসাদ আগৰৱালাদেৱৰ কাৰেঙৰ লিগিৰী আৰু সুন্দৰ কোঁৱৰৰ চৰিত্রটোক যদি আমি নতুন ইতিহাসবাদী ধাৰণাৰে বিশ্লেষেণ কৰিব খোজোঁ তেন্তে আমি যুকিয়াই চাব লাগিব জ্যোতিপ্রসাদৰ চিন্তাধাৰা আৰু জীৱন। জ্যোতিপ্রসাদৰ ব্যক্তিগত জীৱন আৰু সুন্দৰ কোঁৱৰ চৰিত্রটোৰ মাজত অনেক সাদৃশ্য আছে।

অন্ধবিশ্বাস, সমাজ-সংস্কৃতি আদিৰ প্রভাৱ তেওঁৰ চিন্তাধাৰা, কর্মৰাজি অথবা ব্যৱহাৰ আদিত অৱশ্যেই পৰে। সেয়েহে নিজকে এগৰাকী যুক্তিবাদী, সংস্কাৰমুক্ত বুলি দাবী কৰা আধুনিক, শিক্ষিত, অসমীয়া হিন্দু নাৰীৰ বাবেও মাহেকীয়া ঋতুস্রাৱৰ সময়খিনিত গোসাঁইঘৰ বা মন্দিৰত প্রৱেশ কৰাটো ইমান সহজ নহয়। 'মাহেকীয়া চুৰা'ই যে কেৱল অসমীয়া হিন্দু নাৰীকহে অপৱিত্র(?) কৰে সেই বিষয়ে পিছে এইসকল নাৰীৰ অন্তৰত কোনো প্রশ্নৰ উদয় নহয়। এইখিনিতেই অন্তঃকৰণেৰে গ্রহণ কৰা ভাবাদর্শই (internalization of ideology) কাম কৰে। আইডিয়'লজী, অর্থাৎ ভাবাদর্শৰ মেৰপাক এনে জটিল অথচ সংগোপন যে ব্যক্তিয়ে নিজৰ অজ্ঞাতে আঁকোৱালি লয় ভাবাদর্শ আৰু ইয়াৰ সৈতে সম্পৃক্ত অনেক ধাৰণা।

নতুন ইতিহাসবাদীসকল এই ভাবাদর্শৰ পুনৰুদ্ধাৰ (recovery of ideology)ক লৈ অধিক চিন্তিত যিহেতু তেওঁলোকে বিশ্বাস কৰে ভাৱাদর্শৰ সমষ্টিয়েই 'পাঠ'ৰ জন্ম দিয়ে, অর্থাৎ যিকোনো এক পাঠৰ সৃষ্টিত এই ভাবাদর্শৰ প্রভাৱ অনস্বীকার্য। ঠিক সেইদৰে অৱশ্যে পাঠে (text)ও ভাবাদর্শক এক সংস্কৃতিৰ মাজেৰে আগুৱাই নিয়াত সহায় কৰে। পৰম্পৰাগত ইতিহাসবাদীসকলে ভাবাদর্শৰ এই ধৰণৰ সমালোচনাত্মক, তাত্ত্বিক ব্যাখ্যাক সমূলি আওকাণ কৰিছিল।

নতুন ইতিহাসবাদে যি ধৰণে পাঠ আৰু সেই পাঠ সৃষ্টিৰ ৰাজনৈতিক, সামাজিক আৰু অর্থনৈতিক পৰিৱেশৰ মাজত সম্পর্ক স্থাপন কৰে, সেইখিনিতে ই মার্ক্সবাদী চিন্তাৰ কায চাপে। অৱশ্যে মার্ক্সবাদীসকলে সাহিত্যক উপৰিসৌধ, অর্থাৎ অধিৰচনা (super structure)ৰ অংশ বুলি ভাবে, য'ত অর্থনৈতিক ভেটিটোৱেই মূল কথা। কিন্তু নতুন ইতিহাসবাদীসকলে ক্ষমতা (power)ৰ অতি সূক্ষ্ম পার্থক্যগত ব্যাখ্যাৰ পোষকতা কৰে। এইখিনিতে নতুন ইতিহাসবাদ ফুকো (Foucanlt)ৰ ওচৰত ঋণী। ফৰাচী দার্শনিক ফুকোৰ মতে— "কোনো ঐতিহাসিক ঘটনাৰ এটা মাত্র কাৰণ থাকিব নোৱাৰে, বৰঞ্চ প্রত্যেকটো ঘটনা এক বিশাল অর্থনৈতিক, সামাজিক আৰু ৰাজনৈতিক উপাদান কিছুমানেৰে গঠিত।" সেয়ে তেওঁ ইতিহাসবাদীসকলক তেওঁলোকে নিজেও কিদৰে ঐতিহাসিকভাৱে অৱস্থিত (historically situated) এই বিষয়ে সজাগ হ'বলৈ আহ্বান জনাইছে (পৃষ্ঠা ১৯৯৮ ঃ ২৪৩)।

ফুকোৰ বৈশিষ্ট্য এয়ে যে তেওঁ ইতিহাসক ক্ষমতা (power)ৰ গণ্ডীৰে প্রত্যক্ষ কৰিছিল। তেওঁৰ মতে 'ক্ষমতা অর্থাৎ পাৱাৰ' এনে কিছুমান জটিল শক্তিৰ সমাৰোহ, যি ঘটনা-পৰিঘটনাৰ সৃষ্টি কৰে। জুডিথ নিউটনৰ History as Usual? Feminism and New Historicism শীর্ষক প্রবন্ধত ফুকোৰ ক্ষমতা আৰু ইতিহাসৰ ধাৰণা সুন্দৰভাৱে প্রতিফলিত হৈছে —

> There is the notion that 'history' is best told as story of power relations and struggles, a story that is contradictory, heterogeous, fragmanted, the history is a tale of many voices and forms of power exercised by the weak and the marginal as well as the dominant and strong. (পৃষ্ঠা ঃ ১৫২ ঃ ১৯৮৯)

অর্থাৎ ইতিহাস হ'ল এনে এক কাহিনী যি একে সময়তে পৰস্পৰবিৰোধী, অসমসাত্ত্বিক আৰু খণ্ডিত। ই দুর্বল, প্রান্তীয় আৰু একেলগে শক্তিশালী শাসকীয় শ্রেণীৰ দ্বাৰা অনুশীলন কৰা বিভিন্ন কণ্ঠস্বৰ আৰু ক্ষমতাৰ বিভিন্ন ৰূপৰ কাহিনী।

নতুন ইতিহাসবাদে সাংস্কৃতিক নৃতত্ত্ব, নৃতত্ত্ববিদ ক্লিফ'র্ড গিটছ্ আৰু তেওঁৰ থিক্ ডেছ্ক্রিপ্শ্যন্ (thick description)ৰ ধাৰণাৰ পৰাও অনেক চিন্তা আদৰি লৈছে। এই থিক্ ডেছ্ক্রিপ্শ্যন্, অর্থাৎ গভীৰ/ঘনিষ্ঠ বর্ণনা হৈছে যিকোনো এক সামাজিক সৃষ্টিৰ গভীৰ বিশ্লেষণ, যি বিশ্লেষণে সেই সৃষ্টিকর্মৰ সৈতে জড়িত সকলো মানুহ, বিশ্বাস, কলা-কৌশল, ৰীতি-নীতি আদিৰ অর্থ পুনৰুদ্ধাৰ কৰে আৰু পৰস্পৰৰ মাজৰ সম্পর্ক বিচাৰ কৰে। বাহ্যিক দৃষ্টিত উপেক্ষণীয় তুচ্ছ ঘটনা, সংকেত অথবা প্রতীক আদিৰ প্রতিও গভীৰ বিশ্লেষণাত্মক দৃষ্টিয়েই 'থিক্ ডেছ্ক্রিপ্শ্যন্'। গিটছৰ এই থিক্ ডেছ্ক্রিপশ্যন্ৰ প্রভাৱতে নতুন ইতিহাসবাদীসকলে সজোৰে প্রতিপন্ন কৰিব খোজে যে সাহিত্য ইতিহাসৰ পৰা পৃথক নহয়। আৰু যিকোনো এক সৃষ্টিশীল কর্মই ইয়াৰ স্রষ্টা আৰু শ্রোতা-দর্শকৰ পৰা বিচ্ছিন্ন নহয়।

নতুন ইতিহাসবাদে যিহেতু বিভিন্ন সমালোচনা তত্ত্বৰ বেলেগ বেলেগ চিন্তা, দর্শন আদি সামৰি হৈছে, সেয়ে ইয়াৰ ভিন্নজন সমর্থকৰ মত-চিন্তা আদিৰ বিৰোধ থকাই স্বাভাৰিক। তথাপি প্রায় সকলো সমর্থকৰ ৰচনাৰ কিছুমান সাধাৰণ বৈশিষ্ট্য যুকিয়াই ল'ব পাৰি, যিবোৰ নতুন ইতিহাসবাদী চিন্তাৰ গঠনত ব্যৱহৃত প্রায় সকলো চিন্তা-প্রক্রিয়াতে প্রাপ্ত। নতুন ইতিহাসবাদৰ প্রধান কথা এয়ে যে সাহিত্য যিহেতু সামাজিক, অর্থনৈতিক আৰু ৰাজনৈতিক কোনো প্রভাৱৰ পৰা মুক্ত নহয়, সেয়ে ই চিৰযুগমীয়া শৈল্পিক মূল্যৰ দাবীদাৰ নহয়। সেয়ে এক সাহিত্যিক পাঠ সদায় নির্দিষ্ট সময়, পৰিস্থিতি আৰু পৰিৱেশৰ দ্বাৰা নির্দিষ্ট আৰু পৰিচিত। দ্বিতীয়তে, নতুন ইতিহাসবাদে বেলেগ বেলেগ পাঠৰ মাজৰ বিন্যাস আৰু দ্বিভাজন (hierarchies and dichotomies) অস্বীকাৰ কৰে। উচ্চ কলা, ধ্রুপদী কলা-সংস্কৃতি আৰু জনসংস্কৃতি, বিশেষভাৱে গৃহীত আৰু অগৃহীত (Canonical and non-canonical) লেখা, তথ্য আৰু কল্পনাশ্রয়ী কাহিনী— একোৰে মাজত উচ্চ-তুচ্ছ, গভীৰ-তৰল, ভাল-বেয়া আদি বিভাজন নতুন ইতিহাসবাদীসকলে স্বীকাৰ নকৰে। তেওঁলোকৰ মতে

সাহিত্যিক আৰু অনা-সাহিত্যিক পাঠৰ মাজৰ সীমা এক অমূলক কথা।

অলংকাৰ (rhetoric) এই নতুন ধৰণৰ ইতিহাসবাদৰ এটা উল্লেখনীয় বৈশিষ্ট্য। বাগাড়ম্বৰপূর্ণ, অলংকাৰপূর্ণ কৌশল আৰু নীতিৰ প্রতি মনোযোগেৰে বিশাল সাংস্কৃতিক ক্ষেত্রখনৰ পদ্ধতিগত অধ্যয়নত নতুন ইতিহাসবাদে সদায় গুৰুত্ব দিয়ে।

সাংস্কৃতিক বুৰঞ্জী বিশ্লেষণ আৰু ব্যাখ্যাৰ বাবে কিছুমান বিমূর্ত ধাৰণাতকৈ ক্ষমতাৰ পাৰস্পৰিক সম্পর্ক (power-relationship)হে প্রাথমিক কথা বুলি নতুন ইতিহাসবাদীসকলে বিশ্বাস কৰে। ইয়েই অন্য কিছুমান বিষয়ো ইয়াৰ পৰিসৰত সামৰি লোৱাৰ ইংগিত দিয়ে। পিতৃতান্ত্রিক কর্তৃত্ব আৰু ইয়াৰ ন্যায্যতা-বৈধতা, আধুনিক জাতীয় ৰাষ্ট্র গঠনত সংস্কৃতিৰ ভূমিকা আদি বিষয়ো এই নতুন চিন্তাই সামৰি লয়।

মার্ক্সবাদী দার্শনিক ৰেইমণ্ড উইলিয়াম আৰু তেওঁৰ 'সাংস্কৃতিক বস্তুবাদ'ৰ ধাৰণায়ো নতুন ইতিহাসবাদী চিন্তাৰ ক্ষেত্রত এক গুৰুত্বপূর্ণ প্রভাৱ বিস্তাৰ কৰিছে। 'সাংস্কৃতিক বস্তুবাদ'ৰ সংস্কৃতিৰ ধাৰণা কেৱল তথাকথিত 'উচ্চ সংস্কৃতি'ৰ (high culture) মাজতে আৱদ্ধ নহয়। সংস্কৃতি বুলিলে ই সাঙুৰি লয় দূৰদর্শন, জনপ্রিয় সংগীত আদি মানুহৰ চিন্তা, কর্ম আৰু অৱসৰ বিনোদনৰ সৈতে জড়িত সকলোবোৰ কথা। বাস্তৱ পৃথিৱীখনত জীয়াই থাকোঁতে, ইয়াৰ বিভিন্ন ঘটনা-পৰিঘটনাৰ প্রতিক্রিয়াস্বৰূপে যিবোৰ মূল্যবোধৰ জন্ম হয় আৰু যি সততে পৰিৱর্তনশীলো সেয়াই সহজ অর্থত সাংস্কৃতিক বস্তুবাদ। ই এনে এক বিশ্লেষণাত্মক দৃষ্টিভংগীৰ পোষকতা কৰে যি সংস্কৃতিক কিছুমান পৃথক কলাসম্মত কীর্তিস্তম্ভৰ সমষ্টি বোলাতকৈ ঐতিহাসিকভাৱে অৱস্থিত চিন্তা-ধাৰণা, সামাজিক সম্পর্ক, ক্ষমতাৰ প্রভাৱ আদিৰ বস্তুগত ৰূপান্তৰ বুলিলে ক'ব খোজে। সাংস্কৃতিক বস্তুবাদে এটা পাঠৰ ঐতিহাসিক প্রসংগ আৰু ইয়াৰ ৰাজনৈতিক আভাস উদ্‌ঘাটন কৰে আৰু ইয়াৰ নিকট, গভীৰ পাঠগত বিশ্লেষণৰ দ্বাৰা নিয়ন্ত্রিত আধিপত্যমূলক অৱস্থানো লক্ষ্য কৰে।

সাহিত্যতত্ত্ব আৰু দর্শনৰ অনেক ধাৰণাক নতুন ইতিহাসবাদে আঁকোৱালি লোৱাৰ লগে লগে অৱশ্যে এই কথাও কোৱা উচিত যে বহুতো সাহিত্যিক আৰু সমালোচনা তত্ত্বও এই নতুন চিন্তাৰ দ্বাৰা বাৰুকৈয়ে প্রভাৱিত হৈছে। ভাবাদর্শগত আৰু সাংস্কৃতিক নির্মাণত পুৰুষসুলভ ক্ষমতা গঠনৰ ভূমিকাৰ ওপৰত জোৰ দি বহু নাৰীবাদী সমালোচকে এই নতুন ইতিহাসবাদী ধাৰণাক নিজৰ চিন্তাধাৰাৰ সৈতে মিলাই ল'ব খুজিছে।

সেই দিশৰ পৰা নতুন ইতিহাসবাদী চিন্তা সাহিত্য আৰু সমালোচনা তত্ত্বৰ ক্ষেত্রখনত বেছ প্রভাৱশালী আৰু গুৰুত্বপূর্ণ বিষয়। এফালে ই যেনেকৈ বিভিন্ন ন-পুৰণি সমালোচনা পদ্ধতি আৰু তত্ত্বৰ বহু মতাদর্শ বা বৈশিষ্ট্য সাঙুৰি লৈছে, আনফালে এই চিন্তাৰ দ্বাৰাও বহু আধুনিক তত্ত্ব প্রভাৱান্বিত হৈছে। হয়তো সেইবাবেই নতুন ইতিহাসবাদী চিন্তা বর্তমানেও পৰিত্যক্ত হোৱা নাই অথবা এই চিন্তাৰ মতাদর্শ অতীত হৈ যোৱা নাই। যিকোনো সৃষ্টিৰ নিৰপেক্ষ আৰু সফল মূল্যায়নৰ বাবে নতুন ইতিহাসবাদৰ প্রাসংগিকতা সদায়েই থাকিব।■

প্রসংগ পুথি ঃ

(১) গোহাঁই, হীৰেন ঃ *উত্তৰণৰ সাধনা* ঃ লয়ার্ছ বুক ষ্টল, ১৯৯৩

(২) গোহাঁই, হীৰেন ঃ *The New Millennium Pronouncing Anglo- Assamese Dictionary*, Banalata, 2002

(৩) বৰমুদৈ, আনন্দ ঃ *সাহিত্যত মতবাদ*। আদৰণী সমিতি, অসম সাহিত্য সভা, ডিব্রুগড়, ২০০১

(৪) Abrams, M. H. *A Glossary of Literary Terms*. Bangal Prism Books, 1993

(৫) Althusser, Louis. 'Ideology and the State'. in *Modern Literary Theory : A Reader* (ed) Philip Rice and Pattricia Waugh (trans) B, Brewster. London : Edward Arnold. 1992 (PP.54-62)

(৬) Barry, Peter. *Beginning Theory: An Introduction to Literary and Cultural Theory*. Manchester Manchester University Press, 2002

(৭) Blamires, Harry. *A History of Literary Criticism* . New Delhi : Macmillan India Ltd, 2000

(৮) Eagleten, Terry. *Literary Theory : An Introduction*, New Delhi : Maya Publishers, 2000

(৯) Eagleten, Terry. *Marxism and Literary Critieism*, London : Routledge Classies, 2002

(১০) Foucault, M. *Power/ Knowledge*(ed). Colin Gordon (trans) Colin Gordon, Leo. Rarshall, John Nepham, Kate Soper, Hervester : Hervester Press, 1980

(১১) Foucault, M. *Politics, Philosophy and Culture* (Trans) Alan Sheridan et al, London : Routledge, 1990

(১২) Geertz, Clifford. *The Interpretation of Culture : Selected Essays* , New York, Basic Books, 1973

(১৩) Greenblatt, Stephen. *Renaissance Self-Fashioning*, Chicago : Chicago University Press, 1980

(১৪) Greenblatt, Stephen. 'Culture' in *Critical Terms for Literary Study* (ed) Frank Lentricchia and Thomas MCD aughlia. Chicago : University of Chicago Press, 1995. (PP 225-232)

(১৫) Montrose, Louis A. 'Professing the Renaissance : The Poetic and Politics of Culture' in *The New Historicism* (ed) Aram H. Veesor, London : Routledge, 1989. PP 15-36

(১৬) Murfin, R and Supriya M. Ray. *The Bedford Glossary of Crifieal and Literary Terms* Boston : Bedford Books, 1998

(১৭) Newton, Judith L. 'History as Usual? Ferninism and the New Historicism' in *The New Historicist* (ed) Aram H. Vceser, London : Routledge, 1989. (PP 152-167)

(১৮) Panja, Sharmistha (ed). *Critical Theory : Textual Application*, Delhi : Worldview, 2002

(১৯) Ryan, Michael. *Literary Theory : A Practical Introduction*, Oxford : Blackwell Publications, 2002.

(২০) Veeser, Aram H. (ed). *The New Historicism*, London : Routledge, 1989

সংকটকালীন সাহিত্য আৰু অধ্যয়নৰ প্ৰাসংগিকতা

জুৰি দত্ত
দেবৰ্ষি নাথ

সাহিত্যৰ সংজ্ঞা নিৰূপণ আৰু প্ৰাসংগিকতাৰ প্ৰশ্ন অতীত কালৰ সমালোচক-দাৰ্শনিকসকলৰ মনত এক আলোচনাযোগ্য গুৰুত্বপূৰ্ণ বিষয় আছিল। প্ৰাচীন কালৰ গ্ৰীক দাৰ্শনিক প্লেটো আৰু এৰিষ্টটলৰ দিনৰে পৰা সাহিত্য সৃষ্টি, সাহিত্য পঠন, চৰ্চা আৰু সাহিত্য আলোচনাৰ প্ৰাসংগিকতাৰ বিষয়ে পৃথিৱীৰ বহু বিখ্যাত চিন্তাবিদ-লেখকে অনেক কথা কৈ আহিছে। কিন্তু আধুনিক জীৱনত সাহিত্য সৃষ্টি, সাহিত্য চৰ্চা আৰু সাহিত্য অধ্যয়নৰ ভূমিকা সম্পৰ্কে সৰ্বসাধাৰণ গৱেষক-চিন্তাবিদ আৰু দাৰ্শনিকসকলৰ ধাৰণা কি— এই বিষয়ে সম্প্ৰতি বৰ বিশেষ আলোচনা হোৱা চকুত পৰা নাই। সৰ্বসাধাৰণৰ বিশ্বাস যে জীৱনৰ নিশ্চয়তা আৰু আশাবাদৰ সন্ধান দিয়াত বিজ্ঞান আৰু বিজ্ঞানৰ নিত্য-নতুন আৱিষ্কাৰসমূহৰ এক গুৰুত্বপূৰ্ণ অৱদান আছে। প্ৰচলিত বাগ্‌ধাৰাত বাহ্যিক আৰু বস্তুগত লাভালাভৰ দিশৰ পৰা বিশ্লেষণ কৰিলে কেৱল বৈজ্ঞানিক আৱিষ্কাৰসমূহে নতুন পৃথিৱীৰ কাৰণে গুৰুত্বপূৰ্ণ।

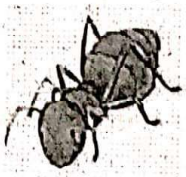
ওঠৰশ শতিকাৰ ঔদ্যোগিক পুঁজিবাদৰ উত্তৰণৰ লগে লগে এনেধৰণৰ বস্তুবাদী চিন্তাচৰ্চাৰ প্ৰকাশ সঘনে দেখিবলৈ আৰু শুনিবলৈ পোৱা গৈছিল। এনেধৰণৰ মানসিকতাৰ জন্ম ঔদ্যোগিক পুঁজিবাদৰ ফল, যি প্ৰতিটো কথাই বস্তুবাদী লাভালাভ আৰু উপযোগিতামূলক দিশৰ পৰাই জুখিব বিচাৰে। সেয়ে বাস্তৱবাদীসকলে যুক্তি দিয়ে— 'এজন উৎপাদনশীল ব্যক্তি হ'বলৈ, গোলকীয় অৰ্থনীতিত প্ৰতিযোগিতা কৰিবলৈ কাকো সাহিত্য নালাগে। আচলতে সাহিত্যৰ ন্যূনতম জ্ঞান নোহোৱাকৈ অৰ্থনৈতিক বজাৰত কোনো ব্যক্তি বৰ সফল হ'ব পাৰে— তেনেকুৱা বাস্তৱ উদাহৰণ অলেখ। ভৱিষ্যতৰ কাৰণে গুৰুত্বপূৰ্ণ পঠনযোগ্য বিষয় হৈছে তথ্য আৰু মূল পঠনশৈলী হৈছে তথ্য সংগ্ৰহ আৰু তথ্য আদান-প্ৰদান প্ৰক্ৰিয়া। সাহিত্য হৈছে অপেৰাধৰ্মী কলা (opera-an ancane), জীৱনৰ মচলা আৰু একধৰণৰ বাখৰুৱা প্ৰলেপ। কিন্তু ই জীৱনৰ মূল বা প্ৰধান অংশ নহয়। সেয়ে সাহিত্য যিহেতু অপৰিহাৰ্য নহয়েই, ই পাঠ্যক্ৰমৰ এটা প্ৰধান অংগ বা অংশ হোৱাৰ কোনো যুক্তি

সাতসৰী
ষোড়শ বছৰ, তৃতীয় সংখ্যা • অক্টোবৰ, ২০২০

SATSARI
Vol. No.: 16, Issue No. 03 • October, 2020 • Pages : 128
Reg. No. : ASSASS/2011/35776
ISSN: 2319-8893 • Rs.30.00

বিশেষ লেখা
ড° নিৰোদ কুমাৰ ৰৰুৱা • কাণ্টীয় দৰ্শনৰ দৃষ্টিৰে গোপীনাথ ৰৰদলৈৰ ৰাজনৈতিক চিন্তা • ৩০
সৌম্যদ্বীপ দত্ত • অসমৰ বৰ্ষাৰণ্য সংৰক্ষণ আন্দোলন আৰু শেহতীয়া বিতৰ্ক • ৩৫

প্ৰবন্ধ
ড° পুলক সভাপণ্ডিত • কৃত্ৰিম বুদ্ধিমত্তাই সলনি কৰিব শিক্ষাৰ দিগন্ত • ৪২
ড° সংগীতা শইকীয়া • অসমীয়া ভাষাই ধ্ৰুপদী মৰ্যাদা লাভৰ সম্ভাৱনীয়তা • ৪৫
ড° মৃদুল শৰ্মা • গল্পকথনৰ কলা আৰু তপন দাসৰ গল্প • ৫০
কমল শইকীয়া • নিৰ্মাণ-কুশলতা, বাস্তৱ আৰু বিভ্ৰমৰ আখ্যান • ৫৬
নিবন্ধ
ড° নমিতা ডেকা • যতীন্দ্ৰকুমাৰ ৰৰগোহাঞিৰ উপন্যাস • ৬১
জ্যোতিষ্মান দাস • জাতিৰ ঘাইঘৰৰ ভেটি গঢ়োঁতা শিক্ষক-সাহিত্যিক পদ্মনাথ • ৬৭
ড° কৰবী মহন্ত • অসমৰ থলুৱা লোকবাদ্য : অতীত আৰু বৰ্তমান • ৭০
মধুস্মিতা গগৈ • উজনি অসমৰ নাৰীভাষা • ৭৩



কবিতা
ৰাজীৱ ৰৰুৱা, ৰাজীৱ ৰৱা • ২৩
শ্ৱৰীফা খাতুন চৌধুৰী • ২৪
দেৱৰাজ মিলি, মনালিছা শইকীয়া • ২৫
কিশোৰ মনজিৎ ৰৱা • ২৬
বিভাৰাণী তালুকদাৰ, অমৰ মৰাং • ২৭
নিবেদন দাস পাটোৱাৰী, সিদ্ধাৰ্থ শংকৰ কলিতা • ২৮
অংকুৰ ৰঞ্জন ফুকন, মেঘালী হাজৰিকা কাকতি • ২৯

গল্প
অপূৰ্ব কুমাৰ শইকীয়া • মই তেজাবাই • ৭৭
আব্দুচ ছামাদ • দাপোণ দৰ্শন • ৮৩
অজন্তা • শামুক • ৮৬

ধাৰাবাহিক উপন্যাস
ড° ধ্ৰুৱজ্যোতি ৰৱা • কৃষক-বিদ্ৰোহী-সৈনিক-ৰাজন • ৯১
য়েছে দৰজে ঠংচি • ঢোলৰ ছেৱত লামছিৱা • ৯৭
গী দ মোপাছাঁৰ বেল-আমি, অনুবাদ : মীনাক্ষি বুঢ়াগোহাঁই • ১০১

Scanned by CamScanner

জাতিৰ ঘাইঘৰৰ ভেটি গঢ়োঁতা শিক্ষক-সাহিত্যিক পদ্মনাথ

জ্যোতিষ্মান দাস

সাহিত্যিক পদ্মনাথ গোহাঞিবৰুৱাৰ গুৰুত্ব আৰু অৱদান অসমীয়া সাহিত্যত যিদৰে সদায় অক্ষয়-অম্লান হৈ থাকিব, একেদৰে অসমৰ শৈক্ষিক ইতিহাসতো শিক্ষক গোহাঞিবৰুৱাৰ গুৰুত্ব আৰু অৱদান স্মৰণীয় হৈ থাকিব। বৃত্তিত এগৰাকী শিক্ষক পদ্মনাথ গোহাঞিবৰুৱাই সমান্তৰালভাৱে এগৰাকী শক্তিশালী সাহিত্যিক, সমাজ সংগঠক, ৰাজনীতিক হিচাপেও অসমৰ সমাজ-জীৱনক সমৃদ্ধ কৰি থৈ গৈছে। সাহিত্যিক হিচাপে পদ্মনাথ গোহাঞিবৰুৱাৰ বিপুল প্ৰসিদ্ধি আৰু খ্যাতিৰ সন্মুখত তেখেতৰ অন্যান্য পৰিচয়সমূহ নিষ্প্ৰভ হৈ পৰে যদিও তেখেত নিজৰ শিক্ষকতা বৃত্তিৰ প্ৰতি সদায় দায়িত্বশীল আছিল যদিও তেখেতৰ সামাজিক পৰিচয় পৃথক আছিল, তথাপি নিজৰ বৃত্তিগত পৰিচয়ৰ প্ৰতি তেখেত সদায় সজাগ আৰু সচেতন আছিল। সেইবাবেই সাহিত্যিক পদ্মনাথ গোহাঞিবৰুৱাৰ মাজত এগৰাকী শক্তিশালী শিক্ষক-শিক্ষাবিদকো আমি আৱিষ্কাৰ কৰোঁ। নিজৰ বৃত্তিগত কৰ্তব্যৰ প্ৰতি অন্যায় নকৰি অসমৰ সাহিত্য, সমাজ আৰু সংস্কৃতিক সমৃদ্ধ কৰি থৈ যোৱা গোহাঞিবৰুৱাক সেয়েহে এগৰাকী আদৰ্শ শিক্ষক বুলি বিনাদ্বিধাই অভিহিত কৰিব পাৰি আৰু সাহিত্য-কাণ্ডাৰী গোহাঞিবৰুৱাৰ ব্যক্তিত্বৰ এই দিশটো নিঃসন্দেহে অনুকৰণীয় আৰু লক্ষ্যণীয়। 'শিক্ষাবিদ গোহাঞিবৰুৱা' শীৰ্ষক এটা নিবন্ধত সেয়েহে বিনন্দ্রচন্দ্র বৰুৱাই লিখিছে— "তেওঁৰ সকলোবিলাক গুণ সাহিত্যিকৰ বহল ঢাকণিখনে ঢাকি থোৱাৰ কাৰণে, আমি সাধাৰণতে সেইবিলাক পৃথকভাবে চাবলৈ নিবিচাৰোঁ বা সেইবিলাক আমাৰ চকুত সহজে নপৰে। এটা জাতিৰ সৰ্বপ্ৰকাৰ উন্নতিৰ প্ৰধান সম্বল শিক্ষা। শিক্ষাৰ জখলাৰে বগাই নগ'লে জাতীয় উন্নতিৰ ওখ খাপত আৰোহণ কৰা সম্ভৱপৰ নহয়। (চন্দ্রপ্রসাদ শইকীয়া সম্পাদিত *পদ্মনাথ গোহাঞিবৰুৱা*, পৃঃ ৯৩) জাতিৰএই ঘাইঘৰৰ ভেটি সংস্থাপন কৰাত 'কবি মাষ্টৰ'

Scanned by CamScanner

ISSN 2349-5324

ব্যাধিৰ
পৰিধি

গৰীয়সী

সপ্তবিংশ বছৰ ● একাদশ সংখ্যা ● ছেপ্টেম্বৰ, ২০২০

অসমীয়া চলচ্চিত্ৰ সাহিত্য

একবিংশ শতিকাৰ অসমীয়া কবিতা

একবিংশ শতিকাৰ অসমীয়া সমালোচনা সাহিত্যৰ ধাৰা

সেউজী অধ্যয়নৰ আলোকত সাম্প্রতিক অসমীয়া নাটক

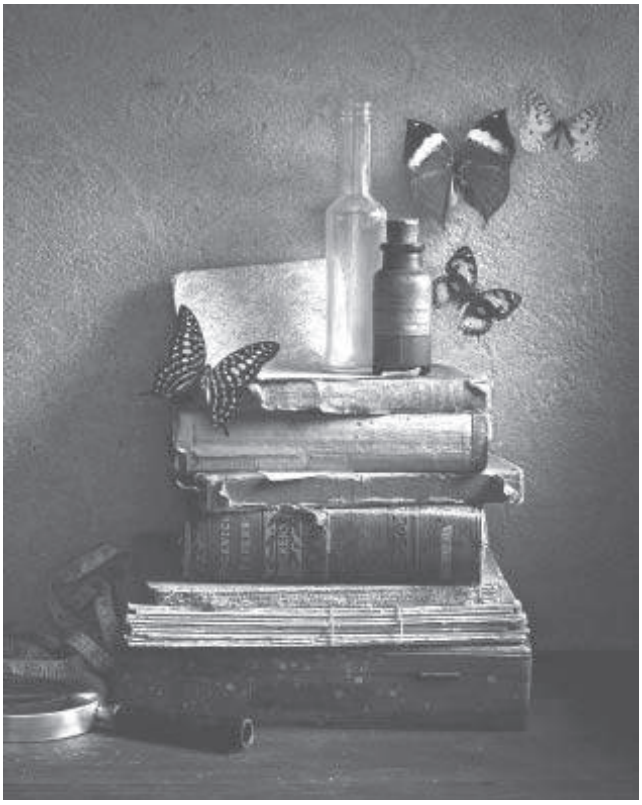
ড° সুব্রতজ্যোতি নেওগ

"Ecodrama encompasses not only works that take environmental issuess as their topic, hoping to raise consciousness or press for change, but also work that explores the beingness of the natural world in such a way that when we leave the theatre, things around us are more alive, we listen better, and we have a deeper sense of our own ecological identity."

Theresa J. May, 'Greening the theatre : Taking Ecocriticism from page to stage.' (95)

সম্প্রতি 'সেউজী অধ্যয়ন' (Green Studies) সাৰস্বত পৰিমণ্ডলত বহুলভাৱে চর্চিত এটি বিষয়। 'সেউজী অধ্যয়ন'ৰ মূল উদ্দেশ্যসমূহ হৈছে প্রকৃতিৰ প্রতি মানুহক সচেতন আৰু দায়বদ্ধ কৰি তোলা; মানুহ আৰু ভৌতিক পৰিৱেশৰ মাজৰ সম্পর্কৰ বিচাৰ-বিশ্লেষণত গুৰুত্ব আৰোপ কৰা; প্রকৃতি ৰক্ষাৰ বাবে মানুহক উৎসাহিত কৰা; মানুহৰ লগতে সমস্ত জীৱকুল, হাবি-বনানি, নদ-নদী আদি সকলোৰে যে গুৰুত্ব আৰু অধিকাৰ এই পৃথিৱীত সমান তাৰ নৈতিক উপলব্ধি প্রদান কৰা; বন্য বা বনৰীয়া (wilderness)ৰ ধাৰণা কেনেকৈ সময়ৰ লগে লগে পৰিৱর্তন হৈছে তাক পর্যবেক্ষণ কৰা আৰু পৰিৱেশকেন্দ্রিক সমস্যা সমাধানৰ পথ নির্মাণ কৰা। 'সেউজী অধ্যয়ন'ক বহুতো সমালোচকে 'পৰিস্থিতিতান্ত্রিক সমালোচনা' (Ecocriticism) বুলি কয়। লৰেন্স কুপকে মুখ্য

নতুন ইতিহাসবাদ আৰু ইয়াৰ প্ৰাসংগিকতা



জুৰি দত্ত

সাহিত্যৰ সমালোচনা আৰু সাহিত্যতত্ত্ব— দুয়োটাই সাম্প্ৰতিক সময়ৰ গুৰুত্বপূৰ্ণ বিষয়। গ্ৰীক দাৰ্শনিক পণ্ডিত এৰিষ্টটল, প্লেটোৰ যুগৰ পৰাই অতিসাম্প্ৰতিক যুগৰ উত্তৰ-ঔপনিৰেশিকতাবাদী সমালোচনালৈকে যুগে যুগে সাহিত্য, দৰ্শন, জীৱন আৰু জগত সম্পৰ্কীয় চিন্তাৰ বিভিন্ন ধৰণৰ বিশ্লেষণ হৈ আহিছে। এই ধৰণৰ বিশ্লেষণক ভেটি কৰিয়েই গঢ়ি উঠিছে বিভিন্ন তত্ত্ব আৰু পদ্ধতি। এনে ধৰণৰ সমালোচনা তত্ত্ব আৰু মতবাদবোৰৰ বিষয়ে এটা অতি তাৎপৰ্যপূৰ্ণ কথা ক'ব পাৰি যে একোটা সময়ত সৰ্বাধিক গ্ৰহণযোগ্য আৰু সত্য বুলি গৃহীত একোটা চিন্তাধাৰা বা মতাদৰ্শক ইয়াৰ পাছৰ সময়খিনিত অসত্য আৰু অগ্ৰহণীয় ৰূপতো ব্যাখ্যা কৰা হয়। সমালোচনা সাহিত্যৰ পিতৃপুৰুষ গ্ৰীক দাৰ্শনিক প্লেটো আৰু তেওঁৰ 'কাল্পনিক ৰাষ্ট্ৰ'ৰ ধাৰণাত কবি আৰু কবিতাৰ স্থান নাছিল। প্লেটোৱে বিশ্বাস কৰিছিল যে কবিতা মিথ্যা আৰু সৰল চিন্তাধাৰাৰ পৰিচায়ক— যি মানৱ জাতিৰ বাবে অনিষ্টকাৰক। আনহাতে প্লেটোৰ শিষ্য-দাৰ্শনিক, পণ্ডিত এৰিষ্টটলৰ মতে কবিতা বা যিকোনো কাল্পনিক সাহিত্যই হৈছে সুগভীৰ চিন্তাৰ পৰিচায়ক এক প্ৰয়োজনীয় সত্য। সমালোচনা তত্ত্বৰ আৰম্ভণিৰে পৰা এইদৰে একো একোটা ধাৰণা বা মতবাদৰ বিৰোধ, বিশ্লেষণ আৰু পৰিশোধন হৈ আহিছে। উল্লেখযোগ্য কথা এয়ে যে এটা নিৰ্দিষ্ট সময়ত এটা মতাদৰ্শই যেতিয়া ব্যাপ্তি আৰু প্ৰচাৰৰ তুংগত উঠে, তেতিয়াই জন্ম হয় ঠিক তাৰ বিপৰীতমুখী ধ্যান-ধাৰণাৰে আন এক মতাদৰ্শ। সাহিত্য সমালোচনা আৰু তত্ত্বৰ ক্ষেত্ৰখনত সততে দেখিবলৈ পোৱা যায় এনে ধৰণৰ সম্পূৰ্ণ বিপৰীতমুখী মতাদৰ্শৰ উত্থান।

কুৰি শতিকাৰ চল্লিছৰ পৰা ষাঠিৰ দশকত সমালোচনাতত্ত্বৰ পথাৰত বিশেষ ঠাই অধিকাৰ কৰিছিল নতুন সমালোচনাই (New Criticism)। নতুন সমালোচনাৰ মূল কথা হ'ল ই সাহিত্যৰ সামাজিক প্ৰসংগ আৰু সাহিত্যিকৰ জীৱনক সাহিত্যকৰ্মৰ বিশ্লেষণত সম্পূৰ্ণৰূপে অৱজ্ঞা কৰে। একোটা পাঠ অৰ্থাৎ একো একোটা কবিতা, গল্প, এখন উপন্যাস, নাটক বা যিকোনো সাহিত্যকৰ্ম নিজেই সম্পূৰ্ণ আৰু সেয়ে ইয়াৰ বিশ্লেষণৰ বাবে সামাজিক পৰিৱেশ, সাহিত্য সৃষ্টিৰ সময়, সাহিত্যিকৰ জীৱন আৰু দৰ্শন বা আন যিকোনো বাহ্যিক প্ৰভাৱৰ ভূমিকা তাৎপৰ্যহীন। নতুন সমালোচনাই গুৰুত্ব দিয়ে মূল সাহিত্যকৰ্মক। সেয়ে ইয়াৰ মূল নীতি মূলতে শাব্দিক। শব্দ, চিত্ৰকল্প,

প্রতীক, ৰূপক আদিৰ সূক্ষ্ম বিশ্লেষণেৰে নতুন সমালোচনাই সাহিত্যকৰ্ম অধ্যয়ন কৰে।

নতুন সমালোচনাৰ 'সাহিত্যকৰ্মৰ স্বয়ংসম্পূৰ্ণতা'ৰ ধাৰণাক সম্পূৰ্ণৰূপে মষিমূৰ কৰি ইয়াৰ ঠিক পিছৰ সময়ছোৱাত জন্ম হৈছিল 'নতুন ইতিহাসবাদী' ধাৰণাৰ। নতুন ইতিহাসবাদী ধাৰণাই একোটা সময়ৰ সৃষ্টি, সাহিত্য আৰু সেই সময়ৰ সংস্কৃতিৰ মাজত এক ওতপ্ৰোত সম্পৰ্ক প্ৰত্যক্ষ কৰে। একোটা পাঠ (Text)ক অৰ্থাৎ একো একোটা সাহিত্যকৰ্মক স্বয়ংসম্পূৰ্ণৰূপে অকলশৰীয়াকৈ আলোচনা কৰাৰ বিপৰীতে ই সেই পাঠৰ উৎপাদন অৰ্থাৎ সৃষ্টিক প্ৰভাৱিত কৰা ঐতিহাসিক আৰু সাংস্কৃতিক অৱস্থা/চৰ্ত (condition)বোৰৰ পাঠৰ আলোচনাৰ ক্ষেত্ৰত অতি গুৰুত্বপূৰ্ণ বুলি বিবেচনা কৰে।

নতুন ইতিহাসবাদৰ ভেটিটো গঢ় লৈ উঠিছে ইতিহাসৰ এক নতুন মূল্যায়নৰ ধাৰণাত। এই ধাৰণা মতে ইতিহাস কোনো সুনিৰ্দিষ্ট নিৰপেক্ষ ঘটনা বা ঘটনাক্ৰমৰ বিন্যাস নহয়। ইয়াৰ বিপৰীতে যি সাহিত্যকৰ্মৰ সৈতে ইতিহাসৰ আন্তঃক্ৰিয়া (inter-action) চলি থাকে, সেই সাহিত্যকৰ্মৰ দৰে ইতিহাসে বিশ্লেষণযোগ্য। ইতিহাস ব্যাখ্যাৰ অতীত নহয়। সাহিত্যিক অথবা ঐতিহাসিক যিকোনো পাঠেই এনে এক বাক্‌স্ৰোত (discourse) যি আপাততঃ বাহ্যিক সত্য (external reality) প্ৰতিফলন কৰা যেন লাগিলেও মূলতঃ প্ৰতিটো পাঠেই কিছুমান উপস্থাপনৰ সমষ্টি মাথোঁ। অৰ্থাৎ এইবোৰ হৈছে একোটা নিৰ্দিষ্ট সময়ৰ সাংস্কৃতিক নিৰ্মাণ নতুন ভাবাদৰ্শগত উৎপাদকৰ বাচিক গঠন।

> A text whether literary on historical, is a discourse which, although it may seem to present, or reflect an external reality, in fact consists of what are called 'representations'- that is verbal formulations which are the ideological products' on 'cultural constructs' of a particular era. (১৯৯৩ঃ২৪৯)

পাঠে কেৱল সামাজিক বাস্তৱতাক প্ৰতিফলন নকৰে, বৰঞ্চ ই সেই বাস্তৱতাৰ সৃষ্টিও কৰে।

সমালোচক-পণ্ডিত হীৰেন গোহাঁইদেৱে তেখেতৰ 'নতুন সমালোচনাৰ যৱনিকা' শীৰ্ষক প্ৰবন্ধটোত উল্লেখ কৰা এযাৰ বাক্যই নতুন ইতিহাসবাদী চিন্তাৰ ক্ষেত্ৰত এক স্পষ্ট খোজৰ ইংগিত বহন কৰে। তেখেতে কৈছে—

> পাঠকৰ মানসিক গঠনৰ সাঁচ তৈয়াৰ হয় ইতিহাসৰ গতিত। ইতিহাসে একোটা পাঠৰ ৰূপ নিৰ্ধাৰণত প্ৰভাৱ পেলায়। একোটা কবিতাৰ অৰ্থ সৃষ্টি হ'বৰ সময়তো ইতিহাসৰ প্ৰভাৱ থাকে। সেইবোৰ সমূলি বাদ দিও কবিতাটো পঢ়িব পাৰি হয়তো। কিন্তু তেতিয়া কবিতাটো এক বিমূৰ্ত শব্দঝংকাৰ বা শব্দৰ এক বিচিত্ৰ লীলাতে আবদ্ধ হৈ যায়। পাঠকে কবিতাত তাতে সন্তুষ্ট নহয়, তেওঁ বিচাৰে জীৱনবোধৰ প্ৰকাশ। আৰু জীৱনবোধ লেখকৰ হওক, পাঠকৰ হওক— ইতিহাসৰ ঊৰ্ধ্বত নহয়। (১৯৯৩ ঃ ৭৮-৭৯)

নতুন ইতিহাসবাদী ধাৰণাত বিশ্বাসী দাৰ্শনিকসকলে নতুন সমালোচনাৰ ৰূপকল্পবাদ, ইয়াৰ সৈতে জড়িত সাহিত্যৰ, কাব্যৰ স্বয়ংসম্পূৰ্ণতা আৰু সকলো সাহিত্যই কেৱল শব্দ, চিত্ৰকল্প, প্ৰতীক বুলি বিবেচনা কৰা ধাৰণাৰ বিৰোধিতা কৰে। নতুন সমালোচনাৰ ধাৰণাত এক শক্তিশালী অনৈতিহাসিক পক্ষপাতিত্ব অনুভূত হয়। নতুন সমালোচনাৰ সমৰ্থকসকলে পাঠৰ ঐতিহাসিক প্ৰসংগক আওকাণ কৰাৰ বিপৰীতে নতুন ইতিহাসবাদীসকলে সাহিত্যিক পাঠৰ গুৰুত্ব উপলব্ধি কৰিও প্ৰতিটো পাঠক ইতিহাসৰ দৃষ্টিৰে ব্যাখ্যা কৰি চায়।

নতুন ইতিহাসবাদৰ মূল চিন্তাচৰ্চাই কেইটামান উল্লেখযোগ্য কথা সামৰি লৈছে। প্ৰথমতেই, এই চিন্তাত বিশ্বাসীসকলে মত পোষণ কৰে যে একো একোটা সাহিত্যিক পাঠধৰ্মীয়, দাৰ্শনিক, ন্যায়িক, বৈজ্ঞানিক আদি বিভিন্ন বেলেগ বেলেগ পাঠৰ মাজৰ এক পাঠহে মাথোন আৰু এই সকলোবোৰ পাঠেই ইয়াৰ সৃষ্টিৰ সময়, পৰিস্থিতি আৰু নিৰ্দিষ্ট অৱস্থাৰ ওপৰত নিৰ্ভৰশীল।

সেয়ে নান্দনিকভাৱে স্বয়ংসম্পূৰ্ণ পাঠৰ গোটেই ধাৰণাটোৱেই হৈছে এক পুৰাকথা (myth)। তৃতীয়তে, বুৰঞ্জী বা ইতিহাস কোনো সমসাত্ত্বিক, সুস্থিৰ তথ্য আৰু ঘটনাৰ চানেকি নহয়, যাক কোনো এক বিশেষ সময়ৰ সাহিত্যৰ বিশ্লেষণৰ পটভূমিৰূপে ব্যৱহাৰ কৰিব পাৰি নাইবা যাক সাহিত্যই সহজে প্ৰতিফলিত কৰে বুলি ক'ব পাৰি। আচলতে নতুন ইতিহাসবাদীসকলে ইতিহাসক তেওঁলোকৰ পূৰ্বসূৰীসকলতকৈ অধিক বহল দৃষ্টিৰে অৱলোকন কৰিছে। পূৰ্বৰ ইতিহাসবাদী সমালোচনাই একোটা সৃষ্টিয়ে কিদৰে একোটা সময়ক প্ৰতিফলিত কৰে সেয়া বিশ্লেষণ কৰে। কিন্তু নতুন ইতিহাসবাদে কেনেকৈ একো একোটা পাঠ অথবা সৃষ্টি ইয়াৰ সৃষ্টিৰ সময়ৰ দ্বাৰা প্ৰভাৱিত, সেয়া মূল্যায়ন কৰে। সেই সামাজিক স্থিতি, যি লেখকক পৰিচালিত কৰিব পাৰে অথবা লেখকৰ সামাজিক, মানসিক পটভূমি আৰু লেখকক প্ৰভাৱিত কৰা কিতাপ অথবা তত্ত্ব-দৰ্শন, মূলতঃ সৃষ্টিকৰ্মক প্ৰভাৱিত কৰিব পৰা যিকোনো কাৰকৰ বিশ্লেষণও একোটা সৃষ্টিকৰ্মৰ সফল মূল্যায়ন বাবে প্ৰয়োজনীয় বুলি নতুন ইতিহাসবাদে দাবী কৰে। হীৰেন গোহাঁইৰ জ্যোতিপ্ৰসাদ আগৰৱালাৰ আলোচনাৰ প্ৰসংগত তেখেতৰ বামপন্থী ভাবধাৰাৰ প্ৰভাৱ নিশ্চয় সুস্পষ্ট। সেইদৰে হেমচন্দ্ৰ বৰুৱাৰ *কানীয়াৰ কীৰ্ত্তন* আৰু গুণাভিৰাম বৰুৱাৰ *ৰাম-নৱমী*ৰ বিশ্লেষণৰ সময়ত লেখক দুজনৰ ব্যক্তিগত জীৱন আৰু জীৱনাদৰ্শক নিশ্চয়েই উলাই কৰিব নোৱাৰি। একেদৰেই আঙুলিয়াব পাৰি গোহাঁইদেৱৰ জ্যোতিপ্ৰসাদৰ 'সুন্দৰ কোঁৱৰ'ৰ চৰিত্ৰটোৰ বিশ্লেষণলৈ। ড° গোহাঁইৰ মতে জ্যোতিপ্ৰসাদ "এক অনৈতিহাসিক আৰু প্ৰাণহীন সুন্দৰৰ আপোনভোলা উপাসক নহয় যে জনগণ সেই আৱতিৰ মূক স্তব্ধ দৰ্শক"। তাৰ বিপৰীতে তেওঁ লক্ষ্য কৰিছিল জ্যোতিপ্ৰসাদৰ চিন্তাত, তেওঁৰ লিখনীত এক সংগ্ৰামী গণতান্ত্ৰিক বিচাৰৰ লক্ষ্য (১৯৯৩ ঃ ২৩০)। জ্যোতিপ্ৰসাদৰ চিন্তা আৰু আদৰ্শৰ এনে মূল্যায়ন মাৰ্ক্সবাদী চিন্তাপুষ্ট গোহাঁইদেৱৰ দ্বাৰাহে সম্ভৱ।

চতুৰ্থতে, লেখক— যিসকলে সাহিত্যিক পাঠ সৃষ্টি কৰে তেওঁলোকৰ দৰে তেওঁলোকৰ পটুৱৈসকলো একো একোটা বিষয়বস্তু (subject), যি তেওঁলোকৰ যুগৰ অৱস্থা আৰু ভাবাদৰ্শগত গঠনৰ দ্বাৰা অৱস্থিত আৰু গঢ়িত।

আন এটা তাৎপৰ্যপূৰ্ণ কথা এয়ে যে ইতিহাসবাদৰ এই নতুন পদ্ধতিটোৱে সাহিত্যিক আৰু অনা-সাহিত্যিক (non-literary) পাঠৰ সমান্তৰাল পঠনৰ ধাৰণাক প্ৰতিষ্ঠা কৰে। ই ইতিহাসক পাঠৰূপে বিশ্লেষণযোগ্য বুলি বিবেচনা কৰে আৰু

বিশেষভাৱে গৃহীত (canonical) সাহিত্যিক পাঠ আৰু অন্য সাংস্কৃতিক তথ্যসমূহৰ মাজত এক আন্তঃপাঠ সম্পৰ্কৰ কথা ঘোষণা কৰে। এইখিনিতে নতুন ইতিহাসবাদে literary text, অর্থাৎ সাহিত্যিক পাঠৰ বিশেষাধিকাৰৰ ধাৰণাক অস্বীকাৰ কৰে। ই এনে এক অধ্যয়নৰ পোষকতা কৰে য'ত, সাহিত্যিক আৰু অনা-সাহিত্যিক পাঠত সমান গুৰুত্ব দিয়া হয়। দার্শনিক লুই মণ্টোজৰ সংজ্ঞাই নতুন ইতিহাসবাদৰ এই পাৰস্পৰিক সম্বন্ধৰ কথাই দোহাৰে। তেওঁৰ মতে নতুন ইতিহাসবাদ হ'ল পাঠৰ ইতিহাসত্ব আৰু ইতিহাসৰ পাঠত্বৰ মাজৰ এক পাৰস্পৰিক সম্বন্ধৰ আলোচনা (New Historicism is a reciprocal concern with 'the Historicity of texts and Texuality of history) [১৯৮৯ ঃ ২৩], অর্থাৎ এওঁলোকে ইতিহাস আৰু পাঠ এই দুয়োটাৰে অন্যোন্যক্রিয়াৰ নতুন বিশ্লেষণ আগবঢ়ায়। ইতিহাস যিদৰে কেৱল কিছুমান ঘটনাৰে পোনপটীয়া, সহজ প্রতিফলন নহয়; সেইদৰে পাঠ সমাজ, পৰিৱেশ, সংস্কৃতি, ইতিহাস, ৰীতি-নীতি, আদর্শ আদিৰ পৰা মুক্ত এক একক অৱস্থিতি নহয়। পাঠ আৰু ইতিহাস দুয়োটাই ইটো আনটোৰ দ্বাৰা প্রভাৱিত আৰু প্রৰোচিত। সেয়ে যিকোনো এটা ঐতিহাসিক ঘটনাৰ দৰে সকলো পাঠেই বিশ্লেষণযোগ্য।

'নতুন ইতিহাসবাদ' (New Historicism) শব্দটো পোনপ্রথমবাৰৰ বাবে ষ্টিফেন্ গ্রীনব্লাটে তেখেতৰ *Genre* Vol 15 (১৯৮২) শীর্ষক জার্নেলখনৰ পাতনিত উল্লেখ কৰে। এই চিন্তাৰ প্রধান গুৰি ধৰোঁতা গ্রীনব্লাটে নিজে অৱশ্যে তেওঁৰ সমালোচনাত্মক তত্ত্বক 'কাল্চা�ৰেল্ পয়েটিক্ছ' (Cultural poetics) বুলিহে কৈছিল। তেওঁৰ মতে নতুন ইতিহাসবাদ সেইবোৰ সামূহিক বিশ্বাস, সামাজিক দস্তুৰ আৰু সাংস্কৃতিক বাক্স্রোতক লৈ উদ্বিগ্ন, যি একো একোটা নির্দিষ্ট কর্মক গঢ় দিয়ে। সহজ ভাষাত যিকোনো এটা সৃষ্টিকর্মৰ গঠনৰ সমগ্র প্রক্রিয়াটোতে আৰু মূলতঃ সেই সৃষ্টিকর্মটোৰ সৈতে ওতপ্রোতভাৱে জড়িত থাকে সেই সময়ৰ ধ্যান-ধাৰণা, বিশ্বাস, মূল্যবোধ, সামাজিক-সাংস্কৃতিক অৱস্থা ইত্যাদি। সেয়ে একোটা সৃষ্টিৰ মূল্যায়নৰ সময়ত এই সম্পর্কবোৰ উপেক্ষা কৰা সম্ভৱ নহয়।

সাহিত্যৰ বিদ্যায়তনিক ক্ষেত্রখনত নতুন ইতিহাসবাদৰ জন্ম হয় মুখ্যতঃ ইতিহাসক নকৈ চোৱাৰ এক আহ্বানৰ ফলত। ইতিহাসৰ এই নতুন ধাৰণাটো পুৰণি ইতিহাসৰ ধাৰণাতকৈ ভালেখিনি পৃথক। সেই কথা ওপৰত উল্লেখও কৰা হৈছে। আশীৰ দশকত ইউৰোপীয় আৰু আমেৰিকাৰ বিশ্ববিদ্যালয়সমূহৰ বহুতো পণ্ডিতে নতুন ইতিহাসবাদী চিন্তাৰ এই আন্দোলনৰ প্রতি পূর্ণ সমর্থন আগবঢ়াইছিল। তেওঁলোকৰ ভিতৰত উল্লেখযোগ্য নামকেইটা হ'ল— ফ্রেডেৰিক ক্র'জ, জর্জ ৰাট্ছন, ফ্রেডেৰিক জেমচন, টেৰী ইগল্টন আৰু ফ্রেংক্ লেংটিছিয়া, কেথেৰিন গেলাগাৰ, ডি এ মিলাৰ, লুই মণ্টোজ আদি। উল্লেখযোগ্য কথা এয়ে যে নতুন ইতিহাসবাদ এটা একক মত বা আদর্শ নহয়। ই সাহিত্যৰ সমালোচনাতত্ত্বৰ বিভিন্ন মতাদর্শ আৰু দর্শনৰ এক সন্মিলিত চিন্তা। ই হৈছে সামাজিক, ৰাজনৈতিক আৰু ঐতিহাসিক সমালোচনামুখী এক নতুন মতাদর্শ— যি সংযুক্তিবাদ, উত্তৰ-সংযুক্তিবাদ, নির্গঠনতন্ত্রবাদৰ ধাৰণা আৰু মূলতঃ ফুকোৰ ওচৰত ঋণী। তত্ত্ববিদ আৰাম্ ভিজাৰে সেয়ে হয়তো 'নতুন ইতিহাসবাদ' শব্দটো সকলো বয়বস্তু সামৰি লোৱা এক প্রকাণ্ড বেগৰ লগত তুলনা কৰি কৈছে যে এই শব্দটো এটা Portmanteau শব্দ। ই সাহিত্য, নৃতত্ত্ব, কলা, ইতিহাস, ভূগোল, সমাজবিদ্যা আদি কঠিন-কোমল সকলোবোৰ শৃংখলাকে সামৰি লয়। সেইফালৰ পৰা নতুন ইতিহাসবাদ এটা উত্তৰ-সংযুক্তিবাদী ধাৰণা।

নতুন ইতিহাসবাদৰ আন এটা তাৎপর্যপূর্ণ বৈশিষ্ট্য হৈছে ই সাহিত্য আৰু সংস্কৃতিৰ মাজৰ এক ওতপ্রোত সম্পর্ক প্রত্যক্ষ কৰে। গ্রীনব্লাটে এই বিষয়ে এক সুন্দৰ উক্তি দিছে— "যদি এক বিশেষ সংস্কৃতিৰ উদ্ঘাটনে সেই সংস্কৃতিত সৃষ্ট কোনো সাহিত্য সৃষ্টিৰ উচ্চতৰ ধীশক্তিৰ সহায়ক হয়, তেন্তে তেনে সাহিত্যৰ এক সুন্দৰ নিখুঁত গঠন সেই নির্দিষ্ট সংস্কৃতি, অর্থাৎ যি সংস্কৃতিত সেই সাহিত্য সৃষ্টি হয় বা হৈছিল সেই সংস্কৃতিৰ উচ্চতম বুজাবুজিত সহায়ক হ'ব।" (If an exploration of a particular culture will lead to a hightened understanding of a work of literature produced within that culture, so too a careful reading of a work of literature will lead to a heightened understanding of the culture within which it was produced.) (গ্রীনব্লাটৰ 'Culture' শীর্ষক প্রবন্ধৰ পৰা উদ্ধৃত, প্রবন্ধটো *Critical Terms for Literary Study* শীর্ষক গ্রন্থখনত সন্নিৱিষ্ট।)

ষ্টিফেন গ্রীনব্লাটে বিশ্ববিখ্যাত নাট্যকাৰ উইলিয়াম শ্বেইক্সপীয়েৰৰ 'হেনৰী ছিৰিজ'ৰ নাটসমূহৰ উল্লেখ কৰি কৈছে যে এই নাটসমূহ ইয়াৰ সৃষ্টিৰ সময় আৰু পাৰিপার্শ্বিকৰ প্রভাৱৰ পৰা মুক্ত নহয়। তেওঁৰ মতে 'হেনৰী ছিৰিজ'ৰ নাটকসমূহ প্রকৃততে এক নির্দিষ্ট মাত্রালৈ ৰাজকীয় ক্ষমতাৰ প্রকাশ— যি ক্ষমতা ঠগ-প্রৱঞ্চনা, ভণ্ডামি, লুণ্ঠণ, প্রতাৰণা বা শোষণ আধাৰিত। একে সময়তে এই নাটকবোৰত ফলছ্টাফ্ আদি আন যিকোনো এলিজাবেথৰ যুগৰ উপ-সংস্কৃতিৰ (তথাকথিত উপ-সংস্কৃতি) প্রতিনিধিৰ বেসুৰা আৰু ৰাষ্ট্রদ্রোহী কণ্ঠও নিঃসংকোচে অভিলেখিত হৈছিল। মুঠতে গ্রীনব্লাটে ফঁহিয়াই দেখুৱাইছিল কিদৰে শ্বেইক্সপীয়েৰৰ নাটকত এলিজাবেথৰ যুগৰ ৰাজকীয় ব্যৱস্থা আৰু সেই সমাজৰ তথাকথিত নিম্ন শ্রেণীৰ মানুহৰ জীৱনযাত্রাৰ সুন্দৰ আভাস ফুটি উঠিছিল।

ইতিহাসৰ পৰম্পৰাগত ধাৰণাৰ সৈতে নতুন ইতিহাসবাদীসকলৰ সহজ বিৰোধ এইখিনিতে যে প্রকৃতিতে কি ঘটিছিল সেই সত্য নিখুঁত আৰু নিৰপেক্ষভাৱে জনাটো; তাতোকৈ অধিক সেই কথা, সেই ঘটনাক নিৰপেক্ষ ৰূপত উপস্থাপন কৰাটো সম্ভৱপৰ হয়নে— সেই লৈ নতুনসকল সদায়েই সন্দিহান। হয়তো সেয়ে নতুন ইতিহাসবাদীসকলে বিশ্বাস নকৰে যে যিকোনো সাহিত্যিক পাঠৰ একক বা সহজে চিহ্নিত কৰিব পৰা ঐতিহাসিক পটভূমি থাকে। 'ইতিহাস'— সমগ্র বিষয়টোৱেই তেওঁলোকৰ মানত এক জটিল ধাৰণা, যি ইয়াৰ লগত সামৰি লয় অনেক তুচ্ছ যেন লগা তাৎপর্যপূর্ণ কথাও। এগৰাকী উচ্চ বর্ণহিন্দুৰ বিশ্লেষণত 'অসমৰ মানুহ'ৰ সংজ্ঞা আৰু এজন জনগোষ্ঠীয় নৃতত্ত্ববিদৰ বিশ্লেষণত 'অসমৰ মানুহ'ৰ সংজ্ঞা কি কাৰণে বেলেগ বেলেগ হ'ব পাৰে সেয়া আমাক সুন্দৰকৈ বুজাই দিয়ে নতুন ইতিহাসবাদী চিন্তাই। এজন মানুহ, এজন লেখক তেওঁৰ সময়, সমাজ, সংস্কৃতি আৰু পাৰিপার্শ্বিকতাৰ দ্বাৰা কিদৰে পৰিচালিত বা পৰিশীলিত সেয়া বিশ্লেষণ কৰাত আমাক সহায় কৰে নতুন ইতিহাসবাদে। জ্যোতিপ্রসাদ আগৰৱালাদেৱৰ কাৰেঙৰ লিগিৰী আৰু সুন্দৰ কোঁৱৰৰ চৰিত্রটোক যদি আমি নতুন ইতিহাসবাদী ধাৰণাৰে বিশ্লেষেণ কৰিব খোজোঁ তেন্তে আমি যুকিয়াই চাব

লাগিব জ্যোতিপ্রসাদৰ চিন্তাধাৰা আৰু জীৱন। জ্যোতিপ্রসাদৰ ব্যক্তিগত জীৱন আৰু সুন্দৰ কোঁৱৰ চৰিত্রটোৰ মাজত অনেক সাদৃশ্য আছে। এই সাদৃশ্যৰ কথা ড° হীৰেন গোহাঁইদেৱে তেখেতৰ 'জ্যোতিপ্রসাদৰ চিন্তাধাৰাৰ বিৱর্তন আৰু সাম্প্রতিক চেতনাত জ্যোতিপ্রসাদ' শীর্ষক প্রবন্ধটোত উল্লেখ কৰিছে। গোহাঁইদেৱে জ্যোতিপ্রসাদৰ আত্মীয় এজনৰ পৰা শুনা কথাৰ উদ্ধৃতি দি কৈছে যে যৌৱনত জ্যোতিপ্রসাদে চাহ বাগিচাৰ বনুৱা ছোৱালী এজনীক ভাল পাইছিল আৰু তাইৰ লগত বিভোৰ হৈ ঘূৰি ফুৰিছিল। পিছে বংশমর্যাদাত চেকা লাগে বুলি শংকিত হৈ ঘৰৰ পৰা তেওঁৰ আসক্তিক এনেদৰে দমন কৰিবলৈ ওলোৱাত জ্যোতিপ্রসাদ জাঙুৰ খাই উঠিল। গোহাঁইদেৱৰ কথাৰে— "তেওঁ ছোৱালীজনীক হেনো এটা ঘৰলৈ আনি তাইৰ লগত চৌব্বিশ ঘণ্টা থাকিবলৈ ল'লে। উপায়ন্ত হৈ জ্যোতিপ্রসাদৰ অভিভাৱকসকলে ছোৱালীজনীৰ পিতৃ-মাতৃৰ ওপৰত হেঁচা দিলে আৰু ছোৱালীজনীকো ভাবুকি দিয়ালে। জ্যোতিপ্রসাদে নির্বিকাৰচিত্তে প্রতিৰোধ কৰিবলৈ ধৰিলে সেই সম্মিলিত আক্রমণ। কিন্তু তেওঁৰ ভৱিষ্যৎ এই মিলনে ধ্বংস কৰিব পাৰে বুলি শংকা কৰি বনুৱা ছোৱালীজনী নিজে এদিন কাকো নোকোৱাকৈ ক'ৰবালৈ গুচি গ'ল। জ্যোতিপ্রসাদৰ কাৰণে থৈ গ'ল মাথোঁ ৰাশি ৰাশি ৰঙা ফুল।" কাৰেঙৰ লিগিৰীতো সুন্দৰ কোঁৱৰলৈ শেৱালিয়ে শেষ স্মৃতিচিহ্ন হিচাপে ৰাখি থৈ গৈছিল ৰঙা ফুলৰ থোপা (পৃষ্ঠা ঃ ২০, *বিশ্বায়তন*)। এইখিনি কথা আমাৰ আলোচনাত জ্যোতিপ্রসাদ আৰু সুন্দৰ কোঁৱৰৰ সাদৃশ্যৰ সপক্ষে বেছ সবল যুক্তি।

নতুন ইতিহাসবাদীসকলৰ মূল যুক্তি 'যিকোনো গল্প, কবিতা, উপন্যাস বা নাটকক ইয়াৰ নাট্যকাৰ অথবা নাট্যকাৰজনৰ জীৱন, মতাদর্শ, তেওঁৰ সময় আৰু তেওঁৰ চৌপাশৰ পৰা পৃথক কৰি নহয়, বৰঞ্চ এই সকলোবোৰৰ আধাৰতহে বিশ্লেষণ কৰা সম্ভৱ'— এই কথাৰ সুন্দৰ উদাহৰণস্বৰূপে জ্যোতিপ্রসাদদেৱৰ ব্যক্তিগত জীৱন আৰু তেওঁৰ লিখনীৰ উপৰিউক্ত উল্লেখনীয় ঘটনাৰাজি বিশেষভাৱে খাপ খাই পৰা বুলিব পাৰি।

পুৰণি ইতিহাসবাদীসকল আৰু নতুন ইতিহাসবাদীসকলৰ মাজৰ এটা বিশেষ পার্থক্য ইও যে নতুনসকলৰ পূর্বৰসকলৰ তুলনাত এক ধৰণৰ নিশ্চয়তাৰ অভাৱ। পুৰণিসকলে দৃঢ়তাৰে বিশ্বাস কৰে যে যিকোনো মানৱীয় বিষয় (human subject), যিমানেই বিচিত্র অথবা বিশাল নহওক— শিল্প বা সাহিত্যই তাক প্রতিফলন অথবা প্রকাশ কৰে। এই প্রতিফলন বা প্রকাশ (reflection and expression)ৰ সহজ অর্থটোত নতুন ইতিহাসবাদীসকলে দৃঢ়ভাৱে বিশ্বাস কৰিব নোৱাৰে। এই দৃঢ় বিশ্বাসৰ অভাৱত তেওঁলোক সদায় সন্দিহান, সেয়ে ইতিহাসে কেৱল অতীতক বর্ণনা কৰে বুলি তেওঁলোকে সহজকৈ মানি ল'ব নোৱাৰে। তেওঁলোকে বিশ্বাস কৰে ই অতীত নির্মাণো কৰে।

নতুন ইতিহাসবাদৰ আন এটা তাৎপর্যপূর্ণ কথা এই যে ই বিভিন্ন সাহিত্য-সংস্কৃতিৰ তত্ত্ব অথবা লিখনীৰ পৰা ইয়াৰ বিভিন্ন ধ্যান-ধাৰণা আৰু মতাদর্শ গ্রহণ কৰিছে। সেইফালৰ পৰা ই এনে এক বৈচিত্র্যময়, পাণ্ডিত্যপূর্ণ ধাৰণা, যি সাহিত্যৰ বহুবোৰ তত্ত্ব আৰু আন লেখা কিছুমানৰ সাধাৰণ বৈশিষ্ট্যও সাঙুৰি লয়। গ্রীনব্লাটে তেওঁৰ *Renaissance Self-Fashioning* (১৯৮০) শীর্ষক গ্রন্থখনৰ পাতনিত তেওঁৰ সাহিত্যিক প্রকল্পক কাল্চাৰেল পয়েটিক্ছ (Cultural Poetics) নাম দিছে। গ্রীনব্লাটৰ কাল্চাৰেল্ পয়েটিক্ছে যিকোনো সাহিত্যকর্ম এটিৰ সৃষ্টি বা গঠনত সামাজিক আৰু সাংস্কৃতিক বুজাবুজি, আদান-প্রদান আৰু লেনদেন (negotiation, transaction and exchange)ৰ প্রভাৱ স্বীকাৰ কৰে। এইখিনিতে নতুন ইতিহাসবাদে নৃতত্ত্বৰ সংস্কৃতিৰ ধাৰণাকো সাঙুৰি লোৱা যেন অনুভৱ হয়। নৃতত্ত্ববিদ এডৱার্ড বি টেইলৰৰ সংস্কৃতিৰ সংজ্ঞা হৈছে, "সমাজৰ সদস্য হিচাপে মানুহে যি জ্ঞান, বিশ্বাস, কলা-কৌশল, নীতি-শিক্ষা, আইন-কানুন, নীতি-নিয়ম আদি অভ্যাস আৰু সামর্থ্য আহৰণ কৰে সেই সমস্ত জটিল প্রক্রিয়াটোৱেই হৈছে সভ্যতা বা সংস্কৃতি" (Culture or civilization taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and other capabilities and habits acquired by man as a member of society.) [গ্রীনব্লাট ঃ ১৯৯৫]। যিকোনো সাহিত্যকর্ম অধ্যয়নৰ ক্ষেত্রত গ্রীনব্লাটে নিজেও সংস্কৃতিৰ এই ধাৰণাক গ্রহণ কৰিছে।

যিকোনো পাঠত বিদ্যমান এই সাংস্কৃতিক আৰু ভাবাদর্শগত উপস্থানপনবোৰে প্রকৃততে এখন নির্দিষ্ট সমাজৰ শাসন-শোষণৰ ক্ষমতাশৈলী (power stmucture)ৰ সৃষ্টি, নির্ণয় আৰু প্রসাৰৰ উদ্দেশ্যহে সাধন কৰে। সেয়েহে সাহিত্যিক পাঠৰ এই উপস্থাপনবোৰে বাস্তৱক প্রতিফলন নকৰে, বৰঞ্চ এইবোৰ হৈছে কিছুমান ভাবাদর্শৰ সাকাৰ (concretized) ৰূপ। এটি সাহিত্যকর্ম প্রকৃততে এজন লেখকৰ কল্পনাশক্তিৰ সৃষ্টি হোৱাতকৈ সেই সাহিত্যকর্ম সৃষ্টিৰ সময়ৰ পাৰিপার্শ্বিকতাৰ সৃষ্টি বুলি কোৱাটোহে অধিক যুগুত। নতুন ইতিহাসবাদীসকলে এইক্ষেত্রত এনে কিছুমান অন্তর্নিহিত আদর্শ, মত অথবা সামাজিক-ৰাজনৈতিক প্রভাৱক গুৰুত্ব দিয়ে যি প্রভাৱ সম্বন্ধে লেখকজন সম্পূর্ণ অজ্ঞ।

মার্ক্সবাদী দার্শনিক লুই এলথুজাৰৰ ভাবাদর্শ (ideology)ৰ ধাৰণায়ো নতুন ইতিহাসবাদীসকলৰ চিন্তা-দর্শন আদিৰ ওপৰত ভালেখিনি প্রভাৱ পেলাইছে। এলথুজাৰৰ ভাবাদর্শৰ ধাৰণাই মনোবিশ্লেষণৰ জটিল প্রক্রিয়াকো সাঙুৰি লৈছে। সেই ধাৰণা মতে ভাবাদর্শ উপস্থাপনৰ এক অভিজাত প্রক্রিয়া যি ব্যক্তিক এক সামাজিক বিষয় (social subject) হিচাপে গঢ় দিয়াত সহায় কৰে আৰু ভাবাদর্শৰ দ্বাৰা প্রভাৱিত হৈ এক সামাজিক ব্যক্তি হিচাপে তেওঁ চৌপাশৰ সামাজিকতাৰ এখন সম্যক ছবি অন্তঃগ্রহণ (internalize) কৰে আৰু নিজকে তাত খাপ খুৱাই সজাই তোলে। ভাবাদর্শ (ideology) এনে এক বস্তু যাৰ বাবে ব্যক্তিয়ে সম্পূর্ণ কাল্পনিক ৰূপৰ পৃথিৱী এখন প্রত্যক্ষ কৰে, অথচ ই যে এক কাল্পনিক ৰূপ সেই বিষয়ে ব্যক্তিৰ কোনো ধাৰণা নাথাকে। এটা সহজ, সুন্দৰ উদাহৰণেৰে ভাবাদর্শৰ ধাৰণাটো ব্যাখ্যা কৰিব পাৰি। এটা সভাঘৰত সজাই থোৱা চকীবোৰ দেখি সভাৰ বাবে যোৱা প্রত্যেকজন ব্যক্তি অথবা চিটীবাছত পুৰুষ-মাহিলা আৰু বৃদ্ধৰ বাবে সংৰক্ষিত আসনবোৰ দেখি যাত্রীসকলে কোনেও নোকোৱাকৈ একোখন চকী বা নির্দিষ্ট আসনত বহি লয়। এইক্ষেত্রত খালী চকীকেইখনে বা আসনকেইখনে যেন অদৃশ্য হাতেৰে সভাঘৰত উপস্থিত প্রতিজন থিয় হৈ থকা ব্যক্তিক আমন্ত্রণ জনায়— আহা, মোৰ কোলাত বহি লোৱা। আৰু খালী চকীবোৰৰ এই অদৃশ্য আহ্বান ক'ব নোৱৰাকৈয়ে গ্রহণ কৰে প্রতিজন ব্যক্তিয়ে। ভাবাদর্শ অর্থাৎ আইডিয়'লজীয়ে এনে এক অদৃশ্য ৰূপত এজন ব্যক্তিৰ আচৰণ, ব্যৱহাৰ-পাতি নির্দিষ্ট কৰে। ব্যক্তিয়ে জন্মৰে পৰা দেখি-শুনি অহা ৰীতি-নীতি, বিশ্বাস-

এজন মানুহ, এজন লেখক তেওঁৰ সময়, সমাজ, সংস্কৃতি আৰু পাৰিপার্শ্বিকতাৰ দ্বাৰা কিদৰে পৰিচালিত বা পৰিশীলিত সেয়া বিশ্লেষণ কৰাত আমাক সহায় কৰে নতুন ইতিহাসবাদে। জ্যোতিপ্রসাদ আগৰৱালাদেৱৰ কাৰেঙৰ লিগিৰী আৰু সুন্দৰ কোঁৱৰৰ চৰিত্রটোক যদি আমি নতুন ইতিহাসবাদী ধাৰণাৰে বিশ্লেষেণ কৰিব খোজোঁ তেন্তে আমি যুকিয়াই চাব লাগিব জ্যোতিপ্রসাদৰ চিন্তাধাৰা আৰু জীৱন। জ্যোতিপ্রসাদৰ ব্যক্তিগত জীৱন আৰু সুন্দৰ কোঁৱৰ চৰিত্রটোৰ মাজত অনেক সাদৃশ্য আছে।

অন্ধবিশ্বাস, সমাজ-সংস্কৃতি আদিৰ প্রভাৱ তেওঁৰ চিন্তাধাৰা, কর্মৰাজি অথবা ব্যৱহাৰ আদিত অৱশ্যেই পৰে। সেয়েহে নিজকে এগৰাকী যুক্তিবাদী, সংস্কাৰমুক্ত বুলি দাবী কৰা আধুনিক, শিক্ষিত, অসমীয়া হিন্দু নাৰীৰ বাবেও মাহেকীয়া ঋতুস্রাৱৰ সময়খিনিত গোসাঁইঘৰ বা মন্দিৰত প্রৱেশ কৰাটো ইমান সহজ নহয়। 'মাহেকীয়া চুৰা'ই যে কেৱল অসমীয়া হিন্দু নাৰীকহে অপৱিত্র(?) কৰে সেই বিষয়ে পিছে এইসকল নাৰীৰ অন্তৰত কোনো প্রশ্নৰ উদয় নহয়। এইখিনিতেই অন্তঃকৰণেৰে গ্রহণ কৰা ভাবাদর্শই (internalization of ideology) কাম কৰে। আইডিয়'লজী, অর্থাৎ ভাবাদর্শৰ মেৰপাক এনে জটিল অথচ সংগোপন যে ব্যক্তিয়ে নিজৰ অজ্ঞাতে আঁকোৱালি লয় ভাবাদর্শ আৰু ইয়াৰ সৈতে সম্পৃক্ত অনেক ধাৰণা।

নতুন ইতিহাসবাদীসকল এই ভাবাদর্শৰ পুনৰুদ্ধাৰ (recovery of ideology)ক লৈ অধিক চিন্তিত যিহেতু তেওঁলোকে বিশ্বাস কৰে ভাৱাদর্শৰ সমষ্টিয়েই 'পাঠ'ৰ জন্ম দিয়ে, অর্থাৎ যিকোনো এক পাঠৰ সৃষ্টিত এই ভাবাদর্শৰ প্রভাৱ অনস্বীকার্য। ঠিক সেইদৰে অৱশ্যে পাঠে (text)ও ভাবাদর্শক এক সংস্কৃতিৰ মাজেৰে আগুৱাই নিয়াত সহায় কৰে। পৰম্পৰাগত ইতিহাসবাদীসকলে ভাবাদর্শৰ এই ধৰণৰ সমালোচনাত্মক, তাত্ত্বিক ব্যাখ্যাক সমূলি আওকাণ কৰিছিল।

নতুন ইতিহাসবাদে যি ধৰণে পাঠ আৰু সেই পাঠ সৃষ্টিৰ ৰাজনৈতিক, সামাজিক আৰু অর্থনৈতিক পৰিৱেশৰ মাজত সম্পর্ক স্থাপন কৰে, সেইখিনিতে ই মার্ক্সবাদী চিন্তাৰ কায চাপে। অৱশ্যে মার্ক্সবাদীসকলে সাহিত্যক উপৰিসৌধ, অর্থাৎ অধিৰচনা (super structure)ৰ অংশ বুলি ভাবে, য'ত অর্থনৈতিক ভেটিটোৱেই মূল কথা। কিন্তু নতুন ইতিহাসবাদীসকলে ক্ষমতা (power)ৰ অতি সূক্ষ্ম পার্থক্যগত ব্যাখ্যাৰ পোষকতা কৰে। এইখিনিতে নতুন ইতিহাসবাদ ফুকো (Foucanlt)ৰ ওচৰত ঋণী। ফৰাচী দার্শনিক ফুকোৰ মতে— "কোনো ঐতিহাসিক ঘটনাৰ এটা মাত্র কাৰণ থাকিব নোৱাৰে, বৰঞ্চ প্রত্যেকটো ঘটনা এক বিশাল অর্থনৈতিক, সামাজিক আৰু ৰাজনৈতিক উপাদান কিছুমানেৰে গঠিত।" সেয়ে তেওঁ ইতিহাসবাদীসকলক তেওঁলোকে নিজেও কিদৰে ঐতিহাসিকভাৱে অৱস্থিত (historically situated) এই বিষয়ে সজাগ হ'বলৈ আহ্বান জনাইছে (পৃষ্ঠা ১৯৯৮ ঃ ২৪৩)।

ফুকোৰ বৈশিষ্ট্য এয়ে যে তেওঁ ইতিহাসক ক্ষমতা (power)ৰ গণ্ডীৰে প্রত্যক্ষ কৰিছিল। তেওঁৰ মতে 'ক্ষমতা অর্থাৎ পাৱাৰ' এনে কিছুমান জটিল শক্তিৰ সমাৰোহ, যি ঘটনা-পৰিঘটনাৰ সৃষ্টি কৰে। জুডিথ নিউটনৰ History as Usual? Feminism and New Historicism শীর্ষক প্রবন্ধত ফুকোৰ ক্ষমতা আৰু ইতিহাসৰ ধাৰণা সুন্দৰভাৱে প্রতিফলিত হৈছে —

> There is the notion that 'history' is best told as story of power relations and struggles, a story that is contradictory, heterogeous, fragmanted, the history is a tale of many voices and forms of power exercised by the weak and the marginal as well as the dominant and strong. (পৃষ্ঠা ঃ ১৫২ ঃ ১৯৮৯)

অর্থাৎ ইতিহাস হ'ল এনে এক কাহিনী যি একে সময়তে পৰস্পৰবিৰোধী, অসমসাত্ত্বিক আৰু খণ্ডিত। ই দুর্বল, প্রান্তীয় আৰু একেলগে শক্তিশালী শাসকীয় শ্রেণীৰ দ্বাৰা অনুশীলন কৰা বিভিন্ন কণ্ঠস্বৰ আৰু ক্ষমতাৰ বিভিন্ন ৰূপৰ কাহিনী।

নতুন ইতিহাসবাদে সাংস্কৃতিক নৃতত্ত্ব, নৃতত্ত্ববিদ ক্লিফ'র্ড গিটছ্ আৰু তেওঁৰ থিক্ ডেছ্ক্রিপ্শ্যন্ (thick description)ৰ ধাৰণাৰ পৰাও অনেক চিন্তা আদৰি লৈছে। এই থিক্ ডেছ্ক্রিপ্শ্যন্, অর্থাৎ গভীৰ/ঘনিষ্ঠ বর্ণনা হৈছে যিকোনো এক সামাজিক সৃষ্টিৰ গভীৰ বিশ্লেষণ, যি বিশ্লেষণে সেই সৃষ্টিকর্মৰ সৈতে জড়িত সকলো মানুহ, বিশ্বাস, কলা-কৌশল, ৰীতি-নীতি আদিৰ অর্থ পুনৰুদ্ধাৰ কৰে আৰু পৰস্পৰৰ মাজৰ সম্পর্ক বিচাৰ কৰে। বাহ্যিক দৃষ্টিত উপেক্ষণীয় তুচ্ছ ঘটনা, সংকেত অথবা প্রতীক আদিৰ প্রতিও গভীৰ বিশ্লেষণাত্মক দৃষ্টিয়েই 'থিক্ ডেছ্ক্রিপ্শ্যন্'। গিটছৰ এই থিক্ ডেছ্ক্রিপশ্যন্ৰ প্রভাৱতে নতুন ইতিহাসবাদীসকলে সজোৰে প্রতিপন্ন কৰিব খোজে যে সাহিত্য ইতিহাসৰ পৰা পৃথক নহয়। আৰু যিকোনো এক সৃষ্টিশীল কর্মই ইয়াৰ স্রষ্টা আৰু শ্রোতা-দর্শকৰ পৰা বিচ্ছিন্ন নহয়।

নতুন ইতিহাসবাদে যিহেতু বিভিন্ন সমালোচনা তত্ত্বৰ বেলেগ বেলেগ চিন্তা, দর্শন আদি সামৰি হৈছে, সেয়ে ইয়াৰ ভিন্নজন সমর্থকৰ মত-চিন্তা আদিৰ বিৰোধ থকাই স্বাভাৰিক। তথাপি প্রায় সকলো সমর্থকৰ ৰচনাৰ কিছুমান সাধাৰণ বৈশিষ্ট্য যুকিয়াই ল'ব পাৰি, যিবোৰ নতুন ইতিহাসবাদী চিন্তাৰ গঠনত ব্যৱহৃত প্রায় সকলো চিন্তা-প্রক্রিয়াতে প্রাপ্ত। নতুন ইতিহাসবাদৰ প্রধান কথা এয়ে যে সাহিত্য যিহেতু সামাজিক, অর্থনৈতিক আৰু ৰাজনৈতিক কোনো প্রভাৱৰ পৰা মুক্ত নহয়, সেয়ে ই চিৰযুগমীয়া শৈল্পিক মূল্যৰ দাবীদাৰ নহয়। সেয়ে এক সাহিত্যিক পাঠ সদায় নির্দিষ্ট সময়, পৰিস্থিতি আৰু পৰিৱেশৰ দ্বাৰা নির্দিষ্ট আৰু পৰিচিত। দ্বিতীয়তে, নতুন ইতিহাসবাদে বেলেগ বেলেগ পাঠৰ মাজৰ বিন্যাস আৰু দ্বিভাজন (hierarchies and dichotomies) অস্বীকাৰ কৰে। উচ্চ কলা, ধ্রুপদী কলা-সংস্কৃতি আৰু জনসংস্কৃতি, বিশেষভাৱে গৃহীত আৰু অগৃহীত (Canonical and non-canonical) লেখা, তথ্য আৰু কল্পনাশ্রয়ী কাহিনী— একোৰে মাজত উচ্চ-তুচ্ছ, গভীৰ-তৰল, ভাল-বেয়া আদি বিভাজন নতুন ইতিহাসবাদীসকলে স্বীকাৰ নকৰে। তেওঁলোকৰ মতে

সাহিত্যিক আৰু অনা-সাহিত্যিক পাঠৰ মাজৰ সীমা এক অমূলক কথা।

অলংকাৰ (rhetoric) এই নতুন ধৰণৰ ইতিহাসবাদৰ এটা উল্লেখনীয় বৈশিষ্ট্য। বাগাড়ম্বৰপূর্ণ, অলংকাৰপূর্ণ কৌশল আৰু নীতিৰ প্রতি মনোযোগেৰে বিশাল সাংস্কৃতিক ক্ষেত্রখনৰ পদ্ধতিগত অধ্যয়নত নতুন ইতিহাসবাদে সদায় গুৰুত্ব দিয়ে।

সাংস্কৃতিক বুৰঞ্জী বিশ্লেষণ আৰু ব্যাখ্যাৰ বাবে কিছুমান বিমূর্ত ধাৰণাতকৈ ক্ষমতাৰ পাৰস্পৰিক সম্পর্ক (power-relationship)হে প্রাথমিক কথা বুলি নতুন ইতিহাসবাদীসকলে বিশ্বাস কৰে। ইয়েই অন্য কিছুমান বিষয়ো ইয়াৰ পৰিসৰত সামৰি লোৱাৰ ইংগিত দিয়ে। পিতৃতান্ত্রিক কর্তৃত্ব আৰু ইয়াৰ ন্যায্যতা-বৈধতা, আধুনিক জাতীয় ৰাষ্ট্র গঠনত সংস্কৃতিৰ ভূমিকা আদি বিষয়ো এই নতুন চিন্তাই সামৰি লয়।

মার্ক্সবাদী দার্শনিক ৰেইমণ্ড উইলিয়াম আৰু তেওঁৰ 'সাংস্কৃতিক বস্তুবাদ'ৰ ধাৰণায়ো নতুন ইতিহাসবাদী চিন্তাৰ ক্ষেত্রত এক গুৰুত্বপূর্ণ প্রভাৱ বিস্তাৰ কৰিছে। 'সাংস্কৃতিক বস্তুবাদ'ৰ সংস্কৃতিৰ ধাৰণা কেৱল তথাকথিত 'উচ্চ সংস্কৃতি'ৰ (high culture) মাজতে আৱদ্ধ নহয়। সংস্কৃতি বুলিলে ই সাঙুৰি লয় দূৰদর্শন, জনপ্রিয় সংগীত আদি মানুহৰ চিন্তা, কর্ম আৰু অৱসৰ বিনোদনৰ সৈতে জড়িত সকলোবোৰ কথা। বাস্তৱ পৃথিৱীখনত জীয়াই থাকোঁতে, ইয়াৰ বিভিন্ন ঘটনা-পৰিঘটনাৰ প্রতিক্রিয়াস্বৰূপে যিবোৰ মূল্যবোধৰ জন্ম হয় আৰু যি সততে পৰিৱর্তনশীলো সেয়াই সহজ অর্থত সাংস্কৃতিক বস্তুবাদ। ই এনে এক বিশ্লেষণাত্মক দৃষ্টিভংগীৰ পোষকতা কৰে যি সংস্কৃতিক কিছুমান পৃথক কলাসম্মত কীর্তিস্তম্ভৰ সমষ্টি বোলাতকৈ ঐতিহাসিকভাৱে অৱস্থিত চিন্তা-ধাৰণা, সামাজিক সম্পর্ক, ক্ষমতাৰ প্রভাৱ আদিৰ বস্তুগত ৰূপান্তৰ বুলিলে ক'ব খোজে। সাংস্কৃতিক বস্তুবাদে এটা পাঠৰ ঐতিহাসিক প্রসংগ আৰু ইয়াৰ ৰাজনৈতিক আভাস উদ্‌ঘাটন কৰে আৰু ইয়াৰ নিকট, গভীৰ পাঠগত বিশ্লেষণৰ দ্বাৰা নিয়ন্ত্রিত আধিপত্যমূলক অৱস্থানো লক্ষ্য কৰে।

সাহিত্যতত্ত্ব আৰু দর্শনৰ অনেক ধাৰণাক নতুন ইতিহাসবাদে আঁকোৱালি লোৱাৰ লগে লগে অৱশ্যে এই কথাও কোৱা উচিত যে বহুতো সাহিত্যিক আৰু সমালোচনা তত্ত্বও এই নতুন চিন্তাৰ দ্বাৰা বাৰুকৈয়ে প্রভাৱিত হৈছে। ভাবাদর্শগত আৰু সাংস্কৃতিক নির্মাণত পুৰুষসুলভ ক্ষমতা গঠনৰ ভূমিকাৰ ওপৰত জোৰ দি বহু নাৰীবাদী সমালোচকে এই নতুন ইতিহাসবাদী ধাৰণাক নিজৰ চিন্তাধাৰাৰ সৈতে মিলাই ল'ব খুজিছে।

সেই দিশৰ পৰা নতুন ইতিহাসবাদী চিন্তা সাহিত্য আৰু সমালোচনা তত্ত্বৰ ক্ষেত্রখনত বেছ প্রভাৱশালী আৰু গুৰুত্বপূর্ণ বিষয়। এফালে ই যেনেকৈ বিভিন্ন ন-পুৰণি সমালোচনা পদ্ধতি আৰু তত্ত্বৰ বহু মতাদর্শ বা বৈশিষ্ট্য সাঙুৰি লৈছে, আনফালে এই চিন্তাৰ দ্বাৰাও বহু আধুনিক তত্ত্ব প্রভাৱান্বিত হৈছে। হয়তো সেইবাবেই নতুন ইতিহাসবাদী চিন্তা বর্তমানেও পৰিত্যক্ত হোৱা নাই অথবা এই চিন্তাৰ মতাদর্শ অতীত হৈ যোৱা নাই। যিকোনো সৃষ্টিৰ নিৰপেক্ষ আৰু সফল মূল্যায়নৰ বাবে নতুন ইতিহাসবাদৰ প্রাসংগিকতা সদায়েই থাকিব।■

প্রসংগ পুথি ঃ

(১) গোহাঁই, হীৰেন ঃ *উত্তৰণৰ সাধনা* ঃ লয়ার্ছ বুক ষ্টল, ১৯৯৩

(২) গোহাঁই, হীৰেন ঃ *The New Millennium Pronouncing Anglo- Assamese Dictionary*, Banalata, 2002

(৩) বৰমুদৈ, আনন্দ ঃ *সাহিত্যত মতবাদ*। আদৰণী সমিতি, অসম সাহিত্য সভা, ডিব্রুগড়, ২০০১

(৪) Abrams, M. H. *A Glossary of Literary Terms*. Bangal Prism Books, 1993

(৫) Althusser, Louis. 'Ideology and the State'. in *Modern Literary Theory : A Reader* (ed) Philip Rice and Pattricia Waugh (trans) B, Brewster. London : Edward Arnold. 1992 (PP.54-62)

(৬) Barry, Peter. *Beginning Theory: An Introduction to Literary and Cultural Theory*. Manchester Manchester University Press, 2002

(৭) Blamires, Harry. *A History of Literary Criticism* . New Delhi : Macmillan India Ltd, 2000

(৮) Eagleten, Terry. *Literary Theory : An Introduction*, New Delhi : Maya Publishers, 2000

(৯) Eagleten, Terry. *Marxism and Literary Critieism*, London : Routledge Classies, 2002

(১০) Foucault, M. *Power/ Knowledge*(ed). Colin Gordon (trans) Colin Gordon, Leo. Rarshall, John Nepham, Kate Soper, Hervester : Hervester Press, 1980

(১১) Foucault, M. *Politics, Philosophy and Culture* (Trans) Alan Sheridan et al, London : Routledge, 1990

(১২) Geertz, Clifford. *The Interpretation of Culture : Selected Essays* , New York, Basic Books, 1973

(১৩) Greenblatt, Stephen. *Renaissance Self-Fashioning*, Chicago : Chicago University Press, 1980

(১৪) Greenblatt, Stephen. 'Culture' in *Critical Terms for Literary Study* (ed) Frank Lentricchia and Thomas MCD aughlia. Chicago : University of Chicago Press, 1995. (PP 225-232)

(১৫) Montrose, Louis A. 'Professing the Renaissance : The Poetic and Politics of Culture' in *The New Historicism* (ed) Aram H. Veesor, London : Routledge, 1989. PP 15-36

(১৬) Murfin, R and Supriya M. Ray. *The Bedford Glossary of Crifieal and Literary Terms* Boston : Bedford Books, 1998

(১৭) Newton, Judith L. 'History as Usual? Ferninism and the New Historicism' in *The New Historicist* (ed) Aram H. Vceser, London : Routledge, 1989. (PP 152-167)

(১৮) Panja, Sharmistha (ed). *Critical Theory : Textual Application*, Delhi : Worldview, 2002

(১৯) Ryan, Michael. *Literary Theory : A Practical Introduction*, Oxford : Blackwell Publications, 2002.

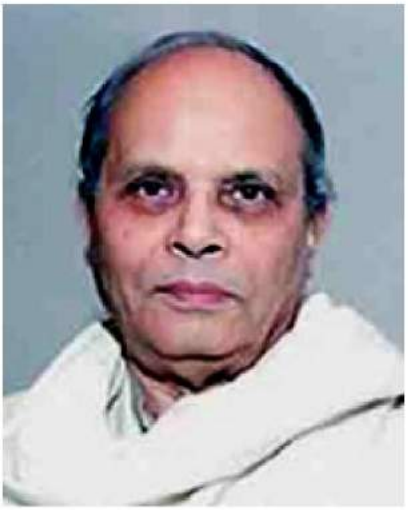
(২০) Veeser, Aram H. (ed). *The New Historicism*, London : Routledge, 1989

Click to view Profile
Juri Dutta

Mail A Friend

Ideological Conflicts in Birendra Bhattacharya's fiction

Juri Dutta



Birendra Kumar Bhattacharya. Image credit- Niyogi Books

Freedom Struggle and Ideological Conflicts in Select Assamese Fiction: With Reference to Birendra Kumar Bhattacharya

The Freedom Movement of India can be called one among the most widely fictionalised episodes in Indian literature. An event which so passionately influenced the socio-cultural, economic and political life of the country can never be ignored by the conscious, creative minds. Most of the times it is perceived that in literature there have been efforts at glorifying this event and those associated with this struggle.

Political programmes bring about changes and reactions in the lives of the people. Stephen Spender rightly stated that "....the writer who refuses to recognise the political nature of the age must to some extent be refusing to deal with an experience in which he himself is involved" (1953:215). Gotfreed Kuller, the Swedish writer said that politics is associated in all affairs of our life (Quoted in Howe, 1957: 19). In the book *Politics and Novel*, (1954) Irving Howe said "A mere information of Political philosophy cannot be considered as political novel, that philosophy must be deeply rooted" (1957: 102-103). In an interview with *India Today* correspondent

==========
Language in India www.languageinindia.com **ISSN 1930-2940 Vol. 19:2 February 2019**
India's Higher Education Authority UGC Approved List of Journals Serial Number 49042
==========

Re-(visiting) the Past through Narrative: Reading Rita Choudhury's *Ai Samay Sai Samay* (*These Times, Those Times,* 2007)

Juri Dutta, Ph.D.
Assistant Professor
Centre for Assamese Studies
Tezpur University
Napaan, Tezpur
Dist: Sonitpur, Assam 784028
juri@tezu.ernet.in
jurid76@gmail.com

==========

North East India is considered one of the most troubled regions of the country with a long history of secessionist movements. The Assam Agitation (1979-1985) and the armed nationalist movement of United Liberation Front of Assam (ULFA 1979-2009) are two important milestones that mark the present socio-cultural and economic history of Assam. These incidents have immensely affected the socio-political scenario of the state. Obviously, the impact of socio-political tension has been experienced by the common people of the state. One way of gauging the impact of these socio-political movements is to undertake a critical reading of the literature that has been written in recent times by activists who were directly involved in these.

In this paper, I look at Rita Choudhury's **narrative** *Ai Samay Sai Samay* (*These Times, Those Times*). The novel is written in Assamese and revolves around the Assam Agitation. It would, of course, be naïve to assume that the narrative that I have selected for discussion here is a "direct" reflection of the situation or to assume that this reveals "absolute" or truths about the troubled state and its people. A prominent Assamese writer, Rita Choudhury was an active participant of the Assam Agitation. However, the narrative appears to be a selective rendition of the past. In my paper, I have tried to analyse how this narrative looks at the past, the past that the writer had once lived, the past that she was once very proud of and how memory is rendered retrospectively through the critical lens of an academic**.**

I have divided the paper into three parts. In the **first** part I look at the Assam Agitation (1979-1985) and the armed nationalist movement of United Liberation Front of Assam (ULFA 1979-2009). Along with this I have tried to look into the reasons that led to the movements and their impact on the common people. In the **second** part, I look at select pieces of literature based on these movements. I have restricted my discussions to the fictional writings related to the most

powerful students' and secessionist movements of Assam. We believe that literature on such movements can be divided into two groups. One group is constituted of literature by observers who were not directly involved in these movements. The other group is made up of the literature by the activists who were directly involved. In the **third** part I will discuss the select narrative.
Rita Choudhury's novel was written almost thirty years after the Assam movement, in 2007. As such, it is interesting to observe the position of the writer. While analyzing the narrative I have addressed the question of the writer's position and her conscious/unconscious use of memory that make the readers remember certain things and events from a given perspective and wipe out some others.

Part I

When I recall my understanding of the Assam Agitation and the armed nationalist movement of the United Liberation Front of Assam (ULFA), it evokes a combined feeling of fear, anxiety and terror as well as a sense of pride that we as school children had experienced. I would like to begin my discussion with two personal anecdotes from my life. These personal anecdotes, I believe, would define the ways Assamese common people looked at these movements and how these movements influenced the lives of the common people. It was during 1984-85, when I was in class IV or V when we used to take our dinner a bit early. I still remember my father used to sleep in some other place, not inside our home. We had finished our food early; he silently walked out of the house through the back door and my elder sisters washed the utensils quickly beside the well. If by any chance we heard a jeep or motor vehicle passing by, we were frightened. Sometimes, my sisters left the dishes unwashed and hurried back to the house. This was the Assam Agitation for us. We didn't know what it was, what it was for or what are we going to gain from it. My father was neither an activist nor any active member of any political party. But, it was a regular scene in those days in almost every household.

It was during 1985-87 that we heard and saw some strange punishments being meted out to fraudulent and illegal businessmen, contractors and miscreants who were tied to big trees or compelled to kneel down in open fields for public view. We were happily waiting for some kind of 'magic-power' that would definitely turn Assam into a place full of wealth and happiness. In those days ULFA was not a name to be frightened of. Instead, it was a matter of pride for us if we could talk about the members of this association. I happened to listen to (in those days I believed that it was nothing short of a privilege of listening to) an ULFA leader who tried to persuade one youth to join the then "glorious" group of revolutionaries. It was a 'glorious secret' I shared with my classmates with pride. During those days people used to work for public welfare facilities like establishing schools, repairing bamboo or wooden bridges, building roads etc under the banner of ULFA. There was joy and pride in doing these. Even the school students were involved in these activities of ULFA in the rural areas. I remember going to a remote village from our school and offering our service for building an approach road and a bridge. All

the students along with all the teachers worked for the cause. This was what ULFA was for us for a long time. Of course, gradually, ULFA started to lose its popularity and confidence among the common people.

I shall now try to analyse the reasons behind the emergence of these two movements as well as their impact on the common masses. According to some historians and intellectuals, Assam was an independent and sovereign province before the colonial rule. They believe that Assam was always a free nation and therefore, its accession to the 'British India' as a result of the Yandaboo Treaty (1826) was meaningless. Kamalakanta Bhattacharya in his series of essays on "Assamar Unnati" (Development of Assam) insisted on the self-reliance and hard work of the Assamese people through which they could achieve prosperity and happiness. Kamalakanta believed that foreigners would one day occupy the land of Assam and then Assamese people would lose their land along with their identity (1982: 22). He insisted that the Assamese should constitute an independent, self-reliant nation (Misra, 1987:195). Chandradhar Sharma and Ambikagiri Roychoudhury were two names famous for their radical views on the issues of an independent Assam. Prof Udayon Misra says that Chandradhar Sharma "voiced his concern about the threat to Assamese identity from unchecked infiltration" (Misra, 2000: 90). Amalendu Guha mentions about a letter that Chandradhar Sharma wrote to one of his friends in which he says, "…something has to be done by the Government regarding the foreign settlers. Otherwise, the country will have to face very bad days and a miserable situation; our national identity will disappear" (Guha, 1977: 121-122). Ambikagiri Roychoudhury also urged for a free and independent Assam in his article "Bharatiyar Swaraj Aru Asamiyar Swaraj" (*Chetana*, 11, 1920). In the pre-Independence period, Jnananath Bora spoke for an independent Assam in his article "Kamrup aru Bharatvarsha" (Kamrup and India) which was published in *Awahon*. In another article, "Asom Desh Bharatbarshar Bhitarat Thakiba Kiya?"(Why Should Assam Stay in India?), Bora insists that Assam was an independent province and it should be left independent. He believed that Assam's restoration is possible only when it is separated from India. I would like to quote from this article as translated by Udayon Misra: "The Assamese have always lived a distinct country with its own distinctive administration and never seen Assam as part of India (Bharatvarsha)" (quoted in Misra, 2000: 96). In these two articles by Jnananath Bora, it is evident that he pleads for an independent, sovereign Assam which will have all the necessary means for economic stability and progress. Here, he appeals to the British Government to give Assam an independent status.

Considering these writings of the Assamese intellectuals, it is evident that the issue of a sovereign state of Assam is not an absolutely new idea that suddenly emerged in the minds of a section of Assamese youth. The concepts of economic and administrative independence, and freedom from the socio-political as well as financial exploitation by the British has always been

a cherished dream for the Assamese intellectuals. It is this dream for which a section of Assamese youth took resort to arms. They believed in this dream and they also believed that Assam could be rescued from the clutches of the colonial masters. There have always been confusion and discontent among the Assamese middle class and the Assamese people at large and this took the form of a movement.

At first, we shall look into the historical background of the Assam movement. In the general election of Assam Assembly held on 25 February 1978, no single political party could gain majority. Golap Barbora of Janata Party led the Janata coalition government. On March 20, 1979 Hiralal Patwari, an elected member of Mangaldoi Lok Sabha Constituency died. As such, a by-election was required to fill his seat. It is said that during the process of the election, people noted that the number of registered voters had increased dramatically. And, the All Assam Students Union (AASU) demanded that the elections be postponed till the names of foreign nationals were removed from the electoral rolls.

This was the moment of origin of the Assam Agitation. The Assam Agitation (1979-1985) was a movement against undocumented settlers in Assam. The movement, led by All Assam Students Union (AASU) and the 'All Assam Gana Sangram Parishad' (AAGSP), staged various activities of protests and rallies to try to compel the government to identify and expel illegal immigrants. The agitation programmes were non-violent, but there were cases of extreme violence as in the case of Nellie massacre where thousands of people were killed. During the years of protest in the Assam Agitation, altogether 855 activists died.

The agitation ended in August 1985 following the signing of the Assam Accord, which was signed by leaders of AASU-AAGSP and the Government of India. The agitation leaders formed a political party, Asom Gana Parishad. It came to power in the state of Assam in the Assembly elections of 1985 and later in 1996.

The Assam Agitation started with a demand that the central government should take strong measures to stop the illegal influx of illegal immigrants. Later on it became a movement for expulsion of all the East Bengal Muslim peasants, tea garden labourers coming from different parts of India, the Hindu Bengalis and also the Nepalis. Uddipana Goswami rightly says, "…it became more and more xenophobic in nature and demanded the ouster of all *Ali Kuli Bangali, Nak Sepeta Nepali*…whose immigration into Assam had also begun during the colonial period" (2014: 6). This intolerant, parochial nature of the movement wiped out all the distinction between legal and illegal migrants. People started to believe that one day these 'foreigners' or 'outsiders' would prove to be a threat to the land, livelihood, language and identity of the Assamese people. Gradually, the movement started to confine itself among the Assamese

speaking Hindu middle class of Assam. In the process of this narrow grouping and dominance of the Hindu middle class, the other small ethnic groups started to feel alienated and agitated. Distancing themselves from the greater Assamese identity, the indigenous settlers of the state began to ask for separate ethnic homelands. Assam movement "marked a period when every small and big ethnic group began distancing itself from the Axamiya identity and subsequently started placing demands for separate ethnic homelands" (Goswami, 2014: 4). Prof. Manirul Hussain in his book *The Assam Movement, Class, Ideology and Identity* and Amalendu Guha in his article "Little Nationalism Turned Chauvinist: Assam's Anti-Foreigner Upsurge" discuss how the Assam Movement was a movement against the resource exploitation of the Indian state. It is actually a bloodstained massacre of thousands of innocent men, women and children. On 18 February 1983, over 3,000 Muslims were killed in the tiny town of Nellie in the aftermath of the All Assam Students' Union's agitation against illegal migrants from Bangladesh. And this was only a part of a number of minor incidents that marked the blood-stained days of 1983 and the Assam movement.

Alongside the Assam Agitation, different militant groups started to voice their resistance to the Indian state. The United Liberation Front of Assam (ULFA) was one amongst them. The ULFA thus began its journey asking for 'sovereignty' of the state of Assam. It has already been said that many historians and intellectuals had been demanding *Swadhin Asom* (autonomous Assam) in different ways even before the rise of ULFA. In that sense, many have tried to substantiate the opinion that Assam's demand for self-determination (independence) is an issue that has been addressed by political leaders, intellectuals and social activists from earlier times. Prominent Congress leader of Assam Gopinath Bardoloi too "demanded fullest possible autonomy for the province so that Assam could utilize its resources in its own interest" (quoted in Misra, 2000: 110).

The armed nationalist movement of United Liberation Front of Assam (ULFA) began in 7 April 1979 as an organization committed to end Indian rule which some sections of Assamese youths considered to be exploitative and imposing. During the height of the anti-foreigner agitation, a hard line section parted from AASU (All Assam Student Union) to form the ULFA. "ULFA was born at a gathering in the historic Rong Ghor in Sibsagar, a palace of the Ahom kings who ruled Assam before the British. Its aim was to "establish scientific socialism in an independent Assam." It regarded the Yandaboo Treaty of 1826 between Burma and the British rulers of India, which incorporated Assam into British India, as the episode that marked the end of Assam's independence, and it sought the restoration of that "lost independence."(Quoted in Baruah, 1994: 868)." ULFA leaders Rajiv Rajkonwar alias Arabinda Rajkhowa (chairman), Samiran Gogoi alias Pradip Gogoi (vice-chairman), Paresh Barua (chief of staff) and Golap

Baruah alias Anup Chetia (general secretary) declared their aim of "liberating Assam from the illegal occupation of India" and to establish a 'sovereign socialist Assam'.

At first the ULFA received support of the masses for all the productive works that the members of the organization had initiated. Gradually however their activities started not only to displease the Assamese people but also to annoy them. Hiren Gohain has aptly said, "They built roads where none existed, honoured artists and writers, chastised notorious local thugs and hoods, forced licentious rogues into instant virtue and rectitude, banned wine drinking among habitual wine-bibbing communities whose sudden temperance mightily conflicted with nostalgia for the good old days. In fact, many of the bitterest critics of the ULFA these days used to be eloquent in praise of their spotless and great character in those days" (Gohain, 2007: 1012). Without going into the details of the activities of ULFA, it can be said that the nationalist movement of United Liberation Front of Assam (ULFA) did start with some 'great ideals', but neither could it fulfill its own 'great goals', nor could it meet the expectations of the common masses of Assam. For majority of people in Assam, the ULFA symbolised a point of resistance to Indian control over the state of Assam. It was a resistance to exploitation and dominance of Indian government. "But the extortions, killings, bomb blasts, targeting of civilians and of migrant workers from north Indian states, led to erosion of whatever support and sympathy it enjoyed" (Misra, 2010: 13-14).

Part II

Much has been written on the issues of the Assam Agitation and the movement of the United Liberation Front of Assam. These writings include both fictional and non-fictional writings. Issues of these movements find expressions in poetry, stories and novels since the beginning of the movements till the present time. Research articles and books have also been published regarding various issues related to these movements. The facts and figures as well as the reasons and impacts of these events in the Assamese mind and society are discussed from various perspectives by scholars and social scientists in all these thirty five years (right from its beginning till the present time). Along with this there are fictions that express the facts and figures and also the causes and effects of these movements. I shall restrict myself only to the fictional writings related to this secessionist movements of Assam. While exploring the literature (fiction) based on the issues related to these movements, I would like to divide these into two broad groups. One is literature by observers who are not involved in these movements directly or otherwise, and another is the literature by the activists directly involved in it. Thinking of fiction writers who have written on the Assam Agitation and the movement of ULFA, the name that comes immediately to mind is that of Rita Choudhury. It was actually her *Abirata Jatra* (1981) which is considered as one of the first novels to directly speak about the political tension in Assam after the formation of ULFA and also the Assam Agitation. This novel bagged the first

prize in the manuscript contest organized on the theme of the Assam Movement by Asom Sahitya Sabha, one of the most powerful cultural and literary institutions of Assam. In an interview she says, "It was in 1981 when the Assam agitation was at its peak that I began to write formally. I was an activist. It so happened that during my underground days, a literary competition was held by the Asom Sahitya Sabha. I wrote *'Abirata Jatra*' in three months. The Asom Sahitya Sabha conferred an award on me after this" (2012: *The Times of India*). Rita Choudhury was an active participant of the movement then and of course a powerful writer. Two decades later she won the Sahitya Akademi Award. *Akou Saraighat* by Lakhinandan Bora was another novel composed during the same time that captured the intensity of the period. About a decade later, Parag Das's *Sanglot Fenla* (1992) placed itself in a totally different pole by expressing some reasons why the Assamese people had to take to the course of armed rebellion after the failure of the Assam Movement and the Assam Accord. The novel is based on the real time experience of cadres in the jungles of Kachin. His *Swadhinotar Prostab* (A Proposal for Independence) is his vocal demand for a sovereign state of Assam which was banned by the Government of Assam in 1994. Dhrubajyoti Bora's *Kalantarar Gadya* (Prose of Transition) published in 1997, *Tejor Andhar* (Darkness of Blood) and *Arth* (Meaning) is a trilogy based on the Assam agitation and the days of insurgency of Assam. These works have been acknowledged as major literary creations not only of Dr Bora but of Assamese literature. In the words of Aruni Kashyap:

> With a large cast of characters, many subplots, the novel tries to provide an in-depth analysis of the situation of Assam from multiple angles. In Babula's gruesome death through torture at the hands of the army, Bora narrates the violation of human rights during the counter-insurgency. Through Sombori's regular, multiple rapes by the army officer, the novel underlines how the conflict was inscribed often on the bodies of women. Through the story of Gojen's disintegration from a rational human being to a man who walks naked in his room in frustration when asked to choose between his former comrades or become a government informer, Bora tries to show the conniving process of co-option that the state launched in order to curb the insurgent movement, leading to the bloodbath called secret-killings between 1998 and 2001 (December 2012).

Retired IPS officer Dilip Bora and a college teacher in the department of English from a small town of Assam (Tangla), Arupa Patangia Kalita wrote fictions on the issues of insurgency in Assam. While, Kalita's treatment of the theme in the novella *Arunimar Swadesh* is emotional giving an account of the true story of the gruesome massacre of the entire family of Umakanta Gogoi, Bora in his novel *Kolijar Aai* (2006) depicts the life of an insurgent who suffers from guilt and regret after choosing the path of violence. The novel ends with a note of internal conflict in the mind of the protagonist who is in a doubt whether to think of his

biological mother or the metaphorical 'Mother Assam' for whom he had taken up the path of violence.

Megan Kachari (Mithinga Daimary) and Kabiranjan Saikia, two members of ULFA are also two well-known names in Assamese poetry. Megan Kachari's poems were translated into English and was published with an introduction and it was released at the Frankfurt Book Fair 2006 by Indira Goswami. Rakhee Kalita has rightly observed, "What is perhaps most interesting with Assamese vernacular literature of the last two decades is the volume of writing contributed by actual participants of the rebellion and insurgency. Whether one looks at Mithinga Daimary's poetry written from his prison cell or earlier, the slain rebel Kabiranjan Saikia's many poems that have endured his brutal death, an ex-combatant Jibon Goswami's perilous account of seeking safe homes across the Burmese border … there is a concerted attempt to speak from the margins of civil life and record the voices of dissent" (2012). It is really significant that actual participants of the insurgent movements as well as the surrendered ULFA wrote fictions dealing with issues related to the armed militant movement and also the inner feelings of joy and happiness, pains and sufferings, conflicts and struggles of them. A critical reading of the literature that has been written by the activists who were directly involved in these movements is definitely one significant way of gauging the impact of these socio-political movements.

Part III

The narratives about insurgency and of the insurgents can never be seen as the direct reflection of the time and activities of the movements. Nor can we accept these as "true", unmediated expressions of the views, tension, insecurity, sighs, cheers and lamentations, pains and pleasures or ambitions and limitations of the members of the movements. It has already been said that the narratives of and about the insurgents want us to remember only certain things, certain events, in a certain way, and therefore, very carefully try to wipe out some other things from the popular mind.

Rita Choudhury's novel *Ai Samay Sai Samay* (These Times, Those Times) was published in 2007. The novel expresses the hopes and aspirations as well as of the frustrations of the masses and activists with respect to the Assam Agitation. The novel was written almost thirty years after the Assam movement. As such, it is interesting to observe the position of the writer who was an active participant in it. While the memory of Assam Agitation as well as the movement of ULFA is still fresh in public minds, the writer tries to re-interpret, re-remember, re-think and re-present the ideology of these movements from the vantage point of someone who has the benefit of retrospective observation. And, the writer's conscious/unconscious use of memory, makes the readers remember certain things and events from a given perspective and wipe out some others.

In "A Few Words by the Writer" of the novel, the novelist says, "The pen throws light on different aspects of society…this vision is not complete. It is just a fraction of the whole" (Chowdhury 2008; trans. mine). Choudhury uses the Assam movement against Bangladeshi infiltration as her backdrop to reflect upon the young angry Assamese mind. It is a postmortem of the troubled times of Assam.

Ai Samay, Sai Samay (These Times, Those Times) does not refer to any of the massacres of the movement and tries to portray it as a mass revolution based on ideological grounds of sub-nationalism. Rajarshi Kalita aptly sums up, "She (Rita Choudhury) tries to interpolate past idealism within a generation brought up to believe the forces of globalisation and selfish individualism but does not really manage to link up these disparate processes of thought… Another strong point of the novel is its ability to illustrate the spirit that went into the Assam agitation and also the disappointment, disillusionment and the consequent distress that follows when ideas do not work the way you intend them to do. It captures a period and sentiment in the history of Assam which one can look back at with anger, shame, remorse or pride, but which one just simply cannot ignore" (2008: 31).

Aditi Choudhury is a lecturer in a reputed college of Guwahati. She was an active member of Assam Agitation once upon a time in her life. It is through her eyes that the novelist tries to look back at the past, the past that she was so much attached to at one point in her life. At first, the capital city of Assam appears as a beautiful city full of new hope and prosperity. But, she understood that it was not the 'golden Assam' that they were aspired for. It was just a symbol of that unaccomplished dream, nothing more than that. In actual sense, there were devastated dreams and hopes all over the state. It was the graveyard of dreams" (Chowdhury; 18 trans. mine). Focusing on the details of the personal lives of Aditi and the writer, the readers tend to draw a parallel between the writer and Aditi. Interestingly, Aditi Choudhury, the protagonist of the novel *Ai Samay, Sai Samay* wants to write about the past, about the Assam Agitation and its after-effects and she contemplates, "Will she be able to do it? Will she be able to write all the things which she heard, understood and saw? Will she be able to illustrate that particular time that spreads across time? Does she possess that transparent vision? Does she possess that detached objectivity?" (Chowdhury; 84 trans. mine). As such, Aditi's thoughts very well reflect the writer's mind. The novelist moves between the past and the present while writing. She is not writing about a static time and space. Aditi dwells between the times of her deep attachment with Assam Agitation where she used to communicate with all her past comrades and the present times with her colleagues and her two daughters. Her feelings very often shuffle between these two worlds. While sitting in the admission hall for her daughter's admission, she looks back at her past. She is thinking of writing about the past and travelling down memory lane. She is confident at one point of time that she would be able to critically analyse the past. She believes

that she was competent to adequately explore that particular time which began with the fiery slogan "Joi Aai Asom" (Glory to Assam) and remained stagnant in a valley of death. She will analyse these times objectively (Chowdhury 91; trans. mine).

In the beginning we are introduced to the protagonist's loss of hope and her disillusionment after her marriage with her companion who had become a minister by then. Her husband who was once a leader of the movement turned into a completely different man after gaining political power. He, the new powerful minister of Assembly turned to a person devoid of principles and values. Aditi says, "There were no memories of Assam Agitation, nor were there any responsibilities towards the state in the new house. There was only a cheap, repulsive ultra-modernism in the new house **(**Chowdhury; 23trans. mine)".

The novelist expresses her views on Assam Agitation, its effects on Assam and its social and political life not only through the protagonist, Aditi. Instead, her opinions are very well reflected in the statements of some other characters'. Aditi saw the Agitation from close quarters, she lived it and it definitely had a huge influence upon her personal and social life. When the novelist tries to talk about the Assam Agitation and its past effects through the eyes of Aditi, very often she desires the readers to remember some specific values and ideals of the movement. The ideals and principles of the movement are highlighted, at the same time the greed of power, loss of honesty and loss of integrity of the representatives in power are discussed with utter sorrow and regret. At times, the novelist's belief in the good effects of the movement is very well expressed. In an interview when Rita Choudhury is asked, "Has the Assam Movement been successful?", she answers: "Every movement has its positive and negative sides. It was a very strong movement but the people mistook it for a political movement. The AGP and the Assam Movement are two different aspects" (2012: *The Times of India*). Here, we feel a sense of desire of showing the agitation in a positive light by separating it from the political party that has been formed after the agitation by the leaders of the same agitation.

It is significant that the novelist expresses the positive points of the agitation and the virtuous effects of the movement not in Aditi's words, but through another character Manabendra who is Aditi's colleague. He says, "In my opinion the Assam Agitation was not a mistake. The demands of expulsion of illegal immigrants and of preservation of constitutional rights…these were some valid issues….Can a movement, such a big social movement be completely wrong, entirely corrupt and fully negative?" (Chowdhury; 127 trans. mine).At this point the novelist seems to be deeply attached to the movement, to its ideals and principles. But, the same author expresses her grief, remorse, frustration and loss of hope on several other occasions. It is the novelist's inner uncertainties that we hear in the thoughts of Aditi's daughter

Kajori: "On what ground is this a different political party? In what sense was the regional party that was born out of the Assam agitation a different one?"(Chowdhury; 61 trans. mine).
We can say that the novelist's return to memory or attempt to revisit the past operates at multiple levels. Very frequently she shuttles between the worlds of her deep involvement in the Assam Agitation and her present world. She sometimes looks back in anger, regrets her inability to fight against the loose immorality, corruption and dishonesty among her companions (including her own husband) after the participants of the movement attained power. Finally, the novelist portrays the protagonist as a strong character who came out to fight for justice. She (Aditi) became furious when she saw D.I.G. Praloy Goswami sitting in her drawing room talking to her husband (who was once a leader of the Assam movement and the powerful minister of parliament at that time). She questions her husband about the promotion of Goswami who shot her comrades of the Agitation. All her respect for her husband withered in a minute. In the novel there are numerous evidences of such emotions. Loss of faith in the powers that be and as the result of the sense of regret, pain and suffering, Aditi leaves her husband and starts a new life. Here we see the departure that the novelist tries to focus on. The novelist tries to make the readers believe what Aditi says and she succeeds in doing this to a great extent.

Through the conversation between Aditi and Prabhakara in chapter 21, the novelist gives a glimpse of the political scenario of the state after the Assam agitation. When the leaders of the agitation formed the government, the socio-political condition of the devote followers of the agitation underwent a change. Jealousy for the new members of the parliament and the desire for unaccomplished ambitions started to blur their paths of righteousness and values. In the words of Prabhakara, we are introduced to such a world, "The wife of the leaders are flattered/pleased by some MLA to get a seat in the ministry, some do that to enter the state cabinet, some others do that for many other vested interest. And the businessmen and high officers try to please them for posting, transfer of jobs etc" (Chowdhury; 190 trans. mine). Aditi replies to Prabhakara saying that there are many politicians' wives who are intentionally outside the territory of politics.
We know that Rita Choudhury is the wife of Chandramohan Patowari, who had hailed an important post in the Asom Gana Parishad ministry. But, in spite of being so integrally connected to the Assam agitation, she never joined electoral politics. She has been a faculty in Cotton College of Guwahati. While Aditi says, "People with self-respect do not try to snatch the power of other people" (Chowdhury; 190trans. mine), we hear the writer's voice. She wants us to remember that this is not a general situation. Instead, there are more positive things to be said. And for her, these positives are more true. At one point of time, one of the characters of the novel expresses the view that getting involved in a movement is totally different from the field of politics as a movement is guided by some rules, ideals and principles. But in politics lot of other factors work simultaneously. While the protagonist is critical of the change of attitude, behaviours and mentality of the activists of the movement who came to power, she is countered

by others with substantial arguments. But, she raises her voice against compromise. When she was told that compromise is a must for political survival, she says, "Why should one compromise to survive politically? Why could not he (her husband Chandan) protest against injustice alone? If he had spoken for his demands vehemently, there would have been thousands of people behind him? He would have been respected by all even if he was refused a ticket in the election" (Chowdhury; 194trans. mine). At times she repents her inactiveness after the Assam movement. She repents not speaking for the truth, for not exposing the injustice, and for not standing behind the common masses. Can we here draw a parallel between Rita Choudhuri and Aditi, the protagonist and the wife of the powerful minister of government?

It has already been said that conscious/unconscious use of memory by the writer make the readers remember certain things and events from a given perspective and obliterate some other things. This at times makes this work of Choudhury a political statement. Therefore, when the novelist tries to focus on the achievements of the new government mentioning the gas cracker project, fourth oil refinery, Sankaradeva Kalakhetra, the Bogibeel bridge over the Brahmaputra river, we sense an urge for clarification from active participants of the Assam Agitation. It is not Aditi but her friend who tries to convince Aditi that the new government has increased the royalty for oil and it has arranged 90 percent grant-in-aid and 10 percent loan of the money received from the central government (Chowdhury 212; trans. mine). Mrinmay Dutta, a committed communist leader says that due to their strong ideological principles they cannot support a movement which covers the profits of those who earn three lakhs rupees per day but fight against those whose earning is just thirty rupees per day. While the ideological differences between the supporters of Assam agitation and the left-wing intellectuals is quite obvious during the days of movement, ironically the novelist tries to question the validity of their own principles and to substantiate the Marxists' principles. After 30 years of the movement, she is now in a position to view the things more objectively and more critically. Therefore, along with the story of the novel there are constant discussions on different political beliefs and ideologies. In fact, in some chapters, there are hard political discussions which are loosely connected to the plot and theme of the novel. In chapter 23, the dialogue between Aditi, Prabhakara and the communist leader Mrinmoy Dutta seems to be more a discussion of political ideologies, of the pros and cons of the Assam Agitation and the communists' opposition to it. Towards the end of the novel, Rita Choudhury tries to look into the issues of political ideologies of different parties in the light of the college election of Mrs Aditi Choudhury. In a sense, after Chapter 21, the novel is about the writer's clarification of her strong faith in the ideology of Assam agitation and justification for whatever the participants of the movement did in their attempt to establish a 'sovereign' and 'golden' Assam. It is noticeable that whenever the novelist clarifies the position of the agitation activist or of the extremist (ULFA), it is always either by a less important character of the novel or by a character who is not depicted as an ideal person. After a bomb blast by the extremist

organization, Aditi is countered by someone, "…but, they speak the correct thing. Aren't the centre exploiting us? What did the centre give us after independence? We have to start an agitation for an oil refinery, for a bridge. India is an independent country, isn't it? Why then the government just submissively watch if lakhs of foreigners enter here? Why are they safeguarded? To establish the government with the help of the foreigners 'votes? And if we protest for the safety of our identity, if we start a revolution for the demand of expulsion of the foreigners, we are shot dead (Chowdhury 232-233; trans. mine)".

One of the characters of the novel, Arun Bora (who is portrayed as unsophisticated, crude person but also a vocal activist of the Assam Agitation who knew each nook and corner of the movements and also the lives after the people attained power) declares loudly that everything about the people involved in the movement and their present greed and lust for power. Aditi has met this person to collect some resources about the Assam agitation. In their conversation, Bora says, "Yes, we betrayed the Assamese people, we did not expel the illegal immigrants, we hadn't done anything. As such, people had dethroned/removed us from power. That is all right. We are very bad, we are sinners. They have rejected us as we could not expel the 'foreigners'. If that is true, those who have brought the 'foreigners' from fifty years ago, even now they are bringing, why are these people sent to Dispur laying red carpet? (Chowdhury 205; trans. mine)". These statements by the unsophisticated, drunken man, a former minister of the Asom Gana Parishad assembly definitely throws light on state politics. It is significant that Aditi has received a grant for a project to work on the Assam agitation and her friend took her to Arun Bora to get genuine facts about the movement.

In the process of self-explanation, the novelist makes some political statements. But, who uttered these statements in the conversation is neither made insignificant or is kept hidden. In a conversation among the group of friends who worked together for a greater cause of 'making Assam free from illegal immigrants', someone angrily expresses his voice, "…our people have again brought that political party into power which when in government power killed hundreds of Assamese people by using police and C.R.P.F. and safeguarded foreigners. We can accept that the regional party has not done anything good, it has not utilized the accord, has not expelled the illegal immigrants. Therefore, people have barred them from power. But is the political party that has now been voted to power going to expel the illegal immigrants? This party keeps on saying that there are no illegal immigrants in Assam?" (Chowdhury 300; trans. mine). The writer's disappointment with the new system is well expressed in these lines.

It is important that novelist Choudhury tries to probe into the idealism of the agitation days, while she feels that the new generations born after 1983 do not possess that idealism, nor do they try to feel it. The novel ends with the failure of ideological formulations that the writer

tries to incorporate in her companions and the new generation who "believe the forces of globalisation and selfish individualism" (Kalita, 2008: 31). The correct statement regarding the novel, I believe is

> Another strong point of the novel is its ability to illustrate the spirit that went into the Assam agitation and also the disappointment, disillusionment and the consequent distress that follows when ideas do not work the way you intend them to do. It captures a period and sentiment in the history of Assam which one can look back on with anger, shame, remorse or pride, but which one just simply cannot ignore (Kalita, 2008: 31).

==========

References

Baruah, Sanjib. (1994). "THE STATE AND SEPARATIST MILITANCY IN ASSAM Winning a Battle and Losing the War?" in *Asian Survey*, Vol. 34, No. 10 (Oct), pp. 863-877

Bhuyan, S. K. (1974). *Anglo Assamese Relations: 171-1826*, Guwahati

Bora, Jnananath. (1936). "Kamrup Aru Bharatvarsha", in *Awahan* (Assamese), Vol.8, No. 3

Bora, Jnananath. (1938). "Asom Desh Bharatvarshar Bhitarat Thakiba Kiyo?" in *Awahan* (Assamese), Vol.10, No. 3-4

Chowdhury, Rita. (2007). *Ai Samay, Sai Samay (These Times, Those Times)*, Guwahati: Banalata,

Gohain, Hiren. (2007). "Chronicles of Violence and Terror: Rise of United Liberation Front of Asom" In *Economic and Political Weekly*, Vol. 42, No. 12 (Mar. 24-30), pp. 1012-1018
URL: http://www.jstor.org/stable/4419382
Accessed: 11-12-2015 10:34 UTC

Goswami, Prafulladatta. ed. (1982, 2007). Kamalakanta Bhattacharya *Rachanavali*. Gauhati: Publication Board Assam,

Goswami, Uddipana. (2014). *Conflict and Reconciliation: The Politics of Ethnicity in Assam*. New Delhi: Routledge

Guha, Amalendu. (1988, 1977). *Planter raj to swaraj: freedom struggle and electoral politics in Assam (1826- 1947)*. New Delhi: People's Publishing House

Guha, Amalendu. (1980) "Little Nationalism Turned Chauvinist: Assam's Anti-Foreigner Upsurge" in In *Economic and Political Weekly*, (Vol. 15, No. 1241/43, Oct) pp. 1699-1720 http://www.jstor.org/stable/4369155
Accessed: 15-03-2016 07:23 UTC

Hussain, Manirul. (1994). *The Assam Movement, Class, Ideology and Identity*. New Delhi: Manak Publications in association with Har-Anand Publications

Kalita, Rajarshi. (2008) "Shame and pride: Nellie 1983: A post-mortem Report into the Most Barbaric Massacre of Assam Movement in *Nellie on 18 Feb. 1983* By Diganta Sharma,

Ekalabya Prakashan, 2007, *25 Years On . . . Nellie* still Haunts By Hemendra Narayan Self-published, Delhi, 2008, *Ei Samay, Sei Samay* By Rita Chaudhury Banalata, Guwahati, 2007"in *Biblio*, VOL XIII NOS. 5 & 6 ● MAY-JUNE

Kashyap, Aruni. (2012). "The fiction of Assamese Augusts" in **ASSAM: UNSTABLE PEACE** a Symposium on Politics, Society, Culture and the Challenges of Reconciliation in December

Misra, Tilottoma. (1987). *Literature and Society in Assam*, New Delhi: Omsons Publication

Misra, Udayon. (2000, 2013). *The Periphery Strikes Back*, Shimla: Indian Institute of Advance Study

Misra, Udayon.ULFA: Beginning of the End" in *Economic and Political Weekly*, Vol. 44, No. 52 (DECEMBER 26, 2009-JANUARY 1, 2010), pp. 13-16

Samyukta Mukti Bahini Asom [United Liberation Front of Assam], Sanyukta Mukti Bahini Asomor Dosom Protistha Dibos, Bishesh Procar Patra [Tenth foundation day of ULFA, special publicity pamphlet], 7 April 1979 ("Doi-kao-rong": United Liberation Front of Assam, n.d.), p. 4. 12. M. S. Prabhakara, "The Mailed Fist," Frontline [Madras], July 7-20, 1990.

==========

ISSN : 2249-0612 Volume VII : 2018
Pp.116-129

MANAVAYATAN
THE HUMANOSPHERE
Journal on Humanities of Centre for Studies in Humanities

অৰণ্য, মানৱাধিকাৰ আৰু বিকাশৰ ধাৰণাৰে নাৰায়ণৰ *কচ্ছাৰেথি ঃ আৰায়া নাৰী*ৰ এক অধ্যয়ন

জুৰি দত্ত

অৰণ্য, বিকাশ আৰু মানৱাধিকাৰ - আপাতত সামঞ্জস্যবিহীন তিনিটা বিষয়। আপাতত সামঞ্জস্যবিহীন এই তিনিটা ধাৰণা প্ৰকৃততে এটা আনটোৰ লগত কিমান গভীৰ ভাৱে সম্পৰ্কিত সেয়া আলোচনা কৰিবলৈ একোটা সাহিত্যিক পাঠেই আমাক সহায় কৰিব পাৰে, দক্ষিণ ভাৰতৰ জনজাতীয় সমাজ জীৱন ভিত্তিক মালয়ালম উপন্যাস *কচ্ছাৰেথি ঃ আৰায়া নাৰী*ৰ বিভিন্ন দিশৰ কিছু ব্যাখ্যাৰ জৰিয়তে এই পত্ৰখনত এই ধাৰণা কেইটাৰ সম্পৰ্কক এক নতুন দৃষ্টিৰে বিশ্লেষণ কৰিবলৈ চেষ্টা কৰা হৈছে। এটা সমীক্ষাত প্ৰকাশ পাইছে যে ভাৰতৰ প্ৰায় ৭০ শতাংশ নাগৰিকৰ জীৱন-ধাৰণৰ উপায় মাটি বা প্ৰকৃতিৰ সৈতে সম্পৰ্কিত। তাৰোপৰি খোৱাপানী, খাদ্য, ঘৰ-দুৱাৰ, ঔষধ-পথ্য আৰু ইন্ধন- এই সকলোবোৰৰ বাবেই মানুহ প্ৰকৃতিৰ ওপৰত নিৰ্ভৰশীল [TPCG and Kalpavriksh 2005][1]। তথাপি বিকাশৰ নামত অৰণ্য ধ্বংস আৰু মানুহৰ মৌলিক অধিকাৰ খৰ্ব আদিৰ দৰে কিছুমান কথা আমাৰ দেশত নিৰ্বিঘ্নে চলি থাকে। উল্লেখিত উপন্যাসখনৰ বিশ্লেষণে এনে অনেক ধাৰণা স্পষ্ট কৰিব।

দক্ষিণ ভাৰতৰ জনগোষ্ঠীয় লেখকসকলৰ প্ৰথম বুলি গণ্য কৰা নাৰায়ণৰ প্ৰথমখন উপন্যাসেই হৈছে *কচ্ছাৰেথি ঃ আৰায়া নাৰী* (*Kocharethi: the araya woman*)। সেইফালৰ পৰা *কচ্ছাৰেথি ঃ আৰায়া নাৰী* ক দক্ষিণ ভাৰতৰ প্ৰথম জনজাতীয় উপন্যাস বুলি ক'ব পাৰি। উপন্যাসখন মালয়ালম ভাষাত প্ৰথম প্ৰকাশ হয় ১৯৯৮ চনত। অৱশ্যে লেখক নাৰায়ণে কিতাপখন লিখি শেষ কৰিছিল ইয়াৰো

সাতসৰী

ষোড়শ বছৰ, দ্বিতীয় সংখ্যা • ছেপ্টেম্বৰ, ২০২০

SATSARI

Vol. No.: 16, Issue No. 02 • September, 2020 • Pages : 128

Reg. No. : ASSASS/2011/35776

ISSN: 2319-8893 • Rs.30.00

প্ৰ ব ন্ধ
নি ব ন্ধ

অপূর্ব শর্মা • সৌৰভ কুমাৰ চলিহা স্মৰণ আৰু কিঞ্চিৎ ব্যক্তিগত • ২৪
জুৰি দত্ত, দেৱর্ষি নাথ • সংকটকালীন সাহিত্য আৰু অধ্যয়নৰ প্রাসংগিকতা • ২৭
ড° দীপকজ্যোতি বৰুৱা • মহামাৰী আৰু বিশ্বসাহিত্য • ৩৮
ধ্রুৱ শইকীয়া • লেবাননত চার্নবিল দুর্যোগৰ পুনৰাবৃত্তি • ৪২
ড° গৰিমা কলিতা • অস্তিত্ববাদ আৰু সমকালীনতাৰ প্রতীকী অনুধাৱন • ৪৪
অৰিন্দম বৰকটকী • জাকৰ মাজত থাকিও কিছুমান তৰা অকলশৰীয়া • ৪৮
ড° ভুৱন গগৈ • সাম্প্রতিক অসমীয়া সংগীতৰ ধাৰা • ৫২
জয়ন্ত মাধৱ তামুলী • উত্তৰ-পূর্বাঞ্চলীয় সাহিত্য ঃ স্থিতি আৰু সম্ভাৱনা • ৫৭
ড° মালিনী • প্রাচীন ভাৰতীয় সাহিত্যত আধুনিক বিশ্বৰ ইংগিত • ৬০

ক বি তা

কৰবী ডেকা হাজৰিকা, উদয় কুমাৰ শর্মা • ৬৩
জীৱন নৱহ • ৬৪
ধ্রুৱকুমাৰ তালুকদাৰ • ৬৫
ড° পূর্ণ ভট্টাচার্য • ৬৬
গার্গী ভূঞা, দীপিকা দেৱী কলিতা • ৬৭

গ ল্প

ৰত্নোত্তমা দাস বিক্রম • খুনখ'ৰা • ৬৮
ড° মানিক শইকীয়া • পুনর্জন্ম • ৭৫

অ নু বা দ
গ ল্প

মূল ঃ **কল্পনা ৰায়**, অনুবাদ ঃ **মীৰা গোস্বামী** • লক্ষ্মীনাথ • ৮১

ধাৰাবাহিক উপন্যাস

ড° ধ্রুৱজ্যোতি বৰা • কৃষক-বিদ্রোহী-সৈনিক-ৰাজন • ৮৭
য়েছে দৰজে ঠংচি • ঢোলৰ ছেৰত লামছিৱা • ৯১
গী দ মোপাছাঁৰ বেল-আমি, অনুবাদ ঃ **মীনাক্ষি বুঢ়াগোহাঁই** • ৯৫

সংকটকালীন সাহিত্য আৰু অধ্যয়নৰ প্ৰাসংগিকতা

জুৰি দত্ত
দেৱৰ্ষি নাথ

সাহিত্যৰ সংজ্ঞা নিৰূপণ আৰু প্ৰাসংগিকতাৰ প্ৰশ্ন অতীত কালৰ সমালোচক-দাৰ্শনিকসকলৰ মনত এক আলোচনাযোগ্য গুৰুত্বপূৰ্ণ বিষয় আছিল। প্ৰাচীন কালৰ গ্ৰীক দাৰ্শনিক প্লেটো আৰু এৰিষ্টটলৰ দিনৰে পৰা সাহিত্য সৃষ্টি, সাহিত্য পঠন, চৰ্চা আৰু সাহিত্য আলোচনাৰ প্ৰাসংগিকতাৰ বিষয়ে পৃথিৱীৰ বহু বিখ্যাত চিন্তাবিদ-লেখকে অনেক কথা কৈ আহিছে। কিন্তু আধুনিক জীৱনত সাহিত্য সৃষ্টি, সাহিত্য চৰ্চা আৰু সাহিত্য অধ্যয়নৰ ভূমিকা সম্পৰ্কে সৰ্বসাধাৰণ গৱেষক-চিন্তাবিদ আৰু দাৰ্শনিকসকলৰ ধাৰণা কি— এই বিষয়ে সম্প্ৰতি বৰ বিশেষ আলোচনা হোৱা চকুত পৰা নাই। সৰ্বসাধাৰণৰ বিশ্বাস যে জীৱনৰ নিশ্চয়তা আৰু আশাবাদৰ সন্ধান দিয়াত বিজ্ঞান আৰু বিজ্ঞানৰ নিত্য-নতুন আৱিষ্কাৰসমূহৰ এক গুৰুত্বপূৰ্ণ অৱদান আছে। প্ৰচলিত বাগ্‌ধাৰাত বাহ্যিক আৰু বস্তুগত লাভালাভৰ দিশৰ পৰা বিশ্লেষণ কৰিলে কেৱল বৈজ্ঞানিক আৱিষ্কাৰসমূহে নতুন পৃথিৱীৰ কাৰণে গুৰুত্বপূৰ্ণ।

ওঠৰশ শতিকাৰ ঔদ্যোগিক পুঁজিবাদৰ উত্তৰণৰ লগে লগে এনেধৰণৰ বস্তুবাদী চিন্তাচৰ্চাৰ প্ৰকাশ সঘনে দেখিবলৈ আৰু শুনিবলৈ পোৱা গৈছিল। এনেধৰণৰ মানসিকতাৰ জন্ম ঔদ্যোগিক পুঁজিবাদৰ ফল, যি প্ৰতিটো কথাই বস্তুবাদী লাভালাভ আৰু উপযোগিতামূলক দিশৰ পৰাই জুখিব বিচাৰে। সেয়ে বাস্তৱবাদীসকলে যুক্তি দিয়ে— 'এজন উৎপাদনশীল ব্যক্তি হ'বলৈ, গোলকীয় অৰ্থনীতিত প্ৰতিযোগিতা কৰিবলৈ কাকো সাহিত্য নালাগে। আচলতে সাহিত্যৰ ন্যূনতম জ্ঞান নোহোৱাকৈ অৰ্থনৈতিক বজাৰত কোনো ব্যক্তি বৰ সফল হ'ব পাৰে— তেনেকুৱা বাস্তৱ উদাহৰণ অলেখ। ভৱিষ্যতৰ কাৰণে গুৰুত্বপূৰ্ণ পঠনযোগ্য বিষয় হৈছে তথ্য আৰু মূল পঠনশৈলী হৈছে তথ্য সংগ্ৰহ আৰু তথ্য আদান-প্ৰদান প্ৰক্ৰিয়া। সাহিত্য হৈছে অপেৰাধৰ্মী কলা (opera-an ancane), জীৱনৰ মচলা আৰু একধৰণৰ বাখৰুৱা প্ৰলেপ। কিন্তু ই জীৱনৰ মূল বা প্ৰধান অংশ নহয়। সেয়ে সাহিত্য যিহেতু অপৰিহাৰ্য নহয়েই, ই পাঠ্যক্ৰমৰ এটা প্ৰধান অংগ বা অংশ হোৱাৰ কোনো যুক্তি

2020

Synthesis of Self-Healing Bio-Based Tannic Acid-Based Methacrylates By Thermoreversible Diels–Alder Reaction

Junali Handique, Joly Gogoi, Jayashree Nath, Swapan Kumar Dolui
Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, 784028, India

This investigation reports the effective use of the Diels–Alder (DA) click reaction in the preparation of self-healing bio-based dendritic methacrylates having reactive furfuryl functionality. Bio-based methacrylates were synthesized by modifying tannic acid with glycidyl methacrylate and furfuryl functionality was introduced by atom transfer radical polymerization with varied amount of furfuryl methacrylate monomer. The thermoreversible network was successfully achieved by DA and retro-DA reaction between the furfuryl groups and a bifunctional maleimide crosslinker, bismaleimide. This process was studied by nuclear magnetic resonance spectroscopy, Fourier transform infrared spectroscopy, thermogravimetric analysis, and solvent exposure tests. Differential scanning calorimetry analysis was used to determine the endothermic retro-DA reaction in the DA adduct. The self-healing property of the above crosslinked material was demonstrated by monitoring the repair of a scratch in the polymer film upon heating and cooling. This was analyzed by scanning elec-

followed by some researchers and they developed thermo-healable epoxy resin by modifying the epoxy monomer with the DA group. Liu and Hsieh [21] set epoxy compounds as precursors to simply synthesize thermally mendable crosslinked polymers. Subsequently, epoxy resin with furan groups was made by Tian et al. [22, 23] and reacted with bifunctional maleimide to form a crosslinked epoxy that can heal the cracks resulting from reverse DA (rDA) and DA reactions. The reaction was not limited to epoxy only and Bose et al. synthesized a one-component DA copolymer of methacrylates and pendant groups of both furan and maleimide moieties were incorporated into it [27]. Schubert and coworkers studied a group of terpolymers consisting of a methacrylate backbone containing functional moieties for reversible crosslinking by DA reaction for its application as self-healing coatings [28]. The use of DA cycloadditions (specifically those between various maleimide and furan derivatives) was accelerated by both the commercial availability and chemical comprehensibil-

Received: 16 October 2019 | Revised: 27 January 2020 | Accepted: 8 February 2020
DOI: 10.1002/app.49193

ARTICLE

Applied Polymer SCIENCE WILEY

Multifunctional mussel-inspired Gelatin and Tannic acid-based hydrogel with pH-controllable release of vitamin B_{12}

Jayashree Nath[1] | **Priyanka Pratim Saikia**[1] | **Junali Handique**[1] | **Kuldeep Gupta**[2] | **Swapan Kumar Dolui**[1]

[1]Department of Chemical Sciences, Tezpur University, Tezpur, Assam, India
[2]Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur, Assam, India

Correspondence
Swapan Kumar Dolui, Department of

Abstract

Hydrogels have emerged to be an impeccable material for a large variety of applications over the past few decades. In the field of biomedical applications, remarkable progress has been observed in the effort of fabricating numerous hydrogel systems. In this work, gelatin and tannic acid-based stretchable and adhesive hydrogel has been synthesized to study the release behavior of vitamin B_{12}. Suc-

Applied Clay Science 190 (2020) 105569

Contents lists available at ScienceDirect

Applied Clay Science

journal homepage: www.elsevier.com/locate/clay

Research Paper

Acrylic acid grafted gelatin/LDH based biocompatible hydrogel with pH-controllable release of vitamin B_{12}

Jayashree Nath, Asfi Ahmed, Priyankamoni Saikia, Anupam Chowdhury, Swapan K. Dolui*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India

ARTICLE INFO

Keywords:
Hydrogel
LDH
Swelling
pH-responsivity
Drug release

ABSTRACT

In this work, gelatin-g-poly(acrylic acid) based pH-sensitive nanocomposite hydrogels incorporated with Layered Double Hydroxide (LDH) were developed. Using various spectroscopic techniques such as FTIR, XRD, SEM, EDX and TEM, the polymeric hydrogels were characterized. FTIR confirmed grafting of partially neutralized Acrylic Acid (AAc) on the backbone of Gelatin. Incorporation of LDH fillers inside the hydrogel matrix was established from XRD data. Inclusion of LDH resulted wrinkled morphology of the surface of the hydrogel from the SEM images. Formation of nanocomposites were further evaluated by TEM analysis which displayed significant change in the TEM morphology of the nanocomposite hydrogel. Using DLS, particle size for LDH were determined further and was found to be around 100 nm. Swelling value of the hydrogel was around 34 g/g. Biocompatibility results showed enhanced blood compatibility for the hydrogels. The controlled release studies performed using the hydrogels demonstrated vitamin B_{12} was released in Artificial Gastric Fluid (AGF) and in Artificial Intestinal Fluid (AIF) in a controlled manner. The release study was carried out for 7 h each and was evaluated using UV-visible spectrophotometer. From the curves, the cumulative release in AGF and AIF was found to be 24% and 31%, respectively.

Contents lists available at ScienceDirect

Inorganica Chimica Acta

journal homepage: www.elsevier.com/locate/ica

Research paper

Bis- and mixed-ligand copper(II) complexes of nalidixic acid the antibacterial drug: Mode of nalidixate coordination determines DNA binding and cleavage and cytotoxicity

Mitu Sharma[a], Mani Ganeshpandian[b], Airy Sanjeev[c], Ajaykamal Tamilarasan[a], Venkata Satish Kumar Mattaparthi[c], Nashreen S. Islam[a,*], Mallayan Palaniandavar[d,*]

[a] Department of Chemical Sciences, Tezpur University, Tezpur 784 028, India
[b] Department of Chemistry, SRM Institute of Science & Technology, Kattankulathur, Chennai 603 203, Tamil Nadu, India
[c] Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur 784 028, India
[d] School of Chemistry, Bharathidasan University, Tiruchirappalli 620 024, Tamil Nadu, India

ARTICLE INFO

Keywords:
Copper(II)
Nalidixic acid
Bis-ethylenediamine complex
DNA docking
Oxidative DNA cleavage
Cytotoxicity

ABSTRACT

The new complexes $[Cu(nal)_2]\cdot 2H_2O$ **1** and $[Cu(en)_2(nal)_2]$ **2**, where H(nal) is the antibacterial drug nalidixic acid, have been isolated and their X-ray structures successfully determined. The complex **1** possesses a square planar CuO_2 chromophore constituted by the pyridone and carboxylate oxygen atoms of nalidixate anion. Complex **2** contains a CuN_4O_2 chromophore with a tetragonally distorted octahedral geometry, and the trans-axial coordination of two nalidixate anions at longer distances to the CuN_4 plane constituted by ethylenediamine is stabilized by a network of H-bonding. DFT studies illustrate the structures and stabilities of complexes. The DNA binding affinity of **2** (K_b, 9.2 (±0.2) × 10^4 M^{-1}) is higher than that of $[Cu(en)_2]^{2+}$ (K_b, 2.0 (±0.2) × 10^4 M^{-1}), illustrating that bound nal enhances the DNA binding affinity. DNA docking studies reveal that **2** bound to DNA undergoes interesting coordinative distortions more than **1**, causing more significant changes in DNA host. Thus, **2** displays oxidative DNA cleavage (ascorbic acid) more prominent than $[Cu(en)_2]^{2+}$, by generating $^{\bullet}OH$ radicals, and shows poor cytotoxicity towards A549 lung cancer cell lines.

1. Introduction

Transition metal complexes offer extensive potential in medicinal chemistry and drug design [1,2], and copper complexes, particularly, are enticing current interest in the development of chemotherapeutic agents [3]. Copper(II) complexes are considered the best alternatives for platinum based anticancer drugs as they can provide a promising platform for designing different anticancer drugs by overcoming the side effects including nephrotoXicity, emetogenesis, neuroteXicity, ototeXicity, nausea and vomiting caused by the platinum drugs [4,5]. Copper, an essential biometal possessing accessible redoX properties [6–9], works as a structural and catalytic cofactor [8,9], plays significant roles in the biological systems, and shows synergistic activity with many drugs as well [10–12]. Due to lower toXicity towards normal cells than cancer cells and high nucleobase affinity [13–16], copper(II) complexes can activate apoptotic cell death as a result of DNA damage that occurs inside the cell by the activation of pro-apoptotic proteins or anti-apoptotic proteins [17,18]. Thus, the interaction of copper(II) complexes at specific sites of biomolecules such as polymeric DNA strand has been explored [19–25] in order to understand the chemical principles underlying the cytotoXic activity of complexes against different cancer cells.

Quinolone carboXylic acids (Quinolones) are synthetic antibacterial drugs used for treating a variety of infections as they possess a wide spectrum of activity [26,27]. They are well-known to act against bacteria by exerting eukaryotic topoisomerase II inhibitory activity, and disrupting the function of DNA gyrase and topoisomerase IV enzymes that are involved in DNA replication [28,29]. The copper(II) complexes of quinolone shows enhanced DNA fragmentation, apoptotic action and anti-proliferative activity against different cancer cell lines as a result of synergistic activity of quinolone ligands [30–41]. Thus, the complexes [Cu(pr-norf)(phen)Cl], where H(pr-norf) is *N*-propylnorfloXacin and phen is 1,10-phenanthroline, exhibits apoptosis by inducing DNA fragmentation on leukemia cells [42]. Also, [Cu(sf)(bpy)Cl] and [Cu(sf)(phen)Cl], where H(sf) is sparfloXacin, bpy is 2,2′-bipyridine, and phen is 1,10-phenanthroline, have also shown increased cytotoXicity in a

European Journal of Wood and Wood Products (2020) 78:1265–1278
https://doi.org/10.1007/s00107-020-01568-3

ORIGINAL ARTICLE

Development of wood polymer composites with thermosetting resin from soybean oil cross-linked with rosin derivative

Moon Mandal[1] · Pritam Bardhan[2] · Manabendra Mandal[2] · Tarun K. Maji[1]

Received: 19 September 2019 / Published online: 5 September 2020
© Springer-Verlag GmbH Germany, part of Springer Nature 2020

Abstract
Wood polymer composites (WPCs) were prepared via compression molding technique using wood flour and methacrylic anhydride modified epoxidized soybean oil (MAESO) copolymerized with triallyl maleopimarate (TMPA). Various percentages of TMPA were incorporated into the composite system to compare the properties of the final WPCs. TMPA was synthesized from rosin acid and the chemical structure was characterized by ^{1}H-nuclear magnetic resonance (NMR) and Fourier transform infrared (FTIR) spectroscopy. The interaction between wood flour, MAESO and TMPA were revealed by FTIR and scanning electron microscope (SEM) study. Results demonstrated that TMPA was effective in enhancing the mechanical and thermal properties of the composites. Flame retardancy, biodegradability, chemical resistance, and dimensional stability significantly improved after the incorporation of TMPA into the composites. Wood polymer composites loaded with 30 wt% of TMPA exhibited maximum improvement in properties compared to other systems.

1 Introduction

In recent years, there has been a rapid increase in the application of wood polymer composites (WPCs) due to its advantageous properties for different construction purposes and outdoor applications (Olakanmi and Strydom 2016; Ashori and Nourbakhsh 2010). They consist of reinforcing wood fibers incorporated into a continuous polymer matrix. Polymer matrix transmits externally applied loads through the interfacial shear stresses to the reinforcing wood fibers and protects the fibers from external damage whereas the reinforcing fibers impart strength and stiffness to the composites (Saba et al. 2016). Numerous studies are underway on the preparation and application of WPCs due to their superior features such as ease of processing, high mechanical strength and cost reduction. They have various advantages such as low cost, low density, good thermal and mechanical resistance, degradable characteristics and environment friendliness (Ghorbani et al. 2017; Mohanty et al. 2002; Bajwa et al. 2016). Other factors such as low maintenance and color stability have also contributed to the market growth of WPCs. The use of WPCs is growing in many sectors such as automobiles, furniture, packing and construction. WPCs generally exhibit remarkable improvement in properties of wood like low moisture absorption, dimensional stability, mechanical properties and high resistance to UV ray damage, insects etc. (Azwa et al. 2013; Delgado-Aguilar et al. 2017; Domínguez-Robles et al. 2018).

Plant oils are one of the cheapest renewable materials found in abundance in all parts of the world. These materials have economic and environmental advantages over petroleum-based materials, making them an attractive alternative (Sharma and Kundu 2006; Klaas and Warwel 1999). Chemically, plant oils are triglycerides, which are the product of esterification of glycerol with three fatty acids. The glycerol molecule consists of a chain of three carbon atoms that are connected to three hydroxyl groups (Li et al. 2017). They contain many active functional groups, such as double bonds and hydroxyl groups, which can be chemically modified to produce polymers with the desired level of properties (Lu et al. 2005; Islam et al. 2014; Boquillon 2006). The purpose of modifications is to reach a higher level of molecular weight and crosslink density and also to incorporate chemical functionalities to impart stiffness in a polymer network, which may lead to better mechanical properties (Williams and Wool 2000). In addition, it offers numerous advantages such as low toxicity and inherent biodegradability. Due to

✉ Tarun K. Maji
tkm@tezu.ernet.in

[1] Department of Chemical Sciences, Tezpur University, Assam 784028, India
[2] Department of Molecular Biology and Biotechnology, Tezpur University, Assam 784028, India

Springer

Dalton Transactions

PAPER

ROYAL SOCIETY OF CHEMISTRY

View Article Online
View Journal

Check for updates

Cite this: DOI: 10.1039/d0dt00928h

Octahedral copper(II)-diimine complexes of triethylenetetramine: effect of stereochemical fluxionality and ligand hydrophobicity on Cu^{II}/Cu^{I} redox, DNA binding and cleavage, cytotoxicity and apoptosis-inducing ability†

Mitu Sharma,[a] Mani Ganeshpandian,[b] Mugmi Majumder,[c] Ajaykamal Tamilarasan,[a] Mukesh Sharma,[c] Rupak Mukhopadhyay,[c] Nashreen S. Islam[*a] and Mallayan Palaniandavar[*d]

Octahedral copper(II) complexes of the type $[Cu(trien)(diimine)](ClO_4)_2$ (1–4), where trien is triethylenetetramine and diimine is 2,2′-bipyridine (1), 1,10-phenanthroline (2), 5,6-dimethyl-1,10-phenanthroline (3), and 3,4,7,8-tetramethyl-1,10-phenanthroline (4), have been isolated. Single crystal X-ray structures of 1 and 2 reveal that the coordination geometry around Cu(II) is tetragonally distorted octahedral. The stereochemical fluxionality of the complexes illustrates the observed trend in Cu^{II}/Cu^{I} redox potentials and DNA binding affinity (K_b: 1, 0.030 ± 0.002 < 2, 0.66 ± 0.01 < 3, 1.63 ± 0.10 < 4, 2.27 ± 0.20 × 10^5 M^{-1}), determined using absorption spectral titration. All complexes effect oxidative DNA cleavage more efficiently than hydrolytic DNA cleavage. The bpy complex 1 with stereochemical fluxionality lower than its phen analogue 2 shows a higher cytotoxicity against both A549 lung (IC_{50}, 3.3 μM) and MCF-7 human breast (IC_{50}, 3.9 μM) cancer cells, and induces the generation of the highest amount of ROS in A549 cells. Complex 3 with a higher stereochemical fluxionality and higher ligand hydrophobicity exhibits a higher DNA binding and cleavage ability and higher cytotoxicity (IC_{50}, 2.1 μM) towards MCF-7 cells. Complex 4

Original article

JOURNAL OF THERMOPLASTIC COMPOSITE MATERIALS

Journal of Thermoplastic Composite Materials
1–20
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0892705720935968
journals.sagepub.com/home/jtc
SAGE

Influence of organically modified nanoclay and TiO_2 nanopowder on the properties of *Azadirachta indica* wood flour-reinforced high-density polyethylene, low-density polyethylene, polypropylene, and polyvinyl chloride nanocomposite

Vamsi Rathnam[1], Arenjungla Kichu[1], Nipu Dutta[2], Tarun K Maji[2] and Nirmala Devi[1]

Abstract
The nanocomposites of high-density polyethylene, low-density polyethylene, polypropylene, and poly(vinyl chloride) reinforced with *Azadirachta indica* wood flour (WF) and different amounts of the organomodified nanoclay and titanium dioxide (TiO_2) nanopowder were produced by melt-blending process followed by compression molding. Polyethylene-*co*-glycidyl methacrylate (PE-*co*-GMA) was used as a compatibilizer. TiO_2 nanopowder was synthesized by sol–gel method and characterized using transmission electron microscopy (TEM). The average size of the synthesized nano-TiO_2 was 17.5 nm, which was confirmed both by TEM and X-ray diffraction (XRD) study. The distribution of nanoparticles in the nanocomposites was also examined by the XRD study. The surface modification of the TiO_2 nanoparticles by organic surfactant cetyl trimethyl ammonium bromide and their interaction with the wood and the polymer were studied by Fourier transform infrared spectroscopy. Incorporation of compatibilizer PE-*co*-GMA, nanoclay, and nano-TiO_2 significantly influenced the mechanical and

[1] Department of Science and Humanities, National Institute of Technology Nagaland, Dimapur, Nagaland, India
[2] Department of Chemical Sciences, Tezpur University, Napaam, Assam, India

Corresponding author:
Nirmala Devi, Department of Science and Humanities, National Institute of Technology Nagaland, Dimapur 797103, Nagaland, India.
Email: nirmaladevi2040@gmail.com

Journal of Environmental Chemical Engineering
Volume 8, Issue 6, December 2020, 104410

A study of suitability of limestone for fluoride removal by phosphoric acid-crushed limestone treatment

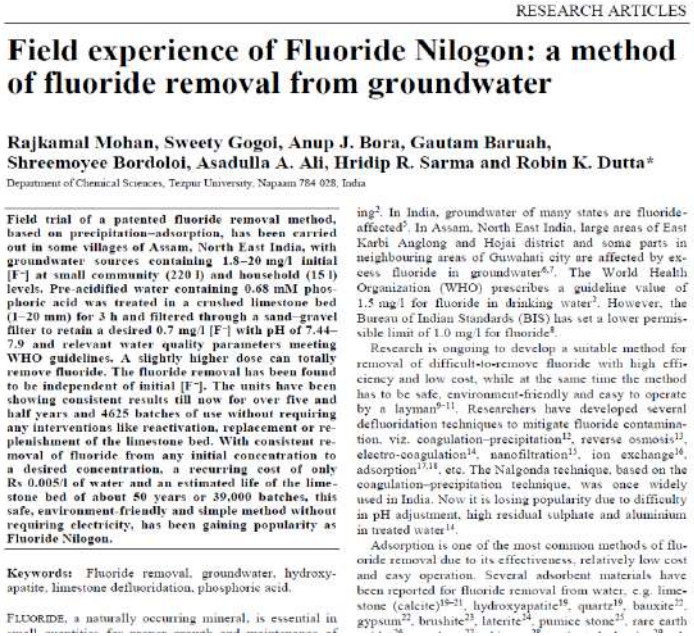
Rajkamal Mohan, Robin K. Dutta

Show more

+ Add to Mendeley Share Cite

https://doi.org/10.1016/j.jece.2020.104410

Get rights and content



RESEARCH ARTICLES

Field experience of Fluoride Nilogon: a method of fluoride removal from groundwater

Rajkamal Mohan, Sweety Gogoi, Anup J. Bora, Gautam Baruah, Shreemoyee Bordoloi, Asadulla A. Ali, Hridip R. Sarma and Robin K. Dutta*

Department of Chemical Sciences, Tezpur University, Napaam 784 028, India

Field trial of a patented fluoride removal method, based on precipitation–adsorption, has been carried out in some villages of Assam, North East India, with groundwater sources containing 1.8–20 mg/l initial [F⁻] at small community (220 l) and household (15 l) levels. Pre-acidified water containing 0.68 mM phosphoric acid was treated in a crushed limestone bed (1–20 mm) for 3 h and filtered through a sand–gravel filter to retain a desired 0.7 mg/l [F⁻] with pH of 7.44–7.9 and relevant water quality parameters meeting WHO guidelines. A slightly higher dose can totally remove fluoride. The fluoride removal has been found to be independent of initial [F⁻]. The units have been showing consistent results till now for over five and half years and 4625 batches of use without requiring any interventions like reactivation, replacement or replenishment of the limestone bed. With consistent removal of fluoride from any initial concentration to a desired concentration, a recurring cost of only Rs 0.005/l of water and an estimated life of the limestone bed of about 50 years or 39,000 batches, this safe, environment-friendly and simple method without requiring electricity, has been gaining popularity as Fluoride Nilogon.

Keywords: Fluoride removal, groundwater, hydroxyapatite, limestone defluoridation, phosphoric acid.

FLUORIDE, a naturally occurring mineral, is essential in

ing[2]. In India, groundwater of many states are fluoride-affected[3]. In Assam, North East India, large areas of East Karbi Anglong and Hojai district and some parts in neighbouring areas of Guwahati city are affected by excess fluoride in groundwater[4–7]. The World Health Organization (WHO) prescribes a guideline value of 1.5 mg/l for fluoride in drinking water[2]. However, the Bureau of Indian Standards (BIS) has set a lower permissible limit of 1.0 mg/l for fluoride[8].

Research is ongoing to develop a suitable method for removal of difficult-to-remove fluoride with high efficiency and low cost, while at the same time the method has to be safe, environment-friendly and easy to operate by a layman[9–11]. Researchers have developed several defluoridation techniques to mitigate fluoride contamination, viz. coagulation–precipitation[12], reverse osmosis[13], electro-coagulation[14], nanofiltration[15], ion exchange[16], adsorption[17,18], etc. The Nalgonda technique, based on the coagulation–precipitation technique, was once widely used in India. Now it is losing popularity due to difficulty in pH adjustment, high residual sulphate and aluminium in treated water[14].

Adsorption is one of the most common methods of fluoride removal due to its effectiveness, relatively low cost and easy operation. Several adsorbent materials have been reported for fluoride removal from water, e.g. limestone (calcite)[19–21], hydroxyapatite[19], quartz[19], bauxite[22], gypsum[22], brushite[23], laterite[24], pumice stone[25], rare earth

Journal of Environmental Chemical Engineering
Volume 8, Issue 4, August 2020, 103840

Continuous fixed-bed column assessment for defluoridation of water using HAp-coated-limestone

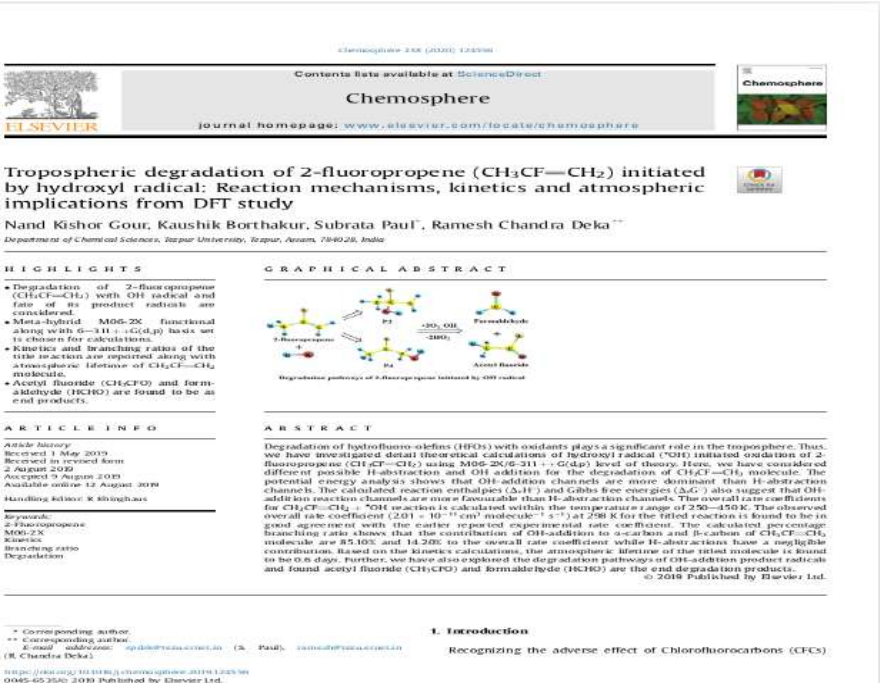
Rajkamal Mohan, Robin K. Dutta

Show more

+ Add to Mendeley Share Cite

https://doi.org/10.1016/j.jece.2020.103840

Get rights and content



Contents lists available at ScienceDirect

Chemosphere

journal homepage: www.elsevier.com/locate/chemosphere

Tropospheric degradation of 2-fluoropropene ($CH_3CF{=}CH_2$) initiated by hydroxyl radical: Reaction mechanisms, kinetics and atmospheric implications from DFT study

Nand Kishor Gour, Kaushik Borthakur, Subrata Paul*, Ramesh Chandra Deka**

Department of Chemical Sciences, Tezpur University, Tezpur, Assam, 784028, India

HIGHLIGHTS

- Degradation of 2-fluoropropene ($CH_3CF{=}CH_2$) with OH radical and fate of its product radicals are considered.
- Meta-hybrid M06-2X functional along with 6–311++G(d,p) basis set is chosen for calculations.
- Kinetics and branching ratios of the title reaction are reported along with atmospheric lifetime of $CH_3CF{=}CH_2$ molecule.
- Acetyl fluoride (CH_3CFO) and formaldehyde (HCHO) are found to be as end products.

GRAPHICAL ABSTRACT

Degradative pathways of 2-fluoropropene initiated by OH radical

ARTICLE INFO

Article history:
Received 3 May 2019
Received in revised form
2 August 2019
Accepted 9 August 2019
Available online 12 August 2019

Handling Editor: R Bhingarkar

Keywords:
2-Fluoropropene
M06-2X
Kinetics
Branching ratio
Degradation

ABSTRACT

Degradation of hydrofluoro-olefins (HFOs) with oxidants plays a significant role in the troposphere. Thus, we have investigated detail theoretical calculations of hydroxyl radical (•OH) initiated oxidation of 2-fluoropropene ($CH_3CF{=}CH_2$) using M06-2X/6-311++G(d,p) level of theory. Here, we have considered different possible H-abstraction and OH addition for the degradation of $CH_3CF{=}CH_2$ molecule. The potential energy analysis shows that OH-addition channels are more dominant than H-abstraction channels. The calculated reaction enthalpies (Δ_rH°) and Gibbs free energies (Δ_rG°) also suggest that OH-addition reaction channels are more favourable than H-abstraction channels. The overall rate coefficients for $CH_3CF{=}CH_2$ + •OH reaction is calculated within the temperature range of 250—450 K. The observed overall rate coefficient (2.01×10^{-11} cm^3 $molecule^{-1}$ s^{-1}) at 298 K for the titled reaction is found to be in good agreement with the earlier reported experimental rate coefficient. The calculated percentage branching ratio shows that the contribution of OH-addition to α-carbon and β-carbon of $CH_3CF{=}CH_2$ molecule are 85.10% and 14.20% to the overall rate coefficient while H-abstractions have a negligible contribution. Based on the kinetics calculations, the atmospheric lifetime of the titled molecule is found to be 0.6 days. Further, we have also explored the degradation pathways of OH-addition product radicals and found acetyl fluoride (CH_3CFO) and formaldehyde (HCHO) are the end degradation products.

© 2019 Published by Elsevier Ltd.

* Corresponding author.
** Corresponding author.
E-mail addresses: spaul@tezu.ernet.in (S. Paul), rameshdeka@tezu.ernet.in (R. Chandra Deka).

https://doi.org/10.1016/j.chemosphere.2019.125350
0045-6535/© 2019 Published by Elsevier Ltd.

1. Introduction

Recognizing the adverse effect of Chlorofluorocarbons (CFCs)

Research Article

Mechanical, moisture absorption, biodegradation and physical properties of nanoclay-reinforced wood/plant oil composites

Moon Mandal[1] · Zakaria Halim[1] · Tarun K. Maji[1]

Received: 25 June 2019 / Accepted: 6 January 2020 / Published online: 21 January 2020
© Springer Nature Switzerland AG 2020

Abstract

Composite materials were prepared via a compression molding process utilizing modified soybean oil, wood flour, and rosin derivative. Montmorillonite (MMT) was used as a nano-filler to increase the properties of composites prepared from methacrylic anhydride based epoxidized soybean oil co-polymerized with divinyl acrylicpimaric acid. The synthesized composites were characterized by Fourier transform infrared spectroscopy and X-ray diffractometry. The MMT filled composites showed enhanced mechanical properties compared to MMT free composites. The thermal stability of MMT filled composites was higher compared to those of unfilled composites due to the development of a protective residue. The morphological study by scanning electron microscope showed that the nano-clay particles were well dispersed throughout the matrix. The effects of MMT on biodegradability of the wood composites was analyzed by UV-spectrophotometry. In addition to that, the mechanical properties of the composite were evaluated after exposure to microorganism attack.

Keywords Wood composites · Rosin derivatives · Thermal properties · Bio-degradation · Mechanical properties

1 Introduction

In the past few decades, current environmental guidelines and societal distress have provoked the necessity to develop bio-based materials and other innovative processes that can emancipate worldwide dependency on fossil fuels. These bio-based materials are used as replacement for various traditional materials (i.e. metals), due to their intrinsic properties such as ease of construction, structural control, productivity, abundance, less laborious process, and low cost [1]. Composites made from synthetic reinforcements and polymer matrices are losing popularity owing to their serious environmental issues and high cost [2]. Bio-based composites are witnessing numerous applications due to their enhanced properties and the various advantages they have over petroleum based resources in terms of renewability, availability, and biodegradability [3]. One crucial effort has been the preparation and utilization of bio-based materials from environmentally favorable starting materials, such as starch, cellulose, straw, wood fibers, plant oils, proteins etc.

Wood is an important natural resource that addresses various survival and developmental needs of human society. However, solid wood has some disadvantages like dimensional instability which restrict its application in diverse sectors. The reason for such defects is due to the abundance of hydroxyl groups in the wood cell walls, which swell the fibres in the presence of moisture or water. As a consequence, the physical, mechanical, and chemical features of wood are negatively influenced [4]. Hence, the properties of wood can be enriched by the fabrication of wood polymer composites (WPCs) [5]. WPCs are known to have greater longevity and lower maintenance cost, desirable dimensional stability, better screening to moisture and biological degradation, low price compared to composites prepared with other fibers, and preferable recyclability [6]. Conventional chemical processing has turned out to be productive in enhancing composite's mechanical

✉ Tarun K. Maji, tkm@tezu.ernet.in | [1]Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India.

SN Applied Sciences (2020) 2:250 | https://doi.org/10.1007/s42452-020-1984-0

Received: 18 March 2020 | Revised: 2 October 2020 | Accepted: 18 October 2020
DOI: 10.1002/pen.25575

RESEARCH ARTICLE

POLYMER ENGINEERING AND SCIENCE WILEY

Effect of nanoclay on the properties of rosin derivative cross-linked green composite based on chicken feather fiber and modified vegetable oil

Gitashree Gogoi | Chayanika Chowdhury | Tarun K. Maji

Department of Chemical Sciences, Tezpur University, Tezpur, Assam, India

Correspondence
Tarun K. Maji, Department of Chemical Sciences, Tezpur University, Assam 784028, India.
Email: tkm@tezu.ernet.in

Funding information
Science and Engineering Research Board, Grant/Award Number: EMR/2016/000537

Abstract

Fully biodegradable composites based on waste chicken feather fiber (CF), functionalized epoxidized soybean oil (ESO), rosin derivative and various nanoclay percentages were prepared via compression molding. Rosin derivative was synthesized as a substitute of styrene/divinylbenzene. Nuclear magnetic resonance and Fourier transform infrared spectroscopy confirmed the synthesized rosin derivatives structures. Delamination and distribution of silicate layers were studied by X-ray diffraction and transmission electron microscopy. Scanning electron microscopy was used to analyse compatibility among modified ESO and rosin. FTIR study revealed the interaction between resin, CF, rosin derivative, and nanoclay. The nanoclay loaded composites showed better mechanical properties than the nanoclay free composite. The thermal stability of nanoclay loaded composites were also found to be enhanced. Composites loaded with nanoclay (3 wt%) revealed the least chemical resistance, volumetric swelling and water vapor uptake capacity.

KEYWORDS
biodegradable, mechanical properties, nanocomposite, thermal properties

1 | INTRODUCTION

In the last few decades, natural fibers has become an attractive choice of reinforcement for polymeric composites from economic and environmental point of view.[1] The utilization of renewable materials contributes to global sustainability and limits the global warming gases.[2,3] As the applications of composite materials continue to expand, a replacement of petroleum-based composites has become essential.[4] Composites derived from natural bio-fiber are renewable, lightweight, energy proficient, biodegradable, environmental friendly, and bio compatible as compared to other synthetic composites.[5-7] Utilizing natural fibers with renewable resources allows several environmental concerns to be resolved.[8] Soybean oil and chicken feather fibers (CF) are found abundantly in the world and can possibly be labeled as perfect substitute for petroleum derived materials.

The poultry farms produces huge amount of poultry feathers per annum as a waste material which can effectively be used as reinforcement since their disposal leads to environmental pollution.[9] The employment of chicken feather fiber into composites extends much more efficacious way to resolve environmental concerns compared to the traditional discarding methods. It is inexpensive, lightweight, abundantly available, non-abrasive and hydrophobic in nature. These fibers have lower density value compared to all natural and synthetic fibers.[10-12] Both the chicken feather fiber and quill have diameter smaller than wood fiber and are composed of hydrophobic keratin, a protein having strength comparable to nylon.[12] Keratin contains number of amino acids,

Received: 23 December 2019 | Revised: 9 June 2020 | Accepted: 9 June 2020
DOI: 10.1002/pat.5009

RESEARCH ARTICLE

polymers advanced technologies WILEY

Preparation, characterization and cytotoxic applications of curcumin-(±) α-lipoic acid coloaded phosphorylated chitosan nanoparticles in MDA MB 231 breast cancer cell line

Plabita Gogoi[1] | Anindita Dutta[2] | Anand Ramteke[2] | Tarun Kumar Maji[1]

[1]Department of Chemical Sciences, Tezpur University, Tezpur, India
[2]Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur, India

Correspondence
Tarun Kumar Maji, Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India.
Email: tkm@tezu.ernet.in

In the present work, curcumin in combination with (±) α-Lipoic acid were used as the active agents for the preparation of phosphorylated chitosan nanoparticle. Ionic gelation method was used for the successful fabrication of the nanoparticles. Effective incorporation of the drugs in the polymeric system was revealed by Fourier-transform infrared spectroscopy (FT-IR) and X-ray diffractometry (XRD). Scanning electron microscope, transmission electron microscope and dynamic light scattering method were used to analyze the morphology and dimensional characteristics of the nanoparticles. The swelling degree and drug release mechanism were studied at pH 5.0 and 7.4 for different time periods by UV-visible spectrophotometer. Cytotoxicity study was performed by MTT assay analysis on normal human lymphocyte and MDA MB 231 breast cancer cell line. Trypan blue dye exclusion assay was performed to confirm the anticancer effect of the nanoparticles. The properties of the prepared nanoparticles recommended their possible application as anticancer agents.

KEYWORDS
(±) α-lipoic acid, curcumin, cytotoxicity, drug release, polymeric nanoparticles

1 | INTRODUCTION

Over the years, nanoparticle drug delivery systems have shown optimistic approach in biological, medical and pharmaceutical applications.[1] Nanoparticle drug delivery has the potential to upgrade the efficacy of drug molecules which are less soluble and have low bioavailability. Drug loaded nanoparticle increases the pharmaceutical and pharmacoeconomic utility of the drug. The particle size, surface properties and release of active agents play an important role in designing nanoparticles as delivery system in order to achieve the site specific action of drug.[2] Natural polymers such as starch, chitosan, soy flour have been utilized in controlled drug delivery system in the past decades due to their biocompatibility, biodegradability and nontoxicity.[3-6] One such cationic polysaccharide polymer, chitosan (CTS) is one of the most abundantly available natural polymer which is cheap, nontoxic, biodegradable, biocompatible and bioactive.[7] CTS are extracted from deacetylation of chitin, which are basically found in the exoskeleton of crustaceans and molluscs, insect cuticle and fungi.[8] CTS has both free amine and hydroxyl groups that can be modified into derivatives of CTS through phosphorylation, esterification, etherification and carboxymethylation.[9-11] Polymeric nanoparticles have been synthesized by using various methods such as solvent evaporation, complex coacervation, ionic gelation, spray drying, desolvation method, and so on, according to their mode of application, nature of drug and polymers.[12-16]

In order to attain a supplementary and sufficient effect, combined drug therapy is a familiar approach in the treatment of cancer which shows an acceptable toxicity profile to the host.[17]

Combination chemotherapy may be an excellent protocol to enhance the therapeutic efficacy and to minimize toxicity toward the host cells. Reports have been found to prepare Curcumin–Silibinin mixture which is more effective than their individual use for inhibition of T47D breast cancer cell growth.[18,19] Many other reports on combinatorial drug nanoparticles such as Polyalkylcyanoacrylate nanoparticle coloaded Doxorubicin and Cyclosporine A (various cancer), Paclitaxel-Curcumin oil nanoemulsion (Ovarian cancer) were synthesized for improved efficacy against drug resistant tumors.[20]

Curcumin (CUR) is a yellow hydrophobic polyphenol dye, derived from the rhizome of turmeric (*Curcuma longa*).[21] It has extensive pharmacological activities like wound healing, anti-inflammatory,

Research Article

Synergic effect of montmorillonite and microcrystalline cellulose on the physicochemical properties of rice husk/PVC composite

Nipu Dutta[1] · Tarun Kumar Maji[1]

Received: 26 September 2019 / Accepted: 12 February 2020 / Published online: 18 February 2020
© Springer Nature Switzerland AG 2020

Abstract

Rice husk, an agricultural waste material, was tried to make value added by preparing composite with microcrystalline cellulose and montmorillonite by melt blending process in different proportions. The interaction among the components was studied by Fourier transform infrared spectroscopy and X-ray diffractometry. The mechanical and thermal properties were studied through universal testing machine, dynamic mechanical analyzer and thermogravimetr ic analyzer. Scanning electron microscopy and transmission electron microscopy were used to analyze the surface morphology of the composites. Among the various composition the better synergistic effect was observed in composite PRMCC2 with 2 phr MCC and 3 phr MMT. Along with thermal and mechanical properties, PRMCC2 also showed better flame retardancy and water-resistant properties.

Keywords Rice husk · PVC · Nanocomposites · Microcrystalline cellulose · Mechanical properties

1 Introduction

Cellulose-based plant filler or fibre is one of the most explored topics for the researchers of the present generation. Natural fibres have gained popularity over the conventional reinforcing materials due to the advantages provided by the natural filler [1, 2]. Conventional fibres used in fibre reinforced materials (FRP), are gradually replaced by natural fibres [3]. The natural fibre based polymer composite can be used in different applications due to the advantages such as low cost, high strength, low weight and easy processability [4–7]. Natural fibre based composites find wide application in automobile sectors [8–10].

Rice husk (RH) is one of the lignocellulosic biomasses which is widely produced by agriculture-based industries in India. It is generally treated as a waste and used as bedding material for cattle (animals), or landfilling material [11–13]. RH was also utilized as a source for extraction of different advance material like silicon, carbon etc. [14, 15] and as a material for metal–matrix composites [16, 17]. The waste RH can be explored as a reinforcing agent in polymer composite. Addition of RH in the composite will not only increase the properties of the composite but also decrease the cost of production of the polymer composite.

Cellulose-based reinforcement material shows good applicability along with excellent thermal and mechanical properties compared to other inorganic fillers [18]. Cellulose is comparatively easy to process due to its nonabrasive property, which initiates better filling levels resulting in significant cost saving [19]. With the development in research of cellulose, different forms of cellulose fibres are obtained such as microfibrils and nano whiskers [20]. These fibres have better mechanical properties compared to other commonly used reinforcing fillers. Microcrystalline cellulose (MCC), a famous reinforcing agent, closely resembles cellulose nanowhiskers [21]. MCC can be prepared easily from agricultural cellulose [22], and it has varied application in the field of cosmetics, medical and food processing industries [23]. Use of MCC as a reinforcing agent in polymer composite shows better tensile

✉ Tarun Kumar Maji, tkm@tezu.ernet.in | [1]Department of Chemical Sciences, Tezpur University, Napaam 784028, India.

SN Applied Sciences (2020) 2:439 | https://doi.org/10.1007/s42452-020-2255-9

THE JOURNAL OF PHYSICAL CHEMISTRY C

pubs.acs.org/JPCC

Article

Catalytic Oxidation of NO on [Au−M]$^-$ (M = Pd and Pt) Bimetallic Dimers: An Insight from Density Functional Theory Approach

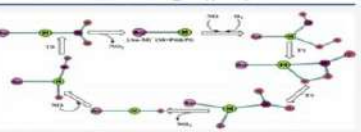
Nishant Biswakarma,† Plaban Jyoti Sarma,† Satyajit Dey Baruah, Nand Kishor Gour,* and Ramesh Chandra Deka*

Cite This: J. Phys. Chem. C 2020, 124, 3059−3068

Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Escalation of nitrogen monoxide (NO) concentration into the atmosphere has caused severe environmental problems. So, it is important to prepare or design a suitable catalytic system to understand the oxidation of NO into NO_2 at the molecular level. In this regard, a comprehensive theoretical investigation of the catalytic oxidation of NO on anionic bimetallic dimers [Au−M]$^-$ (M = Pd, Pt) has been considered here using the density functional theory method at the M06L functional along with def2TZVP basis set. To refine the energies and electronic properties of all species, single-point energy calculations are further performed with the CCSD(T) method using the same basis set. The adsorption of NO and O_2 on bimetallic dimers is studied, and binding energy has been calculated to understand the stability of the adsorbed species. Our calculations show that M sites are found to be the preferred site for adsorption rather than Au site. Further, full catalytic reaction pathways using the Langmuir−Hinshelwood mechanism are investigated in which two NO molecules are converted into two NO_2 molecules in the presence of an activated O_2 molecule. Moreover, an energetic span model has justified that conversion on [Au−Pd]$^-$ catalyst possesses a lower apparent activation energy than that on [Au−Pt]$^-$ which makes [Au−Pd]$^-$ a more efficient catalyst toward the catalytic conversion of NO into NO_2. Thus, the present study will convey an understanding of the mechanism of NO oxidation at the molecular level as well as designing better catalysts for future prospects.



1. INTRODUCTION

Nitrogen oxides (NO_x) abatement is one of the important steps for minimizing the harmful emissions which are released into the environment owing to the growth in the automobile industry. Automobiles are a significant source of carbon monoxide (CO) as well as NO_x. NO_x includes nitrogen monoxide (NO), nitrogen dioxide (NO_2), and nitrous oxide (N_2O), and the release of these gases causes environmental hazards such as photochemical smog and acid rain. Controlling NO_x emission has been made possible by introducing various methods such as three-way catalysis (TWC), NO_x storage reduction (NSR), continuously regenerating trap (CRT), and selective catalytic reduction (SCR).[1−3] In CRT, soot, a harmful byproduct of incomplete combustion, is collected on a diesel particulate filter. Therefore, NO is oxidized to NO_2, which in turn oxidizes soot.[4] It was found that the soot oxidation by NO_2 occurs at a much lower reaction temperature (greater than 400 °C)[5] than that of oxygen (500−600 °C).[6] In a lean exhaust environment, SCR catalysts can control NO_x emission using an additional reductant. In the NH_3-SCR process, it was found that reaction rate is greatly enhanced upon retaining the equimolar feed of NO/NO_2 reaction mixture. When a fraction of NO is converted to NO_2, represented as $4NH_3 + 2NO + 2NO_2 \rightarrow 4N_2 + 6H_2O$, the rate of reaction was found to be 10 times faster than standard SCR reaction ($4NH_3 + 4NO + O_2 \rightarrow 4N_2 + 6H_2O$) at a temperature range of 200−300 °C.[6,7] In normal conditions, the NO oxidation efficiency is observed to be slow as a result of the complex nature of fuel gas and different particulate size distributions.[8] Thus, focus has to be on developing eligible catalyst for NO oxidation that could enhance NO conversion rate. It has been observed that nanoparticles of precious metals such as Au, Pd, and Pt are extensively used in this regard due to their higher catalytic activity.[9,10−15]

Consequently, considerable interest has been shown from both the industrial and scientific communities toward nano-sized gold clusters.[11−15] Gold nanoparticles exhibit catalytic activity on reactions such as low-temperature CO oxidation,[16,17] water gas shift reaction,[18,19] and direct propylene epoxidation using H_2 and O_2.[20,21] The catalytic activity of gold

Received: October 17, 2019
Revised: December 16, 2019
Published: January 9, 2020

ACS Publications © 2020 American Chemical Society

Issue 8, 2020

Previous Article | Next Article

From the Journal: New Journal of Chemistry

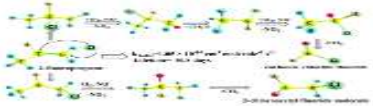
Atmospheric oxidation of 2-fluoropropene ($CH_3CF{-}CH_2$) with Cl atom and aerial degradation of its product radicals by computational study†

Nand Kishor Gour *, Ramesh Chandra Deka * and Subrata Paul

Author affiliations

Abstract

A detailed atmospheric degradation study of the 2 fluoropropene (2 FP) molecule initiated by various oxidants is essential as it is released due to various applications. So, in this manuscript, we have examined the Cl atom initiated H abstractions from 2 FP and Cl atom addition to α- and β- carbons of 2 FP using the MP2/6-31+G(d,p) level of theory. Here, we have explored all the reaction species along with intermediates and transition states of the 2 FP + Cl reaction on the potential energy surface (PES). Enthalpy and Gibbs free energy changes of all reaction channels are determined to understand their nature and feasibility. PES and thermo-chemistry results indicate that all the reaction channels are exothermic and feasible but H abstraction from the α-carbon of 2 FP by Cl atom is thermodynamically more dominant. On the other hand, kinetic and subsequent branching ratio calculation results show that Cl atom additions to α- and β-carbons of 2 FP are kinetically more dominant than H abstraction channels. Our calculated overall rate constant at 298 K and 1 atm is found to be 1.07×10^{-10} cm^3 $molecule^{-1}$ s^{-1}, which is in good agreement with the experimental overall rate. The atmospheric lifetime of 2 FP is found to be 10.8 days, which signifies the very short lifetime and negligible effect on the global warming potential. Moreover, aerial degradation of Cl atom addition product radicals in the presence of NO radicals is further carried out at the same level of theory. From this investigation, we have obtained 2-chloroacetyl fluoride ($CF(O)ICH_2Cl$), carbonic chloride fluoride ($CFClO$)) and formaldehyde ($HCHO$) as more stable end products.



Catalysis Letters (2020) 150:106–111
https://doi.org/10.1007/s10562-019-02932-2

Environmental Science and Pollution Research
https://doi.org/10.1007/s11356-019-06975-1

RESEARCH ARTICLE

Atmospheric oxidation of HFE-7300 [n-$C_2F_5CF(OCH_3)CF(CF_3)_2$] initiated by $^{\cdot}OH$/Cl oxidants and subsequent degradation of its product radical: a DFT approach

Subrata Paul[1] · Bhupesh Kumar Mishra[2] · Satyajit Dey Baruah[1] · Ramesh Chandra Deka[1] · Nand Kishor Gour[1]

Received: 11 September 2019 / Accepted: 3 November 2019
© Springer-Verlag GmbH Germany, part of Springer Nature 2019

Abstract

To understand the atmospheric chemistry of hydrofluoroethers, we have studied the oxidation of a highly fluorinated compound n-$C_2F_5CF(OCH_3)CF(CF_3)_2$ (HFE-7300) by OH/Cl oxidants. Here, we have employed M06-2X functional along with a 6-31 + G(d,p) basis set to obtain the optimized structures, various forms of energies, and different modes of frequencies for all species. We have characterized energies of all species on the potential energy surface, and it indicates that H-abstraction from n-$C_2F_5CF(OCH_3)CF(CF_3)_2$ by Cl atom is kinetically more dominant than the H-abstraction reaction initiated by OH radical. In contrast, the calculated energy change ($\Delta_r H°_{298}$ and $\Delta_r G°_{298}$) results govern that OH-initiated H-abstraction reaction is highly exothermic and spontaneous compared to the Cl-initiated H-abstraction reaction. Rate constants are estimated using transition state theory as well as canonical variation transition state theory at the temperature range 200–1000 K and 1 atm pressure. The calculated rate constants of the H-abstraction channels are found to be in good agreement with the reported experimental rate constant at 298 K. Moreover, we have estimated the atmospheric lifetimes of HFE-7300 for the reaction with OH radical and Cl atom and are found to be 1.75 and 153.93 years, respectively. Additionally, the global warming potentials for HFE-7300 molecule are also estimated for 20-, 100-, and 500-year time horizons. Further, subsequent aerial oxidation of product radical (n-$C_2F_5CF(OCH_2)CF(CF_3)_2$) in the presence of NO radical is performed, and it produced alkoxy radical via formation of peroxy radical. This alkoxy radical undergoes unimolecular decompositions via two different ways and formed n-$C_2F_5CF(OCHO)CF(CF_3)_2$ and n-$C_2F_5CF(OH)CF(CF_3)_2$ products.

Keywords HFE-7300 · H-abstraction · M06-2X functional · Rate constant · Alkoxy radical

Introduction

Hydrofluoroethers (HFEs) have emerged as the third-generation replacement of chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), and hydrochlorofluorocarbons (HCFCs). HFEs have almost negligible ozone depletion potential (ODP) due to the absence of Cl atom. However, HFEs show moderately low global warming potential (GWPs) because of the absorption of IR radiation by C–F bonds (Devotta et al. 1994; Seikyu and Misaki 1996; Bivens and Minor 1998; Sekiya and Misaki 2000; Blowers et al. 2008; Bravo et al. 2011a, 2011b). Highly fluorinated HFEs such as HFE-7500 (n-$C_2F_5CF(OC_2H_5)CF(CF_3)_2$), HFE-7300 (n-$C_2F_5CF(OCH_3)CF(CF_3)_2$), HFE-7200 (n-$C_4F_9OC_2H_5$), HFE-7100 (n-$C_4F_9OCH_3$), HFE-7000 (n-$C_3F_7OCH_3$), etc. have various applications in the field of refrigerants and blowing and cleaning agents and as fuel additives, solvents, and medical products (Tsai 2005). Due to the wide range of applications, it is essential to explore the atmospheric impact of HFEs through the reaction with atmospheric oxidants and find its end degradation products.

In various degradation studies of HFEs (Papadimitriou et al. 2004; Díaz-de-Mera et al. 2009; Oyaro et al. 2004;

Responsible Editor: Philippe Garrigues

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11356-019-06975-1) contains supplementary material, which is available to authorized users.

✉ Nand Kishor Gour
nkgour@tezu.ernet.in

[1] Department of Chemical Sciences, Tezpur University Tezpur, Tezpur, Assam 784028, India

[2] Department of Chemistry, D. N. Government College, Daporijo, Arunachal Pradesh 791113, India

Published online: 09 December 2019

First Aminocatalytic Synthesis of Bis(Indolyl)methanes and DFT Studies on the Reaction Pathway

Grace Basumatary[1] · Rahul Mohanta[1] · Satyajit Dey Baruah[2] · Ramesh Ch. Deka[2] · Ghanashyam Bez[1]

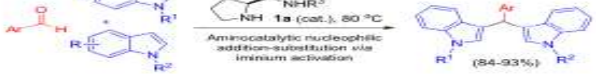
Received: 23 July 2019 / Accepted: 16 August 2019 / Published online: 29 August 2019
© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

Carbon–carbon bond-formation by aminocatalytic nucleophilic addition to aryl aldehyde ideally generates addition–elimination product. Here, we report an unexpected, yet efficient aminocatalytic nucleophilic addition of indole to aryl aldehydes to synthesize pharmacologically important bis(indolyl)methanes via aminocatalytic addition substitution reaction. Although many acid catalysed synthesis are reported, this is the first aminocatalytic synthesis of bis(indolyl)methanes.

Graphic Abstract

First aminocatalytic synthesis of bis(indolyl)methanes and DFT studies on the reaction pathway. Grace Basumatary, Rahul Mohanta, Satyajit Dey Baruah, Ramesh Ch. Deka, and Ghanashyam Bez.



Keywords L-Prolinamide · Aminocatalysis · Bisindolylmethanes · Addition–substitution

1 Introduction

Carbon–carbon bond-forming reactions are arguably the most important group of transformations in synthetic organic chemistry. Among them, asymmetric organocatalytic reaction has emerged as a powerful tool for C–C bond forming reactions, especially after the discovery of bifunctional behaviour of L-proline in direct asymmetric aldol reaction. In fact, the application of L-proline as an organocatalyst by List et al. [1] has not only invigorated the growth of enantioselective reaction, but also significantly changed the outlook of catalysis in organic synthesis. Of course, its low solubility in organic solvents often results in low reactivity, high catalyst loading and longer reaction time. Therefore, many L-proline derived catalysts [2–10] with improved efficiency in organic, aqueous and biphasic solvents are reported in recent years.

Aminocatalysis occupies the largest share in organocatalytic reactions. But aminocatalytic activation of aryl aldehydes for C–C bond-forming nucleophilic addition reaction is rare, because it leads to formation of stable carbon–nitrogen π-bond. Since amine can additionally acts as a base, amine catalyzed addition–elimination reaction is possible as in the case of Knoevenagel reaction [11]. But in the absence of any β-hydrogen to the amine bearing addition product, such elimination is not possible and the reaction no longer

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s10562-019-02932-2) contains supplementary material, which is available to authorized users.

✉ Ghanashyam Bez
ghanashyambez@yahoo.com

[1] Department of Chemistry, North Eastern Hill University, Shillong, Meghalaya 793022, India

[2] Department of Chemical Sciences, Tezpur University, Napaam, Assam, 784028, India

THE JOURNAL OF PHYSICAL CHEMISTRY B

pubs.acs.org/JPCB Article

Unveiling the Role of Hydrogen Bonding and *g*-Tensor in the Interaction of Ru-Bis-DMSO with Amino Acid Residue and Human Serum Albumin

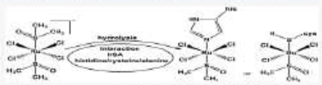
Dharitri Das, Snigdha Dutta, Dikshita Dowerah, and Ramesh Chandra Deka*

Cite This: *J. Phys. Chem. B* 2020, 124, 6459–6474 Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

Downloaded via TEZPUR UNIV on July 31, 2020 at 09:10:25 (UTC).
See https://pubs.acs.org/sharingguidelines for options on how to legitimately share published articles.

ABSTRACT: Density functional theory calculations have been carried out to observe the role of hydrogen bonding in hydrolysis and the coordination mechanism of three amino acid residues (histidine, cysteine, and alanine) with Ru-bis-DMSO complex via which the complex tends to interact with the HSA protein receptor. The interaction mechanism shows that ruthenium complexes prefer to bind protein receptor through cysteine and histidine residues rather than through alanine, which has been confirmed by DFT evaluated H-bonding and *g*-tensor analysis. The number of H-bonds plays a major role in stabilizing the intermediates and transition states involved in the Ru-bis-DMSO and amino acid residue interactions. Our theoretical *g*-tensor values are in good agreement with the available experimental results. Further QM/MM calculation on the Ru-bis-DMSO-HSA adducts reveals that the adduct is more stable when Ru gets coordinated with histidine imidazole rather than cysteine. These investigations helped us in understanding the type of amino acid residue responsible for binding the metal complex Ru-bis-DMSO with the carrier protein HSA.



1. INTRODUCTION

Since the discovery of the biological activity of metal-based complexes, a series of platinum-based anticancer drugs have gained major focus in medicinal inorganic chemistry. The clinical success of platinum-containing cisplatin in modern chemotherapy has been the pioneering motivation toward the discovery of next generation platinum analogues such as carboplatin and oxaliplatin.[1,2] However, despite being the most widely used metal-based anticancer drug, cisplatin is known to show some serious side effects considering the toxicity profile and also primary resistance by a certain kind of tumors.[3−6] These disadvantages have attracted the scientific community to develop other transition metal complexes such as palladium, gold, ruthenium, silver, etc., with potential as novel anticancer drugs and that would have significant advantages over traditional platinum-based anticancer drugs.[6−10]

Ruthenium-based anticancer compounds have attracted extensive attention as next generation metal-based anticancer agents due to their similar spectrum of kinetics, redox activities, photochemical properties, and lesser toxicity profile as compared to those of their platinum analogues. Notably, two ruthenium(III) complexes, NAMI-A and KP1019, have already entered phase II clinical trial.[11−14] NAMI-A shows selective antiproliferative effects on several leukemia cell lines. KP1019 is useful for metastatic and cisplatin resistant tumors. It exhibits potent cytotoxicity against primary tumors, particularly in colorectal cancer.[15] In line with them, few other Ru-based complexes with highly tunable chemistry such as [(DMSO)$_2$H][*trans*-RuCl$_4$(DMSO-S)$_2$] (Ru-bis-DMSO), [Ru(η_6-*p*-cymene)Cl$_2$(pta)] (RAFTA-C), sodium *trans*-[tetrachloridobis(1*H*-indazole)ruthenate(III)] (NKP-1339), imidazolium [*trans*-[RuCl$_4$(1*H*-imidazole)$_2$] (KP418), etc., share such a unique activity profile as do NAMI-A and KP1019.[16−17] Collagen interactions, activation of integrin receptors, and binding to cell membranes are some common achievements of NAMI-A and of the other Ru-DMSO complexes.[18−24] However, NAMI-A has been demonstrated to be less internalized by cells, which leads to some antimetastatic activity of the complex. KP1019 has also been listed to be poorly water-soluble, which restricts the transport of the drug in the bloodstream.[22] Although these metal complexes are under extensive investigation as anticancer agents, researchers still need to understand the use of prodrugs and drug carriers that may help to increase targeting success and decrease in vivo side effects. Keeping in mind the stated achievements and drawbacks of the various anticancer drugs, we have chosen [*trans*-RuCl$_4$(DMSO-S)$_2$] (Ru-bis-DMSO) ruthenium(III) complex, which showed greater stability in aqueous solution and induced a remarkable reduction of lung

Received: March 12, 2020
Revised: July 4, 2020
Published: July 6, 2020

Review

Journal of Nanoscience and Nanotechnology
Vol. 20, 5153–5161, 2020
www.aspbs.com/jnn

AMERICAN SCIENTIFIC PUBLISHERS
Copyright © 2020 American Scientific Publishers
All rights reserved
Printed in the United States of America

Recent Advances in Nanoarchitectonics of SnO_2 Clusters and Their Applications in Catalysis

Ramesh Ch. Deka[1,*], Ajanta Deka[2], Pangkita Deka[1], Sudakhina Saikia[1], Julie Baruah[1], and Plaban J. Sarma[1]

[1]Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India
[2]Department of Physics, Girijananda Chowdhury Institute of Management and Technology, Hatkhowapara, Azara, Guwahati 781017, Assam, India

Tin dioxide nanoclusters are very effective as catalysts for various reactions including CO_2 conversion and Friedel-Crafts acylation for pharmaceuticals. The nanoarchitectonics of SnO_2 could be controlled by different synthetic strategies. In the current article, we have presented synthesis of SnO_2 nanoclusters and their applications in catalysis. We have also reviewed computational studies on SnO_2 nanoclusters for using them in nanoarchitectonics and catalytic conversion of CO_2 to useful chemicals. Optimized structures of various cluster sizes are presented. The present and future perspectives of SnO_2 catalysts in biomass conversions are also given.

Keywords: Tin Dioxide, Nanoarchitectonics, CO_2 Conversion, Friedel-Crafts Acylation, Computational Studies, Biomass Conversion.

CONTENTS

1. Introduction 5153
2. Synthesis of SnO_2 Nanoparticles 5155
3. Applications of SnO_2 Nanoparticles 5156
3.1. Friedel-Crafts Acylation 5156
3.2. Biomass Conversion 5156
3.3. CO_2 Utilization 5157
3.4. Nanoarchitectonics 5157
3.5. Computational Studies on SnO_2 Nanoparticles 5157
3.6. Adsorption of Small Specific Molecules on SnO_2 Surface 5158
4. Conclusions 5159
References and Notes 5159

1. INTRODUCTION

Owing to the unique properties of nanoparticles, in recent years, nanoparticles have acquired extensive applications in various fields in comparison to their bulk counterparts [1, 2]. Metal oxide nanoparticles such as MgO, ZnO, NiO, CeO_2, SnO_2 are extensively used as catalysts, gas sensors and electronic materials. Various electronic and chemical properties of metal oxides make them exciting materials for basic research and for technological applications in different areas of material science. Metal oxides span a wide range of electrical and catalytic properties.

Among the various metal oxides SnO_2, an environmentally friendly *n*-type semiconductor with a large direct energy band gap of 3.6 eV, is a promising multifunctional material [3]. Sn(IV)O_2 (stannic oxide) and Sn(II)O (stannous oxide) are the two primary oxides of tin. Due to the dual valency it plays a crucial role in surface science. SnO_2 has been found very efficient as heterogeneous catalysts, gas sensors, dye-sensitized solar cells, lithium ion batteries and transparent conducting electrodes. The nanoparticles of SnO_2, which have nanoarchitectonics behaviours are thermally stable and easy to synthesise. Nanocrystalline SnO_2 have different properties compared to their bulk crystals and hence, researchers have focused on the synthesis of SnO_2 nanoclusters, nanotubes, nanorods, nanowires, and nanobelts to explore their novel applications. In recent years, tin dioxide has attracted great attention as it shows numerous applications in different areas such as oxidation catalysts, gas sensors, optoelectronic devices, liquid crystal displays, anode material in lithium based batteries, barrier layers for solar cells, light emitting diodes (LED) etc. [4]. Tin dioxide with its large band gap makes the material a good insulator in its stoichiometric form. But non-stoichiometric defects i.e., anion vacancy makes SnO_2 a good conductor of electricity. It also behaves as an *n*-type semiconductor [5]. Modification of SnO_2 by doping with

*Author to whom correspondence should be addressed.

Quantum Chemical Calculations on Locked Nucleic Acid based Modifications: A Density Functional Theory (DFT) Study

Mallikarjunachari Uppuladinne[1], Dikshita Dowerah[2], Uddhavesh Sonavane[1], Suvendra Kumar Ray[2], Ramesh Deka[2], and Rajendra Joshi[1]

[1]Centre for Development of Advanced Computing
[2]Tezpur University

October 23, 2020

Abstract

Antisense technology has been developed as the next generation drug discovery methodology by which unwanted gene expression can be inhibited by targeting mRNA specifically with antisense oligonucleotides. The computational studies of antisense modifications based on phosphorothioate (PS), methoxyethyl (MOE), locked nucleic acids (LNA) may help to design better novel modifications. In the present study, five novel LNA based modifications have been proposed. The conformational search has been done to identify the most stable and alternative stable conformations. The geometry optimization followed by single point energy calculation has been done at B3LYP/6-31G(d,p) level for gas phase and B3LYP/6-311G(d,p) level for the solvent phase for all modifications at monomer as well as base pair level. The electronic properties and the quantum chemical descriptors of the antisense modifications were derived and compared. The local and global reactivity descriptors, such as hardness, chemical potential, electronegativity, electrophilicity index, Fukui function all were calculated at the DFT level for the optimized geometries. A comparison of global reactivity descriptors confirmed that LNA based modifications are the most reactive modifications. They may form a stable duplex when bound to complementary nucleotides, compared to other modifications. Therefore, we are proposing that one of our proposed antisense modifications (A3) may show strong binding to the complementary nucleotide as LNA and may also show reduced toxic effects like MOE. The base pair studies may help us to understand the extent to which our proposed modifications can form standard Watson-Crick base pairing required for oligomer duplexes. This computational approach may be very useful to propose novel modifications prior to undergoing synthesis experimentally in the area of antisense or RNAi technology.

Quantum Chemical Calculations on Locked Nucleic Acid based Modifications: A Density Functional Theory (DFT) Study

Mallikarjunachari V. N. Uppuladinne[1‡], Dikshita Dowerah[2‡], Uddhavesh B. Sonavane[1*], Suvendra Kumar Ray[3], Ramesh C. Deka[2*], Rajendra R. Joshi[1*]

[1]*HPC - Medical & Bioinformatics Applications Group, Centre for Development of Advanced Computing (C-DAC), Panchawati, Pashan, Pune, India.*

[2]*Department of Chemical Sciences, Tezpur University, Assam, India.*

[3]*Department of Molecular Biology and Biotechnology, Tezpur University, Assam, India*

‡*joint first authorship*

**corresponding author*

E-mail address: *rajendra@cdac.in, uddhaveshs@cdac.in,*

J. Chem. Sci. (2020) 132:40
https://doi.org/10.1007/s12039-020-1737-z
REGULAR ARTICLE

© Indian Academy of Sciences

Coumarin-based Trisubstituted Methanes as Potent Anthelmintic: Synthesis, Molecular Docking and *in vitro* Efficacy

GRACE BASUMATARY[a], ERRINI DECRUSE DHAR[b], DHARITRI DAS[c], RAMESH CH. DEKA[c], ARUN K YADAV[b] and GHANASHYAM BEZ[a,*]

[a]Department of Chemistry, North-Eastern Hill University, Shillong, Meghalaya 793 022, India
[b]Department of Zoology, North-Eastern Hill University, Shillong, Meghalaya 793 022, India
[c]Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784 028, India
E-mail: bez@nehu.ac.in

MS received 24 June 2019; revised 10 October 2019; accepted 14 October 2019; published online 13 February 2020

Abstract. A series of coumarin based trisubstituted methanes (TRSMs) having uracil scaffold was synthesised employing a green, chromatography-free, and a highly efficient sonochemical multicomponent reaction of diverse aldehydes with 1,3-dimethyl-6-aminouracil and 4-hydroxy-coumarin in the presence of a catalytic amount of DABCO at room temperature and tested their anthelmintic efficacy against helminth parasites, *Raillietina echinobothrida* and *Syphacia obvelata*. Some of the TRSMs with substituents in the para position of the phenyl ring showed excellent anthelmintic activity in comparison to the commonly used drugs such as albendazole and praziquantel. The docking study revealed the binding interaction of all the optimized compounds with several amino acid residues in the active site of β tubulin. The compounds showing good docking score with β-tubulin showed comparable anthelmintic activity experimentally as well.

Keywords. Coumarin-based TRSMs; Sonochemical MCR; Anthelmintic; *Raillietina echinobothrida*; *Syphacia obvelata*; Molecular docking.

1. Introduction

Helminth infection is one of the most common gastrointestinal infection in human beings that vectors through the air, food, and water. These parasites secrete toxins and steal the vital nutrients from host bodies to create a disease state.[1] Ideally, a good anthelmintic should have a broad spectrum of action, high percentage of cure with a single therapeutic dose, besides free from toxicity to its host.[2] However, with only limited pharmacopoeia of anthelmintic available presently (e.g., benzimidazoles, nicotinic acetylcholine agonists, macrocyclic lactones), particularly against human helminths, not all drugs possess these desired attributes and some of them have serious side effects such as apoptosis and mitotic arrest.[3,4] Moreover, benzimidazoles (e.g., albendazole) are more effective against hookworm infection, but poor against whipworm T. trichiura.[5] On the other hand, the current nicotinic acetylcholine receptor (nAChR) agonists such as pyrantel and levamisole have much lower efficacy than the benzimidazoles.[6] Therefore, the development of a new nicotinic acetylcholine receptor (nAChR) agonists having comparable efficacy to that of benzimidazole bears critical significance. Nevertheless, since cases of emergence of resistance to some anthelmintic drugs have also been reported in recent years, development and screening of new drugs to identify leads with better anthelmintic efficacy with lower side effects is very important.[7]

Trisubstituted methanes (TRSMs)[8] occupy a special place in pharmacology due to their applications as anti-cancer,[9] antiproliferative,[10] and antitubercular.[11,12] Many coumarin-fused heterocycles have been reported to exhibit antifungal, anticoagulant, antimicrobial, antiasthmatic, antitumor, and anti-HIV activities.[13,14] Likewise, uracil derivatives have exhibited numerous pharmacological activities like analgesic, antiallergic, antibacterial, antifungal, antihypertensive, antimalarial, antitumor, bronchiodilator, cardiotonic,

*For correspondence

Electronic supplementary material: The online version of this article (https://doi.org/10.1007/s12039-020-1737-z) contains supplementary material, which is available to authorized users.

American Journal of Engineering and Applied Sciences

Original Research Paper

Castor Oil Based Epoxy/Clay Nanocomposite for Advanced Applications

Aditi Saikia and Niranjan Karak

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur 784028, India

Article history:
Received: 03-11-2015
Revised: 10-12-2015
Accepted: 23-12-2015

Corresponding Author:
Niranjan Karak
Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur 784028, India
Tel: +91-3712-267009;
Fax: +91-3712-267006
Email: karakniranjan@gmail.com

Abstract: Bio-based hyperbranched and linear epoxy resins were synthesized from monoglyceride of *Ricinus communis* oil. The nanocomposites of these hyperbranched and linear epoxies with 1, 2 and 3 wt% of OMMT were also fabricated. The structures of the resins and their nanocomposites were analyzed by FTIR, NMR, XRD, SEM and TEM. The studies of performance characteristics of poly(amido amine) cured thermosetting nanocomposites showed significant improvements in tensile strength from 5.8 to 11.9 MPa, impact from 80 to >100 cm, scratch resistance from 4 to 9 kg, thermal stability from 213 to 316°C and chemical resistance over their pristine systems. Further, hyperbranched nanocomposites and bio-based epoxy thermosets exhibited better performance than the linear and petroleum based ones. The overall results, therefore, demonstrated hyperbranched epoxy/clay nanocomposites as potential materials for advanced applications.

Keywords: Hyperbranched Epoxy, Castor Oil, Clay Nanocomposites, Performance

Introduction

In the recent years, polymer nanocomposites have emerged as a most promising alternative to the traditional materials because of their intrinsic advantages such as easy process ability, light weight, reduce cost and tunable properties (Thakur and Kessler, 2015a; 2015b; Thakur *et al*., 2014a; Mechtali *et al*., 2014; applications. Also, the global concern regarding the degradability of polymeric materials in environment compelled the scientists to explore the renewable resources in the production of useful materials (Velayutham *et al*., 2012; Yang *et al*., 2011; Biermann *et al*., 2000; Mungroo *et al*., 2008; Singh, *et al*., 2012). Therefore, to overcome such limitations, bio

Progress in Organic Coatings 90 (2016) 324–330

Contents lists available at ScienceDirect

Progress in Organic Coatings

journal homepage: www.elsevier.com/locate/porgcoat

Bio-based waterborne polyurethane/carbon dot nanocomposite as a surface coating material

Biplab Ghosh, Satyabrat Gogoi, Suman Thakur, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India

ARTICLE INFO

Article history:
Received 29 June 2015
Received in revised form 5 October 2015
Accepted 30 October 2015
Available online 21 November 2015

Keywords:
Waterborne polymer
Hyperbranched polyurethane
Carbon dot nanocomposite
Performance
Surface coating

ABSTRACT

Waterborne surface coating materials with low volatile organic compounds (VOCs) are environmentally friendly and hence the most desired materials for the modern society. The present study reports *in situ* fabricated thermosetting hyperbranched waterborne polyurethane (WPU)/carbon dot (CD) nanocomposites as surface coating materials. CD was used as a nanoreinforcing agent (at 0.25, 0.5 and 1.0 weight percentages) in the nanocomposites. The structures of the waterborne polyurethane and its fabricated thermosetting nanocomposites were analyzed by using different spectroscopic and analytical tools like Fourier transform infrared spectroscopy, nuclear magnetic resonance spectroscopy, UV–visible spectroscopy and X-ray diffractometry. The mechanical properties of the pristine thermosetting WPU were significantly improved after incorporation of CD (tensile strength from 4.5 to 8.5 MPa, elongation at break value from 96 to 1365, scratch hardness from 3 to 9 kg, impact strength from 70 to 100 cm). The thermal stability of WPU also enhanced from 250 to 280 °C after incorporation of CD in the matrix. Interestingly, the fabricated nanocomposites demonstrated an excitation wavelength and concentration dependent photoluminance behavior as well as exhibited good transparency. Thus, the fabricated WPU nanocomposites show great potential as low VOC containing environment friendly transparent surface coating material.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

Amongst all the polymers, polyurethane (PU) is one of the most important and versatile polymers. It is obtained by the rearrangement reaction between di/poly isocyanates and di/polyol

some advantages other than the above mentioned issues such as cost effectiveness and eco-friendly nature [7,8]. In spite of aforementioned advantages, WPUs also associate with some serious short comings like inferior mechanical property due to the presence of hydrophilic ionic groups or water soluble segments [9]. They

Advances in Nano Research, *Vol. 4, No. 1 (2016) 15-29*
DOI: http://dx.doi.org/10.12989/anr.2016.4.1.015

Castor oil based hyperbranched polyester/bitumen modified fly ash nanocomposite

Deepshikha Bhagawati, Suman Thakur and Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur, Assam, India

(Received November 12, 2015, Revised January 23, 2016, Accepted February 25, 2016)

Abstract. A low cost environmentally benign surface coating binder is highly desirable in the field of material science. In this report, castor oil based hyperbranched polyester/bitumen modified fly ash nanocomposites were fabricated to achieve the desired performance. The hyperbranched polyester resin was synthesized by a three-step one pot condensation reaction using monoglyceride of castor oil based carboxyl terminated pre-polymer and 2,2-bis (hydroxymethyl) propionic acid. Also, the bulk fly ash of paper industry waste was converted to hydrophilic nano fly ash by ultrasonication followed by transforming it to an organo-nano fly ash by the modification with bitumen. The synthesized polyester resin and its nanocomposites were characterized by different analytical and spectroscopic tools. The nanocomposite obtained in presence of 20 wt% styrene (with respect to polyester) was found to be more homogeneous and stable compared to nanocomposite without styrene. The performance in terms of tensile strength, impact resistance, scratch hardness, chemical resistance and thermal stability was found to be improved significantly after formation of nanocomposite compared to the pristine system after curing with bisphenol-A based epoxy and poly(amido

Contents lists available at ScienceDirect

Applied Surface Science

journal homepage: www.elsevier.com/locate/apsusc

Photocatalytic degradation of organic contaminants under solar light using carbon dot/titanium dioxide nanohybrid, obtained through a facile approach

Deepshikha Hazarika, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, 784028, Assam, India

ARTICLE INFO

Article history:
Received 5 January 2016
Received in revised form 19 March 2016
Accepted 21 March 2016
Available online 1 April 2016

Keywords:
Carbon dot
Nanohybrid
Carbon dot/titanium dioxide
Photocatalyst
Degradation

ABSTRACT

In the present study, a novel, simple and green method was developed to synthesize highly luminescent nitrogen containing carbon dot (CD) using carbon resources like bio-based citric acid and glycerol in the presence of cost free cow urine. The as-synthesized CD showed exciting wavelength dependent down- and up-conversion flourescence properties. To utilize the advantage of up-conversion flourescence, a nanohybrid (CD@TiO_2) was synthesized from the above carbon resources and titanium butoxide through a facile one pot single step hydrothermal protocol. Nanomaterials like bare TiO_2 and nanohybrid of TiO_2 in presence of CD (CD/TiO_2) were also synthesized for comparison purpose. The optical properties and structural characteristics of the prepared CD, bare TiO_2, CD@TiO_2 and CD/TiO_2 were examined by fourier transform infrared (FTIR), UV–vis and fluorescence spectroscopic, scanning electron microscopic (SEM), transmission electron microscopic (TEM) and X-ray diffraction (XRD) studies. The elemental compositions of bare CD and CD@TiO_2 nanohybrid were obtained from EDX analyses. The poor crystalline nature and narrow distribution of spherical CD and anatase form of TiO_2 were confirmed from XRD and TEM studies. Amongst the studied nanomaterials, CD@TiO_2 exhibited the most promising photocatalytic degradation of organic pollutants like benzene and phenol as well as an anthrogenic pesticide under sunlight.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Nanotechnology is an emerging and rapidly growing field because of its wide range of outstanding applications in science and technology. Again, nanomaterials owing to their diversified physico-chemical attributes resulted in an explosion for a broad

synthesized by a variety of approaches namely microwave irradiation [13], laser ablation [14], hydrothermal treatment [8], arc discharge [15], pyrolysis [7] etc. But these approaches involve high energy consume protocol, complex process, high cost, high temperature and/or long time for synthesis. Therefore, green synthesis of CD is a highly attractive research area in recent times which

Green Chemistry

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: Green Chem., 2020, 22, 170

Nano Au/Pd-catalysed 'on-water' synthesis of C3–C3′ diaryl-oxindole scaffolds *via* N_2-selective dearomatization of indole†

Shivanee Borpatra Gohain,[a] Monika Basumatary,[b] Purna K. Boruah,[c,d] Manash R. Das[c,d] and Ashim Jyoti Thakur[*a]

Received 11th July 2019,
Accepted 16th November 2019

DOI: 10.1039/c9gc02370d

rsc.li/greenchem

'On-water' synthesis of 2,2-bis[indoly-3-yl]indoline-3-ones *via* N_2-selective dearomatization of '(N–H) protection-free' indole derivatives is described. An oxidative homo trimerization of indole *via* nano Au/Pd catalysis with oxone as additive was successfully demonstrated for the first time. *In situ* generation of isatin at room temperature and with water as solvent are key features.

Introduction

From the vast range of pharmaceutical compounds, *N*-bonded heterocycles are privileged moieties that form the

Indian Journal of Chemistry
Vol. 59A, October 2020, pp. 1476-1483

Studies on coordination environment of transition metal chloride anionic speciation of N, N-disulfodiisopropylammonium ionic salts and assessment of their Brønsted-Lewis acidic properties

Pinky Gogoi[a], Kabita Boruah[b] & Ruli Borah[b,*]
[a]Jorhat Institute of Science & Technology, Sotai 785010, Assam, India
[b]Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India
Email: ruli@tezu.ernet.in

Received 23 December 2019; revised and accepted 22 July 2020

Four ionic salts of N, N-disulfodiisopropylammonium cation with complex anionic speciation of metal chlorides such as $[FeCl_4]^-$, $[NiCl_4]^{2-}$, $[Zn_2Cl_6]^{2-}/[Zn_4Cl_{10}]^{2-}$, $[CoCl_4]^{2-}/[CoCl_3]^-$ were synthesized and characterized with FTIR, NMR, TGA, Raman and electronic spectra. Comparative Brønsted and Lewis acidic strength of the salts were assessed for catalytic uses in organic reactions *via* UV-visible Hammett plot and FTIR spectra using pyridine as probe molecule. Band gap values obtained from Tauc plot present their semiconductor behavior to design ionic liquid-based photo catalysts in future.

Keywords: Ammonium cation, Anionic speciation, Brønsted-Lewis acidic, Chlorometallates, Transition metal cation

Ionic liquids of chlorometallates are considered as important class of acidic/basic/neutral material with varied metal halide anionic species which can be tuned by adjusting molar ratio of metal chloride with respect to molar ratio of organic chloride salt.[1] The composition of anionic speciation is the dominating factor for change of any physiochemical properties of chlorometallate ionic liquids such as viscosity, density, ionic conductivity, thermal stability, sensitivity towards moisture, acidity etc. For chloroferrate (III) ionic liquids gives lots of scope for development of strong Lewis acidic ionic systems for efficient application as industrial catalysts in spite of limited capacity to form the most acidic dimeric $[Fe_2Cl_7]^-$ anion in homogeneous composition.[3,4] The catalytic uses of various types of chlorometallates salts were observed for number of acid catalyzed organic reactions.[2,5-9] They were also applied in electroplating and polishing treatment, metal oxide dissolution,[10] controlled separation/extraction

Send Orders for Reprints to reprints@benthamscience.net

Current Organocatalysis, 2020, 7, 1-00 1

RESEARCH ARTICLE

Development of N,N-disulfo-1,1,3,3-tetramethylguanidinium Chlorometallates as Heterogeneous Catalysts for One Pot Synthesis of 1,2-dihydro-1-aryl-3*H*-naphth[1, 2-*e*][1,3]oxazin-3-one Derivatives

Arup Kumar Dutta[1], Kabita Boruah[1] and Ruli Borah[2,*]

[1]*Department of Chemistry, Pandit Deendayal Upadhyaya Adarsha Mahavidalaya, Behali, Assam, India;* [2]*Department of Chemical Sciences, Tezpur University, Napaam-784028, Tezpur, India*

ARTICLE HISTORY

Received: March 31, 2020
Revised: May 28, 2020
Accepted: June 21, 2020

DOI: 10.2174/2213337207999200721015334

Abstract: ***Background:*** Four members of N,N-disulfo-1,1,3,3-tetramethylguanidinium chlorometallates [DSTMG]$_n$[X], where n= 1 or 2; X= $FeCl_4^-$, $Zn_2Cl_6^{2-}$, $NiCl_4^{2-}$, $MnCl_4^{2-}$ were synthesized as solid Brønsted-Lewis acidic compounds and studied the catalytic activity with the most acidic salt for three-component synthesis of 1,2-dihydro-1-aryl-3H-naphth[1,2-e][1,3]oxazin-3-ones.

Methods: N,N-disulfo-1,1,3,3-tetramethylguanidinium chlorometallates of the four transition metal cations such as Fe(III), Zn(II), Ni(II) and Mn(II) were prepared after treatment of the parent ionic liquid N,N-disulfo-1,1,3,3-tetramethylguanidinium chloride [DSTMG][Cl] with the respective metal chlorides in different mole fractions at 75 °C. The synthesis of 1,2-dihydro-1-aryl-3H-naphth[1,2-e][1,3]oxazin-3-ones was carried out *via* three-component reaction of 2-naphthol, aromatic aldehydes and urea under neat condition at 90 °C using 7 mol% of the [DSTMG][$FeCl_4$] catalyst.

Results: The characterization of synthesized chlorometallates was done using spectroscopic and other analytical techniques, including thermogravimetric analysis and Hammett acidity studies. Among the four salts, the salt of Fe(III) ion was observed as the strong Brønsted acidic hydrophobic salt and thus chosen for the catalytic study.

Conclusion: A new type of chlorometallates of guanidinium cation with composition [DSTMG]$_n$[X], where X= $FeCl_4^-$/$Zn_2Cl_6^{2-}$/ $NiCl_4^{2-}$/ $MnCl_4^{2-}$ and n= 1 or 2 were developed as –SO_3H functionalized solid acids with varied thermal stability (150-250 °C) and physisorbed water (0-20%) as observed from the thermogravimetric study. From them, the most Brønsted acidic Fe(III) salt was employed as an efficient recyclable heterogeneous catalyst for the one-pot synthesis of 1,2-dihydro-1-aryl-3H-naphth[1,2-e][1,3]oxazin-3-ones in neat condition.

Keywords: Tetramethylguanidinium, chlorometallates, bronsted-Lewis acidic, -SO_3H functionalized, naphth[1,2-e][1,3]oxazin-3-one, heterogeneous catalyst.

ChemPubSoc Europe
DOI: 10.1002/slct.201904851
Chemistry SELECT Full Papers

Catalysis

Brönsted Acidic Ionic Liquids Catalysed Sequential Michael-Like Addition of Indole with Chalcones via Claisen-Schmidt Condensation

Sukanya Das,[a] Bikoshita Porashar,[a] Susmita Saikia,[a] and Ruli Borah*[a]

A sequential acidic ionic liquid catalysed one pot approach was conducted for preparation of 3-substituted indoles starting from in situ generated chalcones involving Claisen-Schmidt condensation of substituted aromatic aldehydes with acetophenone followed by Michael like addition of indoles to these chalcones under solvent-free thermal reactions. For this purpose, some new and some reported Brönsted acidic ionic liquids, 2-alkyl-3, 3-disulfoimidazolium carboxylate [RDSIM][X] (where R = Me & Et and X=CH_3COO^-, CCl_3COO^-, CF_3COO^-), were analyzed to compare their Brönsted acidic strength and thermal stability. From this investigation, 2-methyl-1, 3-disulfoimidazolium trifluoroacetate [MDSIM][CF_3COO] and 2-ethyl-1,3-disulfoimidazolium trifluoroacetate [EDSIM][CF_3COO] were determined as efficient ionic liquid catalysts for study of the two-step one pot synthesis of 3-substituted indoles.

1. Introduction

Chalcones are viable naturally available precursors of flavonoids and isoflavonoids with a diverse array of pharmacological activities such as antibacterial, antifungal, antimalarial, antiviral, antioxidant, anti-inflammatory, antituberculosis and anticancer etc.[1-10] Their high non-linear optical coefficients and good crystallizability make them appropriate candidates for applications in photonics and optoelectronics.[11-13] They are also employed as reaction precursors to get pyrazoles,[14] isoxazoles[15] and thiazoles.[16] The general synthetic routes of chalcones involving Claisen-Schmidt condensation between acetophenone derivatives and aromatic aldehydes, utilize strong acidic or basic reagents/catalysts like NaOH, $Ba(OH)_2$, KOH, AlCl$_3$ and HCl,[17] which come with drawbacks of catalyst recovery, side product formation, less product selectivity, longer reaction time, extreme reaction conditions and complicated isolation of products.[18] Later on, a number of Lewis /Brönsted acids[19-23] solid acids[24-26] and solid bases[27-29] were introduced for this condensation, only to obtain moderate success. The uses of environmentally benign strategies were observed with ionic liquids,[30-35] supercritical fluids,[36] glycerine,[37] microwave[38] and ultrasound-assisted conditions.[39] Many organic reactions employed task-specific ionic liquids as non-volatile solvent/catalyst system because of viscous nature[40-43] and also reduced their toxic effects in environment as reusable material.[44] The literature search also displayed few reports involving N-alkane sulfonic acid functionalized Brönsted acidic imidazolium/pyridinium based ionic liquids as dual solvent-catalyst system for the Claisen-Schmidt condensation at 100–160 °C for varied reaction time (5 h to 9 h) under inert atmosphere.[45,46] In these reactions, N-alkyl sulfonic acid functionalized ionic liquids (ILs) worked as non-corrosive and recyclable safer alternative of conventional non-reusable corrosive acidic/basic reagents/catalysts.[45,46] Thus, in this work, we were interested to explore the catalytic activities of two series of diacidic N-SO_3H functionalized imidazolium ILs i.e. 2-methyl-/2-ethyl-1,3-disulfoimidazolium carboxylate ionic liquids [MDSIM][X] and [EDSIM][X], (where, X = CF_3COO^-,CCl_3COO^- and CH_3COO^-) (Scheme 1) for one pot preparation of 3-substituted indoles after selective formation of the chalcones involving Claisen-Schmidt condensation and consecutive Michael-like addition of indole (Scheme 2). The products of this one-pot method are abundant in nature as flower scents, perfumers as well as in coal tar and possess antifungal, antimicrobial, antiviral, anti-inflammatory and analgesic activities.[47-50] Traditional methods for obtaining the 3-substituted indoles, utilize the preformed chalcones for conjugate addition with the indoles using Brönsted or Lewis acidic catalysts and only few reports are found with ionic liquids as reaction medium or catalysts.[51-54] A careful control of

[a] R. Porashar, S. Saikia, Prof. R. Borah
Department of Chemical Sciences, Tezpur University, Napaam-784028, Tezpur, India
E-mail: ruli@tezu.ernet.com
[b] S. Das
Department of Chemical Sciences, Tezpur University, Napaam-784028, Tezpur, India

Supporting information for this article is available on the WWW under https://doi.org/10.1002/slct.201904851

Sustainable Chemistry and Pharmacy 17 (2020) 100296

Contents lists available at ScienceDirect

Sustainable Chemistry and Pharmacy

journal homepage: http://www.elsevier.com/locate/scp

Bio-based sustainable heterogeneous catalyst for *ipso*-hydroxylation of arylboronic acid

Sameeran Kumar Das [a], Mohendra Tahu [a], Minakshi Gohain [b], Dhanapati Deka [b], Utpal Bora [a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, 784028, Assam, India
[b] Biomass Conversion Laboratory, Department of Energy, Tezpur University, Napaam, 784028, Assam, India

ARTICLE INFO

Keywords:
ipso-hydroxylation
CBPA
30 % H_2O_2
H_2O

ABSTRACT

An effective and greener methodology has been developed for the ipso-hydroxylation of arylboronic acids utilising a heterogeneous agro-waste based catalyst Calcined Burnt Peel Ash (CBPA). The catalyst CBPA has been prepared from the peel of *Musa balbisiana Colla*. The protocol is efficient for different electronically diverse phenylboronic acid moieties under ambient conditions with green oxidant 30% hydrogen peroxide and provides excellent yields of phenols within short reaction time. The catalyst is recyclable up to 5th cycle without significant loss of catalytic activity.

1. Introduction

With the advent of the '*Green Chemistry*' principles (Anastas and Eghbali, 2010), efforts have been devoted towards the effective utilisation of the agro-waste based catalyst and reaction medium for various important organic transformations (Sarmah et al., 2017; Hooshmand et al., 2019). In this regard, the use of different bio-based ash water extracts such as water extract of papaya bark ash (WEPBA) (Sarmah et al., 2016), water extract of rice straw ash (WERSA) (Boruah et al., 2015; Saikia and Borah, 2015), water extract of pomegranate ash (WEPA) (Lakshmidevi et al., 2018), water extract of teak leaf ash (WET) (Das et al., 2020) etc have been very well explained in literatures for different organic reactions. The utilisation of agro-wastes has fulfilled the goal of waste minimisation thereby enhancing the pollution free environment. Usually, among the homogeneous and heterogeneous catalysts, the selectivity is more in case of homogeneous catalysts; but it confronts problems with its reuse and contamination when separating from the products. Consequently, heterogeneous catalysts are more promising than the homogeneous on these grounds.

Phenol has been considered as the versatile building block of various important pharmacological, agrochemical as well as biological products (Tyman, 1996; Poupon and Nay, 2011; Castro-Godoy et al., 2019). Natural phenolic compounds are directly isolated from natural resources like plants and herbs (Gupta et al., 2018). They can exhibit biological activity including antiviral, anti-inflammatory, antimicrobial, antitumor etc (Chatterjee and Goswami, 2015). Plant polyphenols shows a way to develop new anticancer agents and powerful natural product antioxidants (Quideau et al., 2011). Consequently, phenolic compounds are used in many medicinal drugs for various diseases (Fig. 1) (Muller et al., 2010; Mishra and Tiwari, 2011; Amorati and Valgimigli, 2012). Moreover there is an extensive use of phenol in the production of phenolic resins, aniline insecticides, surface active agents, dyes, synthetic detergents, wood preservatives, herbicides, pesticides, fungicides for preparation of wood and as a raw material for synthesizing drugs like aspirin (Rappoport, 2004). Conventionally arylchlorides (Anderson et al., 2006; Yu et al., 2012; Xia et al., 2016), arylamines (Cohen et al., 1977) and aldehydes or aryl ketones (Saikia and Borah, 2015; Bernini et al., 2005; Saikia et al., 2015a) are used as synthon for phenol; however harsh reaction conditions, long reaction time, basic reaction medium and use of expensive ligands (Tyman, 1996; Anderson et al., 2006) are considered as drawback associated with these routes for phenol. Consequently, non-toxic and environmentally benign arylboronic acids have been considered as effective greener precursor for synthesis of the phenols (Hao et al., 2019).

Various methodologies have been developed for ipso-hydroxylation of arylboronic acids utilising different metal based catalysts such as Pd-Chitosan-CNT/H_2O_2 (Shin et al., 2019a), biogenic $Fe_2O_3@SiO_2$ NPs (Saikia et al., 2017), montmorillonite K10 supported Ag NPs-H_2O_2 (Begum et al., 2015), $CuFe_2O_4$ magnetic NPs (Chutia and Chetia, 2019), $CuSO_4$-Phenanthroline (Xu et al., 2010), heterogeneous Cu_2O NPs-H_2O_2 (Borah et al., 2017), Cu NPs (Affrose et al., 2014), montmorillonite-KSF entrapped $Cu(OH)_x$ (Dar et al., 2013), $CuFe_2O_4$ (Yang et al., 2014),

* Corresponding author.
E-mail addresses: ubora@tezu.ernet.in, utbora@yahoo.co.in (U. Bora).

https://doi.org/10.1016/j.scp.2020.100296
Received 27 May 2020; Received in revised form 9 July 2020; Accepted 11 July 2020
Available online 9 August 2020
2352-5541/© 2020 Elsevier B.V. All rights reserved.

Sustainable Chemistry and Pharmacy 15 (2020) 100225

Contents lists available at ScienceDirect

Sustainable Chemistry and Pharmacy

journal homepage: http://www.elsevier.com/locate/scp

Repurposing fallen leaves to bio-based reaction medium for hydration, hydroxylation, carbon-carbon and carbon-nitrogen bond formation reactions

Sameeran Kumar Das [a,1], Khairujjaman Laskar [a,1], Dipika Konwar [a], Aniket Sahoo [a], Binoy K. Saikia [b], Utpal Bora [a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, 784028, Assam, India
[b] CSIR-North East Institute of Science & Technology, Jorhat, 785006, Assam, India

ARTICLE INFO

Keywords:
WET
Hydration
Phenylboronic acid
ipso-hydroxylation
Knoevenagel condensation
Chan-Lam coupling

ABSTRACT

A green reaction medium has been developed from the Water Extract of Teak leaf (*Tectona grandis*) ash (WET). The alkaline nature of the WET was successfully applied towards hydration of nitriles, conversion of arylboronic acids to phenols with 30% aqueous H_2O_2, Knoevenagel condensation for benzylidenemalononitrile derivatives formation and Chan-Lam reaction of arylboronic acids with imidazole derivatives. In current protocols dual role of WET as reaction medium as well as base has been explored. A wide range of substrates with varying electronic natures is compatible under these WET mediated reaction conditions with excellent yields.

1. Introduction

Natural feedstock-based solvents/reaction mediums have been widely used for organic transformation in contemporary organic synthesis (Clarke et al., 2018). These solvents fulfilled the key goal of 'Green Chemistry' by minimizing the environmental risk with their clean and organic waste free nature (Ivanković et al., 2017). In this context, several ash-water extracts (AWEs) obtained from agro-waste have been demonstrated by different groups as alternative greener media for organic synthesis as well as catalysis. WERSA (Godoi et al., 2019; Saikia et al., 2015b), WEB (Bagul et al., 2017; Boruah et al., 2015a; Leitemberger et al., 2019), WEPBA (Sarmah et al., 2016), AWEH (Sarmah et al., 2017), WEPA (Lakshmidevi et al., 2018), water extract of waste onion peel ash (Chia et al., 2018) etc are some examples of the AWEs which have been successfully utilised for organic reactions like Dakin reaction (Saikia et al., 2015a), Henry reaction (Surneni et al., 2016), Suzuki-Miyaura cross-coupling (Boruah et al., 2015b), synthesis of symmetrical disulfides (Leitemberger et al., 2019), peptide synthesis (Konwar et al., 2016), Sonogashira cross-coupling (Dewan et al., 2016), ipso-hydroxylation (Saikia et al., 2017), Ullmann (Lakshmidevi et al., 2018) etc. The pH of the extracts confirms their basic nature and they exhibit dual characters both as solvent as well as base. These extracts inherited the alkaline property due to the presence of sodium, potassium, carbonate ions, oxide ions etc (Boruah et al., 2015b). In recent years, effective utilization of different AWEs in organic transformation prompt us to investigate the use of Water Extract of Teak leaf ash (WET) as an alternative green reaction medium for organic transformation. Teak tree (*Tectona grandis*) is a native tree from tropical countries of Asia. It is classified in the division Magnoliophyta, (class: Magnoliopsida, order: Pantales, and family: Verbenaceae/Lamiaceae) (Plantlist, n.d.; Lacret et al., 2012). Different parts of Teak tree have various applications in medicinal purpose (Naivodhula et al., n.d.). As reported earlier, extract obtained from Teak leaves has been applied for nanoparticle synthesis (Devadiga et al., 2015). Recently, our group has reported the application of calcined *Tectona grandis* leaves (CTGL) as an eco-friendly, renewable and cost effective heterogeneous base catalyst for biodiesel production and Knoevenagel condensation reaction (Gohain et al., 2020). But, so far, water extract of this leaf has not been evaluated for the application in organic transformations.

Functional group transformation is very important in organic synthesis. In this regard, conversion of nitriles to amides is a significant organic transformation (Larock, n.d.; Lee and Frost, 2015; Matsuoka et al., 2015; McManus and Langreck, 2019; Moorthy and Singhal, 2005; Murahashi et al., 1986; Snyder and Elston, 1954; Tomás-Mendivil et al.,

* Corresponding author.
E-mail addresses: ubora@tezu.ernet.in, utbora@yahoo.co.in (U. Bora).
[1] Equal contributing author.

https://doi.org/10.1016/j.scp.2020.100225
Received 14 November 2019; Received in revised form 28 January 2020; Accepted 29 January 2020
Available online 14 February 2020
2352-5541/© 2020 Elsevier B.V. All rights reserved.

Waste Management 102 (2020) 212–221

Contents lists available at ScienceDirect

Waste Management

journal homepage: www.elsevier.com/locate/wasman

Towards sustainable biodiesel and chemical production: Multifunctional use of heterogeneous catalyst from littered *Tectona grandis* leaves

Minakshi Gohain [a,*], Khairujjaman Laskar [b], Hridoyjit Phukon [c,d], Utpal Bora [b], Dipul Kalita [c,d], Dhanapati Deka [a]

[a] Department of Energy, Tezpur University, Napaam 784028, Assam, India
[b] Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India
[c] Cellulose Pulp and Paper Group (Material Sciences and Technology Division), North East Institute of Science and Technology, Jorhat 785006, Assam, India
[d] Academy of Scientific and Innovative Research, Council of Scientific and Industrial Research – North East Institute of Science and Technology, Jorhat 785006, Assam, India

ARTICLE INFO

Article history:
Received 9 September 2019
Revised 24 October 2019
Accepted 27 October 2019

Keywords:
Waste biomass
Tectona grandis leaves
Renewable
Biodiesel
Knoevenagel condensation

ABSTRACT

Waste biomass derived heterogeneous catalyst is an excellent alternative to chemically synthesized catalysts. In this work, calcined Tectona grandis leaves were proposed as an eco-friendly, renewable and low cost heterogeneous base catalyst. The prepared catalyst was examined by FTIR, XRD, XPS, SEM, EDX, TEM, TGA, BET and Hammett indicator test. The catalyst has an appealing nature towards various chemical transformations due to its basic surface sites provided by alkali and alkaline earth metals. The efficiency of the catalyst was successfully investigated by its application in biodiesel production. The products were confirmed by [1]H and [13]C NMR. 100% FAME conversion was attained using a catalyst loading of 2.5 wt% under optimized reaction parameters. The catalyst was further explored for Knoevenagel condensation reaction, in which it showed its effectiveness and recyclability towards the formation of benzylidenemalononitrile derivatives of aryl aldehydes. Thus, it is a potential 'green catalyst' derived from waste biomass without any addition of chemicals that can replace the industrial base catalysts used for biodiesel production and Knoevenagel reaction and makes the protocol environmentally benign.
© 2019 Elsevier Ltd. All rights reserved.

1. Introduction

Depletion of fossil fuels, increasing concerns about environmental pollution and greenhouse gases emission has led to the exploration of sustainable sources of energy (Li and Guo, 2017; Sharma et al., 2009; Lardon et al., 2009). Among the alternatives, renewable and sustainable biodiesel has the key advantage of using the existing current technology for diesel fuels (Tan et al., 2018). Biodiesel derived from edible or non-edible oils are a potential alternative for diesel fuels which is biodegradable, non-toxic and renewable (Lardon et al., 2009; Agarwal et al., 2018; Rafiei et al., 2018). But the current conventional method used for biodiesel synthesis is not sustainable due to use of edible vegetable oils as feedstocks which accounts for more than 70% of the total production cost (Piker et al., 2016). Low cost and available feedstocks like waste cooking oil (Gohain et al., 2019; Tan et al., 2019; Xiong et al., 2019), jatropha and palm oil should be used to replace the food grade vegetable oils for commercial biodiesel synthesis (Janaun and Ellis, 2010). It is generally synthesized through transesterification reaction using homogeneous catalyst (NaOH, KOH, CH_3CH_2ONa, H_2SO_4 etc), which are corrosive for the reactors (Sano et al., 2017), separation of the catalyst from the reaction mixtures is costly and chemically wasteful (Ma and Hanna, 1999; Noureddini and Zhu, 1997) as well. Solid catalysts based on ZrO_2 (Ajala et al., 2015), SrO (Liu et al., 2007), ZnO (Xie and Li, 2006), Fe_3O_4 (Tang et al., 2012) etc., have been used in biodiesel synthesis however the use of biomass derived catalyst is highly desirable from the perspective of sustainability and economy (Steen et al., 2010).

Activated carbon prepared from waste biomass has been extensively fabricated by functionalization with acids or bases to prepare various solid catalysts such as deoiled cake (Konwar et al., 2014; Toda et al., 2005), modified rice (Roschat et al., 2016) and peat as support (Wang et al., 2017). Carbon based catalysts have good thermal and mechanical stability and thus are ideal catalysts for various reactions. But it involves functionalization of the carbon or activated carbons with harmful chemicals which increase the cost of production and is also time consuming. Hence, only a few of them can be used on an industrial scale because of its high synthetic cost (Liu et al., 2016). These shortcomings can be addressed successfully by the use of heterogeneous catalyst derived from

* Corresponding author.
E-mail address: minakshigohain@gmail.com (M. Gohain).

https://doi.org/10.1016/j.wasman.2019.10.048
0956-053X/© 2019 Elsevier Ltd. All rights reserved.

Renewable Energy 160 (2020) 220–230

Contents lists available at ScienceDirect

Renewable Energy

journal homepage: www.elsevier.com/locate/renene

Rhodotorula mucilaginosa: A source of heterogeneous catalyst for biodiesel production from yeast single cell oil and waste cooking oil

Minakshi Gohain [a,*], Pritam Bardhan [b], Khairujjaman Laskar [c], Saswati Sarmah [a], Manabendra Mandal [b], Utpal Bora [c], Mohan Chandra Kalita [d], Vaibhav Vasant Goud [e], Dhanapati Deka [a]

[a] Department of Energy, Tezpur University, Napaam, India
[b] Department of Molecular Biology and Biotechnology, Tezpur University, Napaam, India
[c] Department of Chemical Sciences, Tezpur University, Napaam, India
[d] Department of Biotechnology, Gauhati University, Guwahati, India
[e] Department of Chemical Engineering, Indian Institute of Technology, Guwahati, India

ARTICLE INFO

Article history:
Received 2 December 2019
Received in revised form
30 April 2020
Accepted 15 June 2020
Available online 16 June 2020

Keywords:
Single cell oil
Rhodotorula mucilaginosa deoiled cake
KOH
Waste cooking oil
FAME

ABSTRACT

Biodiesel obtained from yeast derived single cell oil (SCO) is considered as an alternative to conventional biodiesel derived from plant oils, having the potential to substitute petroleum-derived transport fuels. In this work, we have developed a heterogeneous potassium hydroxide catalyst (K-RAC) supported on *Rhodotorula mucilaginosa* deoiled cake activated carbon (RAC) to enhance the conversion of *R. mucilaginosa* isolate R2 derived SCO as well as waste cooking oil (WCO) to biodiesel. The prepared catalyst was characterized by XRD, FTIR, EDX, SEM, BET and TGA. Basicity of the catalyst was determined by CO_2-TPD and the hammet indicator test. The maximum fatty acid methyl esters (FAME) conversion of 96.6% and 98.66% for SCO and WCO respectively were obtained at optimized parameters i.e. 9:1 molar ratio (methanol/oil), 3 wt % of K-RAC loading at 60 °C and reaction time of 3 h. [1]H NMR and GCMS was used to confirm the formation of biodiesel. The K-RAC was recycled effectively for five consecutive cycles.
© 2020 Elsevier Ltd. All rights reserved.

1. Introduction

Global concerns about diminishing fossil fuel resources with increasing energy demand and growing environmental consciousness insist the call for alternative energy sources, as a sustainable and effective approach. Among all, biodiesel achieved significant potential as a feasible, nontoxic, biodegradable, renewable and eco-friendly with no net accumulation of carbon dioxide in the atmosphere [1–3].

The crude diesel can be directly replaced by biodiesel without any modification in diesel engines owing to their comparable properties. Previous literatures have shown that utilization of biodiesel leads to a net reduction of CO_2 emissions by 78% compared to conventional diesel fuel [4]. Transesterification is the general method for the production of biodiesel (FAME) from different sources of triglycerides (e.g., animal fats, vegetable oils and single cell oil from yeast) and from free fatty acids by esterification [5]. The selection of feedstock plays a major role in total biodiesel production cost [6]. Currently, single cell oil (SCO) derived from oleaginous yeast is considered as a potential feedstock for production of third generation biodiesel due to its high lipid accumulation as intracellular lipid bodies, ability to reach high cell densities in relatively short time and easy scale-up [7]. Moreover, plant oils obtained from edible and non-edible energy crops have garnered public criticism over land usage and food security concerns [8]. In this regard, yeast derived SCO having a similar profile of monounsaturated and saturated fatty acid to plant oils is considered as an alternative to sustain the biodiesel industry [9].

Large amount of (WCO) is produced everyday and its direct disposal to the environment without any treatment taints the environment. The WCO procured from commercial and domestic disposals is cheap, readily available, and is non-edible in nature. This makes it economically and environmentally favorable feedstock for the production of biodiesel [10–12].

In recent years, utilization of basic catalyst for transesterification has become the most common and commercially available

* Corresponding author.
E-mail address: minakshigohain@gmail.com (M. Gohain).

https://doi.org/10.1016/j.renene.2020.06.063
0960-1481/© 2020 Elsevier Ltd. All rights reserved.

ACS APPLIED ENERGY MATERIALS

www.acsaem.org Article

Bimetallic Palladium−Nickel Nanoparticles Anchored on Carbon as High-Performance Electrocatalysts for Oxygen Reduction and Formic Acid Oxidation Reactions

Chiranjita Goswami,[⊥] Himadri Saikia,[⊥] Kohei Tada, Shingo Tanaka, Putla Sudarsanam, Suresh K. Bhargava, and Pankaj Bharali*

Cite This: ACS Appl. Energy Mater. 2020, 3, 9285−9295 Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Herein, we report the synthesis of carbon-supported palladium−nickel electrocatalysts (ECs) ($Pd_{4-x}Ni_x/C$ ECs, x = 1−3) as an important class of non-platinum ECs, for both oxygen reduction reaction (ORR) and formic acid oxidation (FAO) reactions. Among various as-synthesized ECs, the Pd_3Ni/C catalyst exhibited the best performance, which outperforms the benchmark Pt/C and Pd/C catalysts. For ORR, the onset potential of Pd_3Ni/C EC (0.96 V) is 40 and 80 mV more positive than that of the benchmark Pt/C (0.92 V) and Pd/C (0.88 V) catalysts, suggesting its remarkable ORR behavior. All $Pd_{4-x}Ni_x/C$ (x = 1−3) compositions favored the "4e" reduction pathway during ORR in alkaline media. Furthermore, the ECs are very efficient toward the FAO reaction, which proceeds *via* the "dehydrogenation" pathway. The electrochemically active surface area of Pd_3Ni/C EC is found to be ~2-, ~4-, ~5-, and ~35-fold higher than that of PdNi/C, $PdNi_3/C$, Pd/C, and standard Pd/C ECs, respectively. The remarkable ORR/FAO activity of the synthesized ECs can be ascribed to the homogeneous dispersion of smaller palladium−nickel alloy nanoparticles over the carbon support, downshift of Pd d-band center, as well as synergistic effect between the metals that makes electron transfer easier. Meanwhile, the downshift of the Pd d-band center after alloying with Ni was confirmed *via* density functional theory calculations, which unveiled the superiority of Pd_3Ni/C over other ECs and the benchmarks. Thus, this work represents a cost-effective and ecofriendly approach for designing high-performance anode as well as cathode catalytic materials for practical applications.

KEYWORDS: *fuel cells, electrocatalysts, oxygen reduction reaction, formic acid oxidation, palladium−nickel alloy*

1. INTRODUCTION

Oxygen reduction at the cathode and oxidation of small organic molecules at the anode have gained enormous attention as important reactions in fuel cells.[1,2] Till now, Pt and Pt-based materials are considered as the state-of-the-art catalysts for catalyzing the sluggish kinetics of these reactions and have still been prioritized in comparison to other candidates.[3] However, certain drawbacks such as high cost, low abundance, low catalytic stability along with high overpotential hinder the large scale commercialization of Pt and Pt-based catalysts.[4] It has been established that the intrinsic electronic properties are mainly responsible for the shortcomings of the commercial Pt/C catalyst.[2] Thus, the development of suitable cost-effective as well as highly active electrocatalysts (ECs) has become a great challenge for the researchers.

Alloying Pt with elements having low lattice constant such as Cr,[6,7] Fe,[8,9] Ni,[10,11] Cu,[12,13] Zn,[14] and so forth is one of the

Received: July 9, 2020
Accepted: September 2, 2020
Published: September 2, 2020

LANGMUIR

pubs.acs.org/Langmuir Article

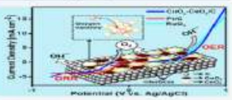
Elucidating the Role of Oxide−Oxide/Carbon Interfaces of CuO_x−CeO_2/C in Boosting Electrocatalytic Performance

Chiranjita Goswami, Yusuke Yamada, Ekaterina V. Matus, Ilyas Z. Ismagilov, Mikhail Kerzhentsev, and Pankaj Bharali*

Cite This: Langmuir 2020, 36, 15141−15152 Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Herein, we report the synthesis and bifunctional oxygen reduction reaction (ORR) and oxygen evolution reaction (OER) activities of a CuO_x−CeO_2/C electrocatalyst (EC) with rich oxide−oxide and oxide−carbon interfaces. It not only demonstrates a smaller Tafel slope (65 mV dec^{-1}) and higher limiting current density (−5.03 mA cm^{-2}) but also exhibits an onset potential (−0.10 V vs Ag/AgCl) comparable to that of benchmark Pt/C. Besides undergoing the favorable direct four-electron ORR pathway, it unveils a loss of 23% of its initial current after 6 h of a stability test and a negative shift of 4 mV in the half-wave potential after the accelerated durability test compared to the corresponding current loss of 28% and negative shift of 20 mV for Pt/C. It also reveals remarkable OER activity in an alkaline medium with a low onset potential (0.20 V) and a smaller Tafel slope (177 mV dec^{-1}). The bifunctional ORR/OER activity of CuO_x−CeO_2/C EC can be ascribed to the synergistic effects, its unique structure with enriched oxygen vacancies owing to the presence of Ce^{4+}/Ce^{3+}, robust oxide−oxide and oxide−carbon heterointerfaces, and homogeneous dispersion of oxides over the carbon bed, which facilitates faster electronic conduction.



INTRODUCTION

Developing clean, renewable, and eco-friendly energy technologies has become of utmost concern to abate the ever-growing energy crisis and other environment-related issues.[1,2] Environmentally benign electrochemical technologies such as metal−air batteries,[3] fuel cells[4] and overall water-splitting[5] processes have emerged as alternatives to conventional energy sources like fossil fuels. The two main reactions involved in such energy conversion/storage devices are the oxygen reduction reaction (ORR) and oxygen evolution reaction (OER), due to which O_2 electrochemistry is of tremendous interest to researchers.[6] The slow kinetics, large overpotential, and complex mechanism due to the multielectron transfer of ORR/OER finally reduce the activity of such energy devices for practical utility.[7] Pt and Pt-based materials[8,9] are still considered as the state-of-the-art electrocatalysts (ECs) for ORR, while RuO_2 and IrO_2[10,11] are pre-eminent benchmarks for OER. However, these benchmark ECs suffer from drawbacks like dissolution during the reaction, lack of stability in both acidic and basic electrolytes, and scarcity, along with the high price.[12] Hence, the replacement of precious metal-based ECs by alternative low-cost, highly proficient, stable, and non-Pt ECs has become a challenging task mainly for electrochemists. Over the past few decades, there has been extensive focus on metal oxides (MOs) based on transition metals[13−16] and post-transition metals.[17,18] Among various transition MOs, copper oxides attract considerable attention in various electrochemical reactions due to variable oxidation states, natural abundance, chemical stability, and nonpolluting nature.[19] However, their activity is somewhat limited in practical use due to poor electronic conduction. Developing mixed MOs[20] and the use of carbonaceous materials such as carbon nanotubes,[21] reduced graphene oxide (rGO),[22] Vulcan XC-72R (VC),[23] etc. are extremely beneficial for further improvement in their conductivity and stability. These carbonaceous materials also act as very good supports that lead to charge redistribution and charge transfer at the interface. The interface provides a unique environment that enhances the adsorption of reactant molecules and a favorable pathway for the reaction.[24]

Nanostructuring and interface tuning are effective approaches for creating highly active materials for advanced electrocatalytic processes.[25] This is because particles in the nanoscale range contain a higher fraction of surface active sites and possess a high surface-to-volume ratio,[26] whereas the oxide/oxide and oxide/carbon interfaces offer dual active sites, thereby improving the electrocatalytic activity, stability, and durability of the ECs.[27] The importance of tuning interfaces and surface properties at atomic and molecular levels has been

Received: September 17, 2020
Revised: November 14, 2020
Published: November 30, 2020

ACS APPLIED ENERGY MATERIALS

www.acsaem.org Article

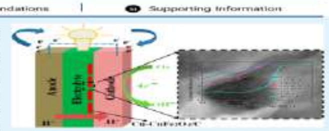
Unravelling the Role of Metallic Cu in Cu-$CuFe_2O_4$/C Nanohybrid for Enhanced Oxygen Reduction Electrocatalysis

Biraj Jyoti Borah, Yusuke Yamada, and Pankaj Bharali*

Cite This: ACS Appl. Energy Mater. 2020, 3, 3488−3496 Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Interface engineering of metal and semiconductive spinel oxides is an efficient approach to improve conductivity and ultimately boosting electrocatalytic property. Herein, we present the synthesis of Cu-$CuFe_2O_4$ nanohybrid coupled with conductive carbon (Cu-$CuFe_2O_4$/C) as a highly efficient electrocatalyst for oxygen reduction reaction (ORR). The metallic Cu and semiconductive oxide $CuFe_2O_4$ interface provides better electronic conductivity, and carbon matrix offers conductive support for electron/ion transfer process. Consequently, the Cu-$CuFe_2O_4$/C electrode exhibits superior current density (4.35 mA cm^{-2}) in comparison to the standard Pt/C (3.81 mA cm^{-2}) along with other catalyst systems toward ORR. Thus, the nanohybrid that combines the advantages of metallic Cu and chemical interaction of carbon matrix along with its magnetic behavior establishes remarkable enhancement in ORR activity. Furthermore, it also exhibits superior mechanical and electrochemical stability compared to that of Pt/C. Thus, the unique structural design offers a new approach for the fabrication of magnetic metal-oxides electrodes with enhanced ORR performance via interface engineering.



KEYWORDS: *non-noble electrocatalyst, metal/oxides interfaces, fuel cell, oxygen reduction reaction, superior stability*

1. INTRODUCTION

There is an increasing demand for clean substitutes of traditional fossil fuel; the fuel cell (FC),[1−3] metal-air batteries,[4,5] supercapacitors,[6,7] lithium-ion batteries,[8,9] etc. have aroused much scientific and technological importance over the past decade. Oxygen reduction reaction (ORR) that takes place on cathode surface is an important process in the functioning of polymer electrolyte membrane FCs (PEMFCs). The sluggish kinetic behavior of ORR is the major limiting factor for their worldwide commercialization and utilization of the FCs.[10−12] Until now, Pt and its alloy based electrode materials have been the most active electrocatalysts existing in real systems for improving the sluggish kinetics of ORR. However, because of the high price, scarcity, and limited stability of Pt,[13] the PEMFCs could not ensure the place for the futuristic energy alternative in the global energy market. Until now, copious research efforts have been made on the discovery of cost-effective alternatives to Pt-based metals.[14−17] Accordingly, interest has been focused toward designing various low cost earth-abundant metal-based electrodes as they revealed ORR performance and stability analogous to or still superior to Pt-based electrodes in alkaline electrolyte. Among the nonprecious electrocatalysts, first row transition metals[12,19−21] chalcogenides[22] oxynitrides[23] metal oxides[24−27] are promising materials used for catalyzing the crucial reaction. Recently, Yan et al. reported the synthesis of FeCo NPs decorated on defective graphene by an impregnation method.[18] They found an extraordinary performance of ORR and free from methanol tolerance due to the unique carbon defects present in the graphene.[18] Among the various first-row transition metal oxides, mixed valence spinel oxide shows superior electrocatalytic ORR activity.[24,28] In a recent work, Kashyap et al. described the synthesis of nitrogen-doped reduced graphene oxide (N-rGO)/Vulcan carbon supported $CoFe_2O_4$ electrocatalysts with enhanced ORR activity.[29] The strong coupling of active site possessing N-rGO sheets and microporous carbon has been credited to the enhanced activity.[29] Spinel $CuCo_2O_4$ NPs integrated onto NrGO has been fabricated through a two-step solvothermal method. It outperforms ORR activity retention compared to benchmark Pt/C owing to the robust interaction between $CuCo_2O_4$ NPs and NrGO.[30] Singh et al. reported electrochemical ORR activity of N-doped graphene supported CoMn alloy oxide electrocatalysts.[31] Composites of nanosize delafossite $CuFeO_2$ and nitrogen-free carbon nanotubes ($CuFeO_2$−CNT-X) have

Received: January 2, 2020
Accepted: March 23, 2020
Published: March 23, 2020

Received: 8 March 2020 | Revised: 12 June 2020 | Accepted: 14 June 2020
DOI: 10.1002/aoc.5920

FULL PAPER

Applied Organometallic Chemistry WILEY

Binary α-Fe_2O_3–Co_3O_4 nanostructures for advanced oxidation process: Role of synergy for enhanced catalysis

Kumar Kashyap Hazarika | Debashis Hazarika | Pankaj Bharali

Department of Chemical Sciences, Tezpur University, Napaam, Assam, 784 028, India

Correspondence
Pankaj Bharali, Department of Chemical Sciences, Tezpur University, Napaam 784 028, Assam, India.
Email: pankajb@tezu.ernet.in

Funding information
Council of Scientific and Industrial Research, India

Iron and its binary oxides are meticulously exploited for environmental remediations. However, only limited studies have been carried out on the degradation of industrial organics by advanced oxidation process. In this study, iron oxide, cobalt oxide, and iron–cobalt binary oxides were synthesized by a modified hydrothermal method as heterogeneous Fenton-like catalysts for the removal of methylene blue (MB) from wastewaters. The oxide nanostructures were characterized by different analytical techniques. Studying the effects of various parameters such as catalyst dose, MB concentration, and H_2O_2 concentration, the reaction conditions were optimized to enhance the removal of MB dye. The results revealed that α-Fe_2O_3–Co_3O_4 shows much higher activity than both Co_3O_4 and α-Fe_2O_3 for the degradation of MB at room temperature and beyond. The binary α-Fe_2O_3–Co_3O_4 shows degradation efficiency of 96.4% at 65 °C within 60 min. Furthermore, the binary α-Fe_2O_3–Co_3O_4 catalyst retains its activity for up to four successive cycles. A probable mechanism is also proposed, involving the generation of ·OH radical as well as Fe^{2+}/Fe^{3+} or Co^{2+}/Co^{3+} redox couple of the binary α-Fe_2O_3–Co_3O_4 catalyst.

KEYWORDS
advanced oxidation process, catalyst, degradation, methylene blue, α-Fe_2O_3–Co_3O_4

1 | INTRODUCTION

Industrial pollutants containing different organic compounds have been one of the major concerns as they can cause great harm to the environment. In particular, industrial dyes are one of the significant polluters of water bodies.[1–6] Dyes are mostly introduced to the environment through industrial effluents. In recent years, the effluent containing dye has received increased attention as it has the capacity to absorb and reflect sunlight which normally enters the water.[7–9] Dyes have a highly complicated chemical structure and have high thermal and photostability due to which they remain in the environment for very long periods.[10–14] They are present in wastewaters discharged from various industries such as textile, dyeing, feather fiber, pharmaceuticals, and cosmetic.[15,16] Exposure to effluents containing dyes can cause increased heart rate, vomiting, shock, cyanosis, jaundice, and tissue necrosis in humans.[17] Thus, there is an urgent need to develop some efficient and feasible methods for the removal of dyes from wastewater.[18–23] Advanced oxidation processes (AOPs) are the most potential alternative treatments for industrial wastewaters containing organic pollutants. AOPs are a set of processes designed for the removal of organic or inorganic contaminants from wastewater by the process of oxidation via their reaction with hydroxyl radical (·OH). Processes such as Fenton's reaction use H_2O_2 to generate the free ·OH radical as an oxidant in the presence of a catalyst. This AOP method has been successfully applied to oxidize

© 2020 John Wiley & Sons, Ltd.

Contents lists available at ScienceDirect

Journal of Environmental Chemical Engineering

journal homepage: www.elsevier.com/locate/jece

Gold nanoparticle supported on mesoporous vanadium oxide for photo-oxidation of 2-naphthol with hydrogen peroxide and aerobic oxidation of benzyl alcohols

Biraj Das[a], Mukesh Sharma[a], Manash J. Baruah[a], Bedanta P. Mounash[a], Galla V. Karunakar[b], Kusum K. Bania[a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam, 784028, India
[b] Division of Fluro and Agro Chemicals, CSIR- Indian Institute of Chemical Technology, Hyderabad, Telangana, 500007, India

ARTICLE INFO

Editor: G. Palmisano

Keywords:
Benzyl alcohol
2-Naphthol
$AuVO_x$ nanocatalyst
MWCNTs
Photocatalytic oxidation

ABSTRACT

Vanadium oxide supported gold nanocatalysts designated as $AuVO_x$ was found to be highly efficient for photocatalytic oxidation of benzyl alcohol and 2-naphthol. The photocatalytic ability of the $AuVO_x$ catalyst towards the selective oxidation of 2-naphthol to BINOL was found to be dependent on the nature of the support. The selectivity of the reaction was found to be significantly altered on hybridization with multi-walled carbon nanotubes ($AuVO_x$-MWCNTs). The well-resolved surface plasmon resonance (SPR) band originated from the gold nanoparticles (Au-NPs) on the vanadium oxide support helped in stimulating the photo-oxidation of benzyl alcohol to benzaldehyde and 2-naphthol to BINOL with almost 100% selectivity. The most notable achievement using the $AuVO_x$ and $AuVO_x$-MWCNTs catalyst was in the successful photo-oxidation of 2-naphthol to BINOL in presence of hydrogen peroxide (H_2O_2). The photo-activity of the material and the creation of oxygen defect sites participated in the photochemical processes were estimated from photoluminescence analysis and ESR study. The photochemical reaction was supposed to proceed via superoxide radical generation favored by the oxygen defect sites.

1. Introduction

Vanadium oxides (VO_x) are important class of metal oxides having different composition, structural diversity as well as crystallinity [1,2]. Because of such wide diversity, they have occupied a special domain in the field of energy sectors like lithium-ion batteries, supercapacitors and in catalysis [3–5]. VO_x with general formula V_nO_{2n+1}, n = 2–6 also represents varied oxidation state ranging from +3 to +5 [6]. Because of the presence of oxygen vacancy in VOx they are used in different catalytic oxidation processes [7–9]. VO_x also possesses a suitable band gap approximately ~2.6 eV, slightly less than that of titanium dioxide (TiO_2 ~3.2 eV) [10]. Due to such low band gap, VO_x has been explored for different photocatalytic reactions [11–13]. However, VO_x alone could not serve as an excellent photocatalyst like TiO_2. TiO_2 is well known to be an efficient photocatalyst in the UV range of the solar spectrum, [14,15]. TiO_2 is already used in variety of reactions like photocatalytic degradation of organic pollutants and oxidation of benzyl alcohol (BA) [16,17]. It is also modified by incorporating other metals like gold (Au), silver (Ag), iridium (Ir) and palladium nanoparticles (NPs) to enhance its photocatalytic activity [18–20]. Like the TiO_2 when mixed metal vanadium oxides (VOx) are combined with other metal or co-catalyst, they also exhibited excellent photocatalytic behavior [21–24]. Bismuth vanadates ($BiVO_4$) and silver vanadates ($AgVO_x$) are two of the most widely studied metal-vanadates that are found to be excellent photocatalysts in transforming various reactions in the presence of UV or visible light [22,22,23,24]. Unsworth et al. [25] observed the good activity of nano-$BiVO_4$ than the bulk $BiVO_4$ material in photo-oxidation of BA. Jin et al. [26] synthesized the $BiVO_4$ crystal for visible-light-driven BA oxidation. The activity of $BiVO_4$ crystal got enhanced after modification with Pt and MnO_x. Visible light assisted BA oxidation was also performed in presence of Cu_2O-RGO/$BiVO_4$ nanocomposites by Li et al. [27]. VO_x supported on other metal oxides like TiO_2, zinc oxide (ZnO) or silica (SiO_2) or carbon matrix are also reported to serve as good photocatalysts for transforming different reactions [28–31]. Sannino et al. [28] performed selective oxidation of ethanol to acetaldehyde using VO_x/TiO_2 photocatalyst using UV-light. Channei et al. [29] synthesized mesoporous SiO_2 coated with $BiVO_4$ for visible light assisted photodegradation of methylene blue. Verma et al.

* Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

ChemComm

COMMUNICATION

View Article Online
View Journal | View Issue

Check for updates

Cite this: *Chem. Commun.*, 2020, 56, 375

Received 14th September 2019, Accepted 28th November 2019

DOI: 10.1039/c9cc07211j

rsc.li/chemcomm

Pd–NiO-Y/CNT nanofoam: a zeolite-carbon nanotube conjugate exhibiting high durability in methanol oxidation†

Mukesh Sharma,[a] Biraj Das,[a] Manash J. Baruah,[a] Pradip K. Bhattacharyya,[b] Lakshi Saikia[c] and Kusum K Bania*[a]

A Pd–NiO-based catalyst hybridized with zeolite-Y and multiwalled carbon nanotubes has been found to show a remarkable mass activity in the electrochemical oxidation of methanol with long term durability up to 80 000 s.

The decrease in fossil fuels and their increasing adverse impact on the environment, causing global warming, has pushed researchers to think of an alternative source of clean energy.[1] In this context, the application of fuel cells in the production of electrical energy from chemical reactions with less emission of environmental pollutants is currently gaining skyrocketing importance.[2] Direct alcohol fuel cells (DAFCs) are presently considered to be highly efficient model systems for the production of electricity with efficiency comparable to those of gasoline and hydrocarbons.[3,4] Among the alcohols, methanol (CH_3OH) has gained special attention in DAFCs due to its low cost, good solubility, and easy transportation.[1,2] Most importantly, its energy density is close to that of gasoline.[4] The Pt-based catalysts are known to be highly active in DAFCs. But the real commercialization of Pt-based fuel cells has been restricted by carbon monoxide poisoning, high Pt-loading and their overall performance.[5] Therefore, the search for other transition metal based electrocatalysts giving high mass activity and durability is still an ongoing process. In this regard, Pd being in the same group and possessing similar activity like Pt has attracted the eyes of researchers due to its high tolerance towards CO poisoning and it displaying high activity in an alkaline medium.

The electrocatalytic activity of the materials used for a direct methanol fuel cell (DMFC) depends on several factors like particle size and composition of the electrocatalysts.[4,6] Besides these, the support also plays a vital role in manifesting the activity of the catalysts.[4] In general, the support must have good conductivity and high surface area and should be stable and inert in working conditions.[4,7] Carbon-based materials are well known for such applications.[7] But still there remain challenges in improving the particle distribution and the durability of the catalyst and in retarding the CO poisoning with carbon-supported electrocatalysts. Zeolites in these aspects are considered to be highly beneficial as they possess good surface area and provide an environment to improve the activity of metals like Pd and Au for CO oxidation.[8,9] They also have considerable proton conductivity, are hygroscopic and are stable at high temperatures.[8] Various studies have shown that the incorporation of zeolite into the existing membranes like Nafion, commonly used as a membrane in DMFCs, blocks the pores in membrane matrices.[10] This in turn increases the diffusion resistance and reduces the alcohol crossover.[10] Because of such advantages, zeolites are hybridized with carbon-based materials to improve the efficiency and durability of the electrocatalyst. Sancho *et al.* combined a Nafion-zeolite membrane as a composite to decrease the alcohol crossover effects.[11] Similarly, Han *et al.* studied a zeolite composite membrane that exhibits stability at higher temperatures.[12]

Compared to other carbon materials, carbon nanotubes (CNTs) are considered to be a versatile hard templating agent as they can be tuned with different functional groups like –COOH, –NH_2, *etc.*, influencing the properties of the materials.[13,14] Very recently Flores *et al.* described the role of CNTs in the synthesis of metal-zeolite nanocomposites.[14] They reported that CNTs helped in governing the morphology of the zeolite, developing secondary porosity and high distribution of metals on the zeolite crystallites. On the other hand, Pd and Ni doped with Pt has been found to improve the catalytic efficiency and increase the CO tolerance during ethanol oxidation. So, looking at the advantages of zeolite, CNTs, Pd, and Ni, in this work, we attempt to synthesize a bimetallic heterojunction of PdO and NiO over a hybrid support consisting of zeolite-Y and –COOH functionalized MWCNTs for effective CH_3OH oxidation with high durability.

The surface morphology of the material here designated as Pd–NiO-Y/CNT (CNT stands for COOH-MWCNT) was visualized

[a] Department of Chemical Sciences, Tezpur University, Assam-784028, India
[b] Department of Chemistry, Arya Vidyapeeth College, Guwahati, Assam-781016, India
[c] Materials Science Division, CSIR-North East Institute of Science and Technology, Jorhat 785006, Assam, India

† Electronic supplementary information (ESI) available: Additional figures and experimental details can be found in the supplementary information document accompanying this communication. See DOI: 10.1039/c9cc07211j

Contents lists available at ScienceDirect

Journal of Catalysis

journal homepage: www.elsevier.com/locate/jcat

Boosting multiple photo-assisted and temperature controlled reactions with a single redox-switchable catalyst: Solvents as internal substrates and reducing agent

Manash J. Baruah[a], Mukesh Sharma[a], Biraj Das[a], Pinku Saikia[a], Lakshi Saikia[b], Subhasish Roy[c], Galla V. Karunakar[d], Pradip K. Bhattacharyya[e], Kusum K. Bania[a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam 784028, India
[b] Materials Science Division, CSIR-North East Institute of Science and Technology, Jorhat 785006, Assam, India
[c] Department of Chemistry, School of Applied Sciences, University of Science and Technology, Meghalaya, Techno City, Kling Road, Baridua 9th Mile, Ri-Bhoi, Meghalaya 793101, India
[d] Division of Fluro and Agro Chemicals, CSIR- Indian Institute of Chemical Technology, Hyderabad, Telangana 500007, India
[e] Department of Chemistry, Arya Vidyapeeth College, Guwahati, Assam 781016, India

ARTICLE INFO

Article history:
Received 27 March 2020
Revised 22 April 2020
Accepted 29 April 2020
Available online 11 May 2020

Keywords:
$CoCr_2O_4$-HNT
β-Aryl enals
β-Aryl enones
Benzyl alcohols
Benzaldehydes

ABSTRACT

An alternative and economically viable process for the synthesis of β-aryl enals, enones and the aryl amines has been developed by partial oxidation of ethanol, isopropanol and *N*, *N*-dimethyl formamide (DMF). The formation of β-aryl enals, enones and the aryl amines was catalyzed by a mixed metal oxides layer of cobalt and chromium supported on halloysite nanotubes, designated as $CoCr_2O_4$-HNT. The C—C and C—N bond formation reactions were found to be influenced by temperature and the nature of base. The condensation of aldehyde with *in situ* generated acetaldehyde by ethanol oxidation forming β-aryl enals occurred selectively at 120 °C. The partial oxidation of isopropanol to acetone and its condensation with aldehydes forming β-aryl enones occurred at room temperature. Increase in temperature caused the liberation of hydrogen gas from isopropanol and allowed the reversible reduction of aldehydes to alcohols. Increase in temperature in isopropanol and increase in base concentration in ethanol causes the selective reduction of aldehydes to alcohols. Besides being active for the Claisen-Schmidt type of reactions and the aryl halides amination process, the synthesized catalyst was also found to be highly active for the photocatalytic oxidation of benzyl alcohols in absence of any external oxidizing agent. The positive holes (h^+) generated at the Co(II) site as evident from EPR analysis was considered to be responsible for high photocatalytic activity of the material reducing the recombination rate of holes and electrons (e^-). Density Functional Theory calculations were performed to understand the mechanism of ethanol oxidation to acetaldehyde.

© 2020 Elsevier Inc. All rights reserved.

1. Introduction

Catalysts, either in homogeneous or heterogeneous form are mostly designed to promote a reaction with high selectivity and good productivity [1,2]. In general, a particular catalyst is prepared to catalyze one particular reaction either of industrial or academic interest [3]. However, with the advancement in the field of catalysis, the traditional way of doing catalysis has been encouraged in different directions [4]. Presently, it is motivated towards the development of a newer type of catalysts with multifunctional activities that can effectively catalyze multiple reactions [5–7]. Such types of catalysts are nowadays highly demanding in industries as they minimize the cost of the catalyst and also reduces the time required for the synthesis of different catalysts for various reactions [8,9]. The industries are currently looking for solid and reusable catalysts, mostly of metals or metal oxides in nanometer-scale supported on solid matrix of high surface area that is capable to accelerate multicomponent, cascade, tandem or domino type reactions [10–14]. Among the various form of multiple component reactions or single pot reactions, the sequential catalytic reactions are gaining much interest in chemical industries [15,16]. Tuning the catalytic performances of such type of solid catalysts for concomitant activation of different substrates in a single pot is however difficult and challenging as it is limited by certain factors. Mostly, the distance between the homo or hetero metals, the ability to undergo spillover mechanism, control diffusion of the substrates, transport of the intermediate species are the main factors that manifest the

* Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

https://doi.org/10.1016/j.jcat.2020.04.026
0021-9517/© 2020 Elsevier Inc. All rights reserved.

RSC Advances

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: *RSC Adv.*, 2020, 10, 8314

Received 31st January 2020
Accepted 17th February 2020

DOI: 10.1039/d0ra00940g

rsc.li/rsc-advances

Direct cyanidation of silver sulfide by heterolytic C–CN bond cleavage of acetonitrile†

Biraj Das,‡[a] Pinku Saikia,‡[a] Mukesh Sharma,[a] Manash J. Baruah,[a] Subhasish Roy[b] and Kusum K. Bania*[a]

Extraction of silver as silver cyanide from silver sulfide was made possible using acetonitrile as the source of cyanide. The process of cyanidation took place through the oxidation of sulfide to sulfur oxides and cleavage of the C–CN bond of acetonitrile. The reaction was found to be catalyzed by vanadium pentoxide and hydrogen peroxide. The different species involved in the cyanidation process were duly characterized using FTIR, ESI-MS, HRMS, XPS and UV-vis spectroscopic analysis. The mechanism of the cyanidation process was confirmed through *in situ* FTIR analysis.

Silver (Ag) is a precious noble metal that has found applications in photography, nanocatalysis, antibacterial agents and jewelry.[1–3] Most importantly, it contributes to the economic growth of numerous countries. Silver metal extracted from its main ores contributes to a high percentage (~30%) of the total world production of Ag. Silver sulfide (Ag_2S) is the most common ore from which it is extracted.[4,5] However, the traditional way of extracting Ag from Ag_2S ore has many disadvantages, as it involves the use of poisonous sodium cyanide (NaCN) or potassium cyanide (KCN), which are also used in gold (Au) extraction.[5,6] The use of cyanide to achieve Ag leaching has led to great public concern, due to the damage it can cause to both human health and the environment. Because of the high toxicity of cyanide salts, strict regulation has been imposed to regulate or to ban the leaching of cyanide into the environment.[6] It has been reported that the use of such cyanide salts in Au mining industries has led to the death of people working in those industries.[7] Because of the devastating impacts of cyanide poisoning, researchers are constantly searching for alternative methods and new lixiviants to replace cyanide salt in silver extraction from Ag_2S. So far, researchers have adopted various alternative methods for silver extraction, such as leaching of Ag_2S using ferricyanide-cyanide solution.[8,9] Some have also used the precipitation method using high pressure and so on.[10] Recently, the use of thiosulfate solution with buffer solution, most commonly ammonium acetate buffer at pH = 4, has drawn great attention, and has been found to be a potential candidate for Ag extraction from its ores.[11] Although the method is cheaper, it consumes a high concentration of the reagent and also depends on different conditions such as pH and the kinetics of oxygen reduction.[11–14] The reaction of silver ions (Ag^+) with thiosulfate solution in the presence of a base (NH_3) is thermodynamically favorable, but the slow oxygen reduction process leads to deliberate leaching of Ag as silver thiosulfate complex, $Ag(S_2O_3)_2^{3-}$.[15] Hence, the search for an alternative method is still an ongoing research process.

Apart from alkali cyanides, alkyl nitriles such as acetonitrile (CH_3CN) are much less toxic and can be used as a source of cyanide ions (CN^-).[16] However, the thermodynamic stability and high bond energy associated with the C–CN bond restrict the application of this green solvent as a source of cyanide (CN^-) in the silver extraction process.[17] Literature reports suggest that organometallic catalysts can scissor the C–CN bond very effectively.[18–21] However, to the best of our knowledge, there is no such report that applies CH_3CN as a lixiviant in silver extraction as AgCN from Ag_2S. Recently, we reported that CH_3CN can be a suitable solvent to act as a cyanide source for the direct cyanidation of silver nitrates ($AgNO_3$) in the presence of vanadium pentoxide (V_2O_5) and hydrogen peroxide (H_2O_2).[22] However, Ag is mostly extracted from Ag_2S in mining industries. Therefore, with our growing interest in finding a solution to replace cyanide salt, herein we demonstrate a highly effective method that allows for the direct precipitation of AgCN from Ag_2S within a very short period of time.

Initially, to achieve the cyanidation of Ag_2S and obtain silver (Ag) as silver cyanide (AgCN), silver sulfide (Ag_2S) and vanadium pentoxide (V_2O_5) were mixed in a 1 : 1 ratio using a mortar and pestle. The mixture was ground for few minutes and then dried in oven at 100 °C. The process of grinding and heating was continued for 2 h by making a paste using an ethanol/water

[a] Department of Chemical Sciences, Tezpur University, Assam-784028, India. E-mail: kusum@tezu.ernet.in
[b] Department of Chemistry, School of Applied Sciences, University of Science and Technology, Meghalaya, Techno City, Kling Road, Baridua 9th Mile, Ri-Bhoi, Meghalaya, India 793101

† Electronic supplementary information (ESI) available: The details material used and physical measurements, Raman spectra of V_2O_5, Ag_2S and V_2O_5–Ag_2S, XPS spectra of sulfur and the +ESI-mass spectra and HRMS. See DOI: 10.1039/d0ra00940g

‡ Both the authors contributed equally.

Organic & Biomolecular Chemistry

View Article Online
DOI: 10.1039/D0OB01698E

FULL PAPER

Regioselectivity of the trifluroethanol-promoted intramolecular *N*-Boc – epoxide cyclization en route to 1,3-oxazolidin-2-ones and 1,3-oxazinan-2-ones

Received 00th August 2020,
Accepted 00th xxxx 2020

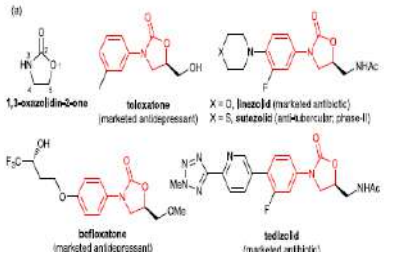
DOI: 10.1039/x0xx00000x

www.rsc.org/

Hemi Borgohain,[a] Kangkan Talukdar,[a] Bipul Sarma[a] and Sajal Kumar Das[a,*]

The intramolecular *N*-Boc – epoxide cyclization leading to the formation of 1,3-oxazolidin-2-one and 1,3-oxazinan-2-one derivatives has scarcely been reported in the literature. More specifically, the intramolecular cyclization of *N*-Boc aniline-tethered 2,3-disubstitued epoxides has never been disclosed. Herein, we demonstrate that this reaction could proceed in a diastereoselective fashion in refluxing trifluoroethanol, in the absence of any external promoter or catalyst. Substrates bearing an alkyl group at the C-3 position furnished 1,3-oxazolidin-2-ones in a complete regioselective fashion via 5-*exo* epoxide ring-opening cyclization, thereby paving the way to synthesize alkyl side chain-bearing analogs of the antidepressant drug toloxatone. On the other hand, replacing the alkyl group with an aryl group resulted in easily separable mixtures of 1,3-oxazolidin-2-ones and 1,3-oxazinan-2-ones, the former being obtained as major products. Remarkably, a tetralin-bearing substrate underwent fully regioselective 6-*endo* ring closure en route to the corresponding 1,3-oxazinan-2-one. Our present study on the intramolecular ring opening-cyclization of epoxides by a tethered *N*-Boc group is the most comprehensive to date and features broad substrate scope, mild transition metal-free conditions, excellent functional group tolerance, and scalability.

synthetic compounds such as toloxatone, linezolid, sutezolid, befloxatone and tezizolid based on 5-substituted-*N*-aryl-2-oxazolidinone structural motif (Figure 1a, highlighted in red color) have been known to possess various bioactivities, perhaps the most celebrated among which are the antibacterial properties against multiple-drug resistant Gram-positive bacteria.[3] On a similar note, the 1,3-oxazinan-2-one core structure is found in many bioactive synthetic and natural compounds displaying various biological activities such as antiasthmatic, antibacterial, antiinflammatory, anti-HIV, and antidiabetic activities.[4] Figure 1b shows two representative groups of bioactive (antiasthmatic and antibacterial) 1,3-oxazolidin-2-ones.



Author Chemistry Accepted Manuscript

Organic & Biomolecular Chemistry

ROYAL SOCIETY OF CHEMISTRY

COMMUNICATION

View Article Online
View Journal | View Issue

Base-mediated intramolecular one-pot double-cyclization of epoxide-tethered 2-fluorobenzenesulfonamides: an avenue to 1,4-benzoxazine-fused benzothiaoxazepine-1,1-dioxides†

Check for updates

Cite this: *Org. Biomol. Chem.*, 2020, **18**, 220

Received 3rd November 2019,
Accepted 3rd December 2019

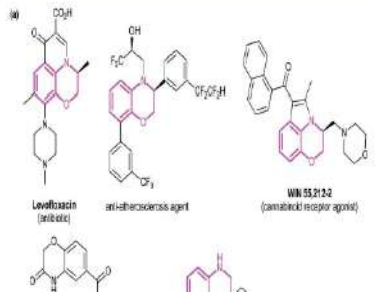
DOI: 10.1039/c9ob02377a

rsc.li/obc

Jonali Das, Biraj Jyoti Borah and Sajal Kumar Das*

Herein, we describe the synthesis of hitherto unknown 1,4-benzoxazine-fused benzothiaoxazepine-1,1-dioxides by a NaH-promoted intramolecular one-pot double-cyclization of epoxide-tethered 2-fluorobenzene sulfonamides. Mechanistically, the reactions proceed via an intramolecular epoxide ring-opening followed by an intramolecular nucleophilic aromatic substitution. The high yields, mild conditions, complete regio- and diastereoselectivity, and a wide substrate scope render this protocol well suited for drug discovery efforts.

Nucleophilic aromatic substitution (S_NAr) is one of the most frequently used reactions that stand tall amongst many recent innovative reactions.[1] Epoxide ring-opening reaction is another major workhorse in synthetic organic chemistry.[2] Despite these attributes, however, a major drawback is that these two reactions in the intermolecular mode often suffer from one or more of the following drawbacks: harsh reaction conditions, excess of reagents, low product yields and long reaction times. On the other hand, their intramolecular dioxide scaffolds are ubiquitous in a wide range of natural and/or synthetic compounds.[5,6] Fig. 1a and b show some prominent representative examples of compounds based on these two core structures. Owing to their demonstrated pharmacological uses, extensive efforts have been devoted to the development of synthetic methods for diverse 3,4-dihydro-2*H*-1,4-benzoxazines and benzothiaoxazepine-1,1-dioxides.[7,8]



2016

ChemPubSoc Europe

DOI: 10.1002/slct.201600079

Chemistry SELECT Full Papers

Energy Technology & Environmental Science

Highly Efficient Platinum Free Multi-Walled Carbon Nanotubes/Silver Nanocomposites as Counter Electrode for Dye Sensitized Solar Cell

Bikash Chandra Nath,[b] Dhaneswar Das,[a] Jabbor Basumatary,[b] Gazi Ameen Ahmed,[b] and Swapan Kumar Dolui*[a]

In this report we have synthesized multi-walled carbon nanotubes (MWCNT)/silver (Ag) nanocomposites using reduction method. Integrating properties of MWCNT and Ag as nanocomposites have shown potential application as counter electrode (CE) in dye sensitized solar cells (DSSCs). Different analyses were performed using Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD) and Raman, analysis to examine the successful incorporation of Ag nanoparticles with MWCNT. A systematic morphological study was carried out using scanning and transmission electron microscopy. The cyclic voltammetry (CV) reveals the enhancement in catalytic activity towards redox couple (I_3^-/I^-) in DSSCs. Thus, current density vs voltage (*J-V*) curve assists in evaluating the influence of Ag nanoparticles on MWCNT during photovoltaic conversion. The optimum photo-conversion efficiency (η) of 5.44% was achieved using MWCNT/(0.75%)Ag nanocomposites as CE which is analogous to conventional Pt CE. Finally, electrochemical impedance parameters endorse well in the improvement of photo conversion efficiency through reduction in charge transfer resistance (R_{ct}).

Designing of hierarchical NiO/PAni-MWCNT core-shell nanocomposites for high performance super capacitor electrode

Dhaneswar Das,[a] Lakhya J. Borthakur,[a] Bikash C. Nath,[b] Bhaskar Jyoti Saikia,[a] Kiran Jyoti Mohan,[a] Swapan K. Dolui,[a,*]

[a]Department of Chemical Sciences and [b]Department of Physics, Tezpur University, Tezpur 784028, Assam, India

* Corresponding author. Tel.: +91-9957198489.

E-mail address: dolui@tezu.ernet.in (S.K. Dolui).

Abstract

A novel type of nanocomposite material based on multi walled carbon nanotube (MWCNT) and NiO nanoparticle coated with polyaniline (PAni) has been prepared by *in-situ* polymerization technique. Transmission electron microscopy confirms the core-shell structure of the composite. TG-analysis reveals that NiO/PAni-MWCNT nanocomposites exhibit better thermal stability than NiO-PAni. The synthesized nanocomposites have good conductivity and excellent electrochemical properties. The specific capacitance values of these composites were measured from their galvanostatic charge-discharge curves. The particles show high value of specific capacitance and can find potential application as super

Graphene oxide incorporated TiO_2 photoanode for high efficiency quasi solid state dye sensitized solar cells based on poly-vinyl alcohol gel electrolyte

MominaKhannam,[a] Shyamalima Sharma, [a] Swapnil Dolui, [a] Swapan Kumar Dolui,[a,*]

[a]Department of Chemical Sciences, Tezpur University, Napaam, Sonitpur, Assam-784028, India

*Author for correspondence: S.K. Dolui, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Dist. Sonitpur, Assam, India. Tel No: 9957198489. Email: dolui@tezu.ernet.in

Abstract

An effective self assembly method was used to synthesize hybrid nanocomposites of TiO_2 nanoparticles on graphene oxide (GO) sheets for application in Dye Sensitized Solar Cells (DSSCs). The successful incorporation of TiO_2 on the GO sheets was confirmed by X-ray diffraction (XRD), Energy Dispersive X-ray spectrum (EDX) Raman and UV-Visible spectroscopy. The morphology and size of the TiO_2 nanoparticles on the GO sheets were analyzed by scanning electron microscope (SEM) and transmission electron microscopic (TEM) analysis. This manuscript is concerned with the effects of different GO contents of the photoanode on the energy conversion efficiency of the PVA gel electrolyte based DSSCs. DSSCs based on GO@TiO_2 nanocomposite photoanode with an optimum concentration of GO

01 JUL 2016. DOWNLOADED BY UNIVERSITY OF NEBRASKA ON 01/09/2016 12:49:29.

Accepted Manuscript

Title: A highly stable and efficient quasi solid state dye sensitized solar cell based on Polymethyl methacrylate(PMMA)/Polyaniline Nanotube(PANI-NT) gel electrolyte

Author: Kiranjyoti Mohan Anindita Bora Bikash Chandra Nath Pronob Gogoi Bhaskar Jyoti Saikia Swapan Kumar Dolui

PII: S0013-4686(16)32407-0
DOI: http://dx.doi.org/doi:10.1016/j.electacta.2016.11.077
Reference: EA 28367

To appear in: *Electrochimica Acta*

Received date: 13-7-2016
Revised date: 24-10-2016
Accepted date: 13-11-2016

Please cite this article as: Kiranjyoti Mohan, Anindita Bora, Bikash Chandra Nath, Pronob Gogoi, Bhaskar Jyoti Saikia, Swapan Kumar Dolui, A highly stable and efficient quasi solid state dye sensitized solar cell based on Polymethyl methacrylate(PMMA)/Polyaniline Nanotube(PANI-NT) gel electrolyte, Electrochimica Acta http://dx.doi.org/10.1016/j.electacta.2016.11.077

Journal of Molecular Catalysis A: Chemical 425 (2016) 21–30

Contents lists available at ScienceDirect

Journal of Molecular Catalysis A: Chemical

journal homepage: www.elsevier.com/locate/molcata

Peroxomolybdate supported on water soluble polymers as efficient catalysts for green and selective sulfoxidation in aqueous medium

Jeena Jyoti Boruah [1], Kabirun Ahmed [1], Srewashi Das, Sandhya Rani Gogoi, Gangutri Saikia, Mitu Sharma, Nashreen S. Islam *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India

ARTICLE INFO

Article history:
Received 10 June 2016
Received in revised form 19 August 2016
Accepted 16 September 2016
Available online 16 September 2016

Keywords:
Peroxomolybdenum(VI) catalyst
Water soluble polymers
Chemoselective sulfoxidation
Non-polluting oxidation catalyst
Selective aqueous sulfoxidation

ABSTRACT

Peroxomolybdenum(VI) species immobilized on linear water soluble polymers formulated as, [MoO(O$_2$)$_2$(sulfonate)]–PS [**PS** = poly(sodium vinyl sulfonate)] (**PSMo**) and[Mo$_2$O$_3$(O$_2$)$_4$(carboxylate)]–PA [**PA** = poly(sodium acrylate)](**PAMo**) served as efficient and recyclable catalysts for selective oxidation of organic sulfides to sulfoxide in water with 30% H_2O_2. The new polymer anchored complex, **PSMo** has been prepared by reacting H_2MoO_4 and 30% H_2O_2 with macromolecular ligand, poly(sodium vinyl sulfonate) and characterized by elemental analysis, spectral studies (FTIR, Raman, ^{13}C NMR, ^{95}Mo NMR, UV–vis), SEM, EDX and TGA-DTG analysis. The catalytic protocol effects clean and facile oxidation of a wide range of sulfides to afford pure sulfoxides with high TOF and excellent chemoselectivity at ambient temperature,with an easy work-up procedure. The catalysts can be regenerated *in-situ* and recycled at least up to ten consecutive reaction cycles without significant loss of activity and are amenable for ready scalability. The catalytic procedure thus provides an ecologically sustainable alternative as it involves water as solvent, H_2O_2 as green oxidant, a recyclable non-polluting catalyst, and is absolutely free from halide, organic co-solvent or co-catalyst. This is the first catalytic protocol for selective aqueous oxidation of sulfides using a catalytic system based on peroxometal species supported on water soluble polymers.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Selective oxidation of organic sulfur containing compounds to sulfoxides is one of the pivotal reactions in organic synthesis, which holds immense interest from both chemical as well as biological perspectives [1–9]. Sulfoxides and sulfones serve as versatile synthetic precursors for production of a range of fine chemicals and biologically active molecules including pharmaceuticals, agrochemicals and chiral auxiliaries [4–9]. In addition, oxidative desulfurization of crude oil based on sulfide oxidation, is emerging as a sustainable alternative to the traditional catalytic hydrodesulfurization process [10–14]. Currently, with the ever increasing environmental concerns, research efforts are being oriented to development of simple, atom economical catalytic oxidation processes that use safer green reagents and oxidants, as well as benign non-polluting reaction media [15–32].

Among the multitude of available organic oxidants, aqueous 30% H_2O_2 with its high oxygen content, has been identified as an ideal atom efficient and environmentally acceptable terminal oxidant [13–16,27–30]. Consequently, scores of promising methodologies for selective sulfide oxidation with H_2O_2 using both homogeneous and heterogeneous transition metal catalysts have been reported in recent years [13–19,32–46]. Nevertheless, there still remains plenty of opportunities to design new alternative catalysts which can perform optimally in safer reaction media under mild condition, as some of the available protocols still rely upon volatile and toxic organic solvents, or require harsh reaction conditions, long reaction time, a promoter or a co-catalyst, or suffer from poor recyclability, which might compromise the ecological sustainability of an otherwise efficient process.

Water is indeed the ultimate green natural solvent, being inexpensive, non-toxic, readily available with great redox stability and heat capacity [47–53]. It is therefore not surprising that we

* Corresponding author at: Dept. of Chemical Sciences, Tezpur University, Napaam, Tezpur-784028, Assam, India. Tel.: +91 3712267007 (O)/+91 9435380222 (Off.); fax: +91 3712267006.

Effect of crosslinker on drug delivery properties of curcumin loaded starch coated iron oxide nanoparticles

Chinmayee Saikia[1], Monoj K Das[2], Anand Ramteke[2], Tarun K. Maji[1]*

[1,*]Department of Chemical Sciences, Tezpur University, Assam, 784028, India

[2] Department of Molecular Biology and Biotechnology, Tezpur University, Assam, 784028, India

***Corresponding author:** Tel.: +91 3712 267007; Extn: 5053; Fax: +91 3712 267005.

E-mail address: tkm@tezu.ernet.in (T. K. Maji).

Abstract

Aminated starch coated iron oxide magnetic nanoparticles loaded with curcumin were synthesized via coprecipitation technique. The nanoparticles were crosslinked by using three different crosslinkers: glutaraldehyde, genipin and citric acid and the effect of crosslinking on different properties of the nanoparticles was evaluated. Characterisation of the nanoparticles was done with FTIR (Fourier Transform Infrared spectroscopy) and XRD (X-Ray Diffraction). Magnetic property study using VSM (Vibrating Sample Magnetometer) showed their superparamagnetic nature. Morphology of the nanoparticles was studied by SEM (Scanning Electron Microscopy) and TEM (Transmission Electron Microscopy). Zeta potential values showed that crosslinking imparted stability to the system. Crosslinking also enhanced drug loading and encapsulation efficiency of the system. Swelling and *in vitro* studies of the nanoparticles showed that the release of drug was dependent on time, crosslinker nature, crosslinker concentration and pH of the medium. The aminated starch coated nanoparticles also showed good mucoadhesive character. The cell viability assessment by MTT study revealed their compatibility with human lymphocytes cells and their considerable cell growth inhibiting properties with MCF7 and HepG2 cells. The nanoparticles showed good internalization in HepG2 cells along with considerable ROS formation.

A comparative study on sorption of Arsenate ions from water by crosslinked chitosan and crosslinked chitosan/MMT nanocomposite

Pankaj Gogoi[1], Ashim J Thakur[1], Rashmi Rekha Devi[2], Bodhaditya Das[2], Tarun K Maji*[1]

[1,*]*Department of Chemical Sciences, Tezpur University, Assam, 784028, India*

[2]*Department of Chemistry, DRL, Tezpur, Assam, 784001, India*

E-mail: tkm@tezu.ernet.in

Author Information

Corresponding Author

*E-mail: tkm@tezu.ernet.in. Tel.: +91 3712 267007, ext 5053.

Fax: +91 3712 267005.

Carbohydrate Polymers 149 (2016) 332–339

Contents lists available at ScienceDirect

Carbohydrate Polymers

journal homepage: www.elsevier.com/locate/carbpol

Functionalization of MWCNT and their application in properties development of green wood nanocomposite

Prasanta Baishya, Tarun K. Maji *

Department of Chemical Sciences, Tezpur University, Assam 784028, India

ARTICLE INFO

Article history:
Received 28 February 2016
Received in revised form 6 April 2016
Accepted 26 April 2016
Available online 29 April 2016

Keywords:
Starch
Soft wood
Multiwall carbon nanotube
Functionalisation
Nanocomposites
Thermal properties
Mechanical properties

ABSTRACT

Starch based wood nanocomposites (WSNC) were prepared successfully from starch and soft wood with multi-walled carbon nanotube (MWCNT) as nano reinforcing agent through a completely green path. The most important part of this scheme was the use of water as the solvent. In this technique, starch was grafted with methylmethacrylate (MMA) and MWCNT was functionalised with hydroxyl groups (*f*-MWCNT). Dimethyloldihydroxyethyleneurea (DMDHEU) was used as a cross-linker to prepare the green material from methylmethacrylate grafted starch (MMA-g-starch), soft wood flour and functionalised MWCNT. The functionalization of MWCNT was confirmed by Fourier transform infrared spectroscopy (FTIR), thermogravimetric analysis (TGA) and Raman analysis. Different properties of the WSNC were investigated by varying the concentration of *f*-MWCNT. The prepared nanocomposites exhibited outstanding thermal stability, mechanical properties and water resistance capacity compared to untreated wood composites. The flammability of the wood composites decreased up to 30% with just addition of 0.50 phr *f*-MWCNT.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

In recent times, the preparation and modification of natural polymer based wood composites have attracted the interest of material scientists in the replacement of natural hard wood as well as synthetic polymer based wood polymer composites (WPC) due to their superior features such as ease of processing, productivity and low cost. WPC based on synthetically derived polymers have wide range of applications in different fields like automotives, constructions, marine, electronic components, aerospace and different decorative furniture (Ashori, 2008). But, the use of petroleum based polymers and solvents in the preparation of WPC is a major problem in terms of environmental concern (Deka & Maji, 2010; Gungor, 2007). As the consumption rate of petroleum resources are decreasing gradually and composites/plastics derived from petroleum are non-biodegradable, therefore, the use of eco-friendly solvent with highly abundant natural polymer based green composites without compromising the properties have evoked considerable research interest in recent years (Titirici et al., 2015; Zini & Scandola, 2011).

Starch is one such type of highly abundant, low cost, natural polymer which can be used in the preparation of wood starch composite. But, the major problem of starch is its brittle nature and poor physical properties such as high hydrophilicity, high recrystallization behaviour and low decomposition temperature which limits its use in preparation of wood composites (Li, Lee & Cho, 2012). Grafting of starch with different monomers like methyl methacrylate, styrene etc. are carried out in order to improve the properties like hydrophobicity, thermal stability, stiffness and tensile strength (Ge, Xu, Meng & Li, 2005; Kaewtatip & Tanrattanakul, 2008). The grafting process of starch improves the compatibility between hydrophilic starch and hydrophobic polymer matrix (Li et al., 2012). The grafting of starch also helps to improve the interaction between starch and natural rubber matrix as reported by Liu, Shao and Jia (2008). Plasticizer like glycerol can be incorporated to improve the flexibility of the starch based composites (Chang, Jian, Zheng, Yu & Ma, 2010). The cross-linker also helps to improve the interaction of MMA-g-starch and wood in the preparation of wood starch composites (Baishya & Maji, 2014).

The selection of solvent for the preparation of wood starch composites is another important area to be looked into. Different petroleum based solvents like xylene, tetrahydrofuran which are not eco-friendly are used in the preparation of WPC (Madaleno, Schjødt-Thomsen & Pinto, 2010). In contrast to this, water can be an important choice in place of petroleum based solvents to prepare the wood starch composites due to its multiple advantages. But, the natural

* Corresponding author.
E-mail address: tkm@tezu.ernet.in (T.K. Maji).

http://dx.doi.org/10.1016/j.carbpol.2016.04.117
0144-8617/© 2016 Elsevier Ltd. All rights reserved.

NJC

PAPER

View Article Online
View Journal | View Issue

Cite this: *New J. Chem.*, 2016, 40, 348

Porous CuO nanostructure as a reusable catalyst for oxidative degradation of organic water pollutants†

Pangkita Deka, Ramesh C. Deka* and Pankaj Bharali*

Received (in Montpellier, France) 17th September 2015, Accepted 27th October 2015

DOI: 10.1039/c5nj02515j

www.rsc.org/njc

Published on 30 October 2015. Downloaded on 5/24/2021 2:46:11 PM.

A precursor mediated route is developed for the synthesis of a porous CuO nanostructure based on the hydrothermal method using copper chloride dihydrate and urea, followed by calcination at 400 °C for 4 h. The structural and morphological characteristics of the synthesized oxide are examined by X-ray diffraction, Fourier transform infrared spectroscopy, scanning electron microscopy, transmission electron microscopy, Raman spectroscopy, UV-visible spectroscopy and BET surface area analyses. The CuO nanostructure is utilized for the catalytic oxidative degradation of both cationic (methylene blue) and anionic (methyl orange) dye pollutants, respectively. It exhibits excellent catalytic performance with good reusability up to the fourth cycle of the degradation reaction. It also provides a new route for promising dye degradation in wastewater treatment.

1. Introduction

Industrial dye pollutants, which are a major class of organic compounds, lead to increasing environmental concerns.[1,2] Due to their acute toxicity and long persistence they are major hazard to the environment.[2,3] The dyes have complex aromatic molecular structures which make them stable and difficult to degrade. Nowadays, tremendous efforts have been rendered to the degradation of such dye molecules by various methods, such as biodegradation,[4] adsorption,[5–7] membrane process,[8] photocatalysis,[9–11] and in particular advanced oxidation processes (AOPs).[12–15]

As an efficient method, AOPs are based on the creation of reactive species such as hydroxyl radicals (•OH) that oxidize complex organic pollutants into low toxicity or nontoxic small molecules, even into CO_2 and H_2O quickly without any selectivity.[16–18] It usually include ozone oxidation, supercritical water oxidation, wet air oxidation, Fenton oxidation reaction (homogeneous and heterogeneous), and photoelectrocatalytic oxidation. Among them ozone oxidation is a powerful strategy, but ozone have limited solubility and short lifetime, therefore it leads to high energy consumption.[18] Nevertheless, the cost of the process of generating hydroxyl radicals photochemically is quite high. Moreover, supercritical water oxidation and wet air oxidation are restricted by high-pressure and temperature conditions in the catalytic oxidative degradation process. Homogeneous Fenton reaction is restricted by low utilization of H_2O_2, release of iron ions to the environment and difficulties in reutilization.[18] To overcome these disadvantages, attention has been paid to research on heterogeneous Fenton reaction, which is highly efficient and generates no secondary pollution to the environment while saving energy.

The synthesis of transitional metal oxide nanostructures with controlled morphology and texture has attracted a great deal of interest in the field of nanotechnology.[19–21] In particular, copper oxide (CuO), an important p-type transition metal oxide semiconductor with a narrow band gap (E_g = 1.2 eV) and an unconventional band structure has received much attention due to its various applications in different fields of solar energy cells,[22,23] electronics,[24,25] gas sensing,[26,27] bio-sensing,[28–30] heterogeneous organic catalysis,[31–33] lithium-ion electrode materials,[34,35] super conductors[36] and so on. Therefore, the synthesis of nanostructured CuO has attracted considerable attention in recent years. Several methods that are employed for the synthesis of CuO nanoparticles include precipitation, hydrothermal synthesis, sol–gel, microemulsion, chemical vapour deposition, pyrolysis, self-assembly derived methods, combustion synthesis and microwave assisted synthesis. Solution-based methods, especially hydro- and solvothermal routes and liquid-phase precipitation that favour shape control, have been developed as the most powerful strategies.

Herein, a porous CuO nanostructure was synthesized by a precursor mediated hydrothermal route without employing any

Department of Chemical Sciences, Tezpur University, Napaam – 784 028, India. E-mail: pankajb@tezu.ernet.in, ramesh@tezu.ernet.in; Fax: +91 3712 267005, +91 3712 267006; Tel: +91 3712 275064

† Electronic supplementary information (ESI) available: A UV-visible absorption spectra of reaction solutions under different reaction temperatures and in the presence of different amounts of catalysts; and a recyclability test over the CuO catalyst. See DOI: 10.1039/c5nj02515j

This journal is © The Royal Society of Chemistry and the Centre National de la Recherche Scientifique 2016

ChemComm

COMMUNICATION

View Article Online
View Journal | View Issue

Cite this: *Chem. Commun.*, 2016, 52, 753

Received 3rd September 2015, Accepted 6th November 2015

DOI: 10.1039/c5cc07397a

www.rsc.org/chemcomm

Modulation of the coordination environment: a convenient approach to tailor magnetic anisotropy in seven coordinate Co(II) complexes†

Mamon Dey, Snigdha Dutta, Bipul Sarma, Ramesh Ch. Deka and Nayanmoni Gogoi*

The possibility of controlling magnetic anisotropy by tuning contribution of second order perturbation to spin–orbit coupling through modulation of the coordination environment is investigated. Subtle variation of the coordination environment triggers a remarkable deviation in the axial zero field splitting parameter of seven coordinate Co(II) complexes.

Large uniaxial magnetic anisotropy is widely recognized as an essential criterion for the enhancement of the blocking temperature of magnetization reversal in single molecular magnets (SMMs).[1] Even single ion species with strong uniaxial anisotropy are reported to behave as SMM with large energy barriers for magnetization reversal.[2] In view of this, efforts to rationally manipulate the magnetic anisotropy of molecular species have intensified during the last few years.[3] However, parameters governing magnetic anisotropy are poorly understood and intricate control over magnetic anisotropy has remained one of the most formidable challenges.

It is well established that magnetic anisotropy is primarily induced by spin–orbit coupling, which is operative as a first order perturbation or as a second order perturbation. In transition metal complexes, orbital degeneracy is lifted by crystal field splitting and the Jahn–Teller effect. Thus, the orbital angular momentum is quenched and this in turn minimizes spin–orbit interaction. Recent studies have established that in low coordinate 3d complexes with a symmetric and weak ligand environment, quenching of the orbital angular momentum is significantly reduced as the d-orbitals lie within a narrow energy gap. Increasing magnetic anisotropy by adopting an unconventional coordination geometry has emerged as a promising strategy for enhancing energy barrier for magnetization reversal in SMMs.[4,5] For example, due to large uniaxial anisotropy in a mononuclear two coordinate Fe(I) complex, a record energy barrier for magnetization reversal has been observed.[5] However, low coordinate species are stable only under an inert atmosphere and this severely limits their possible utility in different applications. In this context, an approach to induce magnetic anisotropy in high coordinate transition metal species is highly desirable.

Contribution to spin–orbit coupling through second order perturbation may occur through spin–orbit interaction of an orbitally non-degenerate ground state with a low lying orbitally degenerate excited state. Thus, even in species with an orbitally non-degenerate electronic ground state, there is a possibility of both inducing and controlling magnetic anisotropy by appropriate manipulation of excited state energy levels. This approach allows the design of magnetically anisotropic building blocks with higher coordination numbers. In this regard, seven coordinate pentagonal bipyramidal (PBP) 3d complexes are found to be particularly appealing as a few examples with large uniaxial anisotropy have already been reported.[6–15]

PBP Fe(II) and Ni(II) complexes formed by the planar pentadentate acyclic ligand 2,6-diacetylpyridine bis(benzoyl hydrazone) ($dapbhH_2$) have strong uniaxial anisotropy and are associated with characteristic large negative axial zero field splitting parameters (D).[10–16] However, the zero field splitting parameters of Co(II) complexes of $dapbhH_2$ were found to be large positive and all of them show slow relaxation of magnetization under a small applied field. The origin of this large positive D parameter lies in the spin orbit coupling stemming from mixing of the ground electronic level with two excited electronic levels. Thus, in principle it should be possible to control magnetic anisotropy by tuning the mixing of ground electronic state with the excited electronic states. Therefore, it is anticipated that appropriate modulation of the coordination environment can act as a promising approach to control magnetic anisotropy. However, without a comprehensive understanding of the electronic states involved in spin–orbit mixing, it is not viable to undertake such investigations. Therefore, systematic studies on the coordination environment mediated control of magnetic anisotropy are very rare.[17]

Two new seven coordinate Co(II) complexes, $[Co(dapbhH_2)(SCN)_2]\cdot 3H_2O$ (**1**) and $[Co(dapbh)(H_2O)_2]$ (**2**) were prepared

Department of Chemical Sciences, Tezpur University, Napaam-784028, Assam, India. E-mail: ngogoi@tezu.ernet.in

† Electronic supplementary information (ESI) available. CCDC 1421271 and 1421272. For ESI and crystallographic data in CIF or other electronic format see DOI: 10.1039/c5cc07397a

This journal is © The Royal Society of Chemistry 2016

View Article Online
DOI: 10.1039/C6RA16301G

Revised Manuscript Submitted to RSC Advances

Influence of Ni on enhanced catalytic activity of Cu/Co_3O_4 towards reduction of nitroaromatic compounds: studies on the reduction kinetics

Pangkita Deka, Rimjim Choudhury, Ramesh C. Deka,* and Pankaj Bharali*

Department of Chemical Sciences, Tezpur University, Napaam – 784 028, India

Published on 22 July 2016. Downloaded by Cornell University Library on 23/07/2016 18:31:02.

RSC Advances Accepted Manuscript

* Corresponding authors: Tel.: +91 3712 275064; fax: +91 3712 267005/6

E-mail address: pankajb@tezu.ernet.in (P. Bharali) and ramesh@tezu.ernet.in (R. C. Deka).

View Article Online
DOI: 10.1039/C6RA20173C

Revised Manuscript Submitted to RSC Advances

Influence of CuO morphology on enhanced catalytic degradation of methylene blue and methyl orange

Pangkita Deka,[a] Anil Hazarika,[b] Ramesh C. Deka,[a] Pankaj Bharali[a]*

[a] *Department of Chemical Sciences, Tezpur University, Napaam 784 028, India*

[b] *Sophisticated Analytical Instrumentation Centre (SAIC), Tezpur University, Napaam 784 028, India*

Published on 21 September 2016. Downloaded by Cornell University Library on 27/09/2016 07:05:37.

RSC Advances Accepted Manuscript

* Corresponding authors: Tel.: +91 3712 275064; fax: +91 3712 267005/6

E-mail address: pankajb@tezu.ernet.in (P. Bharali).

American Journal of Engineering and Applied Sciences

Original Research Paper

Castor Oil Based Epoxy/Clay Nanocomposite for Advanced Applications

Aditi Saikia and Niranjan Karak

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur 784028, India

Article history
Received: 03-11-2015
Revised: 10-12-2015
Accepted: 23-12-2015

Corresponding Author:
Niranjan Karak
Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur 784028, India
Tel: +91-3712-267009;
Fax: +91-3712-267006
Email: karakniranjan@gmail.com

Abstract: Bio-based hyperbranched and linear epoxy resins were synthesized from monoglyceride of *Ricinus communis* oil. The nanocomposites of these hyperbranched and linear epoxies with 1, 2 and 3 wt% of OMMT were also fabricated. The structures of the resins and their nanocomposites were analyzed by FTIR, NMR, XRD, SEM and TEM. The studies of performance characteristics of poly(amido amine) cured thermosetting nanocomposites showed significant improvements in tensile strength from 5.8 to 11.9 MPa, impact from 80 to >100 cm, scratch resistance from 4 to 9 kg, thermal stability from 213 to 316°C and chemical resistance over their pristine systems. Further, hyperbranched nanocomposites and bio-based epoxy thermosets exhibited better performance than the linear and petroleum based ones. The overall results, therefore, demonstrated hyperbranched epoxy/clay nanocomposites as potential materials for advanced applications.

Keywords: Hyperbranched Epoxy, Castor Oil, Clay Nanocomposites, Performance

Introduction

In the recent years, polymer nanocomposites have emerged as a most promising alternative to the traditional materials because of their intrinsic advantages such as easy process ability, light weight, reduce cost and tunable properties (Thakur and Kessler, 2015a; applications. Also, the global concern regarding the degradability of polymeric materials in environment compelled the scientists to explore the renewable resources in the production of useful materials (Velayutham *et al*., 2012; Yang *et al*., 2011; Biermann *et al*., 2000; Mungroo *et al*., 2008; Singh, *et al*., 2012). Therefore, to overcome such limitations, bio

Advances in Nano Research, *Vol. 4, No. 1 (2016) 15-29*
DOI: http://dx.doi.org/10.12989/anr.2016.4.1.015

Castor oil based hyperbranched polyester/bitumen modified fly ash nanocomposite

Deepshikha Bhagawati, Suman Thakur and Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Tezpur, Assam, India

(Received November 12, 2015, Revised January 23, 2016, Accepted February 25, 2016)

Abstract. A low cost environmentally benign surface coating binder is highly desirable in the field of material science. In this report, castor oil based hyperbranched polyester/bitumen modified fly ash nanocomposites were fabricated to achieve the desired performance. The hyperbranched polyester resin was synthesized by a three-step one pot condensation reaction using monoglyceride of castor oil based carboxyl terminated pre-polymer and 2,2-bis (hydroxymethyl) propionic acid. Also, the bulk fly ash of paper industry waste was converted to hydrophilic nano fly ash by ultrasonication followed by transforming it to an organo-nano fly ash by the modification with bitumen. The synthesized polyester resin and its nanocomposites were characterized by different analytical and spectroscopic tools. The nanocomposite obtained in presence of 20 wt% styrene (with respect to polyester) was found to be more homogeneous and stable compared to nanocomposite without styrene. The performance in terms of tensile strength, impact resistance, scratch hardness, chemical resistance and thermal stability was found to be improved significantly after formation of nanocomposite compared to the pristine system after curing with bisphenol-A based epoxy and poly(amido amine). The overall results of transmission electron microscopic (TEM) analysis and performance showed good exfoliation of the nano fly ash in the polyester matrix. Thus the studied nanocomposites would open up a new avenue on development of low cost high performing surface coating materials.

Keywords: bio-based materials; hyperbranched polyesters; nano fly ash; nanocomposites; thermosets

Contents lists available at ScienceDirect

Progress in Organic Coatings

journal homepage: www.elsevier.com/locate/porgcoat

Bio-based waterborne polyurethane/carbon dot nanocomposite as a surface coating material

Biplab Ghosh, Satyabrat Gogoi, Suman Thakur, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India

ARTICLE INFO

Article history:
Received 29 June 2015
Received in revised form 5 October 2015
Accepted 30 October 2015
Available online 21 November 2015

Keywords:
Waterborne polymer
Hyperbranched polyurethane
Carbon dot nanocomposite
Performance
Surface coating

ABSTRACT

Waterborne surface coating materials with low volatile organic compounds (VOCs) are environmentally friendly and hence the most desired materials for the modern society. The present study reports *in situ* fabricated thermosetting hyperbranched waterborne polyurethane (WPU)/carbon dot (CD) nanocomposites as surface coating materials. CD was used as a nanoreinforcing agent (at 0.25, 0.5 and 1.0 weight percentages) in the nanocomposites. The structures of the waterborne polyurethane and its fabricated thermosetting nanocomposites were analyzed by using different spectroscopic and analytical tools like Fourier transform infrared spectroscopy, nuclear magnetic resonance spectroscopy, UV–visible spectroscopy and X-ray diffractometry. The mechanical properties of the pristine thermosetting WPU were significantly improved after incorporation of CD (tensile strength from 4.5 to 8.5 MPa, elongation at break value from 96 to 136%, scratch hardness from 3 to 9 kg, impact strength from 70 to 100 cm). The thermal stability of WPU also enhanced from 250 to 280 °C after incorporation of CD in the matrix. Interestingly, the fabricated nanocomposites demonstrated an excitation wavelength and concentration dependent photoluminance behavior as well as exhibited good transparency. Thus, the fabricated WPU nanocomposites show great potential as low VOC containing environment friendly transparent surface coating material.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

Amongst all the polymers, polyurethane (PU) is one of the most important and versatile polymers. It is obtained by the rearrangement reaction between di/poly isocyanates and di/polyol some advantages other than the above mentioned issues such as cost effectiveness and eco-friendly nature [7,8]. In spite of aforementioned advantages, WPUs also associate with some serious short comings like inferior mechanical property due to the presence of hydrophilic ionic groups or water soluble segments [9]. They

Applied Surface Science 376 (2016) 276–285

Contents lists available at ScienceDirect

Applied Surface Science

journal homepage: www.elsevier.com/locate/apsusc

Photocatalytic degradation of organic contaminants under solar light using carbon dot/titanium dioxide nanohybrid, obtained through a facile approach

Deepshikha Hazarika, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, 784028, Assam, India

ARTICLE INFO

Article history:
Received 6 January 2016
Received in revised form 19 March 2016
Accepted 21 March 2016
Available online 1 April 2016

Keywords:
Carbon dot
Nanohybrid
Carbon dot/titanium dioxide
Photocatalyst
Degradation

ABSTRACT

In the present study, a novel, simple and green method was developed to synthesize highly luminescent nitrogen containing carbon dot (CD) using carbon resources like bio-based citric acid and glycerol in the presence of cost free cow urine. The as-synthesized CD showed exciting wavelength dependent down- and up-conversion flourescence properties. To utilize the advantage of up-conversion flourescence, a nanohybrid (CD@TiO_2) was synthesized from the above carbon resources and titanium butoxide through a facile one pot single step hydrothermal protocol. Nanomaterials like bare TiO_2 and nanohybrid of TiO_2 in presence of CD (CD/TiO_2) were also synthesized for comparison purpose. The optical properties and structural characteristics of the prepared CD, bare TiO_2, CD@TiO_2 and CD/TiO_2 were examined by Fourier transform infrared (FTIR), UV–vis and fluorescence spectroscopic, scanning electron microscopic (SEM), transmission electron microscopic (TEM) and X-ray diffraction (XRD) studies. The elemental compositions of bare CD and CD@TiO_2 nanohybrid were obtained from EDX analyses. The poor crystalline nature and narrow distribution of spherical CD and anatase form of TiO_2 were confirmed from XRD and TEM studies. Amongst the studied nanomaterials, CD@TiO_2 exhibited the most promising photocatalytic degradation of organic pollutants like benzene and phenol as well as an anthrogenic pesticide under sunlight.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Nanotechnology is an emerging and rapidly growing field because of its wide range of outstanding applications in science and technology. Again, nanomaterials owing to their diversified physico-chemical attributes resulted in an explosion for a broad synthesized by a variety of approaches namely microwave irradiation [13], laser ablation [14], hydrothermal treatment [8], arc discharge [15], pyrolysis [7] etc. But these approaches involve high energy consume protocol, complex process, high cost, high temperature and/or long time for synthesis. Therefore, green synthesis of CD is a highly attractive research area in recent times which

Published on 1 / December 2015. Downloaded by RSC Internal on 11/05/2016 14:46:59.

NJC

LETTER

View Article Online
View Journal | View Issue

A convenient 'NOSE' approach used towards the synthesis of 6-amino-1,3-dimethyl-5-indolyl-1*H*-pyrimidine-2,4-dione derivatives catalyzed by nano-Ag†

Vijay Kumar Das,[a] Pranjal Bharali,[b] Bolin Kumar Konwar,[b] Jyri-Pekka Mikkola,[c] Andrey Shchukarev[d] and Ashim Jyoti Thakur*[a]

Cite this: *New J. Chem.*, 2016, 40, 1935

Received (in Montpellier, France) 11th August 2015,
Accepted 15th December 2015

DOI: 10.1039/c5nj02134k

www.rsc.org/njc

An endeavour has been made towards the synthesis of uracil based compounds in good to high yield catalyzed by nano-Ag at 70 °C upon reacting 6-amino-1,3-dimethyluracil and indole derivatives. The catalyst was potentially recyclable from fresh up to the third run.

Apart from their multifarious involvement[1] in the fields of science and technology, nanoparticles (NPs) have sparked the explosive growth of nanocatalysis[2] as a frontier between homogeneous and heterogeneous catalysis.[3] Recently, the distinguished catalytic actions[4] of Ag NPs have been investigated for several organic transformations. Nano-sized Ag has also been broadly used as an antimicrobial agent as well as growth retardant of mold, harmful spores and germs.[5] Silver nanomaterials are seriously engaged in the manufacture of consumer commodities.[6] However, Ag NPs have also occupied a place in imaging and immune detection.[7] The synthesis of Ag NPs employing benign bio-surfactants as potential greener stabilizers[8] has been a hot topic of research in recent years due to their unique structural diversity, high specificity, higher biodegradability, biocompatibility and digestibility, eco-friendliness, reusability, stability under extreme conditions, such as high temperature, pH and salinity, low toxicity, widespread applicability and production from the renewable sources, mainly synthesis has not been explored satisfactorily. In our endeavour to exploit this aspect towards bioactive molecules has prompted us to undertake this project. Pyrimidine analogues and their derivatives have attracted the attention of chemists due to their interesting biological and chemotherapeutic importance.[10] In essence, the synthesis of pyrimidine derivatives can be facilitated due to its nucleophilic C-5 position[11] and the presence of an amino group in the C-6 position dramatically enhances its nucleophilicity.[12]

In our research program for the advancement of 'NOSE' (Nanoparticles-catalyzed Organic Synthesis Enhancement)[13] chemistry, we herein report a one-pot synthesis of 6-amino-1,3-dimethyl-5-indolyl-1*H*-pyrimidine-2,4-dione derivatives from 6-amino-1,3-dimethyluracil and indole derivatives at 70 °C in DMSO catalyzed by biosurfactant capped Ag NPs (Scheme 1). Our group has a long history of working on uracil compounds.[14]

We first prepared Ag NPs using a rhamnolipid biosurfactant under mild conditions[15] followed by characterisation. The thermal decomposition was studied by thermogravimetric analysis [Fig. 1(a)] and showed two steps of thermal degradation beginning at 160 °C and completed above 310 °C. The first weight loss was attributed to the evaporation of physically absorbed water and the second weight loss may be due to the decomposition of the precursor, which was completed at this temperature. Fig. 1(b)

Bioorganic & Medicinal Chemistry Letters 26 (2016) 992–998

Contents lists available at ScienceDirect

Bioorganic & Medicinal Chemistry Letters

journal homepage: www.elsevier.com/locate/bmcl

A one pot, two-step synthesis of 5-arylpyrrolo[2,3-*d*]pyrimidines and screening of their preliminary antibacterial properties

Lakhinath Saikia[a,b], P. Roudragouda[c], Ashim J. Thakur[a,*]

[a] Department of Chemical Sciences, Tezpur University (A Central University), Tezpur, Napaam 784028, Assam, India
[b] Department of Chemistry, Rajiv Gandhi University (A Central University), Rono-Hills, Doimukh 791112, Arunachal Pradesh, India
[c] Department of Pharmaceutical Technology, Defence Research Laboratory, Tezpur, Post Bag No. 2, Solmara 784001, Assam, India

ARTICLE INFO

Article history:
Received 2 October 2015
Revised 25 November 2015
Accepted 15 December 2015
Available online 15 December 2015

Keywords:
Pyrrolo[2,3-*d*]pyrimidine
Michael type addition
$Na_2S_2O_4$
NaOH
Reductive cyclization

ABSTRACT

A one pot two step methodology for the synthesis of ten derivatives of 5-arylpyrrolo[2,3-*d*]pyrimidine has been reported. The methodology exploits the strong reducing nature of alkaline $Na_2S_2O_4$ solution coupled with favorability of Michael type addition reaction in alkaline medium. The methodology demands attraction as it is non-catalytic, quite general for wide range of nitrostyrenes and possesses comprehensive advantages over most of the earlier methods in terms of reaction time as well as yield. The methodology enjoys additional advantage of utilizing cheaper and easily available chemicals as reagent for the purpose. Some of the synthesized compounds are found to possess remarkable activity against some of the tested bacterial strains.

© 2015 Elsevier Ltd. All rights reserved.

Among various fused heterocycles, pyrrolo[2,3-*d*]pyrimidines has been considered as one of the most important classes of organic compounds. Various compounds of this family have been designed, synthesized and screened towards various biological activities. A plentiful of pyrrolo[2,3-*d*]pyrimidines have been established to possess diverse biological activities like antifolate,[1] antitumour,[2] antibacterial,[3] antiviral,[4] receptor tyrosine kinase (RTK) inhibitor,[5] firefly luciferase inhibitor,[6] microtubule inhibitor,[7] affinity against α_1-adrenosine receptor (α_1-AR)[8] etc. Alimta (**1**, Fig. 1), a 5-substituted pyrrolo[2,3-*d*]pyrimidine has been established as a unique antifolate with remarkable activity against a broad spectrum of solid tumors.[9] The scaffold draws attention from the material chemists too due to its redox ability and interesting photophysical properties.[10] A plethora of reports

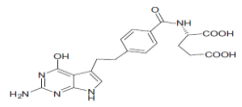


Figure 1. Structure of Alimta, an antifolate.

Reac Kinet Mech Cat
DOI 10.1007/s11144-016-1125-3

Guerbet self-coupling for ethanol valorization over activated carbon supported catalysts

György Onyestyák[1] · Gyula Novodárszki[1] · Ágnes Farkas Wellisch[1] · József Valyon[1] · Ashim Jyoti Thakur[2] · Dhanapati Deka[2]

Received: 18 November 2016 / Accepted: 16 December 2016
© Akadémiai Kiadó, Budapest, Hungary 2016

Abstract The gas phase coupling of ethanol to butanol was studied over Pd/KOH/activated carbon catalyst using a flow-through tube microreactor, applying $WHSV_E$ of 0.20–2.0 h^{-1}, H_2 to ethanol molar ratio of 6, 21 bar total pressure and 275–375 °C temperature. Butanol was the product of highest yield. Longer chain primary aliphatic alcohols, having even number of carbon atoms, such as hexanol, octanol, decanol, were also obtained with yield decreasing significantly with increasing chain length.

Keywords Ethanol coupling · Biobutanol · Guerbet reaction · Pd/KOH/AC catalyst

Introduction

Catal Lett (2016) 146:902–908
DOI 10.1007/s10562-015-1678-1

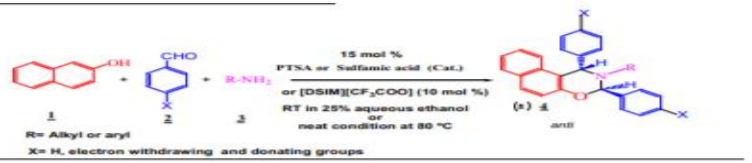
Development of Environmentally Benign Methods Towards the Synthesis of *anti*-2,3-dihydro-1,2,3-trisubstituted-1*H*-naphth[1,2-e][1,3]oxazines Using Brønsted Acidic Catalysts

Arup Kumar Dutta[1] · Pinky Gogoi[2] · Manas Pratim Saikia[2] · Ruli Borah[2]

Received: 12 November 2015 / Accepted: 9 December 2015 / Published online: 15 February 2016
© Springer Science+Business Media New York 2016

Abstract This report has described three environmentally acceptable Brønsted acidic catalytic systems (*p*-toluene sulfonic acid, sulfamic acid and 1,3-disulfoimidazolium trifluoroacetate [DSIM][CF_3COO] ionic liquid) for the preparation of complex library of *anti*-diastereomer of 2,3-dihydro-1,2,3-trisubstituted-1*H*-naphth [1,2-e][1,3]oxazines **4** from the three components reaction of 2-naphthol, *p*-substituted aromatic aldehydes and primary amines in 25 % aqueous ethanol at room temperature or in neat conditions at 80 °C. The reactions utilized 15 mol% of the two conventional acids to produce 82–97 % of naphthoxazines during 10–30 min. The same reactions could also be performed satisfactorily within 8–20 min employing 10 mol% of task specific acidic 1,3-disulfoimidazolium trifluoroacetate [DSIM][CF_3COO] as catalyst. The three catalysts were recycled for four runs in aqueous ethanol with excellent catalytic activity.

Graphical Abstract



Keywords Oxazine · Reusable Brønsted acids · Multicomponent reaction · Greener routes · Ionic liquid

1 Introduction

Substituted 1,3-oxazine derivatives are ubiquitous as natural products, and many of them have been recognized as pivotal intermediate for the synthesis of molecules with various medicinal properties [1, 2]. The structurally diverse

Electronic supplementary material The online version of this article (doi:10.1007/s10562-015-1678-1) contains supplementary material, which is available to authorized users.

✉ Ruli Borah
ruli@tezu.ernet.in
[1] Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

Springer

SYNTHETIC COMMUNICATIONS®
2016, VOL. 46, NO. 14, 1187–1196
http://dx.doi.org/10.1080/00397911.2016.1193754

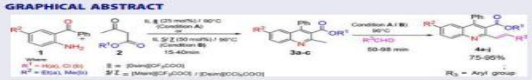
Taylor & Francis
Taylor & Francis Group

Studies on –SO_3H functionalized Brønsted acidic imidazolium ionic liquids (ILs) for one-pot, two-step synthesis of 2-styrylquinolines

Parishmita Sarma, Susmita Saikia, and Ruli Borah
Department of Chemical Sciences, Tezpur University, Assam, India

ABSTRACT
Four task-specific –SO_3H functionalized imidazolium ionic liquids (ILs) were investigated for Brønsted acidities by Hammett functions. After knowing their thermal stabilities, the catalytic activity was observed for the preparation of 2-styrylquinolines by following consecutive Friedländer and Knoevenagel reactions in solvent-free thermal energy. The acidity order ([Dsim][$OOCCF_3$] > [Dsim][OTs] > [Dsim][$OOCCl_3$] > [Msim][$OOCCF_3$]) of three ILs was consistent with their activity order observed in the acid-catalyzed synthesis of 2-styrylquinolines under solvent-free conditions at 90° C, with the exception of [Dsim][OTs]. The best catalytic activity was shown by 25 mol% of [Dsim][$OOCCF_3$] IL. The less acidic IL required 50 mol% to give good yield of 2-styrylquinolines under the optimized condition.

GRAPHICAL ABSTRACT



ARTICLE HISTORY
Received 14 March 2016

KEYWORDS
2-Styryl quinoline; acidic ionic liquids; Friedländer and Knoevenagel condensation; Hammett plot; one pot; recyclable IL

Introduction

The one-pot, multistep synthetic route is a sustainable structure development method in organic synthesis.[1,2] A large number of individual reactions are brought about in a single vessel through various steps. It makes provision for creating a complex library of small organic molecules without isolating the intermediates involved in various steps, leading to less chemical waste and greater economic benefits.[3,4] Styrylquinoline derivatives have shown extensive potential biological activities including anti-inflammatory, antitumor, antifungal, and anti-allergic activities, acting as HIV-1 integrase, lipoxygenase inhibitors, and leukotriene d4-antagonists.[5–15] Two such derivatives, FZ41 and KHD161 (Fig. 1), provide a novel and promising strategy for AIDS therapy.[13–15] Some of them are effective for the treatment of Alzheimer's disease.[16] Other applications include the design of molecular logic devices[17] and supramolecular system.[18]

Contents lists available at ScienceDirect
Applied Catalysis A: General
journal homepage: www.elsevier.com/locate/apcata

ELSEVIER

Heterogenized hybrid catalyst of 1-sulfonic acid-3-methyl imidazolium ferric chloride over NaY zeolite for one-pot synthesis of 2-amino-4-arylpyrimidine derivatives: A viable approach

Pinky Gogoi, Arup Kumar Dutta, Susmita Saikia, Ruli Borah*
Department of Chemical Sciences, Tezpur University, Napaam, 784028, Tezpur, Assam, India

ARTICLE INFO
Article history:
Received 12 February 2016
Received in revised form 10 June 2016
Accepted 10 June 2016
Available online 14 June 2016
Keywords:
Heterogenized hybrid catalyst
1-Sulfonic acid-3-methyl imidazolium ferric chloride salt
NaY zeolite
Extra framework aluminium species
Reusable catalyst
2-Amino-4-arylpyrimidine

ABSTRACT
A new hybrid material of NaY zeolite supported 1-sulfonic acid-3-methyl imidazolium ferric chloride [Msim][$FeCl_4$] has been developed by modifying the zeolite surface with six different w/w ratios through wet impregnation method. These composites were fully characterized by Powder XRD, FT-IR, Raman, TGA, SEM, TEM, EDX, BET, ICP-OES and Hammett acid strength measurement methods. The zeolite framework was found to be remaining preserved up to w/w ratio of 0.2 with some portion of extra framework Al species (EFAl) while crystallinity of the composites decreased from lower to higher loading. The overall thermal stability of composite materials increases up to w/w ratio of 0.1 than NaY. The catalytic performance of composite materials were examined for the novel one-pot consecutive formation of Biginelli- 3,4-dihydropyrimidin-2-(1H)-ones to 2-amino-4-arylpyrimidines. The 0.1 ratio composite material showed excellent catalytic activity up to ten consecutive cycles in solvent-free medium under the optimized reaction condition.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Encapsulation of ionic liquid salt in microporous solids such as zeolite is an attractive technique for heterogenization, since leaching can be controlled when the salt is confined exclusively in the zeolite pores [1–3]. Zeolites are among the most efficient support for ionic liquids owing to their unique properties such as high surface area, well organized pore channels, good thermal stability, environmentally benign nature and high absorption towards organic compounds. Ionic liquid salts are also characterized by their low melting point, non-flammability, relatively low viscosities, high thermal and chemical stability [4]. The presence of acidic or basic character of ionic liquids makes them more suitable for dual role in organic synthesis as catalyst and recyclable solvent [5–8].

The combination of the two aforementioned types of materials (zeolites and ionic liquids) could result in composite materials suitable for various applications such as separation technology, catalysis and fuel cell [2,9–13]. For example, DeCastro et al., developed 1-butyl-3-methyl-imidazolium chloride and $AlCl_3$ immobilized beta type zeolite for the alkylation of aromatic compounds [14]. Valkenberg et al., also presented three different approaches for the preparation of novel catalysts of supported ILs on zeolites and other porous supports for the Friedel–Crafts reaction [15]. Eguizábala et al., utilized ammonium based ionic liquids immobilized in Y and beta type zeolites by solution methods as hydrophilic–conducting fillers for proton exchange membrane fuel cell [16]. The heterogenization process can easily modify the surface of solid support by transferring some properties of IL phase on to the surface for specific use [17,18]. Such acidic or basic hybrid catalysts can be separated from the product by filtration in any suitable solvent. This type of composite material allows us to design solid material possessing uniform and well-dispersed surface topologies with definite properties and controlled chemical reactivity which may act as 'designer surface'. Hybrid zeolite catalysts have advantages compared to the parent ones in terms of their tunable acidity, hydrophilicity or hydrophobicity and thermal stability.

Pyrimidines are integral part of DNA and RNA, and also have diverse biological activities like anticancer, anti-inflammatory, analgesic, anticonvulsant, anthelmintic and anti-allergic agents [19,20]. 2-Aminopyrimidine unit is the structural motif of several bioactive natural products and finds extensive applications as drug like scaffold in medicinal chemistry such as anti-atherosclerotic Aronixil, anti-histaminic Thonzylamine, anti-anxiolytic Buspirone, HMG-CoA reductase inhibitor Rosuvastatin and anti-cancer drug

* Corresponding author.
E-mail address: ruli@tezu.ernet.in (R. Borah).

http://dx.doi.org/10.1016/j.apcata.2016.06.015
0926-860X/© 2016 Elsevier B.V. All rights reserved.

Contents lists available at ScienceDirect
Journal of Molecular Catalysis A: Chemical
journal homepage: www.elsevier.com/locate/molcata

ELSEVIER

Design of multifaceted acidic 1,3-disulfoimidazolium chlorometallate ionic systems as heterogeneous catalysts for the preparation of β-amino carbonyl compounds

Susmita Saikia, Pinky Gogoi, Arup Kumar Dutta, Parishmita Sarma, Ruli Borah*
Department of Chemical Sciences, Tezpur University, Napaam 784028, Tezpur, India

ARTICLE INFO
Article history:
Received 15 December 2015
Received in revised form 3 February 2016
Accepted 4 February 2016
Available online 6 February 2016
Keywords:
Multifaceted acidic solid
1,3-Disulfoimidazoliumchlorometallates
Reusable catalyst
Mannich-type
β-Amino carbonyl compound

ABSTRACT
A new series of 1,3-disulfoimidazolium transition metal chloride systems: [Dsim]$_2$[$ZnCl_4$], [Dsim][$FeCl_4$] and [Dsim]$_2$[$NiCl_4$] were synthesized as Brönsted–Lewis acidic solid material and characterized via NMR, FT-IR, Raman, TGA, SEM, EDX, Powder XRD, UV–visible, ICP-OES and elemental analysis. Semiconductor properties of these materials were studied through electronic spectroscopy. The Brönsted acidity of these systems was determined from Hammett plot. All these three materials were successfully tested as reusable catalyst for the one pot three component Mannich-type syntheses of β-amino carbonyl compounds within considerable time frame.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Chlorometallate ionic liquids (IL) are considered as functional materials for their distinct and potentially useful properties [1,2]. The specific characters of such ionic liquid depend on both the nature of metal present and the ratio of metal chloride to organic chloride salt used for this synthesis. The anionic component $[M_xCl_y]^{n-}$ of chlorometallate IL can be varied by considering these two factors and thereby, control its stability and catalytic

late systems [9–12]. Addition of acidic or basic functional groups into the cation may further modify the characteristic properties of each IL. In this context, we tried to develop new bifunctional Brönsted–Lewis acidic chlorometallate ionic salt systems using two –SO_3H group into the cation as an extension of the previous work [13]. Herein, we synthesized and characterized three multifaceted acidic 1,3-disulfoimidazolium chlorometallate systems: [Dsim]$_2$[$ZnCl_4$], [Dsim][$FeCl_4$] and [Dsim]$_2$[$NiCl_4$] in solid state from the reaction of 1,3-disulfoimidazolium chlorides ([Dsim]Cl)

RSC Advances

PAPER

Cite this: RSC Adv., 2016, 6, 28981

Analysis of the water extract of waste papaya bark ash and its implications as an *in situ* base in the ligand-free recyclable Suzuki–Miyaura coupling reaction†

Manashi Sarmah,[a] Anindita Dewan,[a] Manoj Mondal,[b] Ashim J. Thakur[a] and Utpal Bora*[a]

Received 7th January 2016
Accepted 8th March 2016
DOI: 10.1039/c6ra00454g
www.rsc.org/advances

The conversion of waste papaya-bark to ash–water extract *via* low-temperature combustion, and its utilisation as an efficient and environmentally friendly *in situ* basic medium for the Suzuki–Miyaura cross-coupling reaction at room temperature are reported. The papaya-bark ash was characterized by EDX, ion-exchange chromatography and flame photometry to reveal a broad range of active metal oxides. The chemical analysis reports of ash showed the presence of oxides of K, Ca, Na, Li and Mg, which possibly in the presence of water produce the corresponding hydroxides *in situ*, responsible for the basicity. Application of the ash–water extract as a base was highly effective for ligand-free $Pd(OAc)_2$ catalyzed Suzuki–Miyaura cross-coupling reaction. The reaction proceeds smoothly without any promoter/ligand to give excellent yields. Moreover, after completion of the reaction, the catalytic system could be easily recovered by simple fractional separation, and recyclable at least five times, with the loss of some catalytic activity from the 3rd cycle onward.

The palladium catalyzed Suzuki–Miyaura cross-coupling reaction is one of the most useful and explored methodologies for the synthesis of diversified biaryl motifs.[1] Typically, this reaction involves selective cross-coupling between aryl halides and arylboronic acids to give symmetrical and unsymmetrical biaryls in high yields. In recent years, the importance of biaryl derivatives as structural components of numerous natural products, drugs, dyes, optical devices, agrochemicals, as well as engineering materials, such as liquid crystal, conducting polymers, molecular wire and advanced functional materials, has attracted huge attention from the scientific community.[1]

The general mechanism of this reaction involves distinct three-stages; oxidative addition, transmetalation and reductive elimination. Since, the oxidative addition is the rate-determining step, attention particularly being focused on to increase the electron density of palladium, which thereby accelerates the rate of oxidative addition. This can be done by using sterically crowded and electron rich ligands. Literature reveals that the careful selection of ligand can promote both first and last steps of the catalytic cycle.[2] Numerous electron-rich phosphine-based ligands,[3] sterically crowded NHC,[4] oximes,[5] imines,[6] and palladacycles[7] were developed and employed as catalyst precursors under both conventional organic or biphasic media. Although, these ligand assisting system bear excellent activity, the principle drawbacks associated with them are availability, stability, air/moisture-sensitivity and tedious preparation steps.

In the most crucial stage of the mechanism, the trans-metalation stage, the transfer of the organoboron species to the palladium in the presence of external base occurs. However, added base often competes with many functional groups, and also causes protodeboronation with electron-deficient arylboronic acids.[8]

Thus, with simple and economical methodologies, the exercise of "ligand-free" catalytic system, moderate basicity and wide compatibility has become the need of current manufacturing process to establish greener and sustainable strategy.[9] The use of a natural base is elegant for this reaction media.

In pursuance to the principle of green chemistry, and with the aim to minimize the chemical waste, we decided to study in detail the use of an agro-waste stuff that significantly fulfills the desired expectation of safe reaction strategy. Herewith, we opt for dead papaya tree/bark that is thrown to rot/deteriorate/decay. Traditionally, its ash is used as detergents, so considering these view, it can be an appropriate alternative for moderate base. To the best of our knowledge, there are only two methods which significantly deals with the use of water extract of burned-ash of banana peels and rice straw as solvent system.[10] However, as most of the aryl halides are hydrophobic in nature, the use of pure water medium often fails to furnish

[a]Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, 784028, India. E-mail: utbora@tezu.ernet.in; utbora@yahoo.co.in
[b]Department of Chemistry, Dibrugarh University, Dibrugarh-786004, Assam, India

† Electronic supplementary information (ESI) available: ^1H and ^{13}C NMR spectra for all the products. See DOI: 10.1039/c6ra00454g

RSC Advances

COMMUNICATION

Cite this: RSC Adv., 2016, 6, 11758

Starch assisted palladium(0) nanoparticles as *in situ* generated catalysts for room temperature Suzuki–Miyaura reactions in water†

Anindita Dewan,* Pankaj Bharali, Utpal Bora and Ashim Jyoti Thakur

Received 25th October 2015
Accepted 15th January 2016
DOI: 10.1039/c5ra22349k
www.rsc.org/advances

A simple and efficient methodology for the *in situ* generation of Pd-nanoparticles in the presence of starch and NaOH at room temperature has been developed. It has been observed that starch played a dual role in controlling the reduction rate of metal ions and the aggregation process of metal atoms in solution. The *in situ* generated Pd-nanoparticles show excellent catalytic activity in the Suzuki–Miyaura cross coupling reaction of electronically diversified aryl-bromides and arylboronic acids in pure water at room temperature with low catalyst loading.

Introduction

Palladium-catalyzed Suzuki–Miyaura cross-coupling is one of the vital methodologies for the synthesis of biaryls using aryl halides with arylboronic acids, and is extensively used for the synthesis of important structural moieties such as polymers, agrochemicals, natural products and pharmaceutical intermediates.[1] The catalytic systems for these transformations are composed of either Pd(0) or Pd(II) derivatives associated with suitable phosphine or nitrogen based ligands.[2] Although the palladium complexes with these ligands often show excellent catalytic activity, the main drawbacks are the availability, stability, and cost of the palladium complexes and related ligands. Additionally, due to the air and moisture sensitivity of these ligands, many of the reactions are performed in an inert atmosphere using hazardous organic solvents. However, from the green chemistry point of view, the use of environmentally friendly solvents such as water,[3] ionic-liquids[4] or supercritical carbon dioxide[5] is a favorable alternative to organic solvents in organic synthesis. In this respect, the development of a catalyst in pure water seems particularly suitable for the Suzuki–Miyaura cross coupling reaction because of the water soluble nature of arylboronic acids.[6] Recent developments into expansion of the Suzuki–Miyaura reaction have been focused on the use of palladium nanoparticles (PdNPs) as the catalyst due to the unique properties arising at the nanoscale.[7] Although PdNPs often show excellent catalytic activity, however in majority of cases, synthesis of PdNPs requires high temperature, sonication and additional stabilizer, thereby making the process tedious and time consuming.[8] However, there are some reports of preparation of PdNPs under mild reaction condition. Consequently, there is growing interest to develop alternative green and eco-friendly routes for the synthesis of nanomaterials in single synthetic step with minimum chemical waste in environmentally friendly solvents. Recently, synthesis of PdNPs with controllable size and morphology have been reported *via* the reduction of palladium(II) salt using simple sugars and other biomass. Consequently, glucose[9] and silica–starch[10] derived PdNPs have been successfully applied in Suzuki reaction using isopropanol and DMF as solvent at high temperature using aryl iodides as coupling partner. Starch is one of the naturally occurring green biopolymers which is nontoxic, catable and biodegradable. Now-a-days, the development of the green chemistry through organic reactions using environmentally benign solvents, biodegradable and non-toxic chemicals have become one of the most exciting researches. Keeping this in mind, we wish to explore starch-assisted *in situ* synthesis of PdNPs for C–C bond formation reaction with excellent yield in pure water at room temperature in a one pot tandem process. Emphasis has been given on *in situ* generation of PdNPs, detail characterization and application in Suzuki–Miyaura coupling reaction of aryl bromides and phenylboronic acid in pure water at room temperature without using conventional ligand.

Our first aim was to generate PdNPs under aerobic conditions in water at room temperature and for that purpose $Pd(OAc)_2$ (0.001 g, 0.005 mmol) and NaCl (0.01 g, 0.17 mmol) were stirred in water (2 mL) for 15 min which resulted a clear orange coloured solution. To this orange coloured solution, starch (0.01 g) and NaOH (0.08 g, 2 mmol) were added and instantly the solution became decolourised indicating the formation PdNPs. The generation of PdNPs has been monitored

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, India, 784028. E-mail: anil_dewan@yahoo.co.in; Fax: +91 3712 267005; +91 3712 267006; Tel: +91 3712 275067

† Electronic supplementary information (ESI) available: ^1H and ^{13}C NMR spectral data of products and experimental procedure. See DOI: 10.1039/c5ra22349k

NJC

PAPER

View Article Online
View Journal | View Issue

Cite this: New J. Chem., 2016, 40, 3119

Eco-friendly Suzuki–Miyaura coupling of arylboronic acids to aromatic ketones catalyzed by the oxime-palladacycle in biosolvent 2-MeTHF†

Manoj Mondal[a] and Utpal Bora*[ab]

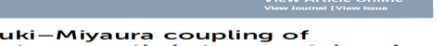
Received (in Montpellier, France) 6th October 2015,
Accepted 29th January 2016
DOI: 10.1039/c5nj02734a
www.rsc.org/njc

Oxime-palladacycle catalyzed Suzuki–Miyaura cross-coupling reaction of acid chlorides and arylboronic acids to yield aryl ketones was developed. The remarkable benefit of this method is the use of water immiscible (practically) 2-MeTHF as solvent, which provides easy isolation of the crude reaction mixture just by separation of 2-MeTHF–water layers, and then evaporation of 2-MeTHF. Moreover, the use of relatively equal proportion of substrates and less generation of side products make the method highly atom economic.

Introduction

Ketones are ubiquitous structural motifs found across various natural products, pharmaceuticals and agrochemicals.[1] They also represent a wide range of ideal starting materials for the synthesis of cyanohydrins, oximes, carbazones, acetals, pinacols, *etc.* Conventional routes to synthesize ketone are the Friedel–Crafts acylation[2] and Suzuki–Miyaura cross-coupling of aryl halides with organometallic reagents under a carbon monoxide atmosphere.[3] However, the formation of tertiary alcohols and isomeric mixtures due to limited regioselectivity,[4] and the use of corrosive $AlCl_3$ and toxic carbon monoxide[5] are certain difficulties associated with these methods.

The palladium catalyzed Suzuki–Miyaura cross-coupling of acid derivatives with organoborons represents another powerful tool to access ketones, (Scheme 1).[6] This method recently gained immense attention as it relies on the use of easily accessible, widely functionalized, relatively low-toxic,[7] heat and moisture stable organoborons. Moreover, the use of active and commercially available acid derivatives presents wide scope to various ketone derivatives. In recent years, numerous significant outcomes have been achieved using diverse palladium catalysts *viz.* $PdCl_2$,[8] $Pd(OAc)_2$,[9] Pd/C,[10] $Pd(dba)_2$,[11] $Pd(PPh_3)_4$,[12] $PdCl_2(dppf)$,[13] $POPd$,[13] Pd_2dba_3,[14] imidazolium chloride tagged Pd(II) complex[15] and $(BeDABCO)_2Pd_4Cl_6$,[16] under reaction systems, like toluene, THF, water, water–acetone, ionic liquid or hydrated base, *etc.* In fact, synthetic methods based on the use of these solvents present the following disadvantages: (i) the possibility of generation of



Scheme 1 Synthesis of ketones.

less reactive acid anhydride or carboxylic acid in an aqueous system needing high substrate loading;[6b] (ii) formation of emulsions, rag layers at the phase interface and poor extraction yields; and (iii) the long and troublesome synthetic procedures for ionic liquids.[17] Overall, it is estimated that around 80% of the chemical waste produced by synthesis corresponds to the organic solvent.[18] Thus, while designing the acid halide-based reactions particular care should be taken in the choice of the solvent.

Recently, Pace and co-workers reported the excellent preparation of Weinreb amides starting from acid halides in a biphasic system water–2-methyltetrahydrofuran (2-MeTHF).[19] Importantly, they obtained a range of pure products by simple removal of 2-MeTHF in good yields and purity, and did not use chromatography in the work-up process. Interestingly, 2-MeTHF resembles toluene or THF in terms of physical properties, and when used in organometallic reactions it offers both economical and environmentally friendly advantages over common aprotic solvents.[20,21] In reactions including Grignard reagent,[22] organopalladium, organozinc and LiAlH$_4$ reductions,[23] 2-MeTHF has found widespread application. 2-MeTHF has been reported to work like THF in nickel[24] and copper[25] catalyzed couplings. Pharmaceutical process development researchers have found that the use of 2-MeTHF provides superior diastereoselectivity when compared with other solvents.[20]

The growing interest towards 2-MeTHF is also due to its adherence with several Green Chemistry principles.[27] Among

[a]Department of Chemistry, Dibrugarh University, Dibrugarh 786004, Assam, India. E-mail: utbora@yahoo.co.in, uborat@tezu.ernet.in
[b]Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India

† Electronic supplementary information (ESI) available. See DOI: 10.1039/c5nj02734a

Catal Lett (2016) 146:1718–1728
DOI 10.1007/s10562-016-1796-4

CrossMark

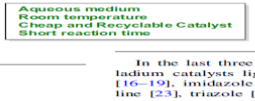
Suzuki–Miyaura Cross-Coupling in Aqueous Medium Using Recyclable Palladium/Amide-Silica Catalyst

Manoj Mondal[1] · Anindita Dewan[2] · Tahshina Begum[1] · Pradip K. Gogoi[1] · Ashim Jyoti Thakur[2] · Utpal Bora[2]

Received: 1 May 2016 / Accepted: 14 June 2016 / Published online: 4 July 2016
© Springer Science+Business Media New York 2016

Abstract Silica-immobilized benzamide palladium complex was prepared and characterized. The complex exhibits excellent catalytic activity and stability for Suzuki–Miyaura cross-coupling reaction under mild aqueous reaction condition. Various aryl bromides were coupled with arylboronic acids in *i*-PrOH/H_2O, under open air at room temperature, in the presence of 0.22 mol% of the catalyst to afford corresponding cross-coupled products in high yields. Furthermore, the novel heterogeneous catalyst can be conveniently recovered by simple filtration and reused several times without significant loss in activity.

Graphical Abstract



Keywords Silica-immobilized · Heterogeneous catalyst · Suzuki–Miyaura cross-coupling · Biaryls · Aqueous solvent · Room temperature

1 Introduction

The palladium-catalyzed Suzuki–Miyaura cross-coupling reaction is one of the important, powerful and frequently employed protocols in organic synthesis for the construction of carbon–carbon bond [1–7]. This reaction has been widely used to synthesize molecules possessing significant biological or physical properties [8–12], and can be extended to large scale synthesis.

Manoj Mondal
manojjmondal@gmail.com
Utpal Bora
utbora@yahoo.co.in
[1] Department of Chemistry, Dibrugarh University, Dibrugarh, Assam 786004, India
[2] Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India

In the last three decades numerous homogeneous palladium catalysts ligated with phosphines [13–15], NHC [16–19], imidazole [20], imine [21], oxime [22], oxazoline [23], triazole [24], amino acid [25], amine [26, 27], Schiff-base [28–30], oxime-ether [31], hydrazone [32], etc. have been employed in this cross-coupling method, due to their high reactivity and high turnover numbers. Moreover, many unique ligandfree protocols were also developed in recent years for this transformation [33–40].

ChemPubSoc Europe
DOI: 10.1002/slct.201600609
Chemistry SELECT Full Papers

■ Medicinal Chemistry & Drug Discovery

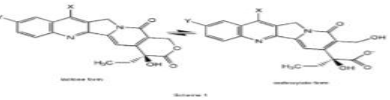
Application of Physicochemical and DFT Based Descriptors for QSAR Study of Camptothecin Derivatives

Iftikar Hussain, Kusum K. Bania, N. K. Gour, and Ramesh C. Deka*[a]

Density functional based reactivity descriptors such as electrophilicity (ω), Fukui functions (f_k^+, f_k^-), energies of LUMO and next LUMO along with the physicochemical parameters (logP, hydration energy, molar refractivity and surface area) are introduced for QSAR studies of two different sets of camptothecin molecules. A good correlation between the biological activity and the DFT based descriptors is obtained using multiple linear regression analysis. In literature, the importance of the various classic 2D descriptors such as logP, molar refractivity (MR), surface area has been greatly emphasize but in this report we have focused mainly on the importance of the DFT based reactivity descriptors in understanding the behaviors of campothecins. The modeled QSAR equations derived by regression analysis predicted that the camptothecin inhibitory activity is highly correlated with the DFT-based descriptors such as fukui functions, lowest unoccupied molecular orbital (E_{LUMO}), hydration energy and solvent accessible surface area of the molecules.

Introduction

Camptothecin is a naturally occurring, pentacyclic quinoline alkaloid that acquire high cytotoxic activity in a variety of cell lines.[1] Camptothecin (CPT) remains in an active lactone form and inactive hydrolyzed carboxylate form (Scheme 1)[1] and



Scheme 1. Interconversion between the lactone and carboxylic form of camptothecin.

there exists a dynamic equilibrium between these two. The active lactone binds to DNA topoisomerase I complex that is believed to be the single site of activity.[2] Initially, CPT was used as sodium salt of the carboxylate which efficiency is quite less due to the affinity of the carboxylate towards human serum albumin under physiological pH condition in *vivo*.[3–4] Major restrictions of the drug include poor solubility and hydrolysis under physiological conditions avoiding its full clinical utilization. To overcome these limitations associated with camptothecin, various derivatives have been synthesized and tested. Although a large members of these family are currently in clinical trials, only two CPT derivatives, irinotecan and topotecan, are approved as drug. Irinotecan is currently used for metastasis colorectal cancer, whereas, Topotecan has been used for ovarian cancer, cervical cancer and small-cell lung cancer. These derivatives employ tertiary amine cations to improve the overall solubility and subsequently improve lactone stability. Currently, the CPTs notably topotecan,[5,6] irinotecan[7–10], 9-aminocamptothecin,[11,12] 9-nitrocamptothecin[13] and belotecan[14] are being explored for use as a late-stage therapy either alone or in combination therapies.

Various clinical trials as well as structure activity studies suggested that the intake of the E ring lactone and the 20(S)-configuration is essential for its maximum antitumor activity.[15] Furthermore, the activity of most of the compounds with substituent at the 11- and 12-positions of the A ring and substitutions in rings C and D are lesser than CPT itself, whereas activity of most of the compounds with substituent at the 9- and 10-positions of the A ring are somewhat greater than CPT, and substitutions in position 7 of camptothecin are irrelative to steric clash. Wani et al.[16,17] have found that most of the compounds with substitutions at the 7-position are more potent than its parent compound.

Quantitative Structure-Activity Relationship (QSAR) study is basically deals with the relationship between the structure with activity/property.[18] Several physicochemical descriptors, such as hydrophobicity, topology, electronic parameters and steric effects, has been used extensively in QSAR studies in many disciplines, with many apply to drug design and environmental risk assessments.[19] There have been a number of QSAR studies evaluating the relationship between camptothecin structure and topoisomerase I inhibiting activity using various statistical

[a] *I. Hussain, Dr. K. K. Bania, Dr. N. K. Gour, Prof. R. C. Deka*
Department of Chemical Sciences
Tezpur University
Napaam, Tezpur -784028, Assam, India
Telephone: +91 9435380221
E-mail: ramesh@tezu.ernet.in

Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/slct.201600609

© 2016 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

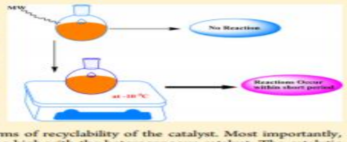
THE JOURNAL OF PHYSICAL CHEMISTRY C
Article
pubs.acs.org/JPCC

Chiral Ni-Schiff Base Complexes inside Zeolite-Y and Their Application in Asymmetric Henry Reaction: Effect of Initial Activation with Microwave Irradiation

Mukesh Sharma,† Biraj Das,† Galla V. Karunakar,‡ Lanka Satyanarayana,§ and Kusum K. Bania*
†Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India
‡Division of Crop Protection Chemicals and §Center for NMR and Structural Chemistry, Indian Institute of Chemical Technology, Uppal Road, Tarnaka, Hyderabad, Telangana 500007, India

Supporting Information

ABSTRACT: Chiral Ni(II)-Schiff base complexes synthesized inside the cavity of zeolite-Y were used as heterogeneous chiral catalyst for asymmetric Henry reaction. Synthesized catalysts were characterized using various spectrochemical and physicochemical techniques. Solid state NMR analysis has been used to confirm the internal location of the metal complexes. To the best of our knowledge MAS NMR has not been used to characterize chiral diamagnetic Ni^{2+}-Schiff base complex inside zeolite-Y. The catalytic activities of the materials were dependent on temperature, solvent, and amount of catalyst. High catalytic transformation of aldehydes with nitromethane to nitro-aldol product (92% yield and 83% ee, *S*-isomer) was achieved at −10 °C. Initial activation of the reaction with microwave irradiation for 15 min leads to a substantial decrease in the reaction time in comparison to normal stirring. Heterogeneous catalysts were found to be advantageous over the homogeneous counterparts in terms of recyclability of the catalyst. Most importantly, product selectivity, percentage yield, and enantioselectivity were found to be high with the heterogeneous catalyst. The catalytic activities of the metal complexes were influenced by the structural modification of the Schiff base ligands. Calculation of the energy barrier using density functional theory (DFT) suggests that the activation barrier is less in the case of the encapsulated complexes.



■ INTRODUCTION

Asymmetric Henry reaction or nitro-aldol condensation reaction has been considered as an important class of organic transformations due to the application of the aldol product in various natural product syntheses.[1−5] Different homogeneous and heterogeneous chiral catalysts are implemented to achieve such asymmetric transformation.[6−10] Although various chiral homogeneous catalysts so far reported have been found to show good catalytic activity, but they fail in terms of recyclability, and in many cases homogeneous catalysts suffer from loss of catalytic activity.[11−14] Nowadays, many researchers use different techniques, such as use of ionic liquids, supercritical liquids, etc., to recover the homogeneous chiral catalyst.[15] However, besides these methodologies, heterogenization of homogeneous catalyst via encapsulation or immobilization into solid support has been found to be advantageous over various other techniques.[16−18] Zeolites, MCM-41, etc. and such inorganic mantles are nowadays found to be excellent supports for heterogenization of homogeneous catalysts.[19−22] Out of the various Si-based materials, zeolite-Y, a crystalline aluminosilicate with pore dimension of 7.4 Å and supercage of 13 Å, has been found to be the most effective host for encapsulation of transition metal complexes. Starting from the pioneering work of Herron,[23] quite a good number of works have been reported on encapsulation of transition metal complexes inside the cavity of zeolite-Y. From our group we have reported design of various metal complexes with 1,10 phenanthroline, with picolinates, and with chiral and achiral Schiff base complexes inside zeolite-Y.[24−28] Although a significant number of metal catalyst has been synthesized inside the zeolite-Y cavity, significantly fewer reports are available on designing of chiral catalyst inside zeolite-Y. Recently, we have reported the synthesis of a chiral vanadium Schiff base complex inside zeolite-Y[29] and also a Cu-Cinchonidine complex supported on zeolite-Y.[30] Vanadium Schiff base complexes were found to be efficient catalysts for oxidation of 2-naphthol and styrene. Looking into the advantages of zeolite-Y encapsulated chiral metal Schiff base complexes, in this study we report the synthesis and characterization of the Ni^{2+}-Schiff base complexes inside zeolite-Y and their application in asymmetric Henry reaction.

Received: April 5, 2016
Revised: June 8, 2016
Published: June 8, 2016

ChemPubSoc Europe
DOI: 10.1002/slct.201600933
Chemistry SELECT Full Papers

■ Catalysis

Silver-Sulphur Oxido-Vanadium Cluster: A Newly Born Catalyst for Direct Reduction of Aryl Carboxylic Acids to Aldehydes *via* Mars and van Krevelen Mechanism

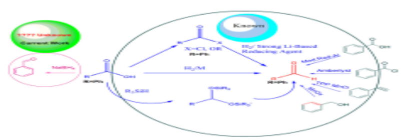
Biraj Das,[a] Mukesh Sharma,[a] Lanka. Satyanarayana,[b] Galla. V. Karunakar,[c] and Kusum. K. Bania*[a]

Now no more harsh condition and expensive catalyst or reducing agent would probably be required to directly convert aromatic acids to its corresponding aldehydes. Herein, we report for a cheap and recyclable solid catalyst consist of silver (Ag), sulphur (S) and vandium (V) having a structural unit of $[Ag_2SCH_2V_2(O)_2(COO)_2]_n$. This catalyst can directly reduce aromatic carboxylic acids to aldehydes with sodium borohydride ($NaBH_4$). High chemoselectivity and selectivity was achieved specially with $-NO_2$ substituted benzoic acids. Catalytic conversion was found to be excellent in THF and methanol except the pyridine carboxylates. At room temperature and under refluxing condition no catalytic conversion was observed. However, after subjecting to microwave (MW) irradiation followed by magnetic stirring under refluxing condition gave nitro-benzaldehydes upto 90% yield. Catalytic activity of the catalyst was found to retained upto 4th consecutive cycles. The catalytic reaction was believed to proceed *via* Mars and van Krevelen mechanism.

Introduction

Direct reduction of carboxylic acids to aldehydes has remained a long challenged for researchers.[1] Number of strategies so far has been adopted to achieve selective reduction of acids to aldehydes.[2,3] Two of the most acceptable routes for such conversion are the direct route and the indirect route. In direct reduction process, aldehydes are achieved by hydrogenation under high pressure and temperature.[3] While the indirect synthetic route involved a two step processes — first the carboxylic acids are converted to a more reactive species as acid chlorides or esters which are then reduced by hydrogenation or by hydride reduction reactions, Scheme 1.[2,3] Besides these processes, aldehydes are also synthesized by oxidation of 1° alcohols, hydration of alkynes, reduction of esters and amides, acid chlorides or nitriles and also by Fridel- Craft Acylation, Scheme 1.[4–13] Industrially, CeO_2 mainly and other oxides like MnOx, ZrO are used as catalytst for production of benzaldehydes *via* hydrogenation of benzoic acids.[14] Although these reactions are useful in synthesis of aldehydes and ketones but in many cases they involved multistep process and all these methods have their own advantages and disadvantages. Both the direct and indirect synthetic routes has one major drawback i.e. they exhibit poor chemoselectivity as in both the cases some vigorous condition are employed.[15] For example, in direct hydrogenation process application of high pressure and temperature leads to the loss of control over the chemoselectivity of the reaction.[9] Besides this, some strong reducing agent involving Li is basically used.[16] Efforts has been given by the researchers to develop suitable catalyst and reducing agents to obtain the aldehydes directly from its corresponding carboxylic acids.[17–20]

In recent year conversion of carboxylic acid to aldehydes *via* hydrosilylation reaction or by Fukuyama reduction[21] has at-



Scheme 1. Some of the representative example for synthesis of aldehydes.

[a] *B. Das, M. Sharma, Dr. K. K. Bania*
Department of Chemical Sciences
Tezpur University
Assam, 784028, India
E-mail: kusum@tezu.ernet.in
bania.kusum8@gmail.com
[b] *Dr. L. Satyanarayana*
Center for NMR and Structural Chemistry
Indian Institute of Chemical Technology
Uppal Road, Tarnaka, Hyderabad, Telangana 500007, India
[c] *Dr. G. V. Karunakar*
Division of Crop Protection Chemicals
Indian Institute of Chemical Technology
Uppal Road, Tarnaka, Hyderabad, Telangana 500007, India

Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/slct.201600933

© 2016 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

ChemPubSoc Europe
DOI: 10.1002/slct.201601271
Chemistry SELECT Full Papers

■ Materials Science inc. Nanomaterials & Polymers

Non-Hydrothermal Synthesis of Cu(I)-Microleaves from Cu (II)-Nanorods

Tukhar Jyoti Konch,[a] Mukesh Sharma,[a] Lanka Satyanarayana,[b] Anil Hazarika,[c] Galla V. Karunakar,[d] and Kusum. K. Bania*[a]

Simultaneous transformation of structural morphology, material dimension and oxidation state of Cu (II)-nanorod was achieved with 3-(Triethoxysilyl)propylamine, (APTS) and 4-nitrobenzaldehyde (4-NB) under non-hydrothermal condition. Morphology of the modified Cu(I) material was found to resemble with the leaf of colocasea. Conversion of a Cu(II) based nono-material to a Cu(I)-based micro-material was confirmed from EPR, MAS- NMR and cyclic voltametric (CV) study. BET-surface area, Raman signal intensity and thermal stability of the Cu(I)-microleaf was greatly enhanced due to presence of Cu-O—Si linkage. Both the Cu(II) and Cu(I) material were found to be effective catalyst systems for nitro-aldol reaction as well as catalytic oxidation of methylene blue (MB) dye in presence of H_2O_2. High %yield (> 90%) of nitro-aldol product was obtained with both the catalyst. Catalytic reaction under microwave irradiation was found to bring substantial decrease in reaction time. Cu (II)-material was however not recyclable because of its soft nature. While the Cu(I)-microleaf was recycled upto four consecutive cycles. These materials were found to degrade methylene blue dye within 20 min in presence of H_2O_2 but in absence of light. Dark phase catalytic oxidation of MB was monitored both *via* UV-vis and cyclic voltametric study.

Introduction

Development of nano-based materials and nanotechnology has recently brought a new renaissance in designing of newer materials for various applications.[1] Starting from its applications in house utensils to the drug delivery, nanomaterials have captured a wide range of research area like energy conversion and storage, chemical manufacturing, biological applications, and environmental technology.[2–13] Catalysis by nanoparticles or nanomaterials is one of the important aspects where researchers from both industries and academics are paying much interest.[14,15] So far various transition metal like gold (Au),[16] platinum (Pt),[17] palladium (Pd),[18] silver (Ag)[19] etc have been well explored as nanocatalyst for transforming various organic reactions. In this context, Cu-containing nanomaterials or nanoparticles are gaining much interest in catalysis due to the high abundances of copper and low cost synthetic method. Cu-nanoparticles either in its oxide form CuO or as hydroxide, $Cu(OH)_2$ or as sulphides, CuS has recently been employed as catalyst in various type of catalytic reactions.[20]

Cu-nanomaterials or nanoparticles are mostly synthesized by hydrothermal or solvothermal methods using some suitable reducing and stabilizing agents.[20] In many cases Cu-salts with different counterions are taken as source of copper.[20] These methods however have some limitations i.e. control over the growth of nanoparticles. Temperature, pressure, molar ratios, nature of counterions and stabilizers plays vital role in architecting the surface morphology of Cu-nanomaterials.[21] So in recent years researchers are trying to synthesize Cu-based nanomaterials using some metal complex as precursors. Liu et al.[22] has synthesized CuS from Cu-thiourea complex, Yao et al.[23] has obtained CuS from Cu(I) complex of thioacetamide.

Researchers seemed to be more focused towards the hydrothermally synthesized Cu-nanomaterials in low oxidation state. But less emphasis has been given on synthesis of Cu(I) and Cu(II) material without following the conventional hydrothermal process. A very few reports are available for synthesis of Cu(II) complex in its nanodimension.[24,25] The objective of the present work is therefore to synthesize a Cu(II)- complex in nanoscale and its conversion to a Cu(I)-based material *via* a non-hydrothermal process. Such method will reduce the number of steps involved in hydrothermal process. It will also avoid the use of specific stabilizing agent and also the toxic reducing agents resulting in a development of one green method. Further, as one dimensional nanomaterials also finds high applications in optics, magnetism, and microsystems

[a] *T. J. Konch, M. Sharma, Dr. K. K. Bania*
Department of Chemical Sciences
Tezpur University
Assam, 784028, India
Tel: 09859929360
E-mail: kusum@tezu.ernet.in
bania.kusum8@gmail.com
[b] *Dr. L. Satyanarayana*
Center for NMR and Structural Chemistry
Indian Institute of Chemical Technology
Uppal Road, Tarnaka, Hyderabad, Telangana 500007, India
[c] *A. Hazarika*
Sophisticated Analytical Instrumentation Centre (SAIC)
Tezpur University
Assam, 784028, India
[d] *Dr. G. V. Karunakar*
Division of Crop Protection Chemicals
Indian Institute of Chemical Technology
Uppal Road, Tarnaka, Hyderabad, Telangana 500007, India

Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/slct.201601271

© 2016 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

ChemPubSoc Europe
DOI: 10.1002/slct.201601131
ChemistrySELECT Full Papers

Catalysis

Hetero–nanostructured Ni/α-Mn_2O_3 as Highly Active Catalyst for Aqueous Phase Reduction Reactions

Pangkita Deka, Pingal Sarmah, Ramesh C. Deka, and Pankaj Bharali*[a]

In this work, a simple strategy for the synthesis of hetero-nanostructured Ni/α-Mn_2O_3 via surfactant-aided co-reduction method is reported. The as synthesized Ni/α-Mn_2O_3 is applied as catalytic material for the aqueous phase reduction of 4-nitrophenol (4-NP) and organic dye pollutants, namely Rhodamine B (RhB), Methylene blue (MB), Rose Bengal (RB), Congo red (CR), and Methyl orange (MO) in the presence of a mild reducing agent, $NaBH_4$. This synthetic route provides homogeneous dispersion of Ni nanoparticles over α-Mn_2O_3 surface. The nanoparticles and support are characterized using XRD, SEM/EDX, TEM, AAS and BET surface area analyses. The Ni particles are spherical, crystalline and size ranges < 5 nm. Further, hetero-nanostructured Ni/α-Mn_2O_3 is established as a highly efficient recyclable catalyst for the reduction of 4-NP to 4-aminophenol (4-AP). The HPLC and FTIR analysis shows that 4-AP is the sole product of the reduction of 4-NP. The Ni/α-Mn_2O_3 also exhibits high activity towards reduction of cationic and anionic dye pollutants. Thus, the as synthesized hetero-nanostructured Ni/α-Mn_2O_3 can be considered as the future contender for the wastewater treatment.

Introduction

Metal nanoparticles are broadly investigated owing to their unique physiochemical properties compared to bulk one and their wide applications in the field of catalysis.[1–3] They are used as catalysts in the variety of organic and inorganic transformations.[1–3] Usually, metal nanoparticles are dispersed on solid oxide supports to prevent agglomeration,[3] site isolation,[6] good accessibility of substrate molecules, mechanical robustness[7] and so on. Moreover, supported nanoparticles exhibit high catalytic activity and selectivity compared to unsupported ones mainly due to synergistic interaction with the support.[8–10] Nickel nanoparticles, particularly supported nickel nanoparticles on solid oxide have been widely studied because of its low cost, high activity and selectivity.[11–14] For example, Ni-TiO_2-based catalyst shows high activity, selectivity and stability in comparison to Raney Ni catalyst for 4-NP hydrogenation.[13] Ni supported on SiO_2 hollow spheres exhibit excellent catalytic activity in 4-nitrophenol reduction.[14] Again, Graphene supported Ni nanoparticles was established as active and stable catalyst for electrooxidation of methanol.[17] Various solid oxides have significant redox properties and can be successfully employed as support.[15–20] Amongst all Mn_2O_3 is of considerable significance due to its distinct redox properties and extensive applications, although it is limited in literature.[21] Basically supported nickel nanoparticles are prepared by reducing nickel cations impregnated on supports with H_2 at a high temperature. While preparing catalysts with high nickel loading by this reduction method leads to the agglomeration and broad size distributions of nickel nanoparticles. As a result, a number of studies have been carried out to overcome these drawbacks during synthesis of supported Ni-catalysts. Impregnation is the major conventional method for preparation of oxide catalysts and oxide catalyst loaded with metal nanoparticles by preventing self assemblies of metal nanoparticles.[22] Moreover, solution-based method, solvothermal route that favour shape control has been proven as the most powerful strategies for the preparation of oxide supports.[23] As a result, current researchers have applied their strong effort to synthesize the metal nanoparticles loaded with solid oxide by the combining these two simple routes.

4-NP is a water contaminant and it is highly stable in biological systems. Thus, it may significantly contribute to the human health and aquatic environment.[24,25] Therefore, the reduction of 4-NP to value added or less harmful product has attracted great interest. Moreover, 4-AP is a potent intermediate for the preparation of some analgesic and antipyretic drugs like paracetamol, phenacetin and so on.[26] It is also used widely as a corrosion inhibitor, photographic developer, anti-corrosion lubricants, and hair-dyeing agents.[26–28] As a result, these days researchers have paid much attention on the reduction of 4-NP to 4-AP in presence of mild reducing agent.[30–33]

Moreover, dyes are generally used in textile industries and biological tagging.[29] However, they have adverse effects on our environment as they are very toxic in nature and also have mutagenic and/or carcinogenic potential and consider as the very dangerous pollutants.[32,34–36] Therefore, degradation/removal of such dyes is necessary before being discharged them to our aquatic environments.[32,37] Recently, reduction of dyes in presence of $NaBH_4$ is considered as an affordable, effective, environment friendly technology in removing such organic pollutants which is highly efficient and generates no secondary pollution to the environment while saving energy.

The synthesis of transitional metal oxide nanostructures with controlled morphology and texture has attracted a great deal of interest in the field of nanotechnology.[38–41] In particular, copper oxide (CuO), an important p-type transition metal oxide semiconductor with a narrow band gap (E_g = 1.2 eV) and an unconventional band structure has received much attention due to its various applications in different fields of solar energy cells,[42,43] electronics,[44,45] gas sensing,[46,47] bio-sensing,[48–50] heterogeneous organic catalysis,[51–53] lithium-ion electrode materials,[54,55] super conductors[56] and so on. Therefore, the synthesis of nanostructured CuO has attracted considerable attention in recent years. Several methods that are employed for the synthesis of CuO nanoparticles include precipitation, hydrothermal synthesis, sol–gel, microemulsion, chemical vapour deposition, pyrolysis, self-assembly derived methods, combustion synthesis and microwave assisted synthesis. Solution-based methods, especially hydro- and solvothermal routes and liquid-phase precipitation that favour shape control, have been developed as the most powerful strategies.

Herein, a porous CuO nanostructure was synthesized by a precursor mediated hydrothermal route without employing any

[a] P. Deka, P. Sarmah, Prof. R. C. Deka, Dr. P. Bharali
Department of Chemical Sciences
Tezpur University
Napaam 784 028, India
Tel.: +91 3712 275064
Fax: +91 3712267005
E-mail: pankajb@tezu.ernet.in
Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/slct.201600131

© 2016 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

NJC
PAPER
Cite this: New J. Chem., 2016, 40, 348
Received (in Montpellier, France) 17th September 2015, Accepted 27th October 2015
DOI: 10.1039/c5nj02515j
www.rsc.org/njc

Porous CuO nanostructure as a reusable catalyst for oxidative degradation of organic water pollutants†

Pangkita Deka, Ramesh C. Deka* and Pankaj Bharali*

A precursor mediated route is developed for the synthesis of a porous CuO nanostructure based on the hydrothermal method using copper chloride dihydrate and urea, followed by calcination at 400 °C for 4 h. The structural and morphological characteristics of the synthesized oxide are examined by X-ray diffraction, Fourier transform infrared spectroscopy, scanning electron microscopy, transmission electron microscopy, Raman spectroscopy, UV-visible spectroscopy and BET surface area analyses. The CuO nanostructure is utilized for the catalytic oxidative degradation of both cationic (methylene blue) and anionic (methyl orange) dye pollutants, respectively. It exhibits excellent catalytic performance with good reusability up to the fourth cycle of the degradation reaction. It also provides a new route for promising dye degradation in wastewater treatment.

1. Introduction

Industrial dye pollutants, which are a major class of organic compounds, lead to increasing environmental concerns.[1,2] Due to their acute toxicity and long persistence they are major hazard to the environment.[2,3] The dyes have complex aromatic molecular structures which make them stable and difficult to degrade. Nowadays, tremendous efforts have been rendered to the degradation of such dye molecules by various methods, such as biodegradation,[4] adsorption,[5–7] membrane process,[8] photocatalysis,[9–11] and in particular advanced oxidation processes (AOPs).[12–15]

As an efficient method, AOPs are based on the creation of reactive species such as hydroxyl radicals (•OH) that oxidize complex organic pollutants into low toxicity or nontoxic small molecules, even into CO_2 and H_2O quickly without any selectivity.[14–18] It usually include ozone oxidation, supercritical water oxidation, wet air oxidation, Fenton oxidation reaction (homogeneous and heterogeneous), and photoelectrocatalytic oxidation. Among them ozone oxidation is a powerful strategy, but ozone have limited solubility and short lifetime, therefore it leads to high energy consumption.[18] Nevertheless, the cost of the process of generating hydroxyl radicals photochemically is quite high. Moreover, supercritical water oxidation and wet air oxidation are restricted by high-pressure and temperature conditions in the catalytic oxidative degradation process. Homogeneous Fenton reaction is restricted by low utilization of H_2O_2, release of iron ions to the environment and difficulties in reutilization.[18] To overcome these disadvantages, attention has been paid to research on heterogeneous Fenton reaction, which is highly efficient and generates no secondary pollution to the environment while saving energy.

The synthesis of transitional metal oxide nanostructures with controlled morphology and texture has attracted a great deal of interest in the field of nanotechnology.[19–21] In particular, copper oxide (CuO), an important p-type transition metal oxide semiconductor with a narrow band gap (E_g = 1.2 eV) and an unconventional band structure has received much attention due to its various applications in different fields of solar energy cells,[22,23] electronics,[24,25] gas sensing,[26,27] bio-sensing,[28–30] heterogeneous organic catalysis,[31–33] lithium-ion electrode materials,[34,35] super conductors[36] and so on. Therefore, the synthesis of nanostructured CuO has attracted considerable attention in recent years. Several methods that are employed for the synthesis of CuO nanoparticles include precipitation, hydrothermal synthesis, sol–gel, microemulsion, chemical vapour deposition, pyrolysis, self-assembly derived methods, combustion synthesis and microwave assisted synthesis. Solution-based methods, especially hydro- and solvothermal routes and liquid-phase precipitation that favour shape control, have been developed as the most powerful strategies.

Herein, a porous CuO nanostructure was synthesized by a precursor mediated hydrothermal route without employing any

Department of Chemical Sciences, Tezpur University, Napaam – 784 028, India. E-mail: pankajb@tezu.ernet.in, rameshs@tezu.ernet.in; Fax: +91 3712 267005, +91 3712 267006; Tel: +91 3712 275064
† Electronic supplementary information (ESI) available: A UV-visible absorption spectra of reaction solutions under different reaction temperatures and in the presence of different amounts of catalysts; and a recyclability test over the CuO catalyst. See DOI: 10.1039/c5nj02515j

This journal is © The Royal Society of Chemistry and the Centre National de la Recherche Scientifique 2016

RSC Advances
PAPER
Cite this: RSC Adv., 2016, 6, 95292
Received 10th August 2016, Accepted 20th September 2016
DOI: 10.1039/c6ra20173c
www.rsc.org/advances

Influence of CuO morphology on the enhanced catalytic degradation of methylene blue and methyl orange†

Pangkita Deka,[a] Anil Hazarika,[b] Ramesh C. Deka[a] and Pankaj Bharali*[a]

In this work, CuO nanostructures of different morphologies were synthesized *via* a precursor mediated, two step hydrothermal method. The as obtained CuO nanostructures were systematically characterized by X-ray powder diffraction, Fourier transform infra-red spectroscopy, scanning electron microscopy, transmission electron microscopy, micro-Raman spectroscopy, Brunauer–Emmett–Teller (N_2 adsorption–desorption analysis and UV-visible spectroscopy. The results reveal that the CuO nanostructures are monoclinic, with definite morphologies, and they were employed for the catalytic degradation of cationic and anionic dyes in the presence of H_2O_2. The CuO nanostructures exhibit different efficiencies and rates towards the degradation of the dye molecules. Moreover, the effects of catalyst dosage and reaction temperature were also addressed in dye degradation reactions. The results imply that the increasing temperature led to higher reaction rates and efficacy. The kinetic data reveals that the process of degradation of the dyes was modeled by the pseudo-first-order kinetics involving adsorption and redox reactions. And the thermodynamic parameters, including activation energy (E_a), enthalpy ($\Delta H^{\neq}$), entropy ($\Delta S^{\neq}$) and free energy ($\Delta G^{\neq}$) of activation were calculated for the oxidation reaction. The generation of reactive ·OH from the homolytic cleavage of H_2O_2 was activated by the Cu^{2+} ions. The nanostructures also show good recyclability and high stability, up to the fifth cycle of the degradation reaction. Further, the degradation of dyes was confirmed by the FTIR analysis.

1. Introduction

Synthesis of nanostructured metal oxides with controlled morphology and texture have stimulated significant interest, due to their distinct physicochemical properties.[1–15] Numerous investigations have been carried out to study their diverse properties, such as optical, electrical, sensing and catalytic. They are particularly used as catalysts in the chemical and petrochemical industries in the control of environmental pollution, and also as sorbents to remove hazardous oxides of sulfur, nitrogen and also the carbon species generated by the combustion of fossil-derived fuels. Moreover, metal oxides find enormous applications in many diverse fields that include the sensing of various toxic gases, as anode materials for electrochemical cells, as piezoelectric devices, *etc.*[16–21]

Copper oxide (CuO), is a p-type semiconductor with an unconventional band structure, having a narrow band gap of E_g = 1.2 eV. It has potential applications in heterogeneous catalysis, sensing, superconductors, lithium ion electrode materials, and so on.[21–31] Nowadays, the synthesis of nanostructured CuO has also received significant attention, and various methods to synthesize CuO nanocrystals have been reported. Wang *et al.* reported the synthesis of twinned-hemisphere-like CuO nanostructures *via* a simple, hydrophilic, polymer-assisted hydrothermal route.[32] Yang *et al.* synthesized 3D flower- and 2D branching, sheet-like, nanostructured CuO, *via* a microwave-assisted hydrothermal method.[17] Lu *et al.* reported the synthesis of graphene-like CuO nanofilms, *via* a two step electrochemical route.[7] Gilbertson *et al.* reported the synthesis of CuO nanosheets *via* a simple surfactant-assisted coprecipitation route.[33] Joya *et al.* reported the synthesis of nanoscale leaf-shaped CuO, *via* the anodization of a chemically etched copper substrate.[34] Moreover, we have recently reported the synthesis of a CuO nanostructure, using urea as a base, *via* a template free hydrothermal method.[35]

*Department of Chemical Sciences, Tezpur University, Napaam 784 028, India. E-mail: pankajb@tezu.ernet.in; Fax: +91-3712-267006; +91-3712-267005; Tel: +91-3712-275064
*Sophisticated Analytical Instrumentation Centre (SAIC), Tezpur University, Napaam 784 028, India
† Electronic supplementary information (ESI) available: Characterization related to TG, EDS elemental maps, N_2 adsorption/desorption isotherm and pore size distribution of CuO; time dependent UV-visible absorption spectra of reaction solutions at various temperatures over CuO catalysed degradation of MB and MO; PL spectra of terephthalic acid solution in the presence of CuO nanostructures; FTIR spectra of parent dyes and degraded products. See DOI: 10.1039/c6ra20173c

This journal is © The Royal Society of Chemistry 2016

RSC Advances
COMMUNICATION
Cite this: RSC Adv., 2016, 6, 11758
Received 25th October 2015, Accepted 15th January 2016
DOI: 10.1039/c5ra22349k
www.rsc.org/advances

Starch assisted palladium(0) nanoparticles as *in situ* generated catalysts for room temperature Suzuki–Miyaura reactions in water†

Anindita Dewan,* Pankaj Bharali, Utpal Bora and Ashim Jyoti Thakur

A simple and efficient methodology for the *in situ* generation of Pd-nanoparticles in the presence of starch and NaOH at room temperature has been developed. It has been observed that starch played a dual role in controlling the reduction rate of metal ions and the aggregation process of metal atoms in solution. The *in situ* generated Pd-nanoparticles show excellent catalytic activity in the Suzuki–Miyaura cross coupling reaction of electronically diversified aryl-bromides and arylboronic acids in pure water at room temperature with low catalyst loading.

Introduction

Palladium-catalyzed Suzuki–Miyaura cross-coupling is one of the vital methodologies for the synthesis of biaryls using aryl halides with arylboronic acids, and is extensively used for the synthesis of important structural moieties such as polymers, agrochemicals, natural products and pharmaceutical intermediates.[1] The catalytic systems for these transformations are composed of either Pd(0) or Pd(II) derivatives associated with suitable phosphine or nitrogen based ligands.[2] Although the palladium complexes with these ligands often show excellent catalytic activity, the main drawbacks are the availability, stability, and cost of the palladium complexes and related ligands. Additionally, due to the air and moisture sensitivity of these ligands, many of the reactions are performed in an inert atmosphere using hazardous organic solvents. However, from the green chemistry point of view, the use of environmentally friendly solvents such as water,[3] ionic-liquids[4] or supercritical carbon dioxide[5] is a favorable alternative to organic solvents in organic synthesis. In this respect, the development of a catalyst in pure water seems particularly suitable for the Suzuki–Miyaura cross coupling reaction because of the water soluble nature of arylboronic acids.[6] Recent developments into expansion of the Suzuki–Miyaura reaction have been focused on the use of palladium nanoparticles (PdNPs) as the catalyst due to the unique properties arising at the nanoscale.[7] Although PdNPs often show excellent catalytic activity, however in majority of cases, synthesis of PdNPs requires high temperature, sonication and additional stabilizer, thereby making the process tedious and time consuming.[8] However, there are some reports of preparation of PdNPs under mild reaction condition. Consequently, there is growing interest to develop alternative green and eco-friendly routes for the synthesis of nanomaterials in single synthetic step with minimum chemical waste in environmentally friendly solvents. Recently, synthesis of PdNPs with controllable size and morphology have been reported *via* the reduction of palladium(II) salt using simple sugars and other biomass. Consequently, glucose[9] and silica–starch[10] derived PdNPs have been successfully applied in Suzuki reaction using isopropanol and DMF as solvent at high temperature using aq. iodides as coupling partner. Starch is one of the naturally occurring green biopolymers which is nontoxic, eatable and biodegradable. Now-a-days, the development of the green chemistry through organic reactions using environmentally benign solvents, biodegradable and non-toxic chemicals have become one of the most exciting researches. Keeping this in mind, we wish to explore starch-assisted *in situ* synthesis of PdNPs for C–C bond formation reaction with excellent yield in pure water at room temperature in a one pot tandem process. Emphasis has been given on *in situ* generation of PdNPs, detail characterization and application in Suzuki–Miyaura coupling reaction of aryl bromides and phenylboronic acid in pure water at room temperature without using conventional ligand.

Our first aim was to generate PdNPs under aerobic conditions in water at room temperature and for that purpose $Pd(OAc)_2$ (0.001 g; 0.005 mmol) and NaCl (0.01 g; 0.17 mmol) were stirred in water (2 mL) for 15 min which resulted a clear orange coloured solution. To this orange coloured solution, starch (0.01 g) and NaOH (0.08 g, 2 mmol) were added and instantly the solution became decolourised indicating the formation PdNPs. The generation of PdNPs has been monitored

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, India, 784028. E-mail: ani_dewan@yahoo.co.in; Fax: +91 3712 267005; +91 3712 267006; Tel: +91 3712 275067
† Electronic supplementary information (ESI) available: ^1H and ^{13}C NMR spectral data of products and experimental procedure. See DOI: 10.1039/c5ra22349k

This journal is © The Royal Society of Chemistry 2016

BEILSTEIN JOURNAL OF ORGANIC CHEMISTRY

cis-Diastereoselective synthesis of chroman-fused tetralins as B-ring-modified analogues of brazilin

Dimpee Gogoi[1,§], Runjun Devi[1,§], Pallab Pahari[2], Bipul Sarma[1] and Sajal Kumar Das[*1]

Letter

Open Access

Address:
[1]Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India and [2]Chemical Science and Technology Division, CSIR-North East Institute of Science & Technology, Jorhat 785006, Assam, India

Email:
Sajal Kumar Das[*] - sajalkdas@gmail.com

* Corresponding author
§ These two authors contributed equally to this work.

Beilstein J. Org. Chem. **2016,** *12,* 2816–2822.
doi:10.3762/bjoc.12.280

Received: 16 August 2016
Accepted: 28 November 2016
Published: 21 December 2016

Associate Editor: B. Stoltz

© 2016 Gogoi et al.; licensee Beilstein-Institut.
License and terms: see end of document.

Keywords:
brazilin; chroman; epoxy-arene cyclization; natural-product-like molecules; tetralin

Abstract

We have synthesized a series of *cis*-6a,7,8,12b-tetrahydro-6*H*-naphtho[2,1-*c*]chromen-6a-ols as B-ring-modified analogues of (±)-brazilin. A completely regio- and *cis*-diastereoselective intramolecular Friedel–Crafts epoxy–arene cyclization of 1-tetralone-derived glycidyl ethers catalyzed by Brønsted acids was used as the key step. Our worries concerning the formation of *cis*–*trans* product mixtures and their probable conversion to naphthopyran derivatives via dehydration of the tertiary hydroxy group were laid to rest. Additionally, the angular hydroxy group of one of the synthesized products has been reductively removed by a diastereoselective method which should be useful in future for preparing libraries of chroman-fused tetralins with *trans*-stereochemistry at the ring junction.

Tetrahedron 72 (2016) 4878–4888

Contents lists available at ScienceDirect

Tetrahedron

journal homepage: www.elsevier.com/locate/tet

Synthesis of diverse catechin congeners via diastereoselective intramolecular epoxy-arene cyclization

Runjun Devi, Dimpee Gogoi, Prerona Bora, Sajal Kumar Das *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, 784028, India

ARTICLE INFO

Article history:
Received 24 May 2016
Received in revised form 22 June 2016
Accepted 23 June 2016
Available online 25 June 2016

Keywords:
Natural product-like molecules
Epoxide ring-opening
trans-4-Arylchroman-3-ols
cis-4-Arylchroman-3-ols
chroman-fused 2,3-dihydrobenzofuran

ABSTRACT

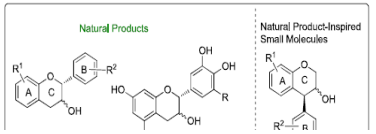
While there have been large amount of research activities on the chemistry and biology of catechins (flavan-3-ols/2-arylchroman-3-ols) and their derivatives, the systematic synthetic and bioevaluation studies of congeneric 4-arylchroman-3-ols remain a less explored area. Towards that objective, we have synthesized twenty eight 4-arylchroman-3-ols with different substitution patterns on both the aromatic rings in high stereo- and regioselectivity via intramolecular epoxy-arene cyclization of 2-(arylox-ymethyl)-3-aryloxiranes. The defined protocol is metal-free using 20 mol % of *p*-toluene sulfonic acid monohydrate ($TsOH.H_2O$) as Brønsted acid catalyst. Depending on the electronic nature of the attacking aromatic ring during the epoxide ring-opening, the products are formed in moderate to high yields. Additionally, this method has the advantage that it neither needs strict anhydrous conditions nor suffers from the use of expensive Lewis/Brønsted acids. We have also developed an efficient method to convert *trans*-4-arylchroman-3-ols to their corresponding *cis*-isomers and demonstrated its application by synthesizing a chroman-fused 2,3-dihydrobenzofuran derivative.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Diversity-oriented synthesis (DOS) of natural-product like small organic molecules represents a major area of interest for organic chemists.[1] The chroman core constitutes a privileged structural motif of a wide range of bioactive natural products and synthetic compounds of pharmaceutical interest.[2] Among several classes of chroman-based natural products, catechins (flavan-3-ols/2-arylchroman-3-ols) are a group of naturally-occurring flavonoids that share the 2-arylchroman-3-ol basic backbone bearing highly electron rich aryl rings (Fig. 1).[3] These compounds possess a broad spectrum biological activities—some of them potentially very much important, such as antioxidant, anticancer, antiarteriosclerotic, and antibacterial effects.[3] Not surprisingly, there have been significant activities toward the synthesis of these molecules

chemistry and biology of flavan-3-ols, the synthetic and bioevaluation studies of 4-arylchroman-3-ols has not yet been explored systematically. We believe that synthesis of all stereoisomers of this class of molecules would aid in their evaluation as bioactive scaffolds. An equally fascinating motivation for their synthesis lies in their probable application in the synthesis of chroman-based polycyclic molecules.



2017

ChemPubSoc Europe

DOI: 10.1002/slct.201601766

Chemistry SELECT Full Papers

Materials Science inc. Nanomaterials & Polymers

Development of Quasi-Solid-State Dye-Sensitized Solar Cells Based on a Poly (vinyl alcohol)/Poly (ethylene glycol)/Functionalized Multi-Walled Carbon Nanotubes Gel Electrolyte

Momina Khannam,[a] Bikash Chandra Nath,[b] Kiran Jyoti Mohan,[a] and Swapan Kumar Dolui*[a]

A series of quasi-solid state dye sensitized solar cells (DSSCs) were fabricated with different wt % of carboxy functionalized multi walled carbon nanotubes (c-MWCNTs) containing poly (vinyl alcohol)/poly (ethylene glycol) gel electrolyte. The structure and morphology of the polymeric gel electrolyte were characterized by Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), and energy dispersive X-ray analysis (EDX). The DSSCs were fabricated by sandwiching the poly (vinyl alcohol)/poly (ethylene glycol)/ c-MWCNT nanocomposite gel electrolyte in between the dye sensitized TiO_2 photoanode and platinum-based counter electrode. However, c-MWCNTs forms network with channels of PVA/PEG matrix in gel electrolyte which reduces the charge transfer resistance (R_{ct}) of DSSCs, thereby significantly improving the photovoltaic properties of the DSSCs. The maximum

Journal of Photochemistry and Photobiology A: Chemistry 348 (2017) 33–40

Contents lists available at ScienceDirect

Journal of Photochemistry and Photobiology A: Chemistry

journal homepage: www.elsevier.com/locate/jphotochem

Dimensionally integrated α-MnO_2/Carbon black binary complex as platinum free counter electrode for dye sensitized solar cell

Bikash Chandra Nath[b], Kiran Jyoti Mohan[a], Ratan Barua[b], Gazi Ameen Ahmed[b], Swapan Kumar Dolui[a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, India
[b] Department of Physics, Tezpur University, Napaam, India

ARTICLE INFO

Article history:
Received 14 November 2016
Received in revised form 14 June 2017
Accepted 26 June 2017
Available online 12 August 2017

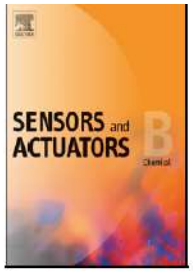
Keywords:
Efficiency
Platinum
Spectroscopy
Nanocomposites

ABSTRACT

α-MnO_2/carbon black nanocomposites were synthesized using hydrothermal method. The α-MnO_2/carbon black (CB) nanocomposites was fabricated as counter electrode (CE) for Platinum (Pt) free DSSC. Morphological study was carried out using scanning electron microscope (SEM) and transmission electron microscope (TEM). FTIR, Raman and XPS study substantiate well about the formation of nanocomposites. Brunauer-Emmett-Teller (BET) isotherm reveals the embedment of CB which enhances surface area of α-MnO_2/CB nanocomposites. α-MnO_2/CB nanocomposites CE shows very good electrochemical and electrocatalytic activity. Their respective study was carried out using electrochemical impedance spectroscopy and cyclic voltammetry. The better electrocatalytic activity and low charge transfer resistance (R_{ct}) of α-MnO_2/CB nanocomposites as CE, imparts an improvement of photo conversion efficiency. The conversion efficiency (η) of 4.29% was achieved using α-MnO_2-120/CB as DSSC CE which is closely comparable to Platinum as CE.

© 2017 Published by Elsevier B.V.

Accepted Manuscript



Title: A room temperature methanol vapor sensor based on highly conducting carboxylated multi-walled carbon nanotube/polyaniline nanotube composite

Authors: Anindita Bora, Kiranjyoti Mohan, Durlav Pegu, Chinmoyee Borpatra Gohain, Swapan Kumar Dolui

PII: S0925-4005(17)31231-5
DOI: http://dx.doi.org/doi:10.1016/j.snb.2017.07.023
Reference: SNB 22682

To appear in: *Sensors and Actuators B*

Received date: 12-1-2017
Revised date: 3-6-2017
Accepted date: 7-7-2017

Please cite this article as: Anindita Bora, Kiranjyoti Mohan, Durlav Pegu, Chinmoyee Borpatra Gohain, Swapan Kumar Dolui, A room temperature methanol vapor sensor based on highly conducting carboxylated multi-walled carbon nanotube/polyaniline nanotube composite, Sensors and Actuators B: Chemicalhttp://dx.doi.org/10.1016/j.snb.2017.07.023

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Polyhedron 121 (2017) 142–154

Contents lists available at ScienceDirect

Polyhedron

journal homepage: www.elsevier.com/locate/poly

Niobium(V) peroxo α-amino acid complexes: Synthesis, stability and kinetics of inhibition of acid phosphatase activity

Sandhya Rani Gogoi, Gangutri Saikia, Kabirun Ahmed, Rituparna Duarah, Nashreen S. Islam *

Dept. of Chemical Sciences, Tezpur University, India

ARTICLE INFO

Article history:
Received 10 May 2016
Accepted 28 September 2016
Available online 8 October 2016

Keywords:
Peroxoniobium complex
ACP inhibition
Catalase resistance
Heteroleptic peroxoniobate
Biogenic ligand

ABSTRACT

The present work was undertaken with an objective to investigate some biologically relevant attributes of peroxoniobium (pNb) derivatives, using a set of heteroleptic pNb compounds containing biogenic species as co-ligands. New peroxoniobium complexes corresponding to the general formula, $Na_2[Nb(O_2)_2L]$ (L = alanine or valine) were synthesized and comprehensively characterized by elemental analysis, IR, Raman, ^{13}C NMR, ^1H NMR, AAS and UV–Vis spectral studies, as well as thermogravimetric analysis. The structures of the compounds have been studied by density functional theory (DFT) method and their stability in solution at physiological pH has been ascertained. These compounds, along with our previously reported arginine and nicotinate complexes, $Na_2[Nb(O_2)_2(arg)]\cdot 2H_2O$ and $Na_2[Nb(O_2)_2(nic)(H_2O)]\cdot H_2O$, respectively were screened for their activities with two different types of enzymes *viz.*, catalase and acid phosphatase (ACP). Employing wheat thylakoid ACP as the model enzyme, it has been demonstrated for the first time that peroxoniobium derivatives serve as active inhibitors of phosphatase (IC_{50} values 2–9 1M). Enzyme kinetics data revealed that compounds exert mixed type of inhibition on ACP activity ($K_i > K_i'$). Each of the tested pNb species exhibited significant resistance to degradation under the effect of catalase *vis-a-vis* the native substrate of the enzyme, H_2O_2.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The contemporary interest on peroxo compounds of niobium mainly originates from their utility as ideal water soluble precursors to obtain Nb-based oxide materials for high technology applications [1–3], in addition to their use as efficient and versatile oxidation catalysts [1,4–6]. It is intriguing to note that although Nb belongs to the same periodic group as vanadium, very few studies dealing with exploration of biochemical potential of peroxo compounds of niobium [7,8] are available in contrast to peroxovanadates (pV). Compounds of vanadium including the peroxo- activity [7,24] and niobium substituted heteropolytungstates were found to be potent anti-HIV-1 agents while being minimally cytotoxic [25]. According to a recent report, vanadate and niobate are strong inhibitors of the sarcoplasmic reticulum (SR) Ca^{2+}-ATPase that can affect calcium homeostasis, cell signalling, and many other cellular processes [26].

The process of enzyme inhibition has already been identified as an important pathway for action of inorganic drugs in recent years [27]. For instance, insulin-like activity of vanadium compounds has been linked to the inhibitory effect of V-compounds on phosphatases [28]. In fact, phosphohydrolases have become a key target

Cellulose (2017) 24:4263–4274
DOI 10.1007/s10570-017-1399-2

ORIGINAL PAPER

Enhancement in physicochemical properties of citric acid/nano SiO_2 treated sustainable wood-starch nanocomposites

Prasanta Baishya · Tarun K. Maji

Received: 1 March 2017 / Accepted: 5 July 2017 / Published online: 19 July 2017
© Springer Science+Business Media B.V. 2017

Abstract Citric acid was used as the cross-linker to prepare the sustainable wood starch nanocomposites (WSNC) from the renewable resources like starch and soft wood flour using water as the solvent. Nano SiO_2 was employed to develop the physicochemical properties of the WSNC via a green path. In this process, starch was grafted with methylmethacrylate (MMA) and SiO_2 was modified with *N*-cetyl-*N*,*N*,*N*-trimethyl ammonium bromide. Three different percentage of modified nano SiO_2 (1–5 phr) were employed in the preparation of the composites and their properties were characterized by Fourier transform infrared spectroscopy. The morphological features of the composites were investigated through transmission electron microscopy and scanning electron microscopy study. Mechanical and dynamic mechanical properties like storage modulus, loss factors and tan δ value of the composites were thoroughly investigated. Thermal stability, water resistance and flammability of the composites were significantly improved after incorporation of modified SiO_2. The maximum improvements in properties were achieved containing 3 phr modified SiO_2 composites.

Keywords Starch · Citric acid · SiO_2 · Wood starch nanocomposites · Mechanical properties · Dynamic mechanical properties

Introduction

Wood polymer composite (WPC) has become a promising material in recent years because of its numerous advantages like easy processing, productivity, low density, high specific strength, easy availability and cost effectiveness (Liu et al. 2016; Ashori 2008; Saheb and Jog 1999; Hazarika and Maji 2014; Teuber et al. 2016). Being a green material, easy availability and low cost, the use of WPC has been increasing day by day (Liu et al. 2016). The applications of WPC cover a wide area which includes automotives, constructions, marines, consumer products, different electronic and aerospace industries etc. (Ashori 2008). But in the preparation of WPC, mostly synthetically derived polymers and non-eco-friendly chemicals/solvents are used which is a problem to the environment (Liu et al. 2016; Gungor 2007; Deka et al. 2011; AlMaadeed et al. 2014; Ou et al. 2014). Therefore, modification and preparation of wood composites using renewable and easily available resources have gained enormous research interest compared to synthetically derived materials (Fernandes et al. 2004; Abdul Khalil et al. 2012; Baishya and Maji 2016; Titirici et al. 2015; Zini and Scandola 2011; Pickering et al. 2016; Oksman et al. 2003).

P. Baishya · T. K. Maji (✉)
Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India
e-mail: tkm@tezu.ernet.in

ChemPubSoc Europe

DOI: 10.1002/slct.201700935

Chemistry SELECT Full Papers

Z Inorganic Chemistry

Peroxo Compounds of Vanadium(V) and Niobium(V) as Potent Inhibitors of Calcineurin Activity towards RII-Phosphopeptide

Gangutri Saikia*,[a] Sandhya Rani Gogoi*,[a] Jeena Jyoti Baruah,[a] Babul Moni Ram,[b] Pakiza Begum,[a] Kabirun Ahmed,[a] Mitu Sharma,[a] Gayatri Ramakrishna,[b] Tangirala Ramasarma,[c] and Nashreen S. Islam*[a]

Calcineurin (CN) is a major calmodulin binding serine/threonine inhibitors. The *in-vitro* effect of the complexes on calmodulin phosphatase which plays a crucial role in numerous mamma- mediated dephosphorylation activity of CN was investigated lian signal transduction pathways. Calcineurin inhibitors repre- using a physiological substrate of calcineurin, RII-phosphopep- sent a valuable tool for elucidating CN dependent cellular tide as well as a non-protein substrate *p*-nitrophenyl phosphate processes. The present work deals with the synthesis and (*p*-NPP). Enzyme kinetic analysis data revealed that the comprehensive characterization of a new polymer anchored compounds inhibit function of CN *via* uncompetitive pathway peroxo niobium complex, $[Nb_2(O_2)_4(carboxylate)_2]$-PA ($Nb_2$) with K_i values ranging between 1–3 mM, suggesting the [PA =poly(sodium acrylate)], and identification of a set compris- formation of an enzyme-inhibitor-substrate complex during the ing of neat homoleptic as well as polymer immobilized peroxo course of inhibition. complexes of vanadium(V) and niobium(V) as potent CN

Introduction

Calcineurin (CN), also known as protein phosphatase 2B, has been established as a key calmodulin dependent enzyme which plays a critical role in mammalian signal transduction pathways necessary for T-cell activation, nervous system developmentand function, cardiac growth and cell death mechanism.[1–4] CN is a serine/threonine phosphatase with the ability to dephos- phorylate a broad range of proteins.[1,4] With the fascinating discovery that CN is the target of the immunosuppressant drugs cyclosporin A (CsA) and FK506 (tacrolimus),[5] it has been firmly logic and autoimmune disorders.[6–8] Since these drugs often lead to severe adverse side effects,[8,9] there has been a continued search for more specific, safer and effective alter- native CN inhibitors. Calcineurin inhibitors are also receiving increasing importance as valuable tool for basic research,[3,4,5] asthese compounds would help to identify and characterizedifferent targets of CN, thereby contributing to the elucidationof CN dependent signalling processes.[4]

Several novel CN inhibitors have been developed in recent years although the underlying molecular mechanisms of most of these compounds are yet to be elucidated in detail.[6–8,10–17] Interestingly, a

Environ Monit Assess (2017) 189: 383
DOI 10.1007/s10661-017-6068-2

Bioremediation of arsenic from water with citric acid cross-linked water hyacinth (*E. crassipes*) root powder

Pankaj Gogoi · Pooja Adhikari · Tarun K. Maji

Received: 9 January 2017 / Accepted: 12 June 2017 / Published online: 7 July 2017
© Springer International Publishing AG 2017

Abstract A green and novel approach was demonstrated for successful remediation of arsenic from contaminated water by citric acid (CA) cross-linked water hyacinth root powder (RP). Different analytical techniques were used to investigate the binding and structural properties of prepared materials. Titanium dioxide played a significant role in the cross-linking process. Incorporation of CA into RP enhanced its integrity, and thus removal efficiency remained unaffected after several cyclic runs. Also the turbidity which formed due to treatment with uncross-linked RP was reduced to below the permissible limit. Effect of the amount of CA, material dose, treatment time, initial ion concentration, and pH were investigated. Use of 10% (*w*/*w*) CA was found to be sufficient to bring down the turbidity of the treated water below 2.5 nephelometric turbidity unit (NTU) without hampering the removal capacity/rate. A material dose of 5 g/L removed successfully total inorganic arsenic concentration to below 10 μg/L. The sorption process could be reasonably explained by Langmuir isotherm, and the maximum adsorption capacity was found to be 28 μg of arsenic/g. The material was found to be more efficient at acidic pH (pH_{ZPC} = 6.72). The sorption process was governed by a pseudo-second-order kinetic model.

Keywords Water hyacinth root · Turbidity · Cyclic run · Isotherm · Pseudo second order

Introduction

Phytoremediation of contaminated water by different aquatic plants is a very useful technique for waste treatment. It has much significance in the developing countries, as these plants are found abundantly in nature and can provide a simple, effective, and yet cheap method for removing heavy metals and other contaminants from water. Bioaccumulation of arsenic, phosphate, copper, cadmium, etc. by living *Hydrilla verticillata* has been well studied (Shaban et al. 2005; Srivastava et al. 2011; Wang et al. 2008; Xue et al. 2010; Bunluesin et al. 2007). *Lemna minor*, another aquatic plant, also can accumulate copper and cadmium from contaminated water (Hou et al. 2007). *L. minor* and algae ponds have been evaluated in post-treatment for textile wastewater which is a typical source of heavy metal pollution in aquatic ecosystems (Sekomo et al., 2012). Accumulation of Cd, Cu, Pb, Mn, etc. by different parts of *Phragmites australis* was analyzed by Luing et al. (2003) and Bonanno and Lo Giudice (2010). Another important aquatic plant used in this purpose is water hyacinth (*Eichhornia crassipes*). It is a fast growing, free-floating aquatic weed and contains mainly cellulose and lignin (Ibrahim et al. 2012). It has the capability of

Electronic supplementary material The online version of this article (doi:10.1007/s10661-017-6068-2) contains supplementary material, which is available to authorized users.

P. Gogoi · P. Adhikari · T. K. Maji (✉)
Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India
e-mail: tkm@tezu.ernet.in

Springer

ChemPubSoc Europe
DOI: 10.1002/slct.201601052
ChemistrySELECT Full Papers

Biological Chemistry & Chemical Biology

Design of Plasmodium falciparum PI(4)KIIIβ Inhibitor using Molecular Dynamics and Molecular Docking Methods

Sanchaita Rajkhowa,[a] Sapna Mayuri Borah,[b] Anupam Nath Jha,*[b] and Ramesh Chandra Deka*[a]

Malaria is one of the most devastating infectious diseases which have infected hundreds of millions of people worldwide. Although several anti-malarial drugs are in clinical use, there is an urgent need for new drugs, acting through novel mechanisms of action due to rapid development of resistance. A lipid kinase, phosphatidylinositol-4-OH kinase (PI(4)K) type IIIβ has been recently identified as the target of imidazopyrazines. However, due to the absence of a crystal structure of PfPI(4)KIIIβ, the process of in-silico drug development has not been possible. Here, we have modeled the *plasmodial* PI(4)KIIIβ using homology modeling approach. The model has been validated and further, stabilized using molecular dynamics (MD) simulations. A total of 178 compounds were retrieved from PubChem database. These compounds were screened on the basis of hERG liability and toxicity. Molecular docking calculations were performed using two softwares to study the interaction of the selected molecules with the model protein. Docking studies helped us to identify a few molecules with better binding modes. The dynamical movement of five selected molecules were studied and the protein-ligand interactions were analysed. Our results showed that out of the five molecules, three compounds are stable within the binding cavity of the protein and have the potential to inhibit the PfPI(4)KIIIβ. Our work provides a strategy for the design of specific inhibitors that could potentially target *plasmodial* PI(4)KIIIβ and would prove to be instrumental in eradicating malaria.

Introduction

Malaria remains one of the world's greatest public health concerns, especially in the tropical and sub-tropical areas. According to the latest WHO report, 198 million cases of malaria occurred globally in 2013 which led to 584,000 deaths.[1] An estimated 90% of malaria deaths occurred in the WHO African region with children aged under 5 years accounted for 78% of all deaths.[1]

Malaria is transmitted by the bite of the female *Anopheles* mosquito. There are five members of the *Plasmodium* genus that infects human, namely, *falciparum*, *vivax*, *malariae*, *ovale*, and *knowlesi*, of which *falciparum* being the most lethal. It may be cured in case the diagnosis is done in the initial phase and efficient medicines are used in treatment. However, due to occurrence of drug resistance, the use of many previously effective drugs such as chloroquine, sulfadoxine/pyrimethamine, artemisinin and other traditional antimalarials have been compromised.[2–4] Total elimination of malaria depends on targeting the integral and essential pathways involved in every life stage of *Plasmodium*.

Recently, a lipid kinase, phosphatidylinositol-4-OH kinase (PI 4KIII type III beta, has been established as a target of imidazopyrazines.[5] Inhibition of *Plasmodium falciparum* PI(4) KIIIβ prevents the membrane ingression that occurs during completion of the asexual erythrocytic stage of the *plasmodial* life cycle.[5] However, the crystal structure of *plasmodial* PI(4) KIIIβ is not available till date, which has made *in-silico* designing of their drugs challenging.

Imidazopyrazines[5–7] are a class of antimalarial compounds that inhibit the intracellular development of multiple *Plasmodium* species at each stage of infection in the vertebrate host.[5] Malaria-related studies based on the imidazopyridazine scaffold have been recently reported by Chibale and co-workers, where they have identified a sulfoxide-based imidazopyridazine analog arising from a prodrug-like strategy and which was completely curative in the *Plasmodium berghei* mouse model (as shown in Figure 1).[8,9]

Figure 1. Schematic diagram of A and B. From Ref.[8,9].

[a] S. Rajkhowa, Prof. R. C. Deka
Department of Chemical Sciences
Tezpur University
Napaam, Tezpur - 784028, Assam, India
E-mail: rameshd@tezu.ernet.in
[b] S. M. Borah, Dr. A. N. Jha
Department of Molecular Biology & Biotechnology
Tezpur University
Napaam, Tezpur - 784028, Assam, India
E-mail: anjha@tezu.ernet.in

Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/slct.201601052

© 2017 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Catal Lett (2017) 147:581–591
DOI 10.1007/s10562-016-1933-0

CrossMark

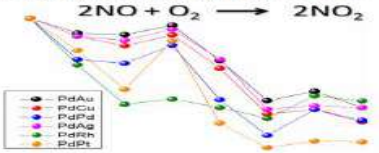
A Comparative DFT Study on the Catalytic Oxidation of Nitric Oxide by Pd_2 and PdM (M = Cu, Rh, Ag, Au, Pt)

Pukira Begum[1] · Ramesh Chandra Deka[1]

Received: 19 September 2016 / Accepted: 18 November 2016 / Published online: 23 December 2016
© Springer Science+Business Media New York 2016

Abstract A detailed mechanistic investigation for the catalytic oxidation of NO over monometallic palladium dimer and its bimetallic counterparts, PdM (M = Cu, Rh, Ag, Au, Pt) has been performed using DFT. Nitric oxide is a major environmental problem, inclusive of acid rain and photochemical smog formation which is released mainly in automobile exhausts. Thus, removal of poisonous NO is a major challenge and understanding its oxidation at molecular level is of great importance in designing suitable catalysts. Bimetallic nanoparticles are more promising as catalyst due to synergetic effect. A full catalytic cycle has been studied producing two NO_2 molecules from two molecules of NO and one O_2 molecule. Both the pristine and bimetallic systems catalyse the reaction according to Eley–Rideal mechanism. The bimetallic PdCu system is found to be the most dominant catalytic system with the most active Pd-site (i.e. O_2 activated by Pd-site). The present study enlightens the understanding for higher catalytic activity of bimetallic nanoparticle.

Graphical Abstract DFT studies for the catalytic oxidation of NO on pure and bimetallic palladium clusters: Pd_2, PdAu, PdAg, PdRh, PdCu, and PdPt. Removal of poisonous NO is a major challenge and understanding its oxidation at molecular level is of great importance in designing suitable catalysts. A full catalytic cycle has been studied producing two NO_2 molecules from two NO molecules in presence of air. Energetic calculation reveals that PdCu is the predominant catalytic system with more active Pd-site.



Electronic supplementary material The online version of this article (doi:10.1007/s10562-016-1933-0) contains supplementary material, which is available to authorized users.

Ramesh Chandra Deka
rameshd@tezu.ernet.in
[1] Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India

1 Introduction

Homonuclear and heteronuclear transition metal clusters constitute adfluent systems with distinctive and exclusive structural, electronic, optical, and magnetic properties. Owing to their unique large surfaces to volume ratio and quantum size effects, they have been investigated extensively [1–4]. In materials science, the range of properties of nanoclusters can be tailored not only by modifying the size but also by mixing elements together to generate intermetallic compounds and alloys [5–9]. Fundamental understanding of electronic and activity of transition metal atoms and subnanoclusters is of great interest due to their

MOLECULAR PHYSICS, 2017
VOL. 115, NO. 8, 962–970
http://dx.doi.org/10.1080/00268976.2017.1294714

Taylor & Francis

RESEARCH ARTICLE

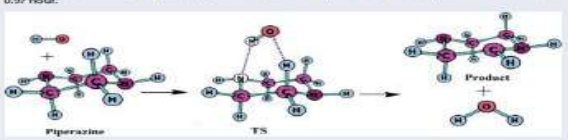
Hydrogen atom abstraction from Piperazine by hydroxyl radical: a theoretical investigation

Plaban Jyoti Sarma[a], Nand Kishor Gour[a], Debojyoti Bhattacharjee[a], Bhupesh Kumar Mishra[b] and Ramesh Chandra Deka[a]

[a]Department of Chemical Sciences, Tezpur University, Tezpur, India; [b]Department of Chemistry, D. N. Govt. College, Itanagar, India

ABSTRACT

Dual level of quantum mechanical calculations have been carried out for hydrogen abstraction from Piperazine ($HNCH_2CH_2)_2NH$) initiated by OH radical. Geometry optimisation and frequency calculations of all species involved in the titled reaction have been performed at M06-2X/6-311+G(d,p) level of theory. For the accuracy in the thermochemistry and kinetics data, single-point energy calculations have been further carried out at coupled cluster CCSD(T) method along with 6-311G(d,p) basis set. An energy profile diagram for the reaction has been plotted along with pre-reactive and post-reactive complexes at entrance and exit channels. Intrinsic reaction coordinates (IRCs) calculations have been performed for identification of real transition states that connect it via reactant to product. Our result shows that the H-atom abstraction takes place from the C–H position of Piperazine. The rate constant is calculated using canonical transition state theory (CTST) is found to be 2.86×10^{-10} cm^3 molecule^{-1} s^{-1} which is in good agreement with the reported experimental rate constant (2.38 ± 0.28) $\times 10^{-10}$ cm^3 molecule^{-1} s^{-1} at 298 K. We have also reported rate constant for the temperature range 300–500 K. Using group balance isodesmic reaction, the standard enthalpies of formation for Piperazine and product radicals generated by hydrogen abstraction are reported. The branching ratios for both reaction channel (i.e. H-abstraction from –CH_2 and –NH position of Piperazine) are found to be 93% and 7%, respectively. The calculated atmospheric life time of Piperazine is found to be 0.97 hour.



ARTICLE HISTORY
Received 15 November 2016
Accepted 6 February 2017

KEYWORDS
Piperazine; rate constant; branching ratios; M06-2X

1. Introduction

In recent years, aquated amide based compounds are considered as a good carbon trapping agents and it became the most promising technology in order to diminish the CO_2 emission from coal and gas-fired power plants [1,2]. One of them is Piperazine (1,4-diazacyclohexane, $HN(CH_2CH_2)_2NH$), having a six membered ring containing two amine groups which are easily available for the reaction with CO_2 [3–5]. For this reason, Piperazine has focus of intense attention for its use in post combustion carbon capture (CC) technology as a promoter for CO_2 absorption and an alternative solvent of monoethanolamine (ME) [5–9]. Nevertheless large scale use of amines for the capturing of carbon has an indirect effect on atmosphere. As a result of emission it leads to the formation of toxic nitrosamines and nitramine products

CONTACT Nand Kishor Gour ngour1@tezu.ernet.in; Ramesh Chandra Deka rameshd@tezu.ernet.in
Supplemental data for this article can be accessed at http://dx.doi.org/10.1080/00268976.2017.1294714.
© 2017 Informa UK Limited, trading as Taylor & Francis Group

Accepted Manuscript

Title: Adsorptive Removal of Congo Red from aqueous Solution by Sonochemically Synthesized NiAl Layered Double Hydroxide

Authors: Dipshikha Bharali, Ramesh C. Deka

PII:	S2213-3437(17)30148-3
DOI:	http://dx.doi.org/doi:10.1016/j.jece.2017.04.012
Reference:	JECE 1561

To appear in:

Received date:	8-2-2017
Revised date:	3-4-2017
Accepted date:	5-4-2017

Please cite this article as: Dipshikha Bharali, Ramesh C.Deka, Adsorptive Removal of Congo Red from aqueous Solution by Sonochemically Synthesized NiAl Layered Double Hydroxide, Journal of Environmental Chemical Engineeringhttp://dx.doi.org/10.1016/j.jece.2017.04.012

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Copyright © 2016 by American Scientific Publishers
All rights reserved.
Printed in the United States of America

Materials Focus
Vol. 5, pp. 1–7, 2016
(www.aspbs.com/mat)

Cytotoxic and Mutagenic Effects of *Thuja occidentalis* Mediated Silver Nanoparticles on Human Peripheral Blood Lymphocytes

Arindam Bandyopadhyay[1], Prajna Paramita Banerjee[1], Pallab Shaw[1], Maloy Kumar Mondal[2], Vijay Kumar Das[3], Pranesh Chowdhury[2], Niranjan Karak[3], Shelley Bhattacharya[1], and Ansuman Chattopadhyay[1,*]

[1]*Department of Zoology (Centre for Advanced Studies) Visva-Bharati, Santiniketan 731235, West Bengal, India*
[2]*Department of Chemistry, Visva-Bharati, Santiniketan 731235, West Bengal, India*
[3]*Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Center for Polymer Science and Technology, Tezpur University, Napaam 784028, Assam, India*

ABSTRACT

The production of silver at the nanoscale has revolutionized the world of nanotechnology with its versatile application, especially in the medical and health care sector, for their broad spectrum antimicrobial activity and surface plasmon resonance effects. The purpose of the present study was to determine the possible mutagenic effect of *Thuja occidentalis* leaf extract mediated silver nanoparticles. These nanoparticles, synthesized via two other processes, (i) chemical, using sodium borohydride and (ii) biological, using tyrosine as reducing agents have been utilized for comparison of their mutagenic potentials. All three silver nanoparticles were found to exhibit anticancer activity in breast cancer cell lines at a concentration of 12.5 μgml^{-1}. When cell survival was assessed using the MTT assay, it was revealed that at this concentration these nanoparticles were comparatively less cytotoxic to normal human peripheral blood lymphocytes. To evaluate their mutagenic potentials, further studies were carried out using sister chromatid exchange induction as the parameter. Cell cycle analysis was performed using a fluorescence-activated cell sorting and differential staining method. The sister chromatid exchange frequency was found to be maximum in human peripheral blood lymphocytes when treated with 12.5 μgml^{-1} *Thuja* induced silver nanoparticles, moderate in tyrosine mediated silver nanoparticles and least in sodium borohydride mediated silver nanoparticles. Along with sister chromatid exchange induction, maximum sub-Gap1 cell population and low mitotic and proliferation rate indices were also observed in these blood cells that confirmed that *Thuja* mediated silver nanoparticles possess both cytotoxic and mutagenic

ARTICLE

Contents lists available at ScienceDirect

Polymer Degradation and Stability

journal homepage: www.elsevier.com/locate/polydegstab

Renewable resource based thermostable tough hyperbranched epoxy thermosets as sustainable materials

Aditi Saikia, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

ARTICLE INFO

Article history:
Received 23 August 2016
Received in revised form
11 November 2016
Accepted 14 November 2016
Available online 15 November 2016

Keywords:
Bio-based hyperbranched epoxy
Castor oil
Sorbitol
Biodegradation
Eco-friendly

ABSTRACT

The present study is focused on developing an environmentally benign bio-based epoxy thermoset that can be used as a sustainable material for various engineering applications. So, renewable resources like sorbitol and castor oil are used to synthesize novel hyperbranched epoxy resins. Three hyperbranched epoxy resins of castor oil with varying ratios of sorbitol along with conventional reactants are reported here. The chemical structure of them is confirmed by FTIR and NMR studies. The epoxy thermosets cured by fatty acid derived poly (amido amine) showed excellent mechanical properties such as high impact resistance (upto 34.5 kJ/m); good tensile strength (upto 31 MPa); good elongation at break (upto 37%) and moderate scratch hardness (upto 5 kg); high thermal stability (upto 293 °C); high tensile adhesive strength (upto 2152 MPa); good chemical resistance in different chemical environments and acceptable biodegradability. Thus, the sorbitol modified castor oil based hyperbranched epoxy thermosets are found to be superior in toughness, biodegradability, elongation etc. compared to a linear epoxy resin without sorbitol as well as previously reported thermosets derived from bio-based materials like vegetable oil, starch and glycerol. Therefore, these thermosets possess great potential to be used as sustainable materials for various advanced applications.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Epoxies are one of the most widely used engineering thermosets because of their advantages like high stiffness, superior tensile hyperbranched epoxy resins but they are mostly synthesized from petroleum based feedstocks which are non-biodegradable and also causes detrimental effect to health and environment. The depleting petroleum resources and societal issues across the globe have

Breast Cancer - Targets and Therapy

Dovepress

ORIGINAL RESEARCH

Mentha arvensis (Linn.)-mediated green silver nanoparticles trigger caspase 9-dependent cell death in MCF7 and MDA-MB-231 cells

This article was published in the following Dove Press journal:
Breast Cancer - Targets and Therapy
18 April 2017
Number of times this article has been viewed

Prajna Paramita Banerjee[1]
Arindam Bandyopadhyay[1]
Singapura Nagesh Harsha[2]
Rudragoud S Policegoudra[3]
Shelley Bhattacharya[4]
Niranjan Karak[2]
Ansuman Chattopadhyay[1]

[1]Molecular Genetics Laboratory, Department of Zoology, Visva-Bharati, Santiniketan, West Bengal, [2]Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Center for Polymer Science and Technology, Tezpur University, Napaam, [3]Division of Pharmaceutical Technology, Defence Research Laboratory, Tezpur, Assam, [4]Environmental Toxicology Laboratory, Department of Zoology, Visva-Bharati, Santiniketan, West Bengal, India

Introduction: Leaf extract of *Mentha arvensis* or mint plant was used as reducing agent for the synthesis of green silver nanoparticles (GSNPs) as a cost-effective, eco-friendly process compared to that of chemical synthesis. The existence of nanoparticles was characterized by ultraviolet–visible spectrophotometry, dynamic light scattering, Fourier transform infrared spectroscopy, X-ray diffraction, energy-dispersive X-ray analysis, atomic-force microscopy and transmission electron microscopy analyses, which ascertained the formation of spherical GSNPs with a size range of 3–9 nm. Anticancer activities against breast cancer cell lines (MCF7 and MDA-MB-231) were studied and compared with those of chemically synthesized (sodium borohydride [$NaBH_4$]-mediated) silver nanoparticles (CSNPs).

Materials and methods: Cell survival of nanoparticle-treated and untreated cells was studied by 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide (MTT) assay. Cell-cycle analyses were carried out using fluorescence-activated cell sorting. Cell morphology was observed by fluorescence microscopy. Expression patterns of PARP1, P53, P21, Bcl2, Bax and cleaved caspase 9 as well as caspase 3 proteins in treated and untreated MCF7 and MDA-MB-231 cells were studied by Western blot method.

Results: MTT assay results showed that *Mentha arvensis*-mediated GSNPs exhibited significant cytotoxicity toward breast cancer cells (MCF7 and MDA-MB-231), which were at par with that of CSNPs. Cell cycle analyses of MCF7 cells revealed a significant increase in sub-G1 cell population, indicating cytotoxicity of GSNPs. On the other hand, human peripheral blood

reast Cancer: Targets and Therapy downloaded from https://www.dovepress.com/ by 14.139.215.242 on 19-Apr-2017
For personal use only.

Journal of Materials Chemistry A

ROYAL SOCIETY OF CHEMISTRY

REVIEW

Recent progress in carbon dot–metal based nanohybrids for photochemical and electrochemical applications

Cite this: J. Mater. Chem. A, 2017, 5, 1026

Bibekananda Dey and Niranjan Karak*

Carbon dot (CD) is the youngest member of the carbon based nanomaterials family but it has emerged as the brightest in recent times, as now it is one of the most intensive research topics in the domain of materials science. The popularity is due to its excellent aqueous dispersibility, functionality, biocompatibility and ease of preparation from different carbon based resources. All such favorable attributes help CDs to find applications in the fields of optoelectronic, energy conversion, bio-imaging, drug delivery, sensors, catalysis, etc. Most recently, CD–metal based nanohybrids have been extensively employed for several photochemical and electrochemical applications due to their unique and interesting up-conversion photoluminescence and photo-induced electron/charge transfer properties. Therefore, the recent progress of CD–metal based nanohybrids in such applications needs to be compiled in the form of a review for highlighting their benefits to researchers in this field. In the present review, hence, fabrication methods, structural characterizations, properties and applications of CD–metal based nanohybrids are highlighted in a concise but systematic way to cover the desired information. Different photochemical and electrochemical applications like photocatalysis, solar cell or photovoltaic, energy storage, and photochemical and electrochemical sensors of the CD–metal based nanohybrids are focused in this article. This review thus tries to provide a decent and updated coverage on the topic.

Received 28th November 2016
Accepted 12th December 2016

DOI: 10.1039/c6ta10220d

www.rsc.org/MaterialsA

Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, Tezpur University, Napaam – 784028, Assam, India. E-mail: karakniranjan@gmail.com

† Author's present address: Advanced Materials Institute for BIN Convergence Technology (BK21 Plus Global), Department of BIN Convergence Technology, Chonbuk National University, Jeonju, Jeonbuk, 54896, Republic of Korea.

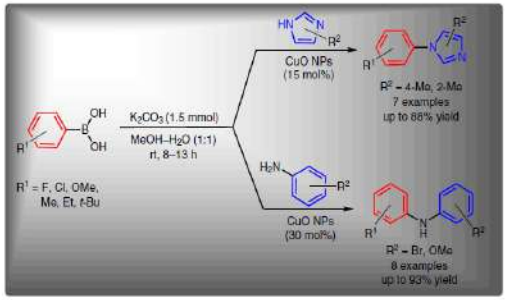
Bibekananda Dey received his

Niranjan Karak is a senior

Copper Oxide Nanoparticles as a Mild and Efficient Catalyst for N-Arylation of Imidazole and Aniline with Boronic Acids at Room Temperature

Raju Kumar Borah[a]
Prasanta Kumar Raul[b]
Abhijit Mahanta[a]
Andrey Shchukarev[c]
Jyri-Pekka Mikkola[c,d]
Ashim Jyoti Thakur[*a]

[a] Department of Chemical Sciences, Tezpur University, Napaam, 784028, Assam, India
ashim@tezu.ernet.in
[b] Defence Research Laboratory, Post Bag no. 2, Solmara, Tezpur 784001, Assam, India
[c] Department of Chemistry, Umeå University, 90187 Umeå, Sweden
[d] Industrial Chemistry & Reaction Engineering, Åbo Akademi University, 20500 Åbo-Turku, Finland



Received: 02.02.2017
Accepted after revision: 14.02.2017
Published online: 09.03.2017
DOI: 10.1055/s-0036-1588741; Art ID: st-2017-d1756-l

Abstract The present work describes the excellent catalytic activity of copper(II) oxide nanoparticles (NPs) towards N-arylation of aniline and imidazole at room temperature. The copper(II)oxide NPs were synthesized by a thermal refluxing technique and characterized by FT-IR spec-

having free N–H groups[5] and the use of expensive palladium sources and ligands.

Considering the above facts, in 1998 Chan, Evan, and Lam[6] developed a mild and efficient protocol for copper-mediated oxidative amination, where arylboronic acids were used as arylating agents instead of aryl halides. Arylboronic acids are organometallic moieties possessing wide

Accepted Manuscript

Effectiveness of plant growth regulators on emission reduction of greenhouse gas (Nitrous oxide): An approach for cleaner environment

Nirmali Bordoloi, Kushal Kumar Baruah, Ashim Jyoti Thakur

PII: S0959-6526(17)32288-6
DOI: 10.1016/j.jclepro.2017.09.284
Reference: JCLP 10789
To appear in: *Journal of Cleaner Production*
Received Date: 06 April 2017
Revised Date: 05 September 2017
Accepted Date: 30 September 2017

Please cite this article as: Nirmali Bordoloi, Kushal Kumar Baruah, Ashim Jyoti Thakur, Effectiveness of plant growth regulators on emission reduction of greenhouse gas (Nitrous oxide): An approach for cleaner environment, *Journal of Cleaner Production* (2017), doi: 10.1016/j.jclepro.2017.09.284

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ChemPubSoc Europe
DOI: 10.1002/slct.201701384
ChemistrySELECT Full Papers

Sustainable Chemistry

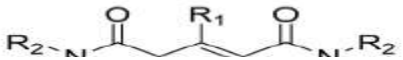
Microwave-Assisted Rapid Synthesis of Pyrido[2,3-*d*:6,5-*d*]dipyrimidine-2,4,6,8-tetraones over Sulfonic Acid Functionalized Imidazolium Salts under Solvent-Free Condition

Lakhinath Saikia,*[a, c] Nima. D. Namsa,[b] and A. J. Thakur*[c]

Seven numbers of sulfonic acid functionalized imidazolium salts (ionic liquids) have been tested for the synthesis of pyrido[2,3-*d*:6,5-*d*]dipyrimidine-2,4,6,8-tetrone derivative with completely aromatic pyridine ring. [Dsim]Cl is found to be the best among them to carry out the synthesis via condensation of 6-amino-1,3-dimethylpyrimidine-2,4(1*H*,3*H*)-dione with aromatic aldehydes within minutes under microwave irradiation, paving the way for an excellent methodology towards the synthesis of a series of pyrido[2,3-d:6,5-d]dipyrimidine-2,4,6,8-tetrone. The catalyst can easily be recovered and reproduced, and the reproduced catalyst is found to be equally effective as the fresh one for the purpose. The methodology is quite simple, fast and general. In comparison to already described methodologies, it enjoys additional advantage of being carried out under solvent-free condition. The synthesized compounds are found to possess remarkable activity against *S. aureus* and *K. pneumonia* among the tested bacterial strains.

Introduction

Strategic synthetic manipulation towards fused heterocycles in



Polyhedron 123 (2017) 184–191

Contents lists available at ScienceDirect

Polyhedron

journal homepage: www.elsevier.com/locate/poly

Triphenylsulfophosphonium chlorometallates as efficient heterogeneous catalysts for the three-component synthesis of 2,3-dihydro-1,2,3-trisubstituted-1*H*-naphth[1,2-e][1,3]oxazines

Arup Kumar Dutta, Pinky Gogoi, Ruli Borah *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Article history:
Received 14 October 2016
Accepted 13 November 2016
Available online 5 December 2016

Keywords:
Heterogeneous catalysis
Ionic salts
Triphenylsulfophosphonium salts
Trisubstituted naphthoxazines
Greener medium

ABSTRACT

Four new $-SO_3H$ functionalized triphenylsulfophosphonium chlorometallate ionic salts $[TPSP]_4[X]$, where $n = 1$ or 2 and X = $FeCl_4^-$, $Zn_2Cl_6^{2-}$, $NiCl_4^{2-}$, $MnCl_4^{2-}$, were developed as stable solid acidic materials and characterized via NMR, FT-IR, Raman, TGA, powder XRD, UV–Vis, SEM-EDX, ICP and CHN elemental analyses. All these solids were evaluated as heterogeneous catalysts for the multicomponent synthesis of *anti*-2,3-dihydro-1,2,3-trisubstituted-1*H*-naphth[1,2-e][1,3]oxazines from a mixture of 2-naphthol, aryl aldehyde and a nucleophilic primary amine by stirring in 50% aqueous ethanol at room temperature and under neat conditions at 80 °C.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The utilization of a large number of nitrogen based ionic compounds, such as imidazolium, pyridinium and ammonium cations, as designer solvents and catalysts in organic synthesis reveals less attention on phosphonium salts because of their high melting tives has been observed on the basis of a wide range of pharmacological activities, including anti-tubercular, anticancer, anti-HIV and anti-hypertensive properties [12,13], and also in material science [14]. Initially, Ratnam et al. prepared a few derivatives in two-step reactions using a preformed Schiff base with 2-naphthol or 1-naphthol in acetic acid under mild conditions for several

Catal Lett (2017) 147:674–685
DOI 10.1007/s10562-016-1922-3

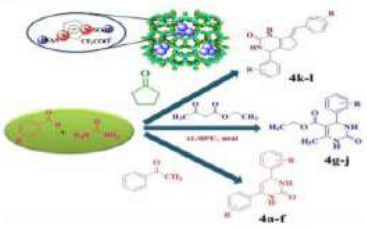
Studies on Structural Changes and Catalytic Activity of Y-zeolite Composites of 1,3-disulfoimidazolium trifluoroacetate Ionic Liquid (IL) for Three Component Synthesis of 3,4-dihydropyrimidinones

Pinky Gogoi[1] · Arup Kumar Dutta[1] · Ruli Borah[1]

Received: 30 September 2016 / Accepted: 13 November 2016 / Published online: 6 February 2017
© Springer Science+Business Media New York 2017

Abstract This report describes the development of six acidic composites of Y-zeolite with 1,3-disulfoimidazolium trifluoroacetate [Dsim][CF_3COO] ionic liquid (IL) and displays the gradual increase of acidic IL mediated dealumination within zeolite framework with increasing loading in Powder XRD and IR studies. The structural changes of modified framework of zeolite were analyzed by SEM-EDX, TEM, TGA, BET and UV–Vis techniques. Out of the six composites, the more acidic [Dsim][CF_3COO]/NaY = 20% (c) composite was evaluated as heterogeneous catalyst for multicomponent synthesis of 3,4-dihydropyrimidinones (DHPMs) under neat condition at various temperature.

Graphical Abstract



Keywords Modified Y-zeolite · Brønsted acidic IL · Dealumination · Heterogeneous catalyst · DHPMs

1 Introduction

The concept of "Supported Ionic Liquid Phase" (SILP) is pervasive and it focuses to transfer the desired properties of ionic liquid (IL) to support substances by confining

Contents lists available at ScienceDirect

Journal of Molecular Liquids

journal homepage: www.elsevier.com/locate/molliq

N,N-disulfo-1,1,3,3-tetramethylguanidinium carboxylate ionic liquids as reusable homogeneous catalysts for multicomponent synthesis of tetrahydrobenzo[*a*]xanthene and tetrahydrobenzo[*a*]acridine derivatives

Arup Kumar Dutta, Pinky Gogoi, Susmita Saikia, Ruli Borah *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam-784028, India

ARTICLE INFO

Article history:
Received 29 August 2016
Accepted 25 November 2016
Available online 1 December 2016

Keywords:
TMG
Disulfonic carboxylate ionic liquid
Tetrahydrobenzo[a]xanthenone
Tetrahydrobenzo[a]acridinone
Reusable catalyst

ABSTRACT

Three new $-SO_3H$ functionalized N,N-disulfo-tetramethylguanidinium carboxylate ionic liquids [DSTMG][CX_3COO], (where X = H, Cl, F) were prepared as viscous liquids from the reaction of [DSTMG][Cl] with equimolar amount of three carboxylic acids (AcOH, CCl_3COOH and CF_3COOH) for the first time at 60 °C in 1 h. Their structures were confirmed from IR, NMR and elemental analyses data. The Hammett acidity and TGA analysis were also investigated. The two ionic liquids [DSTMG][CF_3COO] and [DSTMG][CCl_3COO] were employed as reusable homogeneous catalysts for the one-pot synthesis of tetrahydrobenzo[*a*]xanthenones and tetrahydrobenzo[*a*]acridinones under solvent-free thermal method. The preparation of tetrahydrobenzo[*a*]acridinones was observed first time using 2-naphthol as reactant via four-component route in the presence of IL catalyst.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

A large number of Brønsted acidic ionic liquids (ILs) bearing $-SO_3H$ have been observed in recent times using either imidazolium or N-heterocycle as carbocation in combination with organic or inorganic anions. However no examples were found in literature for the synthesis of TMG-based sulfonic acid functionalized ionic liquids. Reddy et al. [1] and Kalla et al. reported the preparation of tetramethylguanidinium chlorosulfonate as colorless solid from the reaction of equal equivalent of TMG with chlorosulfonic acid in dichloromethane at 0 °C [2].

Benzoacridines and benzoxanthenes are two important classes of bioactive compounds bearing wide pharmacological profiles [7,8]. Tetrahydrobenzo[a]acridinones are examples of such type of multifunctional 1, 4-dihydropyridine derivatives [9,10]. The diversity-oriented strategies of DHPM unit have extended their studies to explore the complex structure-activity relationship at the molecular receptor level in presence of various substituents [11,12].

The acridinedione derivatives were also investigated for their potential as laser dyes, photochemical/physical properties, electrochemical properties, and interactions with DNA [13–16]. On the other hand,

Design and Exploration of $-SO_3H$ Group Functionalized Brønsted Acidic Ionic Liquids (BAILs) as Task-Specific Catalytic Systems for Organic Reactions: A Review of Literature

Parishmita Sarma[1] · Arup Kumar Dutta[1] · Ruli Borah[1]

© Springer Science+Business Media New York 2017

Abstract For several decades various chemical industries are involved in environment pollution by using hazardous chemicals or excessive use of solvents or catalysts to get maximum amount of desired product. In this case acidic ionic liquids may act as safer substitute of volatile organic solvents/or traditional Brønsted or Lewis acid catalysts with their unique dual task-specific solvent-catalyst properties. Recent surge in the literature review clearly describes the importance, properties and applications of acidic ionic liquids as solvent and efficient reusable catalyst in organic reactions. This review presents an account of some recent reports indicating the synthesis and uses of $-SO_3H$ functionalized ionic liquids(SFILs) as catalyst in organic synthesis.

Keywords SFILs · Reusable catalyst · Dual solvent-catalyst IL · Catalysis · Organic reactions

Abbreviations

BAILs	Brønsted acidic ionic liquids
XRD	X-ray diffraction
[MOIm][HSO_4]	1-Methyl-3-octylimidazolium hydrogen sulfate
TSILs	Task-specific ionic liquids
SFILs	Sulfonic acid functionalized ionic liquids
[TEBSA][HSO_4]	*N*-(4-Sulfonic acid) butyltriethyl-ammonium hydrogen sulfate
[DDPA][HSO_4]	3-(*N*,*N*-Dimethyldodecylammonium)propane sulfonic acid hydrogen sulfate
DABCO	1,4-Diazabicyclo[2.2.2]octane

1 Introduction

Catalysis is one of the fundamental key element of green sustainable chemistry for design of new chemical products and processes that reduce generation of waste material and eliminate the uses of hazardous substances

ORGANIC CHEMISTRY FRONTIERS

HIGHLIGHT

View Article Online
View Journal | View Issue

Check for updates

Cite this: Org. Chem. Front., 2017, 4, 1430

Chemoselective acyl C–O bond activation in esters for Suzuki–Miyaura coupling

Manoj Mondal,*[a] Tahshina Begum[a] and Utpal Bora*[b]

Received 24th January 2017, Accepted 16th March 2017

DOI: 10.1039/c7qo00069e

rsc.li/frontiers-organic

Exploitation of the low binding affinity of NHC–palladium complex for the carbonyl oxygen of ester to form three-centered transition state led to the discovery of Suzuki–Miyaura coupling via unprecedented C(acyl)–O bond cleavage. The use of bulky NHC ligand resulted in direct coupling as it prevented de-carbonylation of ester. This access to alternative chemoselectivity by careful selection has extended the synthetic portfolio of esters for the diversification of interesting molecular scaffolds.

For a long time, esters have attracted the interest of chemists because of their association with significant organic synthesis such as Claisen condensation, Knorr-pyrrole synthesis, Hantzsch dihydropyridine synthesis, Feist-Bénary furan synthesis, Bouveault-Blanc reduction *etc.* Recently, the direct use of esters in cross-coupling *via* nickel-mediated activation of aryl C–O bonds has been realized, favoring the formation of biaryl molecules.[1] However, activation of C(acyl)–O bond of esters to utilize it as an acyl intermediate in organic synthesis has not been widely adopted. Herein, recently discovered method for Suzuki–Miyaura coupling of esters *via* C(acyl)–O bond cleavage has been highlighted.

Acyl-transition metal complexes are ubiquitous intermediate materials in a variety of transition metal-based reactions.[2] Scheme 1 illustrates the common routes for generating acyl-metal species. Majority of these conversions consider weak C(acyl)–X bonds of carboxylic acid derivatives to generate acyl metal complex. However, the susceptibility of acid derivatives to undergo side reaction is pivotal as it limits their use in multi-step-involving lengthy protection and deprotection reactions.[3] In comparison to other carboxylic derivatives, ester compounds have attracted significant attention due to their chemical stability. They can be conveniently introduced as protecting groups under long and harsh multi-step reaction conditions. Thus, there is a need to develop a novel approach that

[a] Department of Chemistry, Dibrugarh University, Dibrugarh 786004, Assam, India. E-mail: manojmondal@gmail.com

[b] Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India. E-mail: utbora@yahoo.co.in

Manoj Mondal

Manoj Mondal received his B.Sc. degree in Chemistry from Dighal College (2007) and M.Sc. degree in Organic Chemistry from Dibrugarh University (2010). He received his Ph.D. from Dibrugarh University in 2016 for his work on environmentally benign cross-coupling reactions, under the guidance of Dr Utpal Bora. He was a DST-Research Fellow (2011–13) and a recipient of UGC-BSR-RFSMS Fellowship (2013–2015). Recently, he received the DST-SERB-National Post-Doctoral Fellowship (2017). His current research focuses on transition metal catalysis, especially those based on palladium and nickel.

Tahshina Begum

Tahshina Begum studied Chemistry at Sibsagar Girls' College (2008) and received her M.Sc. degree in Organic Chemistry from Dibrugarh University (2010). She is currently pursuing her Ph.D. under the guidance of Prof. Pradip K. Gogoi and Dr Utpal Bora at Dibrugarh University. She was a recipient of UGC-BSR-RFSMS Fellowship (2013–2016). In 2016, she was awarded the CSIR-Senior Research Fellowship. Her current research interest focuses on the development of cross-coupling chemistry and nanomaterials.

This journal is © the Partner Organisations 2017

Tetrahedron Letters 58 (2017) 2094–2097

Contents lists available at ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

An ambient temperature Sonogashira cross-coupling protocol using 4-aminobenzoic acid as promoter under copper and amine free conditions

Sameeran Kumar Das, Manashi Sarmah, Utpal Bora *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Article history:
Received 13 February 2017
Revised 30 March 2017
Accepted 2 April 2017
Available online 5 April 2017

Keywords:
Sonogashira cross-coupling
$Pd(OAc)_2$
Aminobenzoic acid
EtOH

ABSTRACT

A new methodology has been developed based on $Pd(OAc)_2$ and 4-aminobenzoic acid catalytic system for the Sonogashira cross-coupling reaction at ambient temperature under copper and amine free conditions. The newly developed catalytic system is conveniently applicable to the aryl iodides and terminal acetylenes. The catalytic system is much efficient because of the use of easily available and low cost additive.

© 2017 Elsevier Ltd. All rights reserved.

Introduction

Palladium catalysed Sonogashira cross-coupling reaction is a prominent route for forming C_{sp}^2-C_{sp} bond between aryl halides and terminal alkynes. The functionalized alkynes find numerous applications in the field of natural products, pharmaceuticals and material science.[1–6] The classical method of Sonogashira coupling involves the use of palladium catalyst along with a co-catalyst mainly copper salt which enhance the reaction efficiency in presence of amine base in suitable organic solvent.[7–9] But the addition of copper salt exhibits principal drawback by forming Hay/Glaser type homo-coupled by-products, thereby decreasing the efficiency of desired product formation.[10] Therefore, achieving a copper free condition for Sonogashira coupling is highly desirable. On account of this fact, significant efforts have been made to improve the reaction conditions replacing copper salt by other co-catalyst based on Zn[11], Ag[12,13], Sn[14], Ni[15,16], Al[8] etc. which have been utilized in this coupling reaction. In Sonogashira reaction, ligands play a vital role by stabilising the active palladium complex generated in the reaction pathway. Ligands based on phosphine and nitrogen find commendable success in this context. Phosphine based electron rich bulky phosphanes[17–19], water soluble phosphanes like TPPTS and TXPTS[20–23] etc. and nitrogen based *N*-heterocyclic carbenes[24–27], oxime palladacycles[28], amines[2], hydrazone[8,29], salen[30] etc. have been widely and successfully applied in Sonogashira coupling reaction. Nevertheless, in many of these processes, the main shortcomings are the availability, stability, and cost of the palladium complexes and the related ligands. So, the development of a reliable and cost-effective procedure with a better environment friendly and non-toxic catalytic system has become a prime challenge in recent time.[31]

The incessant process of finding different routes has made us interested in searching for a new methodology for the Sonogashira coupling reaction. We try to explore aminobenzoic acid as an additive for this coupling, which, being a low-cost chemical used in laboratory, has a great potential to work as ligand (Fig. 1).[36] It can exhibit greater probability to work as an effective ligand in palladium catalysed cross-coupling reactions. Some literatures have been found exploring aminobenzoic acids as ligand particularly in complexation with Rh forming Rh(I) complexes which find applications as effective catalysts for reductive carbonylation of nitroaromatics and in hydrogenation.[37–40] These Rh(I) complexes show good catalytic activity towards the carbonylation of methanol and ethanol.[41] Recently, we have utilized 4-aminobenzoic acid as additive in $Pd(OAc)_2$ catalysed room temperature Suzuki-Miyaura cross coupling reaction in aqueous media.[42] Keeping this in mind, we wish to pay our attention on the influence of aminobenzoic acid in Sonogashira cross-coupling reaction as an activator. In this article, we report a simple and efficient protocol for Sonogashira coupling reaction using 4-aminobenzoic acid (PABA) as an additive with $Pd(OAc)_2$ in presence of base.

* Corresponding author.
E-mail addresses: ubora@tezu.ernet.in, utbora@yahoo.co.in (U. Bora).

http://dx.doi.org/10.1016/j.tetlet.2017.04.005

0040-4039/© 2017 Elsevier Ltd. All rights reserved.

ChemPubSoc Europe

DOI: 10.1002/ejoc.201700639

EurJOC Communication

C–O Bond Coupling

Palladium-on-Carbon-Catalyzed Coupling of Nitroarenes with Phenol: Biaryl Ether Synthesis and Evidence of an Oxidative-Addition-Promoted Mechanism

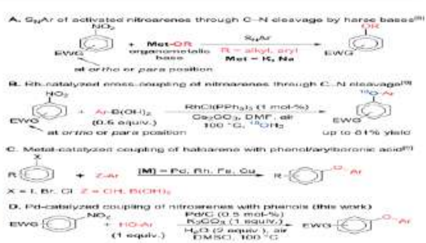
Tahshina Begum,[a] Manoj Mondal*[b] Manash Protim Borpuzari,[a] Rahul Kar,[a] Pradip K. Gogoi*[a] and Utpal Bora*[b]

Abstract: Nucleophilic substitution in nitroarenes to form biaryl ethers is of fundamental importance in organic synthesis. Under non-catalytic conditions, this can occur if highly activated nitroarenes are used or if the nucleophile is activated by a strong stoichiometric base. We established a new method involving the use of a ligand-free palladium-on-carbon (Pd/C) catalyst for the cross-coupling of activated nitroarenes with relatively non-nucleophilic phenol derivatives, including naphthol, in the absence of harsh bases. Control experiments, hot filtration, the three-phase test, and inductively coupled plasma atomic emission spectroscopy analysis revealed that the catalysis proceeded through an usual oxidative addition step of the nitroarene to Pd/C, which resulted in the release of active palladium particles having extremely high catalytic activity. DFT calculations revealed the origin of the selectivity of the activated nitroarenes.

Introduction

Palladium-catalyzed cross-coupling reactions have proven to be excellent methods for the selective activation of unreactive bonds such as C–C,[1] C–N,[2] C–O,[3] and C–H[4] bonds to provide unique organic transformations. In contrast, a strategy involving the activation of the C_{aryl}–N bonds of nitroarenes to form aryl intermediates has not been broadly developed. Activated nitroarenes typically undergo nucleophilic aromatic substitution (S_NAr) with alkoxides or aryloxides to give ethers (Scheme 1a).[5] However, existing S_NAr methods suffer from many drawbacks, including limited substrate scope, harsh reaction conditions, and the need to use strong nucleophiles.

Given the ubiquitous nature of ethers in bioactive molecules and the drawbacks associated with the conventional methods used for their synthesis, the exploration of alternative synthetic routes is highly desirable. Chen and co-workers recently reported the first mild cross-coupling approach with the use of a Rh^I–phosphine catalyst system with arylboronic acid substrates activated by DMF–Cs_2CO_3 (Scheme 1b).[6] Latterly, some Pd and Cu catalyst were also found to activate the C_{aryl}–N bonds of nitroarenes towards cross-coupling with arylboronic acids[7] and



Scheme 1. Synthesis of ether derivatives using nitroarenes. EWG = electron-withdrawing group.

phenols.[8] These strategies provide promising scope to study the controlled substitution patterns of nitroarenes and to develop alternatives to eliminate the use of conventional, toxic, and expensive aryl halides (Scheme 1c).[9] However, for a

[a] Department of Chemistry, Dibrugarh University, Dibrugarh 786004, Assam, India
E-mail: dr.pradip54@gmail.com
[b] Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India
E-mail: manojmondal@gmail.com
utbora@yahoo.co.in
www.tezu.ernet.in/dcs/

Supporting information and ORCID(s) from the author(s) for this article are available on the WWW under https://doi.org/10.1002/ejoc.201700639.

© 2017 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Dalton Transactions

PAPER

View Article Online
View Journal | View Issue

Cite this: Dalton Trans., 2017, 46, 539

An immobilized symmetrical bis-(NHC) palladium complex as a highly efficient and recyclable Suzuki–Miyaura catalyst in aerobic aqueous media†

Tahshina Begum,‡[a] Manoj Mondal,‡[a] Manash Protim Borpuzari,[a] Rahul Kar,[a] Golap Kalita,[b] Pradip K. Gogoi*[a] and Utpal Bora*[c]

Received 4th August 2016, Accepted 30th November 2016

DOI: 10.1039/c6dt03097a

www.rsc.org/dalton

A bis-N-heterocyclic carbene (NHC) functionalized with chloropropyltriethoxysilane over silica was used to synthesize a well-defined immobilized palladium complex. This complex is a suitable and easily retrievable catalyst for Suzuki–Miyaura cross-coupling reactions under mild aqueous conditions. Excellent yields and conversions were obtained with low palladium loadings (down to 0.03 mol% Pd). The catalyst can be reused up to six cycles without the loss of its activity. The catalytic role of the NHC complex of palladium during coupling between bromobenzene and phenylboronic acid was investigated theoretically. The oxidative addition step is predicted to be endothermic in agreement with the experimental conditions.

During the last three decades, tremendous progress has been made in the development of Suzuki–Miyaura coupling reactions of aryl halides (or pseudohalides)[1] with arylboronic acids, enabling $C(sp^2)$–$C(sp^2)$ bond-forming processes.[2] This methodology has been widely utilized in various applications ranging from academia to industry due to the ease of preparation of organoboron compounds, their relative stability towards heat, air and water, together with the relatively mild reaction conditions, and the generation of non-toxic by-products. An essential part of practising Suzuki–Miyaura coupling is the homogenous catalysis involving an electron-rich ligated or ligand-free palladium catalyst.[3] However, a major problem with these systems is inefficient separation and removal of the metal catalyst, which otherwise contaminates the final products, and poses a serious issue in large-scale synthesis.[4] The best way to overcome these issues is to use heterogeneous catalysts, which provide profound advantages of easy recovery of the catalyst from the reaction mixture by simple decantation, filtration and consecutive recycling of the catalyst.

Easy workup procedures and handling of catalysts is an important feature for industrial applications of catalysts. Notably, without any requirement for further purification, these leach-proof catalysts leave no trace of metal in the final product, and help in delivering highly pure pharmaceutical ingredients. Palladium can be immobilized on several solid supports such as activated carbon,[5] organic polymers,[6] zeolites,[7] sepiolite, hydroxyapatite, maghemite,[8] hydrogels,[9] *etc.* During the last few decades wide attention has been paid to the use of silica as the most common solid supports, due to its low cost, good accessibility, excellent stability, large surface/volume ratios, and excellent porosity.[10] While preparing a recyclable catalyst with silica, several strategies have been employed, one of which consisted of binding palladium onto ligands anchored onto the surface of the silica. Most of these ligands are nitrogen-based[11] or phosphine-derived,[12] which are mostly used as conventional ligands in homogeneous palladium catalysis. More recently N-heterocyclic carbenes (NHCs) were used as ligands in solution to catalyse the Suzuki–Miyaura cross-coupling reaction.[13] Since NHCs act as neutral, strong two electron σ-donor ligands with very little or no metal to ligand π-back-bonding ability, they effectively increase the electron density at the palladium center, facilitating the oxidative addition step,[14] and simultaneously preventing the decomposition of the active catalyst, resulting in a longer catalyst lifetime.[15] Thus, compared to conventional ligands, NHCs are considerably better alternatives and more suitable ligands. As part of our ongoing efforts to develop functionalized silica-based palladium catalysts,[16] we decided to study the silica anchored

[a] Department of Chemistry, Dibrugarh University, Dibrugarh 786004, Assam, India. E-mail: dr.pradip54@gmail.com
[b] Department of Frontier Materials, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan
[c] Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India. E-mail: utbora@yahoo.co.in, ubora@tezu.ernet.in

† Electronic supplementary information (ESI) available. See DOI: 10.1039/c6dt03097a
‡ These authors contributed equally.

This journal is © The Royal Society of Chemistry 2017

Journal of Colloid and Interface Science 490 (2017) 529–541

Contents lists available at ScienceDirect

Journal of Colloid and Interface Science

journal homepage: www.elsevier.com/locate/jcis

Regular Article

Metallogel templated synthesis and stabilization of silver-particles and its application in catalytic reduction of nitro-arene

Mukesh Sharma [a], Plaban Jyoti Sarma [a], Manash Jyoti Goswami [b], Kusum K. Bania [a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam 784028, India
[b] Department of Chemistry, Gauhati University, Gopinath Bordoloi Nagar, Jalukbari, Guwahati, Assam 781014, India

G R A P H I C A L   A B S T R A C T

Reduction of Ag^+ to silver nanoparticle (AgNP) occured in presence of a Fe-Metallogel.

A R T I C L E   I N F O

Article history:
Received 23 September 2016
Revised 16 November 2016
Accepted 19 November 2016
Available online 20 November 2016

Keywords:
trans-1,2-Cyclohexanedicarboxylic
DFT
Fe-metallogel
Reduction of 4-nitrophenol
Silver particles

A B S T R A C T

Metallogel of iron-carboxylates was obtained from *trans*-1,2-cyclohexanedicarboxylic acid in dimethylformamide (DMF) at basic condition. Spectroscopic and SEM morphology study of the iron-metallogel revealed that the iron complex with dicarboxylic acid was linked together *via* carboxylates and led to a supramolecular helical like architecture. The synthesized metallogel served as an excellent template for *in-situ* reduction of silver ion to silver particles micro to nano scale range. Variation of $AgNO_3$ concentration shepherd to change the morphology of the Ag-particles. $AgNO_3$ concentration was found to affect the shape and size of silver particles. On going from lower to higher concentration shape of silver particles changed from spherical to large agglomerated particles. Cubic shape Ag-particles were found on treatment of 0.05 M $AgNO_3$ solution with metallogel. Cubical shape silver particles were found to be effective catalyst for nitro-arene reduction in presence of $NaBH_4$. Density functional theory (DFT) calculations were performed to rationalize the role of Ag-particles in catalytic reduction of 4-nitrophenol to 4-aminophenol. Based on DFT study, we proposed that catalytic reduction occurred *via* Ag-hydride complex formation. Since metallogels as well as the 4-aminophenol are finding large application in pharmaceuticals industries therefore the current work can provide an alternatives path in production of 4-aminophenols. In addition to this, the synthesis of Ag-nanomaterials using metallogel as template

* Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

http://dx.doi.org/10.1016/j.jcis.2016.11.065
0021-9797/© 2016 Elsevier Inc. All rights reserved.

Contents lists available at ScienceDirect

Molecular Catalysis

MCAT

journal homepage: www.elsevier.com/locate/mcat

Editor's choice paper

C—Cl bond activation with Pd(II)-NiO nanoparticles supported on zeolite-Y: The role of charge transfer transition

Mukesh Sharma [a], Mitu Sharma [a], Anil Hazarika [b], Lanka Satyanarayana [c], Galla V. Karunakar [d], Kusum K. Bania [a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam, 784028, India
[b] Sophisticated Analytical Instrumentation Centre (SAIC) at Tezpur University, Assam, 784028, India
[c] Center for NMR and Structural Chemistry, Indian Institute of Chemical Technology, Uppal Road, Tarnaka, Hyderabad, Telangana, 500007, India
[d] Division of Crop Protection Chemicals, Indian Institute of Chemical Technology, Uppal Road, Tarnaka, Hyderabad, Telangana, 500007, India

A R T I C L E   I N F O

Article history:
Received 15 November 2016
Received in revised form 13 February 2017
Accepted 14 February 2017

Keywords:
C—Cl bond activation
Pd-NiO-Y
Cyclic voltammetry
True catalyst

A B S T R A C T

Well dispersed Pd-NiO nanoparticles (Pd-NiO NP's) formed over zeolite-NaY was found to be highly efficient catalyst for the Suzuki-Miyaura cross-coupling reaction of aryl chlorides and phenylboronic acid derivatives. Exceptional C—C coupling products up to 92% were obtained within short period of time with chlorobenzene and their derivatives under microwave irradiation. Cyclic voltammetry (CV) study predicted that the leached Pd-NiO species were the "*true catalyst*" in the C—Cl bond activation process. *Insitu* generation of active Pd(0) via a charge transfer transition from NiO → Pd(II) was confirmed from CV study and was believed to be the crucial step in C—Cl bond activation. Filtration and CV analysis suggested for quick re-deposition of Pd-NiO NP's on zeolite-NaY surface and confirmed for the non-consumption of $Ni(OH)_2$ species.

© 2017 Elsevier B.V. All rights reserved.

Introduction

Suzuki-Miyaura cross-coupling reactions of aryl bromides and aryl iodides with phenylboronic acids are well known in literature [1–14]. Different homogeneous [15–21] and heterogeneous palladium based catalyst [22–29] are reported to catalyze the C—C coupling reaction. Apart from palladium (Pd), other transitions metal like Au, [30] Cu/Ni, [31] and Fe-Ni [32] are found to give biaryl products. Still Pd metal is considered to be the best choice due to its high selectivity and product yield [4,33,34]. With aryl bromides and iodides, cross coupling products are obtained in excellent yield with Pd-catalyst [33,34]. But aryl chlorides are considered to be odd candidate for such coupling process. Most of the reported results are therefore mainly based on coupling of aryl bromides or iodides, but reports on activation of aryl chlorides are sparse [35,36]. C—Br and C—I bond activation using Pd-based catalysts are not cost effective. Therefore, development of suitable catalyst for C—Cl bond activation due to the low cost of chloro-derivatives is highly desirable. Homogeneous Pd-complexes with *N*-heterocyclic carbenes (NHC) and electron rich phosphanes are reported to be effective catalyst for C—Cl bond activation [37–39], but those homogeneous catalysts have some disadvantages with recyclability and formation of some contaminated products. Hence, focused has been made on supported Pd-catalyst because of their advantage over the homogeneous counterparts [35,40–45]. And in recent progress there has been a number of reports addressing the C—Cl bond activation with heterogeneous or supported Pd- based catalyst [4,35,40].

Although the effective C—Cl bond activation has been achieved with various Pd-based heterogeneous catalysts and problems associated with homogeneous catalyst has been counterpoised to some extent. But one of the most important and much debated aspect in Suzuki-Miyaura cross-coupling reaction using supported catalyst is on the nature of *true catalyst* [19]. Many literature report supports for the leached Pd-species as the active species in Suzuki-Miyaura cross-coupling reaction [18,24,25]. However, it leads to question mark on the actual heterogeneous nature of the catalyst. Filtration, Sheldon or mercury test or three phase test [19,46,47] are often employed to confirm about the heterogeneous nature of the catalyst. However, till now no any solid evidence has been provided in understanding actual nature of the active species. Therefore, in continuation to this endeavor, herein we report for Pd-NiO supported zeolite-NaY as a highly effective catalyst for C—C coupling reaction

* Corresponding author.
E-mail addresses: kusum@tezu.ernet.in, bania.kusum8@gmail.com (K.K. Bania).

http://dx.doi.org/10.1016/j.mcat.2017.02.023
2468-8231/© 2017 Elsevier B.V. All rights reserved.

Journal of Materials Chemistry A

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: J. Mater. Chem. A, 2017, 5, 16953

Fractal to monolayer growth of AgCl and Ag/AgCl nanoparticles on vanadium oxides (VO_x) for visible-light photocatalysis†

Mukesh Sharma,‡[a] Biraj Das,‡[a] Jugal Charan Sarmah,[b] Anil Hazarika,[c] Biplab K. Deka,[d] Young-Bin Park[d] and Kusum K. Bania *[a]

Received 17th April 2017
Accepted 20th July 2017

DOI: 10.1039/c7ta03321d

rsc.li/materials-a

A facile and simple methodology was adopted for the trapping of highly crystalline AgCl and Ag/AgCl nanoparticles (NPs) into the interlayer spacings of vanadium oxides (VO_x). Self-organization of AgCl and Ag/AgCl-NPs on VO_x was found to be governed by the nature of the dicarboxylic acids used during the synthesis of the nanocomposites. A "fractal-like" morphology of the AgCl@VO_x nanocomposite was achieved in the presence of *cis*-1,2 cyclohexanedicarboxylic acid. Heating of the AgCl@VO_x nanocomposite above 68 °C resulted in the growth of polydispersed and ultrafine (3–4 nm) Ag/AgCl-NPs and its self-organization into monolayer formation on a partly crystalline VO_x matrix. Change in the conformation of the dicarboxylic acid to the trans-isomer resulted in the formation of a 'rod-like' structure of Ag/AgCl-NPs on a highly crystalline VO_x matrix. The band gaps of the nanocomposites were within the range of 1.8 to 2.9 eV. Because of such a low band gap, the synthesized nanocomposites were found to be highly active toward the photooxidation of methylene (MB) and methyl orange (MO) under sunlight.

Introduction

Semiconductors and nanomaterials with a suitable band gap that can trap solar energy have emerged as a fascinating class of materials due to their multiple applications in solar cells, photovoltaics, optoelectronics and Li-batteries, for example.[1–6] Apart from their application in energy storage devices, such materials are also very useful as photocatalysts in water treatment and water splitting reactions.[7–10] Photocatalysts have the ability to absorb solar light of different wavelengths based on the band gap.[7] Semiconductors with a small band gap, such as CdS and $BiVO_4$, respond well to visible light and act as a photocatalyst;[11–13] although not all semiconducting materials with small energy barriers act in this way. For example, TiO_2, a well-known photocatalyst, does not use visible light during photocatalysis.[4] Furthermore, materials with a larger band gap can sometimes also act as a photocatalyst and promote reactions.[14] Nanoparticles with surface plasmon resonance (SPR) also appear to be potential candidates for visible-light photocatalysis,[15,16] although single plasmon nanoparticles show poor stability which limits their application.[17] Materials with the ability to absorb visible light are, however, considerably less common compared with those that can use UV-light. Therefore, a substantial amount of research has been devoted toward the development of materials to act as visible-light carriers.[7–11] Furthermore, reacting molecules do not usually absorb visible light directly to drive a reaction. Visible-light photocatalysts can thus act as a bridge to promote energy transfer between visible light and the reacting substrates.[18–20]

Removal of organic contaminants such as colored dye (*e.g.* methylene blue [MB] or methyl orange [MO]) from water using a visible-light photocatalyst has become a major area of research due to the increase in environmental pollution from industrial waste[21] and stringent regulations imposed by environmental laws.[22] Among the different processes adopted by researchers,[23] photocatalytic oxidation or degradation of such organic dye contents from water is considered to be the greener approach.[8–11] Hence, in recent progress a large number of catalysts have been designed for the photocatalytic decomposition of these organic pollutants.[7–11] Very recently, Zhang *et al.*[26] found ultradispersed amorphous silver silicates/ultrathin g-C_3N_4 nanosheet heterojunction composites (a-AgSiO/CNNS) to be effective photocatalysts for dye degradation.[26,27] Silver doped in vanadium oxides ($AgVO_x$) also shows good photo-redox

[a] Department of Chemical Sciences, Tezpur University, Assam, 784028, India. E-mail: kusum@tezu.ernet.in; bania.kusum8@gmail.com; Tel: +91 9859020360
[b] Department of Physics, Tezpur University, Assam, 784028, India
[c] Sophisticated Analytical Instrumentation Center (SAIC) at Tezpur University, Assam, 784028, India
[d] School of Mechanical, Aerospace and Nuclear Engineering, Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea, 44919

† Electronic supplementary information (ESI) available: Materials, physical measurements, TGA of compounds B, C and D, FTIR spectrum of compound D, cyclic voltammograms of compounds C and D, TEM of compound D and HRTEM images of the four compounds. See DOI: 10.1039/c7ta03321d

‡ Both the authors contributed equally.

Catalysis Science & Technology

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: Catal. Sci. Technol., 2017, 7, 3143

Constructing two dimensional amide porous polymer to promote selective oxidation reactions†

Rajiv Khatioda, Dhrubajyoti Talukdar, Basanta Saikia, Kusum K. Bania and Bipul Sarma *

Received 15th April 2017, Accepted 14th June 2017

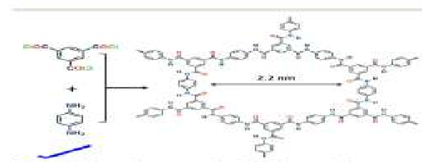
DOI: 10.1039/c7cy00747g

rsc.li/catalysis

The covalent organic polymer synthesis is an elegant way to design materials with various topologies and explore new structures and properties. Herein, we report the synthesis of a novel porous polymer framework with the [3 + 2] structure motif *via* the condensation of 1,3,5-benzenetricarbonyl trichloride and *p*-phenylenediamine. The resulting highly stable mesoporous 2D framework material exhibits continuous conjugation of π-electronic system. Apart from gas adsorption properties, this material shows remarkable catalytic activity manifested by the conjugated π-cloud and amide functionality in selective oxidation reactions. Utmost selectivity of the reaction that exclusively yields aldehydes from benzyl alcohols *via* a free radical pathway is proposed and demonstrated. This is one of the rare cases of any organic polymer material acting as an outstanding organic catalyst with no metal add-ons.

Introduction

Porous organic framework materials are crystalline polymers with periodic ordering of organic building blocks and/or linkers.[1–3] These materials exhibit wonderful applications in gas storage,[4–6] conductive materials,[7–9] energy storage and conversion[10–12] and have recently been applied to promote catalysis.[13] The design topology defines the framework's polygon size, shape, pore volumes and functionality in the crystal lattice.[14] Moreover, the extended π-cloud delocalization over the molecular sheets in covalent organic frameworks (COFs) triggers the porous structure in a nearly planar conformation. Furthermore, the interlayer planarization in COFs can exaggerate the physical properties of the material, such as it reduces band gap, improves photocatalytic activity, crystallinity, porosity *etc.*[8,14] The π-cloud delocalization can also render stability to the material. Thus the strategy progresses for desired applications. The COF supported a few organic reactions that have been studied very recently such as coupling reactions like Suzuki Miyaura,[15] Mizoroki–Heck[16] *etc.* that commonly require metal Pd as catalyst and a base (*i.e.* amine replaced by basic COFs).[17] Imine linked COFs were investigated in Knoevenagel condensation,[18] Michael addition reactions[19] and a few acidic–basic cascade reactions.[20,21] The nitrophenol reduction reaction was recently investigated by Banerjee *et al.* using Au (0) nanoparticles immobilized onto a COF.[22] Only one report is available that investigated the role of π-electronic cloud of a COF as catalytic support for Diels–Alder reactions.[23] The COFs comprising cobalt porphyrins have been identified lately as an efficient catalyst for CO_2 reduction in water.[24] In this context, the present mesoporous organic polymer synthesized from 1,3,5-benzenetricarbonyl trichloride and *p*-phenylenediamine following the [3 + 2] structure motif (hereafter COF-Am, Scheme 1 and ESI† Scheme S1) was a rare finding to address such issues. It has been utilized as heterogeneous catalyst with high stability and recyclability for selective oxidation of benzyl alcohols. The reaction has been elucidated by moderate to excellent yields depending on the nature of the substituents (Table 1). Classical methods of synthesis of aldehydes in laboratories and also in industries are



Scheme 1 Schematic representation of COF-Am synthesis.

Department of Chemical Sciences, Tezpur University, Napaam-784028, Tezpur, Assam, India. E-mail: sarmabipul@gmail.com

† Electronic supplementary information (ESI) available. See DOI: 10.1039/c7cy00747g

Journal of Colloid and Interface Science 486 (2017) 46–57

Contents lists available at ScienceDirect

Journal of Colloid and Interface Science

journal homepage: www.elsevier.com/locate/jcis

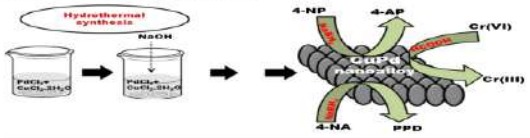
Regular Article

Enhanced catalytic activity of CuPd alloy nanoparticles towards reduction of nitroaromatics and hexavalent chromium

Himadri Saikia [a], Biraj Jyoti Borah [a], Yusuke Yamada [b], Pankaj Bharali [a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784 028, India
[b] Department of Applied Chemistry & Bioengineering, Graduate School of Engineering, Osaka City University, 3-3-138 Sugimoto, Sumiyoshi-ku, Osaka 558-8585, Japan

GRAPHICAL ABSTRACT



ARTICLE INFO

Article history:
Received 4 August 2016
Revised 9 September 2016
Accepted 24 September 2016
Available online 26 September 2016

Keywords:
Bimetallic nanoparticles
Nanocatalyst
Reduction reaction
4-Nitrophenol
4-Nitroaniline
Cr(VI)

ABSTRACT

The present work reports a surfactant-free, economically feasible chemical route to synthesize bimetallic CuPd alloy nanoparticles under hydrothermal condition. The structural and morphological characterizations of the nanoparticles are carried out by XRD, SEM/EDX, TEM, XPS and BET surface area analyses. The synthetic strategy comprises of 9:1 molar composition of Cu^{2+} and Pd^{2+} salt in the aqueous solution. The size of the nanoparticles is ca. 3–4 nm with very notable specific surface area of 298 $m^2 g^{-1}$. The synthesized nanoparticles exhibit excellent catalytic performance towards the aqueous phase reduction of 4-nitrophenol and 4-nitroaniline in the presence of $NaBH_4$ as a reducing agent. Furthermore the CuPd alloy nanoparticles also demonstrate remarkable activity towards reductive conversion of toxic Cr(VI) to less toxic Cr(III) at room temperature. Bimetallic CuPd alloy nanoparticles are catalytically more active and exhibit good recyclability in comparison to the monometallic Cu and Pd due to synergistic effect.
© 2016 Elsevier Inc. All rights reserved.

1. Introduction

Metallic nanoparticles have fascinated researchers over the last few decades due to their enormous potential applications in industrial, synthetic and chemical processes [1–6]. Catalysts are the integral part of many synthetic and industrial processes. Noble and transition metal nanoparticles such as Pd, Pt, Ru, Ag, Au and Ni, Co, Cu are widely employed as active catalysts in various chemical reactions [7–15]. The catalytic activity and selectivity of metallic nanoparticles strongly depend on the size and shape of the nanoparticles. Bimetallic nanoparticles demonstrate

* Corresponding author.
E-mail address: pankajb@tezu.ernet.in (P. Bharali).

http://dx.doi.org/10.1016/j.jcis.2016.09.056
0021-9797/© 2016 Elsevier Inc. All rights reserved.

ChemPubSoc Europe

DOI: 10.1002/slct.201702082

ChemistrySELECT Full Papers

Catalysis

Room Temperature Reduction of Nitroaromatics Using Pd Nanoparticles Stabilized on Nano-CeO_2

Himadri Saikia, Biraj Jyoti Borah, and Pankaj Bharali*[a]

Palladium nanoparticles stabilized on mesoporous cerium oxide nanoparticles catalyze the reduction of substituted nitroaromatics in presence of sodium borohydride as reductant. A modified two-step methodology was developed for the synthesis of Pd/CeO_2 nanoparticles. First the support CeO_2 was synthesized by conventional precipitation method using ammonium oxalate as precipitant and Pd/CeO_2 nanoparticles were prepared by hydrothermal treatment. The nanoparticles exhibit excellent catalytic activity and chemoselectivity for the reduction of nitroaromatics towards corresponding amine derivatives at room temperature. A kinetic study suggests that the reaction follow-first order rate equation. Thus, synthesized catalyst represents significant role for the reduction of nitroaromatic compounds to value added amino compounds.

Introduction

Recently, nano-sized metal particles have been widely investigated due to their potential application in the field of biotechnology, energy, electronic devices, and various synthetic and chemical processes and so on.[1–3] Noble metal nanoparticles (NPs) such as Pt, Pd, Au etc. have drawn much attention in heterogeneous catalysis because of their high catalytic activity for several chemical processes.[4–6] Among the Pt group metals, Pd is less expensive and most versatile metal that used as a catalyst in various chemical synthesis as well as reduction of harmful exhaust emissions.[7] However, metal NPs when stabilized or dispersed on a suitable oxide support can enhance the catalytic activity by increasingsurface to volume ratio and therefore selectivity of the reaction compared to those of the unsupported ones.[8–10] The stabilizer or support is necessary to prevent agglomeration and aggregation and hence to increases the activity of the catalyst. The choice of support plays a vital role in determining the activity of the NPs. With high abundance, rare earth oxide, ceria or cerium oxide (CeO_2) is extensively used as a support material due to its unique properties.[11–14] So far, CeO_2 have received considerable interest due to their high oxygen storage capacity (OSC) and the unique redox property of Ce^{4+}/Ce^{3+} couple.[15–16] The presence of oxygen vacancies or crystal defects in the Ce^{+4} population leads to the formation of Ce^{+3} state. cerium(III) oxide (Ce_2O_3) i.e. there exists a cycle between the cerous, cerium(III) and ceric, cerium(IV) oxidation states. Nanostructured CeO_2 has attracted much attention due to its wide application as a promoter in three way catalyst (TWC) for the elimination of toxic gases, low temperature water-gas shift reaction (WGS), oxygen sensors as well as various chemical and biological processes.[13–26] Over the last few decades, CeO_2 NPs have been successfully synthesized by various chemical methods which includes wet impregnation,[17] hydrothermal/solvothermal,[18] precipitation,[19] electrochemical method[20] and so forth.

Tremendous growth of industrialization and urbanization leads to the increase in hazardous pollutants in the environment. Aromatic nitro-compounds are one of the major pollutants that present in the industrial and agricultural wastewaters. Moreover, they are well recognized contaminants because of their mutagenic and carcinogenic effects towards human health.[21–22] Therefore, it is noteworthy to develop some environment friendly and economically feasible methodology for the conversion of these toxic materials into value added products.[23–24] Unlike nitro-compounds their amine derivatives are one of the most important classes of intermediate used in the synthesis of organic fine chemicals, biologically active compounds, rubber, pharmaceuticals and various agricultural chemicals.[25–27] Therefore, to develop highly efficient, less expensive nanocatalyst for the reduction of these nitroaromatics to their corresponding amine derivatives is significant. Various oxidation and reduction processes such as catalytic wet air oxidation (CWAO),[28] hydrogenation reactions,[29–30] photocatalytic degradation[31] have been reported for the conversion of these nitroaromatics. However, reduction reaction is one of most adaptable methodology to convert the nitroaromatic compounds into their amine derivatives selectively.[32–33]

The present study reports the synthesis of nano-CeO_2 stabilized Pd NPs by a modified hydrothermal method. For the synthesis of nano-CeO_2 many strategies have been pursued, however we used a simple precipitation method using ammonium oxalate as the precipitant. The synthesized NPs

[a] H. Saikia, B. J. Borah, Dr. P. Bharali
Department of Chemical Sciences
Tezpur University
Napaam 784 028, India
Tel.: + 91 3712 275964
Fax: + 91 3712 267005
E-mail: pankajb@tezu.ernet.in

Supporting Information for this article is available on the WWW under https://doi.org/10.1002/slct.201702082

© 2017 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

NJC

FOCUS

View Article Online
View Journal | View Issue

Check for updates

Cite this: *New J. Chem.*, 2017, 41, 13211

Received 10th July 2017,
Accepted 6th September 2017

DOI: 10.1039/c7nj02488f

rsc.li/njc

Nickel-catalyzed reductive defunctionalization of esters and amides to aromatic hydrocarbons

Manoj Mondal * and Pankaj Bharali *

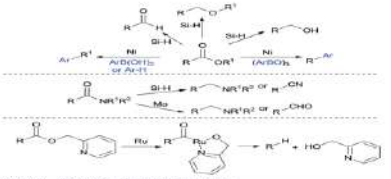
The removal of ester and amide groups is of fundamental significance in organic syntheses. Under non-catalytic conditions, hydride sources are chiefly used for their reduction. Recently developed Ni-catalyzed one-pot reductive activation of esters and amides followed by tandem C–CO bond cleavage–decarbonylation facilitates their cleavage to aromatic hydrocarbons. Isolation and characterization of key reaction intermediates provide insight into this acyl C–O bond activation pathway.

Esters and amides are widespread in organic molecules including natural products, pharmaceuticals, agrochemicals, and are useful synthetic building blocks.[1] Owing to their high chemical stability they are often preferred as protecting or directing groups during long and harsh multi-step reactions. They are useful candidates for the late-stage modification of compounds or reaction sequences in which carboxylic acid derivatives are initially used as directing groups for aromatic substitution reactions or C–H functionalization. However, their removal or deprotection is a challenging and fundamentally significant transformation in organic synthesis. Under non-catalytic conditions, hydrides, such as $NaBH_4$, $LiAlH_4$, Bu_2SnH or $(n\text{-}Bu_3Sn)_2$, are chiefly used for such transformations.[2] In contrast, the catalytic hydrosilylation of esters produces ethers, alcohols or aldehydes, whereas amines or nitriles are obtained from amides (Scheme 1).[3]

The ruthenium catalyzed reductive decarboxylation in esters to produce hydrocarbons was also reported.[4] This method is highly selective and is possibly directed by the presence of heteroatom groups which promote the site-selective cleavage of unreactive C–O bonds *via* the generation of acyl ruthenium complexes. This strategy was later used in the selective cross-couplings of activated pyridyl esters with aryl boronates or 9-alkyl-9-BBN for ketone synthesis.[5]

Despite the great importance of these methods, which mainly focused on functional group transformation, particularly on aromatic systems, a mild and selective approach for their direct removal is highly desired. Among various transition metals, palladium and nickel play a dominant role in C–X (functional group) bond activation led coupling processes. However, palladium catalysis is not readily applied to reactions involving phenol-derived electrophiles, largely due to their higher C–O bond strength relative to C–halogen bonds. On the other hand, due to the high nucleophilic character and small atomic radius of nickel compared to palladium, less reactive bonds such as C–O, C–H and C–C bonds often undergo oxidative addition to nickel.[6]

In late 1980, Yamamoto *et al.* demonstrated that nickel activates the C(acyl)–O bond of ester (RCOOAr) to form acyl-nickel–phenoxide complex, which undergoes β-elimination followed by reductive elimination *via* decarbonylation to yield phenols (ArOH).[7] On the basis of this discovery, various nickel catalyzed decarbonylative cross-coupling methodology between aryl carboxylates with organoborons[6,8] or 1,3-azoles[9] has been developed (Scheme 1).[10] Moreover, with a bulky(NHC)–palladium catalyst having low binding affinity for the carbonyl oxygen of the ester, stable acyl-metal species could be generated, which could readily undergo coupling with arylboronic acids or amines to provide ketone or amide derivatives, respectively (Scheme 2).[11] However, the development of simple metal-catalyzed methods for the removal of ester or amide groups has remained dormant for a variety of reasons that include expenses, lack of generality, or operational complexity.[12]



Scheme 1 Reduction of esters and amides.

Department of Chemical Sciences, Tezpur University, Tezpur-784028, Assam, India. E-mail: manojmondal@gmail.com

Journal of Structural Chemistry, Vol. 58, No. 1, pp. 126-134, 2017.
Original Russian Text © 2017 M. A. Kerzhentsev, E. V. Matus, I. Z. Ismagilov, V. A. Ushakov, O. A. Stonkus, T. V. Larina, G. S. Kozlova, P. Bharali, Z. R. Ismagilov

STRUCTURAL AND MORPHOLOGICAL PROPERTIES OF $Ce_{1-x}M_xO_y$ (M – Gd, La, Mg) SUPPORTS FOR THE CATALYSTS OF AUTOTHERMAL ETHANOL CONVERSION

M. A. Kerzhentsev[1], E. V. Matus[1]*, I. Z. Ismagilov[1], V. A. Ushakov[1], O. A. Stonkus[1,2], T. V. Larina[1], G. S. Kozlova[3], P. Bharali[4], and Z. R. Ismagilov[1,5]

UDC 544.478.02:544.478.01

A complex of physicochemical methods (powder XRD analysis, transmission and scanning electron microscopy, electron spectroscopy of diffuse reflectance, low-temperature nitrogen adsorption) is used for the comparative study of structural and morphological properties of oxide supports $Ce_{1-x}M_xO_y$ (M – Gd, La, Mg; $x = 0$–0.5; $1.5 \le y \le 2.0$) for catalysts for the autothermal reforming of bioethanol to a hydrogen-bearing gas. It is shown that $Ce_{1-x}M_xO_y$ samples synthesized by the method of ester polymer precursors are mesoporous materials being the homogenous substitutional solid solutions with the fluorite-type cubic structure. The structural and textural properties of the $Ce_{1-x}M_xO_y$ materials are regulated by varying the type of the dopant cation (M – Gd, La, Mg), the molar ratio M/Ce (0, 0.1, 0.25, 1), and heat treatment conditions (temperature 300–800 °C; duration 4–24 h). The relationship between the synthesis parameters and the characteristics of the $Ce_{1-x}M_xO_y$ materials is found.

DOI: 10.1134/S002247661701019X

Keywords: cerium dioxide, dopants, powder XRD analysis, electron microscopy, electron spectroscopy of diffuse reflectance, nanomaterials.

INTRODUCTION

Mixed cerium-containing oxides ($Ce_{1-x}M_xO_y$, where M is the dopant cation, M – Zr, Gd, La, Mg, etc.) find a wide use as catalyst supports providing a high dispersion of the applied active component particles and catalyst resistance to coke formation. The structural, morphological, and textural properties of cerium-containing oxides depend on the type of the dopant cation M, the molar ratio M/Ce, and synthesis method [1–6]. A purposeful change in $Ce_{1-x}M_xO_y$ characteristics makes it possible to regulate the dispersion and redox properties of the active metal and, consequently, to control the catalytic reaction parameters [6–8].

[1]Boreskov Institute of Catalysis, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia; *matus@catalysis.ru. [2]Novosibirsk National Research State University, Russia. [3]Shared Research Center, Federal Research Center of Coal and Coal Chemistry, Siberian Branch, Russian Academy of Sciences, Kemerovo, Russia. [4]Tezpur University, Napaam, Tezpur Assam, India. [5]Institute of Coal Chemistry and Material Science, Federal Research Center of Coal and Coal Chemistry, Siberian Branch, Russian Academy of Sciences, Kemerovo, Russia. Translated from *Zhurnal Strukturnoi Khimii*, Vol. 58, No. 1, pp. 133-141, January–February, 2017. Original article submitted March 29, 2016.

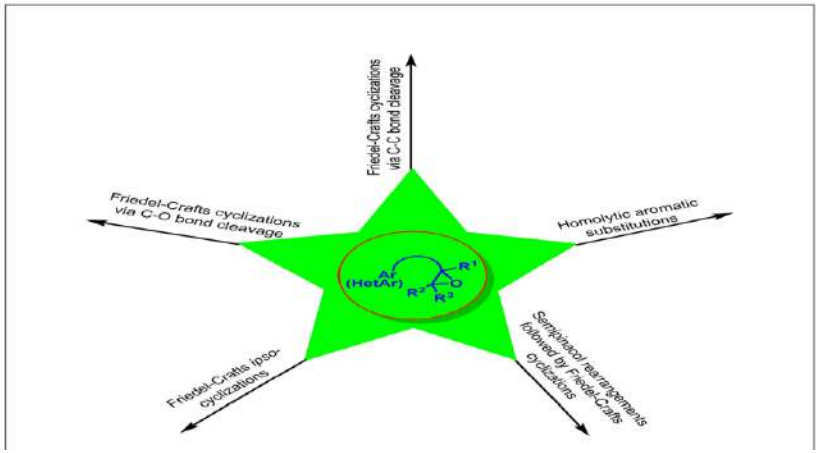
 0022-4766/17/5801-0126 © 2017 by Pleiades Publishing, Ltd.

ACES
DOI: 10.1002/ajoc.201600440
ASIAN JOURNAL OF ORGANIC CHEMISTRY
Focus Review

Synthetic Methods

Recent Advances in the Intramolecular Reactions of Epoxides with Arenes and Heteroarenes

Sajal Kumar Das*[a]



BEILSTEIN JOURNAL OF ORGANIC CHEMISTRY

Studies directed toward the exploitation of vicinal diols in the synthesis of (+)-nebivolol intermediates

Runjun Devi and Sajal Kumar Das*

Letter
Open Access

Address:
Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam-784028, India

Email:
Sajal Kumar Das* - sajalkdas@gmail.com

* Corresponding author

Keywords:
dihydroxylation; epoxide-ring opening; heterocycles; nebivolol; syn-epoxide

Beilstein J. Org. Chem. 2017, 13, 571–578.
doi:10.3762/bjoc.13.56

Received: 06 January 2017
Accepted: 27 February 2017
Published: 21 March 2017

Associate Editor: T. P. Yoon

© 2017 Devi and Das; licensee Beilstein-Institut.
License and terms: see end of document.

Abstract

While the exploitation of the Sharpless asymmetric dihydroxylation as the source of chirality in the synthesis of acyclic molecules and saturated heterocycles has been tremendous, its synthetic utility toward chiral benzo-annulated heterocycles is relatively limited. Thus, in the search for wider applications of Sharpless asymmetric dihydroxylation-derived diols for the synthesis of benzo-annulated heterocycles, we report herein our studies in the asymmetric synthesis of (*R*)-1-((*R*)-6-fluorochroman-2-yl)ethane-1,2-diol, (*R*)-1-((*S*)-6-fluorochroman-2-yl)ethane-1,2-diol and (*S*)-6-fluoro-2-((R)-oxiran-2-yl)chroman, which have been used as late-stage intermediates for the asymmetric synthesis of the antihypertensive drug (*S*,*R*,*R*,*R*)-nebivolol. Noteworthy is that a large number of racemic and asymmetric syntheses of nebivolol and their intermediates have been described in the literature, however,

ChemPubSoc Europe
DOI: 10.1002/ejoc.201701152
EurJOC European Journal of Organic Chemistry
Full Paper

Polycyclic Bridged Heterocycles

Synthesis of Tetrahydroquinoline-Embedded Bridged Benzothiaoxazepine-1,1-dioxides

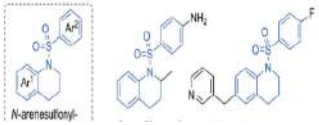
Hemi Borgohain,[a] Runjun Devi,[a] Divya Dheer,[b] Biraj Jyoti Borah,[a] Ravi Shankar,[b,c] and Sajal Kumar Das*[a]

Abstract: A diastereoselective synthesis of previously unknown tetrahydroquinoline-containing bridged benzothiaoxazepine-1,1-dioxides is presented. The three-step protocol uses readily available *N*-aryl-2-fluorobenzenesulfonamides and *trans*-2,3-epoxy cinnamyl alcohol derived tosylates as the starting materials, involves *N*-alkylation of sulfonamides, intramolecular epoxide ring-opening, and S_NAr reactions as the reaction steps, and requires only one chromatographic purification to access the desired products in good overall yields.

Introduction

To explore broad swathes of chemical space, the diversity-oriented synthesis of small organic molecules based on privileged scaffolds has been an important goal in modern drug discovery and chemical biology.[1] In this context, the development of efficient, scalable, rapid, and mild synthetic methods for the stereoselective construction of valuable heterocyclic scaffolds has attracted a great deal of interest over the years. The privileged tetrahydroquinoline scaffold is a substructure of a wide range of natural products and synthetic molecules that show a

tetrahydroquinolines and benzothiaoxazepine-1,1-dioxides have become important synthetic targets for organic and medicinal chemists.[7,8] However, the combination of these two privileged scaffolds in a single molecule, which may provide a source of new lead compounds,[9] remains unreported, and is therefore highly desirable.



2018

ACS Sustainable Chemistry & Engineering

Research Article

Cite This: ACS Sustainable Chem. Eng. 2018, 6, 10914−10922

pubs.acs.org/journal/ascecg

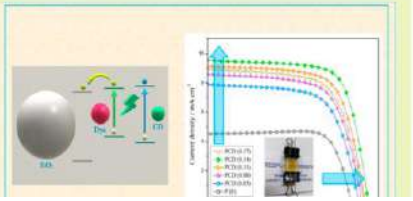
Efficient Way of Enhancing the Efficiency of a Quasi-Solid-State Dye-Sensitized Solar Cell by Harvesting the Unused Higher Energy Visible Light Using Carbon Dots

Kiranjyoti Mohan, Anindita Bora, and Swapan Kumar Dolui*

Department of Chemical Sciences, Tezpur University, Napaam, Sonitpur, Assam 784028, India

Supporting Information

ABSTRACT: Dye-sensitized solar cells (DSSCs) have recently emerged as a low cost option to the more expensive conventional photovoltaic devices based on silicon. However, low efficiency and durability are the recurring problems with DSSCs. In this report, poly(methyl methacrylate) (PMMA) incorporated with carbon dot (CD) is studied as a polymer gel electrolyte (PGE). A notable property of the CDs, prepared via a facile solid-state reaction, is that it emits green light, which coincides with the absorption range of the ruthenium



Journal of Polymer Research (2018) 25: 217
https://doi.org/10.1007/s10965-018-1603-6

ORIGINAL PAPER

Microencapsulated self-healing polymers via controlled, surface initiated atom transfer radical polymerization from the surface of graphene oxide

Junali Handique[1] · Swapan Kumar Dolui[1]

Received: 31 March 2018 / Accepted: 20 August 2018 / Published online: 15 September 2018
© Springer Nature B.V. 2018

Abstract
Polymers were grown directly on the surface of graphene oxide (GO). The method involved the covalent attachment of an atom transfer radical polymerization (ATRP) initiator on the surface of GO followed by the polymerization of methylmethacrylate, styrene or *n*-butyl acrylate using it as the macroinitiator. The surface initiated poly(methylmethacrylate) (PMMA-IGO) was embedded with microcapsules containing glycidyl methacrylate (GMA) to introduce self-healing property. The polymeric chains grown on the surface of the GO exhibited self-healing behaviour on rupture of the microcapsules. These polymer chains on the surface of GO preserved living characteristics and was able to resume copolymerization with released GMA on rupture of the microcapsules and get infiltrated into the cracks. As a result, the cracked planes were covalently re-bonded, offering almost 92% recovery of strength.

Keywords Surface initiated polymers · Atom transfer radical polymerization · Microencapsulation · Self-healing

Introduction

Spontaneous healing of injury is a key biomaterial feature and has lead the scientists and engineers to develop self-healing materials to improve the lifetime, safety, energy efficiency and environmental impact of man-made synthetic materials [1, 2]. Self-healing materials have the ability to regain their original strength after they are mechanically damaged, either internally or externally. Exhibiting such healing ability of the synthetic materials is a tedious job and it must contain some functionality, which will either react among themselves or couple with other functionality. Thus, smart selection of a controlled polymerization technique in combination with appropriate coupling reactions is highly recommendable. Encapsulation of monomers/crosslinker/catalyst into polymer matrix, supramolecular self-assembly, dynamic covalent bond formation etc. are the general adopted techniques for designing self-healing polymers [3–9]. Covalent bond formation, being the strongest chemical bonds, is undoubtedly the most efficient healing technique for long-term structural applications. A lot of methods are available for making self-healing polymers but only a few of them leads to formation of covalent bond between healing agent and the matrix [10, 11]. Microcapsule containing liquid healing agents for self-healing application is promising in terms of mass predictability and application popularity [12–14].

Surface initiated polymers (SIPs) have an advantage over other polymer architectures mainly due to their mechanical and chemical robustness, coupled with a high degree of synthetic flexibility towards the introduction of a variety of functional groups. Moreover they can be grown on a variety of functional surfaces and possesses the ability to resist hard operational conditions of solvent and temperature [15]. Although functionalization at the surface of graphene oxide may still be sterically limited, but still a large quantity of functional groups (either hydrophilic or hydrophobic) can be introduced through a surface initiated polymerization process, especially compared to monomolecular grafting-to approaches. Atom transfer radical polymerization (ATRP) is the most-utilized polymerization technique to synthesize self-healing SIPs as it provide excellent control over the molecular weight, polydispersity and composition of the polymers and are experimentally benign for further reactions [10, 16]. Furthermore, chain termination and chain transfer are absent in ATRP thus consisting of a living chain

✉ Swapan Kumar Dolui
swapankumardolui10@gmail.com

[1] Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

Springer

Development of Sunflower Oil-Based Nonisocyanate Polyurethane/Multiwalled Carbon Nanotube Composites With Improved Physico-Chemical and Microwave Absorption Properties

Simanta Doley,[1] Vivek Agarwal,[1] Anindita Bora,[1] Dipangkar Borah,[2] Swapan K. Dolui[1]
[1]Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, 784028, India

[2]Department of Physics, Tezpur University, Napaam, Tezpur, Assam, 784028

In this article, we have developed sunflower oil based non-isocyanate polyurethane (NIPU)/amine functionalized multiwalled carbon nanotube (AF-CNT) composites. First, carbonated sunflower oil (CSFO) was obtained by solvent-free mixture reaction of CO_2 with epoxidized sunflower oil under the conditions (120°C, 40 bar) for 10 h, and characterized by FTIR, ^{1}H NMR

utilization of CO_2 as a renewable material for preparation of valuable materials is highly advantageous [2–6]. One of the most important conversions of CO_2 is the synthesis of five-membered cyclocarbonates *via* its reaction with epoxy substrates [2, 3]. These cyclocarbonates have wide range of applications such as aprotic polar solvents, fuel

Received: 4 August 2018 | Revised: 9 October 2018 | Accepted: 31 October 2018
DOI: 10.1002/adv.22131

RESEARCH ARTICLE

WILEY

Chitosan/graphene oxide-based multifunctional pH-responsive hydrogel with significant mechanical strength, self-healing property, and shape memory effect

Jayashree Nath | Anupam Chowdhury | Swapan Kumar Dolui

Department of Chemical Sciences, Tezpur University, Napaam, Assam, India

Correspondence
Swapan Kumar Dolui, Department of Chemical Sciences, Tezpur University, Napaam, Assam, India.
Email: skdolui1970@gmail.com

Funding Information
University Grant Commission, India, Grant/Award Number: F./2017-18/NFO-2017-18-OBC-ASS-50336

Abstract
Synthesis of hydrogel with multifunctional properties still remains a challenge within the scientific community. Hydrogels having stimulus-responsive properties are a few of the desired properties for real-life applications. This work highlights the synthesis of multifunctional pH-sensitive hydrogels, based on chitosan (CS) and graphene oxide (GO), via physical cross-linking. The properties of hydrogels were optimized using various characterization techniques. Successful GO incorporation into the CS matrix was clearly confirmed by Fourier transform infrared analysis. Scanning electron microscope and TEM micrographs portray rough and porous surface morphology of the composite hydrogels. The prepared hydrogels have demonstrated enhanced mechanical properties due to the incorporation of GO. To investigate the pH-responsive behavior, the pH-dependent study for the hydrogels was carried out in acidic and basic media. Increasing the amount of GO content inside the gel imparted enhanced mechanical properties to the hydrogel. There was a sharp increase in tensile strength from 4.37 to 20.96 MPa accompanied by an increase in Young's modulus from 0.122 to 0.364 MPa. DMA confirmed better elastic behavior of the composite hydrogel. The hydrogel exhibited fast self-healing property when cleaved under ambient conditions. In addition, the hydrogel also exhibited a shape memory effect both in the alcoholic solution and in the solution of metal cation.

KEYWORDS
hydrogel, mechanical property, self-healing, shape memory effect

1 | INTRODUCTION

Polymeric hydrogels are cross-linked network structures organized in a three-dimensional order.[1–3] The nature of cross-linking such as physical or chemical cross-linking renders the changes in different hydrogel properties.[4–6] Compared to covalently cross-linked hydrogels, the hydrogels prepared by noncovalent linkages are weaker and fragile in nature.

A single layer of carbon atoms constitutes the structure of graphene oxide (GO) packed in a hexagonal arrangement. This is a two-dimensional (2D) nanomaterial having excellent electronic, optical, and mechanical properties. Therefore, it has been able to draw significant interest very recently among the research communities.[7] But strong van der Waals and π–π interactions induce the graphene sheets to agglomerate in aqueous solution. This has posed an enormous problem in the preparation of graphene-based materials for various applications, and thus, an urgent modification toward resolving the issue has been required.[8] To overcome this problem, GOs possessing multiple functional groups such as epoxides, hydroxyls, and carboxyls are prepared. GO along with all these functionalities can be easily exfoliated into monolayer sheets

© 2018 Wiley Periodicals, Inc.

ChemPubSoc Europe
DOI: 10.1002/slct.201803000
Chemistry SELECT Full Papers
Check for updates

Catalysis

Selective and Green Sulfoxidation in Water using a New Chitosan Supported Mo(VI) Complex as Heterogeneous Catalyst

Kabirun Ahmed, Gangutri Saikia, Pakiza Begum, Sandhya Rani Gogoi, Mitu Sharma, Hiya Talukdar, and Nashreen S. Islam*[a]

Immobilization of oxo-peroxo molybdenum(VI) species on chitosan peroxomolybdenum complex (**PMoCh**). In addition to natural biopolymer, chitosan led to the development of a new water, the catalyst is also highly compatible with a variety of heterogeneous catalyst which displayed excellent activity, safer organic solvents like methanol and acetonitrile. Apart stability and chemoselectivity for the oxidation of a wide from being high yielding and operationally simple, the variety of sulfides to the respective sulfoxides by H_2O_2 in water, developed catalytic protocol is environmentally clean and safe at ambient temperature. The catalyst has been comprehen- as it is absolutely free from halogenated organic solvent. Other sively characterized by elemental analysis, spectral studies significant green attributes of the methodology include its (FTIR, Raman, solid-state ^{13}C NMR and diffuse reflectance UV- ready scalability, high H_2O_2 efficiency and easy recyclability of Vis), PXRD, Brunauer-Emmett-Teller (BET), SEM, EDX and TGA- the catalyst for several catalytic cycles with consistent activity/ DTG analysis. The density functional theory (DFT) method has selectivity profile.
been employed to study the structure of the synthesized

Introduction

Immobilization of catalytically active transition metal complexes on insoluble polymer supports often leads to heterogenised catalysts that offer the advantages of ease of separation and recovery of the catalyst by enhancing the catalyst stability within the polymer.[1] Apart from improving the overall productivity and cost effectiveness of the process, the catalyst recycling minimizes the environmental impact of a chemical transformation, thereby contributing to the sustainability of the process.[1] In recent years, natural polymers such as cellulose, chitin and chitosan have been attracting considerable attention as promising green support materials for heterogenisation of metal catalysts.[1a,2] Chitosan, the deacety-

Moreover, owing to the high thermal stability, durability, facile functionalization of chitosan and its derivatives, this class of biopolymers are increasingly being recognized as highly efficient solid support ideal for catalytic application.[3] Due to the presence of active amino group along with the hydroxyl group in the polymer, it has the potential to bind with transition metals through chelation or ion exchange method facilitating chitosan metal complexes to be thermally stable and leaching resistant.[4] There has been plethora of reports demonstrating heterogenized chitosan metal complexes as catalysts in diverse organic transformations such as hydrogenation,[5] condensation,[4a,6] water splitting reaction,[7] coupling reaction,[8] polymerization,[9] hydroxylation,[10] Suzuki and

J. Indian Chem. Soc.,
Vol. 95, July 2018, pp. 801-812

Macromolecular metal complexes of Nb^{V} as recoverable catalysts for selective and eco-compatible oxidation of organic sulfides in water

Sandhya Rani Gogoi, Kabirun Ahmed, Gangutri Saikia and Nashreen S. Islam*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur-784 028, Assam, India *E-mail:* nsi@tezu.ernet.in, nashreen.islam@rediffmail.com

Manuscript received 01 July 2018, accepted 18 July 2018

The activity of a pair of peroxoniobium(V) species immobilized on water soluble non-crosslinked polymers (WSP) formulated as, $[Nb(O_2)_3(sulfonate)_2]$-PSS [PSS = poly(sodium styrene sulfonate)] (catalyst **1**) and $[Nb_2(O_2)_6(carboxylate)_2]$-PA [PA = poly(sodium acrylate)] (catalyst **2**) as efficient and recyclable catalysts for selective sulfoxidation of a variety of organic thioethers with 30% H_2O_2 in water is described. A new polymer anchored macrocomplex (catalyst **1**) has been synthesized from the reaction of sodium tetraperoxoniobate **(NaNb)** with 30% H_2O_2 and the macromolecular ligand poly(sodium styrene sulfonate) in an aqueous medium. The catalyst has been comprehensively characterized by spectral and other physicochemical techniques. Apart from being high-yielding and operationally simple, the additional important features which enhance the sustainability of the high yielding water-based oxidation protocol include chemoselectivity of the oxidation for sulfides and easy recyclability of the catalyst with consistent activity and selectivity for several cycles of oxidation.

Keywords: Aqueous phase reaction, peroxoniobium(V) catalyst, water soluble polymers, chemoselective sulfoxidation, non-polluting oxidation catalyst.

Introduction

As sustainability of a chemical transformation is mainlygoverned by the solvents, apart from the reagents and cata- lysts used, water-centred organic synthesis is currently re-ceiving tremendous importance mainly owing to the increas- ing acceptance of water as the ultimate green solvent[1,2]. Being a natural solvent, water is inexpensive, abundant, non-toxic with inherent favourable attributes such as redox stability, high heat capacity, non-flammability etc., which canoften be used as an alternative to traditional organic sol- vents[2-10]. As has been comprehensively reviewed by Lindstrom[2] recently, progress in water-based organic reac- tions have triggered a simultaneously growing demand forwater-tolerant catalysts and water soluble ligands to support aqueous phase organic reactions.

The application of soluble polymers to recover catalyst in synthetic

plored. Water soluble macromolecular metal complexes find extensive utility in diverse fields including pharmaceuti- cals[16-18] and environmental applications[19-21].

Significantly, very recently we have introduced for the firsttime a set o peroxomolybdenum(VI) species immobilized on linear water soluble polymers as versatile and recyclable catalysts for selective oxidation of organic sulfides to sulfox-

ide in water with 30% H_2O_2[22]. Furthermore, in the recent past, we have developed several new polymer immobilized homogeneous as well as heterogeneous catalysts using peroxo derivatives of metals such as vanadium[22,23], molyb- denum[23-26] and tungsten[26,27] which efficiently mediated va- riety of organic oxidations including phenol hydroxylation,oxidative bromination and sulfide

NJC
ROYAL SOCIETY OF CHEMISTRY
PAPER
View Article Online
View Journal
Check for updates
Cite this: DOI: 10.1039/c7nj04433j

Vanadium-based polyoxometalate complex as a new and efficient catalyst for phenol hydroxylation under mild conditions†

Mitu Sharma,[a] Gangutri Saikia,[a] Kabirun Ahmed,[a] Sandhya Rani Gogoi,[a] Vedavati G. Puranik[b] and Nashreen S. Islam *[a]

Received 15th November 2017,
Accepted 12th February 2018
DOI: 10.1039/c7nj04433j
rsc.li/njc

An eco-compatible catalytic protocol for H_2O_2 induced hydroxylation of phenol (PH) to catechol (CT) and hydroquinone (HQ) in aqueous medium, using a polyoxovanadate (POV) complex as the catalyst, is described. The synthesis of the POV catalyst, with a new type of three dimensional framework, $Na_6(H_2O)_{32}(V_{10}O_{28})\cdot 2H_2O$ (**1**) was accomplished by establishing a non-hydrothermal one-step methodology under mild conditions. The catalyst was characterized by elemental analysis, spectral studies, single crystal X-ray diffraction studies, and Brunauer–Emmett–Teller (BET) and TGA analysis. Under optimum conditions of reaction, conducted at ambient temperature, the phenol conversion reached up to 55.4% providing a TON of 138. The catalyst could be recovered easily and recycled at least up to three cycles without significant change in activity. The developed methodology is operationally simple and free from halogenated solvents or any other hazardous additives.

Introduction

Oxidation of phenol (PH) into dihydroxybenzenes (DHBs) such as catechol (CT) and hydroquinone (HQ) represents one of the most fundamentally and industrially important processes in organic synthesis.[1] Catechol and hydroquinone are known to serve as significant intermediates for obtaining a wide range of fine chemicals[2] and biologically active molecules[1a,3] including pharmaceuticals, agrochemicals, perfumes, flavors, antioxidants and polymerization inhibitors.[1a,2] Moreover, with phenol being largely present as a highly toxic, carcinogenic and poorly biodegradable waste[4] in chemical industry wastewaters,[4b,5] oxidation

methods, however, still rely on the use of toxic and volatile organic solvents as the reaction medium, or are associated with one or more limitations such as high cost, complicated catalyst preparation, difficulty in regeneration of the catalyst, requirements of high temperature *etc.*[4b,7g] Thus, the search for newer alternative catalysts and oxidation protocols that use safer green reagents as well as benign non-polluting reaction media continues unabated.[2g] With water being the ultimate green natural solvent,[1a] there has been a recent upsurge in interest in aqueous phase organic reactions. This also necessitated the development of water-tolerant catalysts and water soluble

sdc society of dyers and colourists
Coloration Technology
Original Article | Full Access

A physicochemical characterisation of a medieval herbal ink, *Mahī*, of Assam, India

Barsha R. Goswami, Nabadweep Chamuah, Robin K. Dutta

First published: 30 July 2018 | https://doi.org/10.1111/cote.12366 | Citations: 2

SECTIONS PDF TOOLS SHARE

Abstract

Mahī, a unique herbal ink used in medieval Assam in India for writing and illustrating manuscripts, is known for its intense colour and durability for centuries, and its non-corrosive nature. *Mahī* is distinctly different from the other contemporary inks used elsewhere in the world, including other parts of India. The interesting features of *Mahī* are due to its special recipe involving several herbal ingredients in addition to iron sourced from fish blood or the rust of iron tools, with cow urine as an extractant and solvent. The objective of the current study is an in-depth understanding of the traditional method of the preparation of *Mahī*, and its characterisation through analysis of the

INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS AND POLYMERIC BIOMATERIALS
2018, VOL. 67, NO. 5, 342–352
https://doi.org/10.1080/00914037.2017.1354200

Taylor & Francis

Check for updates

Soy flour–ZnO nanoparticles for controlled release of silibinin: Effect of ZnO nanoparticle, surfactant, and cross-linker

Plabita Gogoi, Monoj K. Das, Anand Ramteke and Tarun Kumar Maji

Department of Chemical Sciences, Tezpur University, Napaam, India

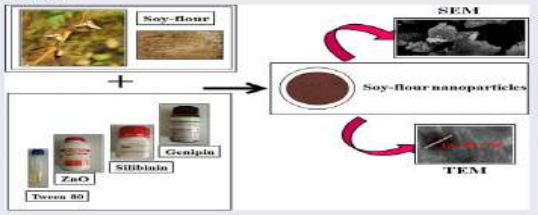
ABSTRACT

Silibinin-loaded soy flour–zinc oxide nanoparticle (ZnO) nanoparticles were prepared and characterized by different techniques. The average particle size and zeta potential value of the nanoparticles were found in the range 10–15 nm and −29.88 to −40.85 mV, respectively. The effects of ZnO nanoparticle, surfactant, and cross-linker were evaluated with regard to swelling, encapsulation efficiency, and drug release in different pH medium. Both swelling degree (%) and cumulative release (%) were better in pH 7.4 and maximum cumulative release (%) was 50%. Cytotoxicity study was performed by MTT assay using normal human blood and MDA-MB-435S cancer cell lines.

ARTICLE HISTORY
Received 19 April 2017
Accepted 8 July 2017

KEYWORDS
Genipin; silibinin; soy flour

GRAPHICAL ABSTRACT



1. Introduction

From the days since polymers are used in the pharmaceutical sciences, they are regarded as the key ingredient in controlled drug delivery system. They act as a carrier for the drug in various forms such as pellets, granules, beads, gelispheres, microcapsules, microspheres, lipospheres, microparticles, and nanoparticles [1]. The use of natural polymers in controlled drug delivery system is intensifying at an enormous rate due to its minimal virulence, easy availability, and cell biocompatibility [2]. One such polymer is soy flour (SF) which is cheap, nontoxic, and easily available in nature [3]. There are few reports regarding its use in controlled drug delivery system. Complex nanoparticles have been developed from carboxymethyl chitosan and soy protein isolate by a simple ionic gelation method and found to be an attractive carrier for the encapsulation and controlled release of hydrophobic micronutrient vitamin D_3 [4]. Soy flour–montmorillonite nanoparticles cross-linked with glutaraldehyde has been used as a carrier for isoniazid [5].

Zinc oxide nanoparticle (ZnO) is a water insoluble inorganic compound which appears as a white crystalline powder. ZnO nanoparticle has wurtzite crystal structure which has a hexagonal unit cell. The structure is composed of two interpenetrating hexagonal closed packed sublattices, in which each consist of one type of atom (Zn or O) replaced with respect to each other [6]. It has distinctive properties such as

CONTACT Tarun Kumar Maji tkm@tezu.ernet.in Department of Chemical Sciences, Tezpur University, Napaam, Assam, 784028, India
Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/gpom.
© 2017 Taylor & Francis

ACCEPTED MANUSCRIPT

A comparative study on the properties of Graphene Oxide and Activated Carbon based Sustainable Wood Starch Composites

Prasanta Baishya and Tarun Kumar Maji*

Department of Chemical Sciences, Tezpur University, Tezpur, Assam, 784028, India

*Corresponding Author: E-mail: tkm@tezu.ernet.in, Tel: +91 3712 267007, ext 5053, Fax: +91 3712 267005.

Abstract

Activated carbon (AC) prepared from *Jatropha curcas* and graphene oxide (GO) were employed in the preparation of natural polymer based wood starch composites (WSC) through the solution blending technique using water as a solvent. In this study, methyl methacrylate (MMA) was grafted onto the starch polymer and this MMA grafted starch (MMA-g-starch) was cross-linked with the cheap soft wood flour using the citric acid as cross-linker and water as a solvent in the whole process. The prepared GO and AC were characterised through Fourier transform infrared spectroscopy (FTIR), X-ray diffractometry (XRD), thermogravimetric analysis (TGA) and Raman study. The interaction of GO and AC, with MMA-g-starch, citric acid and wood were studied by FTIR, XRD and SEM analysis. The GO and AC treated composites exhibited outstanding mechanical properties, thermal stability and fire resistance properties. The tensile strength of the composites increased by 178% and 200% with addition of 2 phr AC and GO respectively compared to untreated composites. A significant enhancement in water resistance properties of GO and AC treated composites was also attained. The study showed that the properties of the composites containing AC prepared from the seeds of *Jatropha curcas* was quite comparable with the composites reinforced with GO.

Keywords: Starch, Wood, Graphene oxide, Activated carbon, Wood starch composite,

Role of Metal Exchange toward the Morphology and Photocatalytic Activity of Cu/Ag/Au-ZnO: A Study with Zn-Na-Acetate Complex as Precursor

Kasturi Sarmah,[a] Ujjal Kanti Roy,[b] Tarun K. Maji,[a] and Sanjay Pratihar[a,*]

[a]Department of Chemical Sciences, Tezpur University, Assam-784028, India

[b]Department of Chemistry, Kazi Nazrul University, Asansol, WB-713340, India

Email: spratihar@tezu.ernet.in or spratihar29@gmail.com

Abstract: The present work disclosed a Zn^{II}-Na acetate complex ($C_{32}H_{48}O_{34}Na_8Zn_4$, **C-1**), in which weakly bound sodium (Na) has been utilized for selective metal exchange with guest metals (Cu^{II}, Ag^{I}) for the synthesis of Cu/Ag/Au loaded ZnO. The morphology, growth, and band gap of the materials are found to be highly dependent upon their metal exchange capacity. The presence of Cu/Ag/Au with ZnO improves the spectral response and effectively suppresses the hole–electron pairs recombination process to facilitate efficient H_2O_2 production from water and oxygen under visible light and thus utilized as efficient reusable photocatalyst for the degradation and complete remediation of various toxic phenols and dyes into CO_2, NO_3^-, and SO_4^{2-} in water.

Keywords: Metal Exchange, Photocatalysis, ZnO, dye degradation, phenol.

WOOD MATERIAL SCIENCE & ENGINEERING
2019, VOL. 14, NO. 6, 381–391
https://doi.org/10.1080/17480272.2018.1463289

Taylor & Francis

Check for updates

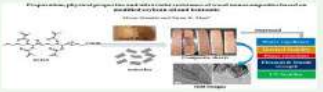
Preparation, physical properties and ultraviolet resistance of wood nanocomposites based on modified soybean oil and bentonite

Moon Mandal and Tarun K. Maji

Department of Chemical Sciences, Tezpur University, Tezpur, India

ABSTRACT

Safer environmental requirements have resulted in significant interest in natural polymer-based materials to increase sustainability. In this perspective, wood polymer nanocomposites are of particular interest. Wood polymer nanocomposites were prepared from modified soybean oil, wood flour and cetyl trimethylammonium bromide modified bentonite using the compression-molding technique. Fourier transform infrared spectroscopy and X-ray diffractometric studies were used to confirm the successful modification of bentonite. Incorporation of 3 wt% of bentonite in the composites produced significant improvement in properties compared to those of 1 and 5 wt%. Furthermore, in comparison to the unfilled nanocomposites, nanoclay-filled ones showed an enhanced UV resistance property as judged by lower weight loss and carbonyl index. The decrease in mechanical properties of UV-exposed unfilled composites was more significant compared to those of nanoclay-filled composites. Scanning electron microscope and transmission electron microscope were used to study the surface morphology and distribution of the bentonite into the composites. In addition, while the incorporation of bentonite, significant increase in thermal, mechanical and flame-retarding properties was observed.



ARTICLE HISTORY
Received 26 October 2017
Revised 31 March 2018
Accepted 6 April 2018

KEYWORDS
Wood polymer nanocomposites; mechanical properties; thermal properties; UV-stability

Introduction

The concerns about the environment and the increasing awareness towards sustainability issues have driven to develop new materials that incorporate renewable sustainable resources (Thakur *et al.* 2014). Renewable resources are finding applications in various areas where biodegradability and biocompatibility are playing significant role (Ghorbani *et al.* 2017). The important advantages that have attracted environmental requirements include biodegradability, abundancy, renewability, low toxicity and low cost (Kurimoto and Sasaki 2013). The composite may be prepared by using natural fibers such as jute, hemp, flax, bamboos, wood fibers, as natural bio-reinforcing agent. Moreover, bio resins from vegetable oils, triglycerides, animal fats, etc., can be used as polymer matrix in the preparation of bio-based composites (El-Hajjar and Qamhia 2013, Kaseem *et al.* 2017). The role of matrix is to give shape to the composite part, protect the reinforcements, transfer load to the reinforcing agent and provide toughness to the material. The aim of reinforcement is to get strength, stiffness and other mechanical properties (Krehula *et al.* 2015, Isa *et al.* 2016).

Recently, plant oils have emerged as a potential component for the preparation of resins to replace the traditional petroleum-based resins (Campanella *et al.* 2011). The most common one considered by the researchers are soybean and linseed oil since they are cheap and are produced in large amounts (Adhvaryu and Erhan 2002). Soybean oil is mainly a mixture of triglycerides that are esters of glycerol with various saturated and unsaturated fatty acids. However, they are not reactive enough for crosslinking, thus reactive functional groups need to be introduced in order to improve their reactivity to synthesize the desired resin (Lu *et al.* 2005a, Datta and Włoch 2014, Mosiewicki and Aranguren 2016). One of the most widely used functionalization process is the epoxidation reaction of the carbon–carbon double bond. Due to the high reactivity of the oxirane ring,

CONTACT Tarun K. Maji tkm@tezu.ernet.in Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India
© 2018 Informa UK Limited, trading as Taylor & Francis Group

Environ Sci Pollut Res (2018) 25:2147–2156
https://doi.org/10.1007/s11356-017-0646-2

RESEARCH ARTICLE

OH-initiated mechanistic pathways and kinetics of camphene and fate of product radical: a DFT approach

Satyajit Dey Baruah[1] · Nand Kishor Gour[1] · Plaban Jyoti Sarma[1] · Ramesh Chandra Deka[1]

Received: 13 September 2017 / Accepted: 30 October 2017 / Published online: 7 November 2017
© Springer-Verlag GmbH Germany 2017

Abstract Present manuscript represents the DFT studies on the oxidation reaction of camphene initiated by OH radical and fate of product radicals using M06-2X functional along with 6-31+G(d,p) basis set. Intrinsic reaction calculation is done for transition states involving OH-addition reactions which proceed via reaction complexes proceeding to the formation of transition states. The rate constant calculated by using canonical transition state theory at 298 K and 1 atm is found to be 5.67×10^{-11} cm^3 $molecule^{-1}$ s^{-1} which is in good agreement with the experimental rate constant. The atmospheric lifetime of the titled molecule has also been reported in our work.

Keywords BVOCs · Camphene · OH radical · IRC · Rate constant · Lifetime

Introduction

Terpenes are important biogenic volatile organic compounds (BVOCs) which are emitted into the atmosphere in large quantities by vegetation. Terpenes contain C=C double bond which may react with atmospheric oxidants such as OH radical, Cl atom, NO_3 radicals, Cl_2 and O_3 molecule leading to conversion into different oxidation products which are responsible for the formation of tropospheric ozone and secondary organic aerosols (SOAs) (Calogirou et al. 1999). Camphene (2,2-dimethyl-3 methylenebicyclo[2.2.1]heptane) is one of the most abundant bicyclic monoterpenes mainly emitted from a number of coniferous trees (Atkinson et al. 1990). BVOCs serve wide range of functions starting from signaling between plants, acting as defense against herbivores to attraction of pollinators (Kesselmeier and Staudt 1999; Kesselmeier et al. 2000; Baldwin et al. 2006; Metlen et al. 2009; Novoplansky 2009; Holopainen and Gershenzon 2010; War et al. 2012). In addition to that BVOCs also act as an important precursor for various industrial productions such as components of perfume, insecticide, and pesticide (Panda 2005; Landrum et al. 1976; Trukhina et al. 2007). Fuentes et al. (2000) studied atmospheric lifetime of the BVOCs which acts as one of the fundamental parameter to have great impact on the troposphere chemistry of the earth. It has been reported that the emissions of BVOCs is about ten times greater than the anthropogenic compounds combined worldwide (Atkinson and Arey 2003).

Various experimental and theoretical studies (Atkinson et al. 1990; Jay 1989; Hakola et al. 1994; Reissell et al. 1999; Johnson et al. 2000; Peeters et al. 2007; Oliveira and Bauerfeldt 2015; Gaona-Colmán et al. 2017) have been reported on the kinetics of reactions of camphene with atmospheric oxidants. Atkinson et al. (1990) were the first to experimentally study the kinetics of camphene + OH/NO_3 and obtained the rate coefficients at

Responsible editor: Gerhard Lammel

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11356-017-0646-2) contains supplementary material, which is available to authorized users.

✉ Nand Kishor Gour
nkgour1@tezu.ernet.in

✉ Ramesh Chandra Deka
ramesh@tezu.ernet.in

[1] Department of Chemical Sciences, Tezpur University Tezpur, Napaam, Assam 784028, India

View Article Online
DOI: 10.1039/C7NJ03825A

Published on 02 January 2018. Downloaded by University of Windsor on 05/01/2018 01:53:18.

Property enhancement and DFT study of wood polymer composites using rosin derivatives as co-monomer

Moon Mandal, Punampriya Borgohain, Pakiza Begum, Ramesh C Deka and Tarun K Maji*
Department of Chemical Sciences, Tezpur University, Assam 784028, India
*email: tkm@tezu.ernet.in
Tel.: +91 3712 267007, ext. 5053. Fax: +91 3712 267005

Abstract

We report herein the preparation of wood polymer composites with modified soybean oil as polymer matrices and softwood as the reinforcement agent. It concentrates on the possibility to replace styrene with rosin-based derivative as the rigid monomer, in order to improve the performance of the final composite. For comparison, styrene was also used to co-polymerize with the modified soybean oil. The chemical structures of the synthesized rosin derivatives were confirmed by Nuclear Magnetic Resonance (NMR) and Fourier Transfer Infrared (FTIR) spectroscopy. The mechanical and thermal properties showed significant improvement after co-polymerization with rosin derivatives. The probable interaction among the polymer matrix, rosin derivative and wood flour were established by FTIR analysis, also supported by Density Functional Theory (DFT) calculations. The surface morphology, water uptake capacity, volumetric swelling and flame retarding properties of the composites were investigated. The results demonstrate that rosin acid derivatives showed great potential as co-monomer to replace petroleum-based rigid compounds for the preparation of soybean oil based wood polymer composites.

New Journal of Chemistry Accepted Manuscript

J. Indian Chem. Soc.,
Vol. 95, January 2018, pp. 9-20

Theoretical insight of OH-initiated mechanistic pathways and kinetics of n-butyl nitrate ($CH_3CH_2CH_2CH_2ONO_2$) at 298 K and 1 atm†

Ramesh Chandra Deka*[a], Susmita Baruah[b], Ajanta Deka[c] and Nand Kishor Gour*[a]
[a]Department of Chemical Sciences, Tezpur University Tezpur, Napaam-784 028, Assam, India
E-mail : ramesh@tezu.ernet.in, nkgour1@tezu.ernet.in
[b]Department of Chemistry, Indian Institute of Technology, Guwahati-781 039, Assam, India
[c]Department of Physics, Girijananda Chowdhury Institute of Management and Technology, Guwahati-781 017, Assam, India

Manuscript received 06 December 2017, accepted 20 December 2017

Abstract : A detailed density functional studies of the reaction of n-butyl nitrate initiated by OH radical as well as atmospheric life-time of the titled molecule have been carried out by using hybrid functional M06-2X method along with 6-311+G(d,p) basis set. We obtain the possible H-abstraction channels of the reaction of n-butyl nitrate with OH radical on the potential energy surface along with the thermochemistry associated with it. The overall rate constant as well as individual rate constants for four plausible pathways of the reaction are calculated using the canonical transition state theory (CTST) at 298 K and 1 atm. Kinetically, the path which involves the abstraction of H atom from the $-OCH_2$ site of $CH_3CH_2CH_2CH_2ONO_2$ is found to be the dominant one and the calculated overall rate constant is 3.63×10^{-12} cm^3 mol^{-1} s^{-1}, which is in good agreement with the experimentally value, 1.66×10^{-12} cm^3 mol^{-1} s^{-1}. The reported kinetic and thermo-chemical results in this work would be helpful for further degradation and decomposition pathways of the generated radical into the atmosphere.

Keywords : n-Butyl nitrate, VOCs, OH radicals, M06-2X functional, rate constant, atmospheric lifetime.

Introduction

Volatile Organic Compounds (VOCs) are organic substances which have a low boiling point at room temperature. Due to their high vapour pressure and low boiling point, they easily vaporize into the atmosphere from industrial materials like paints, adhesives, chlorofluorocarbons (CFCs) etc. Considerable emissions of VOCs into the troposphere are a worldwide problem caused from anthropogenic as well as biogenic sources[1]. Organic nitrates are formed as intermediates during the atmospheric oxidation of VOCs and oxygenated VOCs in the presence of nitrogen oxides[2]. Tropospheric ozone is formed by the OH oxidation of VOCs in the presence of NO. Organic nitrates are also formed through this process[3]. Organic nitrates have the long tropospheric lifetime, which makes them a storehouse of NO_x in the troposphere. NO_x is a key catalyst for ozone formation and destruction[4,5]. These nitrates are likely to impact a long range distribution of NO_x and ozone in the troposphere, highly influencing the extent of Global Warming. In the troposphere, VOCs are transformed by the chemical processes of photolysis (at wavelengths > 290 nm), reaction with the OH radical (typically during daylight hours), reaction with the NO_3 radical during night-time hours, reaction with O_3, and in coastal and marine areas reaction with Cl atoms during daylight hours[6,7]. Hence, it is necessary to probe into the degradation of these organic nitrates to determine their impact on the atmo-

†Professor A. S. R. Anjaneyulu 60th Birthday Commemoration Lecture (2016).

Published on 08 October 2018. Downloaded by Newcastle University on 1/20/2019 8:20:13 PM.

Environmental Science Processes & Impacts

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: Environ. Sci.: Processes Impacts, 2018, 20, 1708

Quantum mechanical study on the oxidation of ethyl vinyl ketone initiated by an OH radical†

Subrata Paul, Nand Kishor Gour* and Ramesh Chandra Deka*

Received 14th August 2018
Accepted 8th October 2018
DOI: 10.1039/c8em00365c
rsc.li/espi

Oxidation of ethyl vinyl ketone ($CH_2CHCOCH_2CH_3$) by an OH radical was carried out using the M06-2X/6-311++G(d,p) level of theory. For the OH-initiated oxidation of ethyl vinyl ketone (EVK), we have considered six H-atom abstractions and three addition reactions. From the energetic calculation of the species involved therein, the potential energy surface (PES) of all the reaction channels was constructed. From the energy profile, we found that the H-atom abstraction from the methylene group (–CH_2–) of $CH_2CHCOCH_2CH_3$ is energetically more favourable than the other H-abstraction channels. Moreover, we also observed that OH-addition to the α-carbon of the carbon–carbon double bond of the title molecule is energetically and thermodynamically more dominant than β-carbon and carbonyl carbon. The rate coefficients for all the reaction channels were calculated using the canonical transition state theory at the temperature range of 250–450 K and it reveals that among all the reaction channels, OH-addition to α-carbon is kinetically more dominant to the total rate constant. The total rate coefficient for the reaction at 298 K is found to be in good agreement with the reported experimental rate constant. Finally, we have determined the atmospheric lifetime of the title molecule.

Environmental significance

The gas-phase reaction mechanisms of unsaturated oxygenated volatile organic compounds (UOVOCs) are important as they form various toxic compounds which are harmful for human health and environment. For this purpose, extensive studies have been going on over the past 50 years. Particularly, the degradation and transformation of ethyl vinyl ketone (EVK) is not fully understood and yet to be discovered. To know its kinetics, atmospheric lifetime and global warming potential of the species, we explored oxidation pathways of EVK which is mainly initiated by OH radical. This work reveals that widely-used quantum chemical methods execute quite accurately the reaction kinetics and mechanisms of the EVK oxidations. This work would be informative for the further study of other atmospheric species.

1. Introduction

Unsaturated oxygenated volatile organic compounds (UOVOCs) are an important class of compounds which can be produced by the photo-oxidation of isoprene, terpenes and other alkenes from vegetation[1-3] and conjugated dienes emitted from automobiles.[4] Once these compounds are released into the atmosphere, they are exposed to various photo-organic and gas-phase reactions to produce ozone and other secondary pollutants, which play a vital role in the formation of urban photochemical smog and tropospheric ozone.[5] The main tropospheric degradation and transformation processes for these types of compounds can occur by reactions with OH radicals (during day-time), NO_3 radicals (during night time), O_3 molecules (whole day) and Cl atoms (coastal regions).[6] The harmful effect of these UOVOCs cannot be ignored in our atmospheric environment. Therefore, the removals of these UOVOCs are important and extensive studies have been going on over the past 50 years for this purpose. However, the degradation and transformation processes of all these UOVOCs are not fully understood and are yet to be discovered.

Among the various classes of UOVOCs, ethyl vinyl ketone (EVK, $CH_2CHCOCH_2CH_3$), an α,β-unsaturated carbonyl compound has been established as a C5 VOC of biogenic origin, released from the freeze-damaged leaves of a variety of plants to the troposphere.[6] The EVK is responsible for the raw bean flavor[7] and has been detected in soybean seed homogenates.[8] With respect to its atmospheric implication, EVK is expelled into the troposphere and its fate after emission is an environmental concern. Therefore, it is important to evaluate the kinetic and mechanistic data that are needed to better understand the atmospheric degradation mechanisms of EVK and to assess its impact on air quality. The degradation of EVK can proceed in the atmosphere by reactions with oxidants such as with OH and NO_3 radicals, Cl atoms and O_3 molecules. In this context, it is important to note that OH radicals are the dominant oxidant for

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, 784028, Assam, India. E-mail: nkgour1@tezu.ernet.in; ramesh@tezu.ernet.in; Tel: +91-3712275060

† Electronic supplementary information (ESI) available. See DOI: 10.1039/c8em00365c

This journal is © The Royal Society of Chemistry 2018

Materials Today Communications 14 (2018) 83–89

Contents lists available at ScienceDirect

Materials Today Communications

journal homepage: www.elsevier.com/locate/mtcomm

Polyaniline nanofiber/carbon dot nanohybrid as an efficient fluorimetric sensor for As (III) in water and effective antioxidant

Aditi Saikia, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

ARTICLE INFO

Keywords:
Fluorimetric sensing
Arsenic (III) detection
Polyaniline/carbon dot nanohybrid
Photoluminescence
Radical scavenger

ABSTRACT

We report a facile *in-situ* fabrication of polyaniline nanofiber/carbon dot nanohybrid as an efficient fluorimetric sensor for As (III) up to 0.001 ppb. The fabricated nanohybrid was characterized by various instrumental techniques such as Fourier transform infra-red (FTIR), Raman, UV-vis (UV–vis), X-ray diffraction (XRD) and high resolution transmission electron microscopy (HRTEM). XRD studies showed (002) plane of carbon dot, and (010) and (110) planes of polyaniline in the nanohybrid. UV–vis absorption at 279, 439 and 776 nm and fluorescence emission at 434 nm were also observed for the nanohybrid. HRTEM analysis revealed the formation of the polyaniline nanofibers with average diameter of 40–55 nm and d-spacing of 0.380 nm. The nanohybrid also acts as a good antioxidant as it can scavenge up to 86% of 2,2-diphenyl picryl hydrazyl (DPPH) radicals within 30 min. The results clearly indicated that the studied nanohybrid has great potential for fluorimetric detection of As (III) in contaminated water and as an effective antioxidant.

1. Introduction

The toxicity due to contamination of heavy metals like cadmium (Cd), lead (Pb), arsenic (As), chromium (Cr) and mercury (Hg) is posing a serious threat to the environment and health. Amongst all these heavy metals, arsenic contamination is causing more toxic effects to human as well as animal health due to its easy availability in soil and water. The toxicity of As is dependent upon its chemical nature and oxidation state. It is present in nature in +3 and +5 oxidation states. However, according to the several research groups the +3 oxidation state of As is [7–11]. In addition to this, myriad of continuous efforts were made to develop different sensing materials with improved sensing efficiency. In this vein, literature advocates the utilization of different types of nanomaterials such as carbon dot (CD), graphene, metal oxide nanoparticles, polymeric nanomaterials etc. which enhances the detection limit because of their ultra-sensitivity and high selectivity and thereby allowing fast and efficient detection of the metal ions [12–14]. Amongst them, commonly used nanomaterial is polyaniline nanofibers (PN) containing aromatic conjugated system with π-π electronic structure which exhibits absorption in both ultraviolet as well as in the visible

ACS OMEGA

Article

Cite This: ACS Omega 2018, 3, 2292−2304

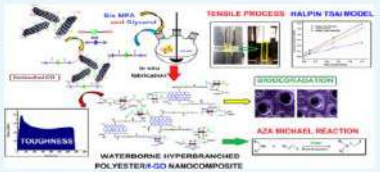
High-Performing Biodegradable Waterborne Polyester/Functionalized Graphene Oxide Nanocomposites as an Eco-Friendly Material

Deepshikha Hazarika,[†] Kuldeep Gupta,[‡] Manabendra Mandal,[‡] and Niranjan Karak*[,†]

[†]Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Department of Chemical Sciences, and [‡]Department of Molecular Biology and Biotechnology, Tezpur University, Napaam, Tezpur, 784028 Assam, India

Supporting Information

ABSTRACT: The development of high-performing nanocomposites of homogeneously dispersed graphene oxide in a waterborne polyester matrix with controlled interfacial interactions is a daunting challenge owing to the presence of strong cohesive energy in both. Thus, in this study, graphene oxide was functionalized with toluene diisocyanate and butane diol through a simple method and incorporated into the waterborne polyester matrix through a facile in situ bulk polymerization technique without using any compatibilizing agent or organic solvent for the first time. The thermoset of the nanocomposite was formed by curing it with hyperbranched epoxy of glycerol and poly(amido amine). The resultant thermosetting nanocomposites with 0.1−1 wt % functionalized graphene oxide exhibited significant enhancement in mechanical properties such as elongation at break (245−360%), tensile strength (7.8−39.4 MPa), scratch hardness (4 to >10 kg), toughness (17.18−86.35 MJ/m^3), Young's modulus (243−358 MPa), impact resistance (8.3 to >9.3 kJ/m), and thermostability. Further, the Halpin−Tsai model was used to predict the alignment of graphene oxide. The nanocomposite was also biodegradable against the *Pseudomonas aeruginosa* bacterial strain. Furthermore, this nanocomposite exhibited strong catalytic activity for the aza-Michael addition reaction. Thus, the nanocomposite can be utilized as a high-performing sustainable material in different potential applications including as heterogeneous catalysts.



1. INTRODUCTION

Nanotechnology is a multidisciplinary field which involves

readily forms aqueous dispersion, it is dispersible in various organic solvents and even in polymers, and its functional

ACS OMEGA

Article

Cite This: ACS Omega 2018, 3, 1757−1769

Unprecedented Influence of Carbon Dot@TiO_2 Nanohybrid on Multifaceted Attributes of Waterborne Hyperbranched Polyester Nanocomposite

Deepshikha Hazarika and Niranjan Karak*

Department of Chemical Sciences, Advanced Polymer and Nanomaterial Laboratory, Center for Polymer Science and Technology, Tezpur University, Napaam, Tezpur 784028, Assam, India

Supporting Information

ABSTRACT: Herein, we wish to report fabrication of multifaceted environmentally friendly benign renewable resource-based waterborne hyperbranched polyester nanocomposites using three different doses of carbon dot@TiO_2 nanohybrid through a facile in situ polymerization technique in the absence of solvent or additional catalyst. Carbon dot@TiO_2 nanohybrid was prepared through a greener one-pot hydrothermal process from bio-based raw materials. The nanocomposites were characterized by different instrumental techniques. The thermosets of these nanocomposites are obtained by curing them with glycerol-based hyperbranched epoxy and fatty acid-based poly(amido amine). Enhancements of 6.67 folds tensile strength, 3.8 folds toughness, 1.7 folds Young's modulus, >2.5 units gloss, and 46 °C thermal stability were observed for the thermosets by the formation of nanocomposites. The nanocomposites also showed antifogging and anti-icing properties. More interestingly, they can also be used for efficient separation of crude oil and water from their mixture. Thus, these environmentally benign polymeric materials could find applications in different fields.

1. INTRODUCTION

Advanced materials with unique multifunctional activities are the ultimate choice of the material community, which may be achieved through the unison of molecular engineering and nanotechnology. These materials not only assist the economy

attributes.[11,12] Further, studies on polyester/TiO_2 nanocomposites are not comprehensive and systematic. Ghanem et al. reported fabrication of a hyperbranched polyester nanocomposite using TiO_2 by both in situ and ex situ methods but studied only its photocatalytic activity.[12] Zhang et al. studied only the thermal properties of copolyester/TiO_2

ChemPubSoc Europe

DOI: 10.1002/slct.201801160

Chemistry SELECT Full Papers

Materials Science inc. Nanomaterials & Polymers

Photoluminescence, Self cleaning and Photocatalytic Behavior of Waterborne Hyperbranched Polyester/Carbon dot@TiO_2 Nanocomposite

Deepshikha Hazarika,[a] Devabrata Saikia,[b] Kuldeep Gupta,[b] Manabendra Mandal,[b] and Niranjan Karak*[a]

Functional materials with innovative optical features have attracted cumulative attention owing to their indispensable and inimitable roles in the advanced human-civilization. Thus, in the present work, an excellent excitation wavelength dependent down- and up-conversion photo-luminescent carbon dot@TiO_2 containing waterborne hyperbranched polyester nanocomposite was reported for the first time. Further, the thermosets of the nanocomposite were transparent and emitted different colors on exposure of different wavelengths of UV light. Most interestingly, the nanocomposite showed anti-reflecting as well as self-cleaning properties. The self-cleaning behavior was achieved through photocatalytic degradation of different organic contaminants namely pesticide, phenol, bis-phenol A and mixed dyes under normal sunlight. Further, the thermosetting nanocomposite can be used as an efficient photocatalyst for reduction of common nitro-aromatic compound under normal sunlight. The nanocomposites also exhibited strong antibacterial activity against *Staphylococcus aureus*, *Bacillus subtilis*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* bacterial strains. Thus, the studied nanocomposite has remarkable prospect in different advanced applications.

Introduction

In recent years, fluorescent polymeric materials have high demands in the fields of material science and hence research on such materials has gathered great scientific attention across the globe. The photoluminescence properties of polymeric material can be achieved by two main approaches.[1] Synthesis of polymers from fluorescent monomers or their derivatives, which showed inherent fluorescence property, is one way to achieve it. While the second approach is the fabrication of

these semiconductors nanostructural materials exhibited size-dependent optical properties and such polymeric nanocomposites might have enormous potential for various applications.[2]

Again, the latest researches on fluorescent polymeric materials have been focused on the special architectural polymers.[3] In this context, hyperbranched (dendritic) architecture has many advantages like high solubility, low viscosity, high reactivity and one-pot preparative protocol over the conventional linear polymers.[3c] The above favorable attributes

Published on 24 January 2018. Downloaded by University of Reading on 24/01/2018 16:54:48.

v Journal of Chemistry Accepted Manuscript

Journal Name

ARTICLE

1, 3-Disulfoimidazolium Chloronickellate Immobilized HZSM-5 Framework as Visible-Light-Induced Heterogeneous Photocatalyst for Advanced Oxidation Process

Susmita Saikia, Pinky Gogoi and Ruli Borah*

Received 00th January 20xx,
Accepted 00th January 20xx

DOI: 10.1039/x0xx00000x

www.rsc.org/

Ionic solid 1, 3-disulfoimidazolium chloronickellate [Dsim][$NiCl_4$] with low band gap value can be modified as heterogeneous photocatalyst after immobilization on siliceous zeolite HZSM-5. In this study, different percentages of [Dsim][$NiCl_4$]/HZSM-5 supported ionic systems were prepared as acidic solid material via wet impregnation method. The structural changes of parent HZSM-5 framework within the heterogenized materials were studied using IR, UV, SEM-EDX, PXRD, Raman, BET, TGA, Hammett acidity, HRTEM and ICP-OES techniques. Assessment of their thermal and water tolerant abilities, intensity of photoluminescence spectra instigate the hybrid samples as possible heterogeneous photocatalysts for oxidative degradation of model dye compound Methylene Blue (MB) involving H_2O_2 and sunlight at ambient temperature in aqueous solution. This study may contribute a new perception for exploration of halometallate ionic salt systems as potential visible light driven photocatalysts in organic transformation.

Introduction

Halometallate ionic liquids are reviewed as potential functional material of diverse physicochemical properties which depend on their complex metal anionic speciation and amount of metal present on them in combination with organic cations.[1]Such halometallates are explored as prospective materials in catalysis[2], electrochemistry[3], ionothermal synthesis of inorganic semiconductors[4], gas scrubbing systems[5], controlled separations/extraction processes[6], conversion of biomass to energy products[7] and used as soft and composite materials.[8] They show low vapor pressures and high boiling points owing to their strong secondary ionic interactions. It is observed that the use of ionic liquids as solvent or template was only studied for the synthesis of TiO_2 based photo catalysts with high activity and stability in various processes.[9] The semiconductor properties of halometallate ionic salts was first reported by Saikia et al .for Brönsted-Lewis acidic 1, 3-disulfoimidazolium chlorometallates of Fe(III), Zn(II) and Ni(II) with different band gap values 2.41, 2.55 and 2.20 eV respectively.[10] There is no report mentioned about semiconductor ionic liquids in recent review on acidic and halometallate ionic liquids.[1,11] The lower band gap material 1, 3-disulfoimidazolium chlorometallatecan in tetrahedral chlorometallate anion frame.[12]

The semiconductor properties of 1, 3-disulfoimidazolium chlorometallates may introduce them as heterogeneous photo catalyst for degradation of dyes with UV or visible light initiated Advanced Oxidation Processes (AOPs).[14] But these –SO_3H functionalized chlorometallates are slightly hygroscopic solid material possessing lower surface area[10,13] which limit their uses as recyclable heterogeneous photocatalysts for Wet Hydrogen Peroxide Catalytic Oxidation (WHPCO) of dyes.[14] The immobilization of semiconductor ionic salts on HZSM-5 zeolite may eliminate hygroscopic nature of loaded ionic salts material by distribution of both Brönsted-Lewis acidic sites over high surface area support with improved thermal stabilities. This method will produce heterogeneous photocatalyst of zeolite framework for degradation of organic pollutants involving UV/ Visible light and H_2O_2.[14] The prepared IL/HZSM-5 catalyst can facilitate simple handling and recycling of catalysts without leaching as waste stream to the environment.[15]

Zeolites are crystalline aluminosilicates with well-defined interconnected channels or cavities in nanometer or sub

J. Chem. Sci. (2018) 130:170
https://doi.org/10.1007/s12039-018-1570-9

© Indian Academy of Sciences

REGULAR ARTICLE

Investigation of PEG-6000 bridged -N-SO_3H functionalized geminal dicationic ionic liquids for catalytic conversion of fructose to 5-hydroxymethylfurfural

PINKY GOGOI and RULI BORAH*
Department of Chemical Sciences, Tezpur University, Napaam, Assam 784 028, India
E-mail: ruli@tezu.ernet.in

MS received 28 April 2018; revised 12 August 2018; accepted 4 October 2018; published online 30 November 2018

Abstract. Eight new members of two series of PEG-6000-bridged geminal dicationic ionic liquids based on diphenylammonium/imidazolium cation were synthesized by the change of four anions CF_3COO^-, CCl_3COO^-, AcO^- and HSO_4^-. They were investigated as reusable acidic catalysts for dehydration of fructose to 5-hydroxymethylfurfural in polar aprotic solvent. The characterizations of dicationic ionic liquids were done using ^1H NMR, ^{13}C NMR, IR and TGA analyses. Irrespective of Hammett acidity strength of the eight ILs, they displayed single peak selectivity for the 5-hydroxymethyl furfural intermediate in HPLC analysis.

Keywords. PEG-6000 linker; dicationic ionic liquid; dehydration of fructose; reusable catalyst.

1. Introduction

The chemistry of multi-charged ionic liquids has been recognized as a growing field for the generation of structurally diverse organic salts, either by change of charged heads or spacers separating them, with unique physicochemical properties, especially the wide temperature window to exist in liquid state (e.g., −4 °C to 400 °C) and greater thermal stability over monocationic ionic salts.[1–3] Imidazolium and ammonium-based geminal dicationic ionic liquids (DILs) with different bridging groups have been utilized as high-temperature reaction media[1,4] and lubricants,[5] ultrastable separation phases,[6,7] extraction processes[8] and mass spectrometry.[11–13] Polyethylene glycol can be considered as an identical linker for the preparation of geminal DILs with a variety of lengths, polymer architectures and charged groups. The polyethylene glycol (PEG) based materials possess several distinctive properties including temperature dependent phase behavior in solution, environment-friendliness, water miscibility, non-volatility and thermal stability. The various molecular weight PEG backbones are appropriate for immobilization of catalyst and reagents applicable in organic synthesis.[14,15] The combination of polyethylene glycol spacers and functionalized ionic liquids incorporates various attractive physical properties of the linkers and ionic liquids to the modified supported material.[16–18] The transfer of unique 'critical solution temperature' (CST) of PEG to PEG-functionalized DILs was observed as temperature-dependent biphasic material in an organic solvent and thus further studied as tunable phase separable catalysts in organic reactions.[19–24] As the solvent, they dissolve carbohydrates and polymers,[25] stabilize and activate protein or enzyme,[26] separate inorganic salts from aqueous solutions,[27] function as reductant and stabilizer for nanoparticle synthesis.[28] The attachment of one or more acidic sites to the charged heads may facilitate Brönsted acidic properties to them. The literature search finds some examples of the Brönsted acidic PEG-based DILs with an acidic proton in the anion and also from N-alkylsulfonic group or N-sulfonic group in the cation.[29–31] Eshghi *et al.*[29] reported only the direct N-sulfonic group containing benzimidazolium DIL as a reusable acidic catalyst for one-pot synthesis of α-amino phosphonates derivatives in solvent-free condition. Herein, we determined the structure of eight new members of -N-SO_3H functionalized PEG-6000 linked

Received: 16 January 2017 | Revised: 27 April 2017 | Accepted: 28 April 2017
DOI: 10.1002/aoc.3900

FULL PAPER

WILEY Applied Organometallic Chemistry

Diethyldisulfoammonium chlorometallates as heterogeneous Brønsted–Lewis acidic catalysts for one-pot synthesis of 14-aryl-7-(N-phenyl)-14H-dibenzo[a,j]acridines

Arup Kumar Dutta | Pinky Gogoi | Ruli Borah

Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India

Correspondence
Ruli Borah, Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India.
Email: ruli@tezu.ernet.in

Funding information
CSIR-New Delhi, India, Grant/Award Number: 02(0067)/12/EMR-II

A new series of Brønsted–Lewis acidic diethyldisulfoammonium chlorometallates, [DEDSA][$FeCl_4$] and [DEDSA]$_2$[Zn_2Cl_6], were synthesized as solid materials from the reaction of [$(Et)_2N(SO_3H)_2$][Cl] ionic liquid with transition metal chlorides ($FeCl_3$ and $ZnCl_2$) at 80 °C in neat condition for 2 h. The chlorometallates were fully characterized using various spectroscopic and analytical techniques such as Fourier transform infrared, UV–visible and Raman spectroscopies, powder X-ray diffraction, scanning electron microscopy, energy-dispersive X-ray and thermogravimetric analyses, Hammett acidity and elemental analyses. Their catalytic activity was studied as reusable heterogeneous catalysts for the three-component synthesis of novel 14-aryl-7-(*N*-phenyl)-14*H*-dibenzo[*a,j*]acridines under solvent-free conditions at 100 °C.

KEYWORDS
14-aryl-7-(*N*-phenyl)-14*H*-dibenzo[*a,j*]acridines, diethyldisulfoammonium chlorometallates, heterogeneous catalysis, multicomponent, recyclable catalyst

ChemPubSoc Europe

DOI: 10.1002/slct.201801719

Chemistry SELECT Full Papers

Check for updates

Catalysis

Synthesis of Triethylamine-Bridged Basic Tricationic Ionic Liquids and Evaluation of Their Catalytic Efficiencies for Preparation of Arylidene or Alkylidenemalononitrile

Pinky Gogoi,[b] Kabita Boruah,[b] and Ruli Borah*[a]

Two series of basic triethylamine bridged pyridinium/imidazolium tricationic ionic liquids were synthesized as viscous liquids by ion-pairing with hydroxide, acetate and imidazolide as basic anions. The characterization of tricationic ionic liquids was done using ^1H and ^{13}CNMR, FT-IR, Thermogravimetric analysis (TGA), Hammett basicity EI-MS and elemental analysis techniques. Thermal stabilities were found within the range of 100–150 °C for these ionic liquids. They acted as efficient recyclable homogeneous catalysts for the representative Knoevenagel condensation of benzaldehyde and malononitrile at room temperature stirring in neat condition for 10–20 min. The catalytic activity of these ILs was found to be slightly different from each other for the model reaction and did not follow the same sequence of their measured Hammett basicity value.

1. Introduction

Functionalized ionic liquids (ILs) especially dicationic and tricationic ionic liquids (TILs) based on ammonium,[1–3] imidazolium,[4] pyridinium[5] and pyrrolidium[6] cations have been synthesized with diverse range of physicochemical properties than most traditional singly charged ILs.[7] These tunable physicochemical properties of multicharged ILs facilitate their potential uses as solvent-catalyst systems in organic synthesis,[8] electrochemistry,[9] high temperature lubricants,[10] selective gas chromatographic stationary phases,[11] ionic liquid crystals,[12] host-guest complexes,[13] and gel phases.[14]

More numbers of structural variations of ion-pairs are possible with the dicationic or tricationic ILs with varied stoichiometric inorganic/organic basic reagents.[12,18,19] Various types of base induced condensation reactions like Aldol, Knoevenagel, Claisen-Schmidt reactions have been studied in basic ILs either as reaction medium or as catalyst depending on the strength of Brönsted basic or Lewis basic sites.[20–22] The classical Knoevenagel condensation is a well known C–C bond formation reaction for preparation of arylidene or alkylidene intermediates through variation of nucleophilic reagents and aliphatic /aromatic carbonyl compounds.[23,24] These intermediates have lots of applications in organic synthesis, biological science, natural product chemistry, polymer chemistry, fine chemicals, medicine, agriculture and light emitting materials.[20,11,12,25] This condensation is also catalyzed by Lewis

ChemPubSoc Europe
DOI: 10.1002/slct.201703036
ChemistrySELECT Communications

■ Catalysis

Ascorbic Acid as a Highly Efficient Organocatalyst for *ipso*-Hydroxylation of Arylboronic Acid

Sameeran Kumar Das, Prantika Bhattacharjee, and Utpal Bora*[a]

An effective organocatalyst, ascorbic acid has been successfully applied for the *ipso*-hydroxylation of arylboronic acid using 30% aqueous H_2O_2 as oxidant in water at ambient temperature. The methodology proceeds without using any metal catalyst or base and avoids harsh reaction conditions. The protocol is applicable to various electronically diverse arylboronic acid moieties with good to excellent yield.

Introduction

The synthesis of phenols, which are very important structural building blocks of different natural products[1-4] and pharmaceuticals,[5-7] attracts immense consideration of the researchers. Phenol has been used as a versatile intermediate for the synthesis of complex structural motifs.[8] Besides these, phenol and its derivatives find applications in medicinal chemistry as antioxidants, antiviral, cardioprotective and pro-oxidant.[1,9-12] Traditionally, phenols have been prepared via pyrolysis of sodium salt of benzene sulfonic acid, Dow's process, hydrolysis of arene diazonium salt etc.[13] For industrial scale preparation of phenol, cumene-phenol process (Hock's process) is used.[14] But this method shows very low efficacy for this transformation.[15] Besides, existing methods of using aryl halide as precursor for the phenol synthesis involve the use of harsh reaction conditions so as to activate the aryl halide precursor.[1] Thus, many efforts have been made towards the development of mild, environmentally benign and efficient methods for synthesis of phenol. In recent time, because of the versatile nature, structural diversity, greater stability, reactivity and lower toxic nature as compared to the aryl halides, arylboronic acids find widespread applications in various organic reactions.[16-18] Consequently, arylboronic acid has been proved to be an effective alternative precursor for the synthesis of phenol.

Many literatures have been reported for the *ipso*-hydroxylation of arylboronic acid utilising transition metal based catalytic systems such as $CuSO_4$-Phenanthroline,[19] CuNP,[20] $CuFe_2O_4$,[21] Montmorillonite-KSF entrapped $Cu(OH)_x$,[22] H_2O_2-Cu_x(BTC)$_2$,[23] H_2O_2-Cu_2O NP[24] etc. Some metal free procedures have also been reported using H_2O_2-complexes,[25,26] TBHP,[27] oxone,[28,29] *m*-CPBA,[30] NH_2OH,[31] H_2O_2-Amberlite IR-120,[34] H_2O_2-Acidic Al_2O_3,[33] H_2O_2-H_3BO_3,[34] H_2O_2-Lactic acid,[35] H_2O_2-biosilica,[36] quinone,[37] etc. Most of the reported methods have some shortcomings such as use of excess oxidizing agent, higher temperature, base, metal catalysts etc. Generally, metal catalysts are often air or moisture sensitive, expensive and can be a challenging task to remove. Thus, metal-free processes are much more preferred in the pharmaceutical industries from the practical viewpoint as metal impurity may become a serious issue with the additional expensive metal removal step.[38] Therefore, the development of more efficient, cost-effective, environment friendly transition metal-free processes have emerged as beneficial alternatives to the transition metal-catalyzed procedures.

In recent time, organocatalyst mediated transformations finds ample attention of the researchers as an alternative to transition metal catalysis. Organocatalysts, being easily available, inexpensive and economically sustainable, signify themselves important from the 'Green Chemistry' point of view.[39] Ascorbic acid, which is an environment friendly, non-toxic, safe and inexpensive organic compound has immense possibility of using as an organocatalyst in organic transformations.[40] Ascorbic acid, as a synthon, has been utilised for the synthesis of many intermediates and biologically active molecules.[41] It has been reported to act as an appropriate reducing agent for the generation of aryl radicals from arene diazonium salt in absence of any metal catalysts.[42]

Considering these aspects, we are trying to explore a simple, efficient and greener pathway for the *ipso*-hydroxylation of arylboronic acid mediated by ascorbic acid and H_2O_2 (30% aqueous) in water at room temperature. Herein, we used aqueous H_2O_2 as oxidant which is environmentally acceptable stoichiometric reagent that shows a high efficiency per weight of oxidant and relatively easy to handle under ligand, metal and base free conditions.[43]

Results and Discussion

Initially, for the current *ipso*-hydroxylation protocol, phenylboronic acid has been chosen as the model substrate to elucidate the effectiveness of H_2O_2 as an oxidant at ambient temperature. No catalyst and solvent were used at first. The reaction was performed with 1 mmol of phenylboronic acid and 0.5 mL H_2O_2. After 60 minutes, very less yield (< 10%) was obtained (Table 1, entry 1). Additionally, the reaction mixture

[a] S. K. Das, P. Bhattacharjee, Dr. U. Bora
Department of Chemical Sciences
Tezpur University
Napaam - 784028, Assam, India
E-mail: ubora@tezu.ernet.in
ubora@yahoo.co.in

Supporting information for this article is available on the WWW under https://doi.org/10.1002/slct.201703036

© 2018 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Letters in Organic Chemistry, 2018, 15, 559-568
RESEARCH ARTICLE

BENTHAM SCIENCE

Ru (III) Schiff base Complex Anchored onto Rice Husk Derived Nanosilica Support: An Efficient Heterogeneous Catalyst for Oxidation of Alcohols

Nibedita Gogoi[1], Utpal Bora[2,*] and Pradip K. Gogoi[1,*]

[1]Department of Chemistry, Dibrugarh University, Dibrugarh-786004, Assam, India; [2]Department of Chemical Sciences, Tezpur University, Tezpur-784028, Assam, India

ARTICLE HISTORY
Received: April 30, 2017
Revised: July 24, 2017
Accepted: September 13, 2017
DOI:
10.2174/1570178614666171017104932

Abstract: A Rice Husk based nanosilica anchored Ru(III) Schiff-base complex was found to be a very efficient and reusable heterogeneous catalyst for organic transformation of alcohol to carbonyl compounds. The catalyst was obtained by simple Schiff-base condensation between 3-aminopropyltriethoxysilane (APTES) functionalized nanosilica and acetamide. The characterization of the catalyst was carried out by various techniques such as FT-IR, XRD, ESR, BET surface area measurements, SEM-EDX mapping and ICP-AES. The alcohol oxidation reactions were performed at 50°C using acetonitrile and TBHP as solvent and oxidant, respectively. The catalyst was found to be very effective towards alcohol oxidation with excellent product yield and reusable upto minimum 5[th] reaction cycle.

Keywords: Alcohol oxidation, heterogeneous catalyst, nanosilica, Ru (III) schiff base, organic, solvent.

1. INTRODUCTION

Controlled oxidation of alcohols into carbonyl compounds is getting wide attention because the carbonyl compounds are well known precursors for many drugs, vitamins, and fragrances and they are also important intermediates for various complex syntheses [1]. Earlier, the oxidation of alcohols was carried out in the presence of metal oxidants which are not always favourable because of the detrimental impact of metal waste on the environment. Nowadays, oxidation of alcohols in the presence of transition metals using molecular oxygen, H_2O_2 or *tert*-butyl hydroperoxide (TBHP) as oxidizing agents is well developed [2]. The immobilization of the homogeneous catalysts onto a solid support has an advantage over homogeneous catalyst from the separation and reusability point of view. During the last few years, several homogeneous Ru catalysts were used for the oxidation of alcohols with excellent yield and selectivity [3-5]. However, as in the case of most homogeneous catalysts, there was no reported reusability of the catalysts. Thus, efforts are being made to transform active homogeneous ruthenium catalysts into effective heterogeneous catalysts by adopting various immobilization strategies utilizing solid supports like silica [6, 7], clay [8], SBA-15/16 [9, 10] and zeolite [11]. Silica is one of the most valuable inorganic multipurpose compounds and good support for immobilizing homogeneous catalysts due to its low cost, wide accessibility, high thermal stability and high surface reactivity. The silica content of rice husk ash (RHA) is very high (90-97%) [12] and is a good source of extracting natural silica in a very easy way. The silanol (Si-OH) and siloxane (Si-O-Si) groups present in silica surface which are otherwise considered to be non-reactive [13], are the points of potential activity on the silica surface. Therefore, this RHA is an abundant, natural and easily available, cheap source of silica to be used as support material for heterogeneous catalysts [14, 15], particularly for immobilizing transition metal complexes with known catalytic activity. Furthermore, the silica obtained from RHA can easily be converted into nanophased silica with high surface area and large number of acidic sites compared to commercial silica.

In continuation of our work on alcohol oxidation by RHA derived nanosilica supported transition metal complexes [16], we report here a new Ru(III) complex anchored to nanosilica as a very effective heterogeneous catalyst. It has been postulated that in the mechanism of oxidation by transition metal complexes such as Cu(II) [16] and Fe(III) [17], there is a change of oxidation state of the active species in the catalytic cycle, which is favoured if redox potential is low, *e.g.* Fe(III) - Fe(II) = (+0.771), Cu(II)-Cu(I) = (+0.34) and it prompted us to test this hypothesis in case of Ru(III) as the redox potential of Ru(III)-Ru(II)=(+0.249), is also quite small. In case of oxidation by Fe(III) catalyst, more time and higher temperature are required, while in the presence of Cu(II) catalyst, much better yield with less time was achieved. As the redox potential of Ru(III)-Ru(II) is intermediate

*Address correspondence to these authors at the Department of Chemical Sciences, Tezpur University, Tezpur-784028, Assam, India; Tel/Fax: 91-371-2370123; E-mail: ubora@yahoo.co.in; and Department of Chemistry, Dibrugarh University, Dibrugarh-786004, Assam, India;
E-mail: dr.pradip54@gmail.com

1875-6255/18 $58.00+.00
© 2018 Bentham Science Publishers

Catalysis Letters (2018) 148:547–554
https://doi.org/10.1007/s10562-017-2278-z

CrossMark

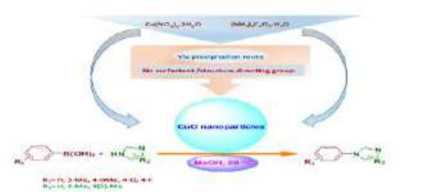
Spherical CuO Nanoparticles as Catalyst for Chan–Lam Cross-Coupling Reaction under Base Free Condition

Sameeran Kumar Das[1] · Pangkita Deka[1] · Monikha Chetia[1] · Ramesh C. Deka[1] · Pankaj Bharali[1] · Utpal Bora[1]

Received: 4 October 2017 / Accepted: 7 December 2017 / Published online: 21 December 2017
© Springer Science+Business Media, LLC, part of Springer Nature 2017

Abstract
An easy methodology has been developed for the *N*-arylation of imidazole with arylboronic acid in absence of base and ligand with the aid of as-synthesized CuO nanoparticles. The CuO nanoparticles have been synthesized via precipitation route. The as-synthesized copper oxide nanoparticles are well characterized by various analytical and spectroscopic techniques, such as powder XRD, Raman spectroscopy, TEM and BET surface area analyses. The CuO nanoparticles appear as spherical in shape with a surface area of 15.4 m^2/g. The mentioned reaction successfully proceeds at moderate temperature in presence of the as-synthesized nanoparticles. The protocol is applicable to a wide variety of electronically diverse precursor moieties signifying its well applicability.

Graphical Abstract



Keywords N-arylation · CuO nanoparticles · Imidazole · Phenylboronic acid · MeOH

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s10562-017-2278-z) contains supplementary material, which is available to authorized users.

Pankaj Bharali
pankajb@tezu.ernet.in

Utpal Bora
ubora@tezu.ernet.in

[1] Department of Chemical Sciences, Tezpur University, Napaam, Sonitpur, Assam 784028, India

1 Introduction

In modern synthetic organic chemistry, the construction of N-arylated products from N-containing heterocycles have found immense consideration in recent days. The N-arylated products find importance because of their wide applications as structural and functional units in natural products as well as in biological compounds [1–15]. A wide number

Received: 8 June 2017 | Revised: 30 October 2017 | Accepted: 1 November 2017
DOI: 10.1002/aoc.4192

FULL PAPER

WILEY Applied Organometallic Chemistry

Methanol aided synthesis of PdNPs decorated on montmorillonite K 10 and its implication in Suzuki Miyaura type cross coupling reaction under base free condition

Abhijit Mahanta | Prasanta Kumar Raul | Sanjib Saikia | Utpal Bora | Ashim Jyoti Thakur

Department of Chemical Sciences, Tezpur University (A central University), Tezpur Napaam, 784028 Assam, India

Correspondence
Dr. Ashim Jyoti Thakur and Dr. Utpal Bora, Tezpur University, Department of Chemical Sciences, Assam, India.
Email: ashim@tezu.ernet.in; ubora@tezu.ernet.in

An efficient catalyst PdNPs decorated on Montmorillonite K 10 is prepared by simply stirring $Pd(OAc)_2$ in methanol at room temperature without using any external reducing agent. The catalyst shows excellent activity for Suzuki Miyaura type cross coupling reaction between aryl diazonium salt and arylboronic acid under ligand and base free reaction conditions within short reaction time. The main advantage of this methodology is the easy synthesis of heterogeneous PdNPs @ Mont K 10 catalyst in a mild condition without using any reducing agent or additive and the catalyst is very efficient for biaryl synthesis. The catalyst is well characterized by SEM, EDX, TEM, BET, Powder XRD, TGA, DSC etc. The reaction pathway is greener with aqueous reaction medium, base free reaction condition, room temperature and reusable heterogeneous catalyst.

KEYWORDS
cross coupling, methanol, palladium NPs, room temperature

1 | INTRODUCTION

For centuries, the pursuit of designing green protocol in chemistry for the synthesis of efficient nano catalyst has become an utmost goal in research community as the chemistry of nano materials has gained much interest because of their higher efficiency compared to bulk materials. They have high surface area[1] and found wide applications in diverse areas such as catalysis, electronics, biochemical sensor[2] etc. Consequently, nano materials have emerged as sustainable alternative to conventional catalyst for different chemical transformations such as C-C and C-heteroatom bond forming reactions, C-H activation reaction etc. Among the metal nanoparticles (NPs), PdNPs find widespread applications as catalyst in aforementioned bond forming areas. Although, PdNPs exhibit excellent catalytic activity, but in most of the cases their synthetic route require high temperature,[3] ultra sonication,[4] active reducing agent[5] etc. As a result, there is growing interest for the development of green and eco-friendly route for the synthesis of PdNPs in a single step with minimum use of chemicals or by using environmentally acceptable solvents. Biological resources such as plant extracts,[6] microorganisms[7] etc. can be used for the synthesis of NPs as they have the reduction potential suitable for NPs synthesis. Additionally, considerable efforts have been made to prepare and stabilize PdNPs by using environmentally benign, robust, cheap and available support/stabilizer.[8,9] Reports have been found on the synthesis of PdNPs by using bio-reducing agents like leaf extract of *colocasia esculanta*,[9] tea and coffee extract,[10] soyabean leaf extract,[6] starch[11] etc. but, in most of the cases, temperature is an important parameter for synthesizing metal NPs which is against the prospect of 'green chemistry'. So, considering the above factors, synthesis of PdNPs at room temperature without using any external reducing agent is a very fascinating development in the area of nano catalysis. Alcoholic solvent has reducing properties itself and can be engaged for the synthesis of metal NPs which is considered as green synthetic process.[12a,b] Currently, a variety of

Copyright © 2017 John Wiley & Sons, Ltd.

Journal of Environmental Chemical Engineering 6 (2018) 3167–3176

Contents lists available at ScienceDirect

Journal of Environmental Chemical Engineering

journal homepage: www.elsevier.com/locate/jece

Facile synthesis of 1D-architecture of silver-vanadates in carbon nest for enhanced visible light driven photo-oxidation process

Biraj Das[a], Mukesh Sharma[a], Biplab K. Deka[b], Ankita Hazarika[b], Young-Bin Park[b], Anil Hazarika[c], Suresh K. Bhargava[d,**], Kusum K. Bania[a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam, 784028, India
[b] School of Mechanical, Aerospace and Nuclear Engineering, Ulsan National Institute of Science and Technology, Ulsan, 44919, Republic of Korea
[c] Department of Electronics and Communication Engineering, Tezpur University, Assam, India
[d] Centre for Advanced Materials and Industrial Chemistry, School of Sciences, RMIT University, Melbourne, Victoria, Australia

ARTICLE INFO

Keywords:
MWCNT
Silver/silver-chloride nanoparticles
Vanadium oxide
1D nanostructure
Methylene blue
Photo-oxidation

ABSTRACT

Ag/AgCl/V_2O_5 nanocatalysts with one dimensional (1D) architecture was synthesized in carboxylic acid functionalized multi-walled carbon nanotubes for methylene blue dye degradation. The growth of uniformly distributed nanoparticles along the carbon-nanotubes was revealed from high resolution transmission electron microscopy and atomic force microscopy analyses. Raman spectroscopy and transmission electron microscopy analyses also confirmed for the creation of defects in the multi-walled carbon nanotube. The hybrid nanocomposite appeared as a suitable photocatalyst for degradation of methylene blue dye absorbing the light in the visible range of solar spectrum. The presence of interactions within the nanoparticles and with the nanotubes was believed to enhance the photo-oxidation process. The creation of defects in the carbon nanotube on modification with Ag/AgCl/V_2O_5 improved the photocatalytic activity by enhancing the photoelectron transfer process. About ~90% of the total organic carbon of the dye molecule was found to decompose into CO_2, H_2O and inorganic ions within 25 min under sunlight.

1. Introduction

Drainage of coloured dye like methylene blue (MB) from textile industries into various drinking water sources is considered to be one of the major threats to the human health causing several diseases [1–6]. These types of dye molecule are very stable and are difficult to decompose under ambient conditions [7]. Therefore, mineralization of these carcinogenic carbon compounds applying some greener approach is urgently required for wastewater treatment [8–10]. So far different chemical methods as well different types of materials have been employed to remove MB from water [2,8–12].Among the various reported techniques, photocatalytic degradation of coloured dye molecule is considered to be one of the best techniques [13–15]. As per the photocatalyst are concerned, semiconducting materials viz TiO_2, CdS, ZnO are known to decompose MB with high efficiency, however, these are effective only in the ultra-violet region [9,16–18]. Therefore, more emphasis has been put towards the synthesis of new photocatalyst that can promote the oxidation of hazardous water pollutants absorbing light in the visible range [10].

Silver-vanadates ($AgVO_x$) are found to be useful materials for trapping visible light because of the presence of suitable band gap in the range of 1.35–2 eV [19,20]. Silver in combination with halogens (Cl, Br, I) can be more effective for these applications due to surface plasmon resonance (SPR) effect [21–26]. From our group it was reported that Ag/AgCl supported on amorphous vanadium oxide (VOx) can decompose methylene blue (MB) and methyl orange (MO) utilizing the solar energy [10]. However, the complete mineralization of the organic components was not achieved highlighting one of the major challenges in the photodegradation of dye molecules [10,27]. To alleviate this problem, the use of functionalized carbon-nanotubes (f-CNT) has been investigated due to their high adsorption ability towards organic dye molecules [23,38,39]. Monodispersed hierarchical CNT microspheres synthesized by a microwave (MW) assisted hydrothermal method are found to remove organic pollutants as dyes under visible light irradiation which maintained a high level of photocatalytic activity after multiple reaction cycles.[30] Therefore, in this report a simple and an efficient method has been adopted to improvise the photocatalytic ability of Ag/AgCl/V_2O_5 by supporting over −COOH functionalized

* Corresponding author at: Department of Chemical Sciences, Tezpur University, Assam, 784028, India.
** Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

https://doi.org/10.1016/j.jece.2018.04.067
Received 27 December 2017; Received in revised form 19 April 2018; Accepted 29 April 2018
Available online 01 May 2018
2213-3437/ © 2018 Elsevier Ltd. All rights reserved.

Applied Catalysis A, General xxx (2018) xxx-xxx

Contents lists available at ScienceDirect

Applied Catalysis A, General

journal homepage: www.elsevier.com

Substrate Oxidation Prompted by Solvent Dissociation: The Role of Peroxo-Vanadate and Ag-π Interaction

Biraj Das[a], Mukesh Sharma[a], Chayanika Kashyap[b], Ankur Kanti Guha[b,*], Anil Hazarika[c], Kusum K Bania[a,*]

[a] Department of Chemical Sciences, Tezpur University, Assam, 784028, India
[b] Department of Chemistry, Cotton University, Assam, 781001, India
[c] Sophisticated Analytical Instrumentation Center (SAIC) at Tezpur University, Assam, 784028, India

ARTICLE INFO

Keywords:
Silver-sulphur-oxido vanadium
acetonitrile
C-CN bond cleavage
benzyl alcohol oxidation
Ag-π interaction

ABSTRACT

Silver-sulphur hydroxo-peroxo vanadate species generated from silver-sulphur-oxido vanadium cluster favoured by the heterolytic dissociation of C≡N bond of acetonitrile was found to be highly active for selective oxidation of benzyl alcohol at low temperature and in presence of hydrogen peroxide. The in situ generated active peroxo-vanadium species was well characterized via electrospray ionization technique and various spectrochemical analyses. Benzyl alcohols with different substituents were successfully and selectively oxidized to its corresponding aldehydes. The reactions were highly solvent selective and it proceeded well only in acetonitrile. The formation of the product even in presence of free radical trapping agent revealed for the non-free radical mechanism. Density functional theory (DFT) calculations on the mechanism of benzyl alcohol oxidation suggested that Ag-π interaction played a significant role in stabilizing the intermediates and transition states.

1. Introduction

Oxidation of benzyl alcohol (BA) to benzaldehyde is one of the well known reactions that are being mostly studied due to the high applicability of benzaldehyde in pharmaceutical industries [1–4]. The dehydrogenation process although looks to be simple but from practical point of view it is much difficult to have control over the desired product [5–7]. In maximum cases the benzaldehyde formation is accompanied by over-oxidation of benzaldehyde to benzoic acid and thereby lowers the selectivity [8–10]. From kinetic modelling study it was also revealed that the oxidation of BA proceeded through different pathways leading to different by-products like toluene, benzoic acid and benzyl benzoate [11,12]. The main disadvantage associated with the reaction is the use of oxidant like H_2O_2 which follows the free radical mechanism and limits the product selectivity [8,13]. So, current emphasis has been made to develop a reaction pathway that would bypass the classical free radical mechanism [14–16]. Reaction through benzylic C-H bond activation is considered to be an alternate approach to have control over the autoxidation process [17]. Some success has been obtained in case of the reaction where the metals like silver (Ag) acts as co-catalyst to activate the benzylic C-H bond and lowers the activation barrier [17,18].

Out of the various transition metal catalysts, oxides of vanadium or vanadium metal complexes are also known to be effective catalyst for such oxidation process [19–21]. However, they demands for some costly reaction conditions to bring out the selectivity in the product formation [19–21]. Hence feasibility of the vanadium-based catalyst in this particular reaction is less emphasized. At the same time silver (Ag) supported in various metal oxides although known to be efficient catalyst for various organic transformations [22] but its involvement in BA oxidation with vanadium oxides are so far not explored in literature. Furthermore, metal-π interactions [23,24] are ubiquitous in nature and play a significant role in organometallic catalysis [25,26]. But such effect is not well understood in BA oxidation and involvement of Ag through Ag-π interaction [27] during BA oxidation has not been reported to best of our knowledge.

Apart from depending on the type of catalyst or metals, the oxidation of BA is also hampered by various physical parameters like temperature, solvent etc.,[8]. High temperature condition results in loss of selectivity and hence catalyst that could promote such reaction at low temperature is more desirable [28–30]. The solvents can also play vital role in modulating the suitable reaction path [31]. However, the disso-

UNCORRECTED PROOF

* Corresponding author.

https://doi.org/10.1016/j.apcata.2018.10.013
Received 16 August 2018; Received in revised form 8 October 2018; Accepted 9 October 2018
Available online xxx
0926-860/ © 2018.

ACS APPLIED MATERIALS & INTERFACES

Research Article

www.acsami.org

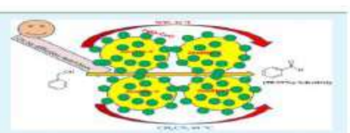
Pd/Cu-Oxide Nanoconjugate at Zeolite-Y Crystallite Crafting the Mesoporous Channels for Selective Oxidation of Benzyl-Alcohols

Mukesh Sharma,[†] Biraj Das,[†] Mitu Sharma,[†] Biplab K. Deka,[‡] Young-Bin Park,[‡] Suresh K. Bhargava,[*,§] and Kusum K. Bania[*,†,§]

[†]Department of Chemical Sciences, Tezpur University, Tezpur, Assam, India, 784028
[‡]School of Mechanical, Aerospace and Nuclear Engineering, Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea, 44919
[§]School of Sciences, RMIT University, Melbourne, Victoria 3000, Australia

Supporting Information

ABSTRACT: Solid-state grinding of palladium and copper salts allowed the growth of palladium/copper oxide interface at the zeolite-Y surface. The hybrid nanostructured material was used as reusable heterogeneous catalyst for selective oxidation of various benzyl alcohols. The large surface area provided by the zeolite-Y matrix highly influenced the catalytic activity, as well as the recyclability of the synthesized catalyst. Impregnation of PdO-CuO nanoparticles on zeolite crystallite leads to the generation of mesoporous channel that probably prevented the leaching of the metal-oxide nanoparticles and endorsed high mass transfer. Formation of mesoporous channel at the external surface of zeolite-Y was evident from transmission electron microscopy and surface area analysis. PdO-CuO nanoparticles were found to be within the range of 2−5 nm. The surface area of PdO-CuO-Y catalyst was found to be much lower than parent zeolite-Y. The decrease in surface area as well as the presence of hysteresis loop in the N_2-adsorption isotherm further suggested successful encapsulation of PdO-CuO nanoparticles via the mesoporous channel formation. The high positive shifting in binding energy in both Pd and Cu was attributed to the influence of zeolite-Y framework on lattice contraction of metal oxides via confinement effect. PdO-CuO-Y catalyst was found to oxidize benzyl alcohol with 99% selectivity. On subjecting to microwave irradiation the same oxidation reaction was found to occur at ambient condition giving same conversion and selectivity.



KEYWORDS: PdO-CuO, zeolite-Y, solid-state dispersion, benzyl alcohol, oxidation, microwave irradiation

1. INTRODUCTION

Nanoparticles (NPs) with smaller size distribution have recently been of high focus due to their exceptional catalytic performance compared to their bulk and large-size counterparts.[1−13] Ultrafine NPs usually within the range of 2−5 nm or more appropriately <2 nm appeared to be atom-efficient catalyst because of their high surface-to-volume ratio.[1−4,13,17] Such narrow size NPs also possess highly dense catalytic active sites that are available for effective catalysis.[5,6] In comparison to the monometallic NPs, bimetallic nanoclusters or metal oxides shows better activity due to the symbiosis existed between two different metals.[3,5,6,8] Because of such synergistic interaction the properties of the individual metal or metal oxides gets altered by virtue of charge and energy transfer resulting in the change in catalytic activities. So synthesis of mixed-metal oxides nanoparticle in smaller dimension is highly demanded because of their unique catalytic behavior governed by synergistic effect, as well as by the size.[18−20]

One of the disadvantages associated with these ultrafine or low dimension NPs is that they frequently suffer from agglomeration because of their high instability and thereby affect the catalytic efficiency.[4,7,9,10] Apart from stability, reusability of a nanocatalyst is an important factor that validates the usefulness of synthesizing a particular catalyst. So to improve the stability and reusability of these small and highly active particles, different techniques have been developed. Immobilizations into solid support like MOF, COF, silica, and graphene sheets are few of the conventional techniques to support such nanomaterials.[21] For example, Cao et al. designed conjugated microporous polymer to support ultrafine silver NPs (<3.7 nm).[21] Shang et al. fabricated graphene sheets with Pd and Ru ultrafine NPs and encapsulated into mesoporous SiO_2 for various catalytic oxidation−reduction reaction.[22] Zhao et al. synthesized ultrafine platinum/iron oxide nanoconjugates in silica nanoshells for CO oxidation.[23] Growth of such smaller range NPs into these solid matrixes are usually done by wet deposition technique, photo deposition,

Received: July 27, 2017
Accepted: September 21, 2017
Published: September 21, 2017

Journal of Environmental Chemical Engineering 5 (2017) 4212–4219

Contents lists available at ScienceDirect

Journal of Environmental Chemical Engineering

journal homepage: www.elsevier.com/locate/jece

Research paper

Rapid reduction of dye pollutants and hexavalent chromium by silver-sulphur oxido-vanadium cluster

Biraj Das, Mukesh Sharma, Jugal C. Sarmah, Kusum K. Bania*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Keywords:
AgVT-catalyst
Sodium borohydride
Methylene blue
Methyl orange
Chromium (VI)
Reduction

ABSTRACT

Very fast reduction of methylene blue, methyl orange and chromium (VI) was achieved with silver-sulphur-oxido-vanadium cluster in presence of sodium borohydride as reducing agent. With 10 mg of the catalyst and 100 μL of 3 mM solution of sodium borohydride, methylene blue solution of 0.01 mM concentration could be reduced within 4–5 s. While with 10 mg of catalyst and 20 mL of sodium borohydride, 30 mg of methylene blue dissolved in water got decolourized within 10 min. Aerial oxidation of reduced leuco methylene blue species to methylene blue was seen after 3 h on standing the reduced colourless solution of methylene blue. Prominent reduction of either methylene blue or methyl orange was observed at pH = 5.5, the pH measured just after addition of the catalyst. Increase or decrease in pH above or below 5.5 by addition of external base or acid resulted in retardation of dye reduction process. With the same amount of the catalyst (10 mg) and sodium borohydride (100 μL), reduction of Cr(VI) to Cr(III) was observed within 360 s. The catalytic reduction of dye compounds were well studied through UV–vis study while the reduction of Cr(VI) was monitored both by UV–vis and cyclic voltammetric study.

1. Introduction

Coloured dye compounds like methylene blue, methyl orange etc. are mostly used in textile, leather, cosmetic and paint industries [1–4]. With global demand and increase in such industries, these dye compounds are now needed in large quantities. Although these dye compounds has contributed a lot to industrial revolution being used in many commercial products but the drainage of such chemical coloured compounds is polluting the environment especially the river water [5,6]. Apart from this, these dyes are highly toxic and carcinogenic and sometimes become life threating [7–10]. Dye compounds often possess a large complex structures and has high thermal and photostability [11]. Because of their high stability, the biological/chemical methods become inadequate to decolourize such synthetic dye [12–14]. Currently catalytic oxidation [15], Fenton-type oxidation [16,17], photocatalytic degradation [18] using H_2O_2 or molecular oxygen (O_2), which are also known as Advanced Oxidation Process (AOP) [19] are gaining importance in waste water management processes. AOP processes, however sometimes leads to formation of harmful free radicals and hence emphasis has also been given towards the reduction of these coloured dye molecules either in presence or absence of some mild reducing agent [20,21].

Dye contamination is not only the contributors to the total water pollution but also toxic metals like hexavalent chromium, Cr(VI) are some of the most common contributors to water pollutants [22,23]. Besides these, chromium (Cr) in its highest oxidation state is extremely carcinogenic [22,24]. Compounds of Cr(III) are however 10–100 times less toxic compared to those of Cr(VI) [25]. Hence, in recent years various methods such as adsorption [26], electrochemical precipitation [27], and biomaterials [28] are being developed to reduce Cr(VI) to Cr (III). However, these methods have their own limitations and not so cost effective. Further, designing of a single catalyst which alone could serve the purposes of reducing dyes as well as Cr(VI), then it would be highly beneficial as well as cost effective.

Silver-based nano particles are recently being of high focus because of their ability to reduce dye components and Cr(VI) from water [29–31]. The first reversible reaction of MO with silver nanoparticles using sodium borohydride was reported by Zheng et al. They found that MO could be degraded within a very short time (5 min) but after addition of CTAB in the reaction mixture the colour of MO was regenerated [32]. Bogireddy et al. prepared silver NPs using S. acuminata fruit extract for the degradation of dye with sodium borohydride as reducing agent [33]. Singh and Kumari used *Zanthoxylum armatum* leaves for synthesis of AgNPs and used for degradation of various dyes. But it took several hours nearly 24 h to degrade the dyes [34]. Kolya et al. also reported for the degradation of congo red within 15 min [35].

* Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

http://dx.doi.org/10.1016/j.jece.2017.08.030
Received 12 March 2017; Received in revised form 13 August 2017; Accepted 15 August 2017
Available online 19 August 2017
2213-3437/ © 2017 Elsevier Ltd. All rights reserved.

This is an open access article published under an ACS AuthorChoice License, which permits copying and redistribution of the article or any adaptations for non-commercial purposes.

ACS OMEGA
Cite This: ACS Omega 2018, 3, 5327−5335
Article

Greener Biogenic Approach for the Synthesis of Palladium Nanoparticles Using Papaya Peel: An Eco-Friendly Catalyst for C−C Coupling Reaction

Anindita Dewan,[a] Manashi Sarmah, Ashim J. Thakur, Pankaj Bharali, and Utpal Bora

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

Supporting Information

ABSTRACT: The development of a green and sustainable synthetic methodology still remains a challenge across the globe. Encouraging the prevailing challenge, herein, we have synthesized Pd nanoparticles (Pd NPs) in a green and environmentally viable route, using the extract of waste papaya peel without the assistance of any reducing agents, high-temperature calcination, and reduction procedures. The biomolecules present in the waste papaya peel extract reduced Pd(II) to nanosize Pd(0) in a one-pot green and sustainable process. As a catalyst, the new Pd NPs offer a simple and efficient methodology in direct Suzuki−Miyaura and Sonogashira coupling with excellent yields under mild reaction conditions.

INTRODUCTION

Transition metals, on account of their unique bonding properties and reaction mechanism, provide newer opportunities for synthetic application as a catalyst.[1,2] In this regard, palladium continues to attract great interest because of its versatility as a catalyst that mediates various C−C bond-forming reactions.[3−12] Among them, Suzuki−Miyaura[13−15] and Sonogashira[16−20] cross-coupling reactions are reliable and powerful methods for the synthesis of biaryl[21−24] and acetylenyl[25−27] derivatives which are ubiquitous features in numerous biologically active compounds. They have a vast application potential as a key synthetic precursor for the construction of pharmaceuticals, fine chemicals, agrochemicals, natural products, and smart engineering materials, including conducting polymers and molecular wires.[28−31] Consequently, there is a need to design a highly efficient, cost-effective, simple, commercially viable, and environmentally friendly methods for the synthesis of biaryl and acetylenyl derivatives. Nowadays, metal nanoparticles (NPs) have received particular interest in a wide range of research fields because of their fabulous ability as a nanocatalyst and connecting the homogeneous and heterogeneous catalysis.[32]

These features invariably attract the researchers to use NPs in catalysis. Usually metal NPs are prepared by different chemical, physical, and biological methods.[34] Conventional NP synthesis methods involve the usage of toxic chemicals, formation of hazardous by-products, and contamination from precursor chemicals. Therefore, development of clean, nontoxic, and environment-friendly procedures for NP synthesis is needed. In this aspect, biological techniques have several advantages over physical and chemical methods. It involves the use of environment-friendly green chemistry-based approach that employs microorganisms (bacteria, fungi, algae, and yeast) and plants.[35] In comparison to the rate of reduction of metal ions with microorganisms, plant extract is found to be more effective.[36] However, the use of plant resources for NP synthesis brings up significant drawback, leading to the destruction of ecologically important plants and plant parts. As such, in order to avoid this and to serve the purpose of pollution mitigation, use of agrowaste is amenable, which is otherwise a significant source of pollution and creates waste management issues. The use of various agrowastes for the synthesis of NPs is an attractive platform in last few decades. Moreover, nowadays, use of agricultural waste such as peel extract for the production of cellulose nanofibers is a widely accepted technology.[37,38]

Papaya (*Carica papaya* L, family: Caricaceae) is one of the most common fruits disseminated throughout the world. Papaya juice has a wide range of purported medicinal properties for the treatment of various diseases. In industry, the processing of this fruit, as well as its fresh consumption, results about 20−25% of waste, such as peels and seeds which are abundant natural waste materials across the world.[39] Waste utilization from food processing industries is highly essential and challenging task all around the globe.[37,38] As such, new aspects toward recyclability of the waste by-products in organic synthesis should be encouraged by the researchers from the point of environmental issues. Keeping this in mind, herein, we

Received: January 9, 2018
Accepted: April 30, 2018
Published: May 17, 2018

Molecular Catalysis 451 (2018) 153–160

Contents lists available at ScienceDirect
Molecular Catalysis
journal homepage: www.elsevier.com/locate/mcat

Cubic Mn_2O_3 nanoparticles on carbon as bifunctional electrocatalyst for oxygen reduction and oxygen evolution reactions

Kumar Kashyap Hazarika, Chiranjita Goswami, Himadri Saikia, Biraj Jyoti Borah, Pankaj Bharali *

Department of Chemical Sciences, Tezpur University, Napaam 784 028, Assam, India

ARTICLE INFO

Article history:
Received 31 August 2017
Received in revised form 6 December 2017
Accepted 11 December 2017
Available online 24 December 2017

Keywords:
Mn_2O_3/C
Electrocatalyst
Oxygen reduction
Oxygen evolution reactions

ABSTRACT

Transition metal oxides are most promising non-platinum catalysts for oxygen reduction (ORR) and oxygen evolution reactions (OER) in renewable-energy technologies. Among transition metal oxides, Mn oxides are very active for both ORR and OER and can act as a bifunctional catalyst. But due to their poor electronic conductivity, carbon materials are used as supports or mixed with other metal oxides to increase their conductivity that assistances in electrochemical applications. Herein, a highly active mesoporous cubic material consisting of Mn_2O_3 nanoparticles grown on carbon (Vulcan XC-72 R) as a high performance bifunctional catalyst for both ORR and OER have been synthesized. The synthesized Mn_2O_3/C has been characterized by various structural analyses. The Mn_2O_3/C material exhibits much better ORR activity compared to the commercially available Pt/C and Pd/C in alkaline media. The same material is also active for OER, making it a bifunctional electrocatalyst for both the reactions. Consequently, Mn_2O_3/C is quite stable up to 1000 cycles displaying its better stability. The reaction mechanism follows a 4-electron pathway for ORR. The superior electrocatalytic presentation mainly arises due to the better synergistic coupling effect of carbon and Mn_2O_3.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

The world's ever-growing energy demand combined with the crisis of natural resources inspired the researchers towards extensive exploration of sustainable and renewable energy sources [1]. To overcome these shortcomings, alternative energy storage and conversion devices such as, metal air batteries, fuel cells and water splitting systems have been widely employed as efficient and clean energy sources [2]. Fuel cells are considered to be superior energy converters capable of converting chemical energy of fuels (e.g. hydrogen, methanol, ethanol, etc.) into electrical energy [3]. Among different types of the existing fuel cells, proton exchange membrane fuel cells (PEMFCs) have attracted enormous attention owing to its advantages such as low operation temperature, high energy density, high energy conversion efficiency and more eco-friendly and find wide application in transportation, portables and stationary devices [4]. Similarly, a metal-air battery, characterized by an open cell structure also produces and stores energy via a redox reaction between metal and oxygen in air [5]. However, for worldwide commercialization of these applications in terms of cost, efficiency and longevity, high performance oxygen electrodes are needed [6]. One of the most important reactions that take place in the cathode of fuels cells as well as metal air batteries is the oxygen reduction reaction (ORR) [7,8]. Moreover, oxygen evolution reaction (OER) that generates oxygen during water oxidation is also of great interest due to its significance in the energy conversion devices [9,10]. Both the reactions i.e. ORR and OER depends extremely on the catalyst as well as the electrolyte used and proceed via a four electron reaction pathway involving various intermediates and suitable mechanisms [11]. One of the key drawbacks of both the fuel cells and the metal-air batteries, which lead to loss of cell efficiency, is the sluggish kinetics of oxygen reduction reaction (ORR) and oxygen evolution reaction (OER) that takes place at the cathode and anode of these electrochemical devices [12]. Thus, developing desirable nanocatalysts to overcome the sluggish kinetics of ORR and OER is one of the most demanding tasks [13]. In general, state-of-the-art platinum/carbon (Pt/C) catalyst or platinum based materials are considered to be the best catalyst for ORR and OER in both alkaline and acidic medium due to its excellent electrocatalytic activity [14–16]. However, the high cost, scarcity and low durability prevent its extensive commercial applications. Therefore, much effort has been given towards exploration of cost effective, durable and highly abundant alternative electrocatalysts

* Corresponding author.
E-mail addresses: pankajb@tezu.ernet.in, pbharali@yahoo.com (P. Bharali).

https://doi.org/10.1016/j.mcat.2017.12.012
2468-8231/© 2017 Elsevier B.V. All rights reserved.

Catalysis Science & Technology

PERSPECTIVE

View Article Online
View Journal

Check for updates

Cite this: DOI: 10.1039/c8cy01860j

Regioselective C–H and N–H functionalization of purine derivatives and analogues: a synthetic and mechanistic perspective

Manoj Mondal,[a] Tahshina Begum[b] and Pankaj Bharali[a]

Purines, which are heterocyclic compounds built up of fused pyrimidine and imidazole rings, serve as ubiquitous structural cores of nucleic acids (DNA and RNA), natural products, bio-active molecules, and pharmaceuticals. Among a variety of synthetic approaches toward purines, selective functionalization through C–H/N–H bond activation has undergone rapid development in the past few years. Since purines have several C–H/N–H bonds with distinct reactivities, the development of strategies that allow for the regioselective functionalization of purines is a central issue. This perspective offers an overview of the recent C–H/N–H bond activation methods in purine functionalization. The reported methods are categorized according to the type of bond being formed, e.g. C–CH_2–, C–CH=, C–C≡, C–X (I, Br), C–C=N, C–N, C–Si, N–C. This covers most of the recent advances in the functionalization of C2–H, C6–H, C8–H, N7–H and N9–H bonds of purines, as well as their scope, limitations, mechanisms and practical applications.

Received 5th September 2018,
Accepted 17th October 2018

DOI: 10.1039/c8cy01860j

rsc.li/catalysis

1. Introduction

Purine is the most ubiquitous nitrogen-containing fused-ring in nature,[1] as it is the core unit of adenine and guanine in nucleic acids (DNA and RNA). Purine and purine nucleosides have displayed unique biological activities and they are used as prototypes for the development of numerous antivirals, antiretrovirals, antibiotics, anti-inflammatories, anticancer agents, biosensors, biological probes, *etc.*[2–6] For instance, the N-9 substituted purine derivatives are known to exhibit broad biochemical and medicinal activities and are used as CHIKV inhibitors,[7] anti-CRF,[8] anti-mTOR,[9] and PDE4 inhibitors[10] (Fig. 1). C6-Aryl- and heteroaryl purine nucleoside analogs represent another important class possessing significant cytostatic activity,[11,12] high inhibitory activity against *Mycobacterium tuberculosis*,[13–15] and are used as prototypes for the synthesis of ATP analogs.[16] The 2,6-diaminopurines, like roscovitine, olomoucine, and purvalanol A and B, exert biological activities against CDKs, and other receptors and enzymes.[17] Besides, numerous synthetic or chemically modified/functionalized di-, tri- or tetra-substituted purines have found a wide variety of applications as inhibitors of chaperone HSP90, sulfotransferases, phosphodiesterases and protein kinases (MAP, Cdk, and Src), corticotropin-releasing hormone receptors, inducers of interferon and antagonists of adenosine receptors.[17]

The potential of purine analogs as therapeutic agents has led to significant interest in the development of novel and effective approaches to their synthesis. At present, a variety of useful methodologies are available to access these nucleoside analogs. The most valuable approaches have involved the use of transition metal-catalyzed cross-coupling processes,[3,18,19] the field that has triggered research activities aimed at developing synthetic routes to nucleoside analogs. While these methods are impressive, they do involve the use of relatively expensive pre-functionalized starting materials for both reactivity and selectivity, and their practical synthetic values may be questionable. To increase atom/step economy, and to provide a cleaner and more efficient method, the direct C–H bond functionalization protocol, preferably carried out in a single step, does appear to be the method of choice. However, the presence of several reactive C–H/N–H bonds (C2–H, C6–H, C8–H, N7–H and N9–H) makes purine a potential and challenging candidate for site-selective functionalization.

In 2002, Bergman, Ellman, and co-workers reported the first successful Rh-catalyzed C–H alkylation of purine using olefins, which occurs at the kinetically more acidic C-8 positions.[20] Other catalytic systems consisting of Pd, Cu, Co, Ni, Ir, Fe and Mn metals have also been found to regioselectively activate the C8–H bond of purines, and Cu (N9–H), Ru (C6–H) and Ag (C6–H) were subsequently employed for the functionalized of other C–H positions of the purine ring. In another development, the nitrogen atoms in the

[a] Department of Chemical Sciences, Tezpur University, Tezpur-784028, Assam, India. E-mail: manojmondal@gmail.com, manoj17@tezu.ernet.in
[b] Chemical Sciences & Technology Division, CSIR-NEIST, AcSIR, Jorhat-785006, India

This is an open access article published under an ACS AuthorChoice License, which permits copying and redistribution of the article or any adaptations for non-commercial purposes.

ACS OMEGA
Cite This: ACS Omega 2018, 3, 5327−5335
Article

Greener Biogenic Approach for the Synthesis of Palladium Nanoparticles Using Papaya Peel: An Eco-Friendly Catalyst for C−C Coupling Reaction

Anindita Dewan,[a] Manashi Sarmah, Ashim J. Thakur, Pankaj Bharali, and Utpal Bora

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

Supporting Information

ABSTRACT: The development of a green and sustainable synthetic methodology still remains a challenge across the globe. Encouraging the prevailing challenge, herein, we have synthesized Pd nanoparticles (Pd NPs) in a green and environmentally viable route, using the extract of waste papaya peel without the assistance of any reducing agents, high-temperature calcination, and reduction procedures. The biomolecules present in the waste papaya peel extract reduced Pd(II) to nanosize Pd(0) in a one-pot green and sustainable process. As a catalyst, the new Pd NPs offer a simple and efficient methodology in direct Suzuki−Miyaura and Sonogashira coupling with excellent yields under mild reaction conditions.

INTRODUCTION

Transition metals, on account of their unique bonding properties and reaction mechanism, provide newer opportunities for synthetic application as a catalyst.[1,2] In this regard, palladium continues to attract great interest because of its versatility as a catalyst that mediates various C−C bond-forming reactions.[3−12] Among them, Suzuki−Miyaura[13−15] and Sonogashira[16−20] cross-coupling reactions are reliable and powerful methods for the synthesis of biaryl[21−24] and acetylenyl[25−27] derivatives which are ubiquitous features in numerous biologically active compounds. They have a vast application potential as a key synthetic precursor for the construction of pharmaceuticals, fine chemicals, agrochemicals, natural products, and smart engineering materials, including conducting polymers and molecular wires.[28−31] Consequently, there is a need to design a highly efficient, cost-effective, simple, commercially viable, and environmentally friendly methods for the synthesis of biaryl and acetylenyl derivatives. Nowadays, metal nanoparticles (NPs) have received particular interest in a wide range of research fields because of their fabulous ability as a nanocatalyst and connecting the homogeneous and heterogeneous catalysis.[32]

These features invariably attract the researchers to use NPs in catalysis. Usually metal NPs are prepared by different chemical, physical, and biological methods.[34] Conventional NP synthesis methods involve the usage of toxic chemicals, formation of hazardous by-products, and contamination from precursor chemicals. Therefore, development of clean, nontoxic, and environment-friendly procedures for NP synthesis is needed. In this aspect, biological techniques have several advantages over physical and chemical methods. It involves the use of environment-friendly green chemistry-based approach that employs microorganisms (bacteria, fungi, algae, and yeast) and plants.[35] In comparison to the rate of reduction of metal ions with microorganisms, plant extract is found to be more effective.[36] However, the use of plant resources for NP synthesis brings up significant drawback, leading to the destruction of ecologically important plants and plant parts. As such, in order to avoid this and to serve the purpose of pollution mitigation, use of agrowaste is amenable, which is otherwise a significant source of pollution and creates waste management issues. The use of various agrowastes for the synthesis of NPs is an attractive platform in last few decades. Moreover, nowadays, use of agricultural waste such as peel extract for the production of cellulose nanofibers is a widely accepted technology.[37,38]

Papaya (Carica papaya L, family: Caricaceae) is one of the most common fruits disseminated throughout the world. Papaya juice has a wide range of purported medicinal properties for the treatment of various diseases. In industry, the processing of this fruit, as well as its fresh consumption, results about 20−25% of waste, such as peels and seeds which are abundant natural waste materials across the world.[39] Waste utilization from food processing industries is highly essential and challenging task all around the globe.[37,38] As such, new aspects toward recyclability of the waste by-products in organic synthesis should be encouraged by the researchers from the point of environmental issues. Keeping this in mind, herein, we

Received: January 9, 2018
Accepted: April 30, 2018
Published: May 17, 2018

ACS Publications © 2018 American Chemical Society 5327 DOI: 10.1021/acsomega.8b00039 ACS Omega 2018, 3, 5327−5335

Tetrahedron Letters 59 (2018) 2281–2283

Contents lists available at ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Combining spiro-fused cyclohexadienone – tetrahydrofuran ring system with glycine: Asymmetric synthesis of a new class of α-amino acid derivatives

Runjun Devi, Sajal Kumar Das*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Article history:
Received 21 March 2018
Revised 27 April 2018
Accepted 29 April 2018
Available online 30 April 2018

Keywords:
Nonproteinogenic α-amino acids
Pararomycin
Sharpless asymmetric dihydroxylation
Oxidative dearomatization–spirocyclization

ABSTRACT

Herein, we present the asymmetric synthesis of spiro-fused cyclohexadienone – tetrahydrofuran-embedded glycine derivatives as a new class of nonproteinogenic α-amino acid derivatives. Starting from commercially available 2-allylphenols, key β-hydroxy-α-amino esters were synthesized via high-yielding multi-step reaction sequences involving Sharpless asymmetric dihydroxylation as the chirality induction step. $PhI(OAc)_2$-mediated oxidative dearomatization – spirocyclization of phenol-tethered β-hydroxy-α-amino esters efficiently produced the corresponding spiro-fused cyclohexadienone – tetrahydrofuran-embedded glycine derivatives, providing a general route to this hitherto-unreported class of compounds that are equipped with three privileged scaffolds (cyclohexadienone – tetrahydrofuran – α-amino ester).

© 2018 Elsevier Ltd. All rights reserved.

Introduction

The past few decades have witnessed tremendous exploitation of nonproteinogenic α-amino acids in the construction of designer

Tetrahedron Letters 59 (2018) 4263–4266

Contents lists available at ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Boron trifluoride–etherate in fluorinated alcohols: A powerful promoter system for intramolecular alkyne–aldehyde metathesis of *o*-(3-arylpropargyloxy)benzaldehydes

Arup Jyoti Das [1], Runjun Devi [1], Sajal Kumar Das*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Article history:
Received 2 September 2018
Revised 16 October 2018
Accepted 22 October 2018
Available online 23 October 2018

Keywords:
2*H*-Chromene
3-Aroyl-2*H*-chromenes
Fluorinated alcohols
Alkyne–aldehyde metathesis

ABSTRACT

Boron trifluoride–etherate ($BF_3{\cdot}OEt_2$) in 2,2,2-trifluoroethanol (TFE) was found to be a highly efficient promoter system for the intramolecular alkyne–aldehyde metathesis of *o*-(3-arylpropargyloxy)benzaldehydes. The reaction produces the corresponding 3-aroyl-2*H*-chromenes in excellent yields under metal-free conditions.

© 2018 Elsevier Ltd. All rights reserved.

In recent years, there has been remarkable growth in the use of fluorinated alcohols such as 2,2,2-trifluoroethanol (TFE) and 1,1,1,3,3,3-hexafluoroisopropanol (HFIP) as solvents, co-solvents, or additives in various known and unknown transformations [1]. Compared to their non-fluorinated alcohol analogues, TFE and HFIP have low nucleophilicity, low pKa, high ionizing power, high polarity, ability to stabilize cationic species, and are strong hydrogen-bond donors [1]. In many cases, fluorinated alcohols turned out to be more potent compared to traditionally employed solvents, including their non-fluorinated analogues. For examples, better results were obtained by using HFIP/TFE as solvents, co-solvents, or additives in epoxidation of alkene by H_2O_2, oxidation of sulfur, hydrogenation, cycloaddition-type reactions, ring-opening of oxiranes with aromatic amines, and aza-Michael reactions [1].

2*H*-Chromene [Fig. 1, left panel] represents key structural motif context of our own medicinal chemistry project, we also needed to synthesize 3-aroyl-2*H*-chromenes.

There exist few methods to obtain 3-aroyl-2*H*-chromenes in a high-yielding manner from readily available starting materials [4–8]. Among them, the intramolecular alkyne–aldehyde metathesis reaction of *o*-(3-arylpropargyloxy)benzaldehydes has emerged as a convenient method for the synthesis of such type of molecules (Scheme 1, upper panel) [6–8]. In the year of 2005, Krische's research group reported only one example of 3-aroyl-2*H*-chromene while demonstrating intra- and intermolecular alkyne–carbonyl metathesis [6]. Subsequently in 2011, Jana and co-workers modified this protocol using $FeCl_3$ (15 mol%) in refluxing acetonitrile to obtain the corresponding 3-aroyl-2*H*-chromenes (10 examples) in moderate to good yields (68–89%) [7]. More recently in 2015, Kim and Jung applied $In(OTf)_3$-catalyzed intramolecular

Organic & Biomolecular Chemistry

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: *Org. Biomol. Chem.*, 2018, **16**, 5846

Phenolate-induced intramolecular ring-opening cyclization of *N*-tosylaziridines: access to functionalized benzoxacycles†

Runjun Devi, Jonali Das, Bipul Sarma and Sajal Kumar Das *

Received 16th May 2018,
Accepted 24th July 2018

DOI: 10.1039/c8ob01143e

rsc.li/obc

Phenolate-induced, diastereo- and regioselective intramolecular *exo*-tet ring-opening cyclization of *N*-tosylaziridines has been achieved for the first time. The *N*-tosylaziridine substrates bearing a tethered (*ortho*-(*tert*-butyldimethylsiloxy)aryl substituent, prepared directly from the corresponding olefins under Sharpless aziridination conditions, furnished functionalized 2,3-dihydrobenzofuran, chroman, and 1-benzoxepane derivatives in excellent yields when treated with tetrabutylammonium fluoride (TBAF) at room temperature. Our ability to synthesize benzoxacycle-based *N*-tosyl-protected amino alcohols, that are otherwise difficult to obtain by traditional synthetic routes, has opened the door to diversify the chemistry of β-amino alcohols. We also succesfully performed the Baeyer–Villiger oxidation of a salicylaldehyde ether bearing a tethered *N*-tosylaziridine moiety with *m*-CPBA followed by tandem saponification and 6-*exo*-tet aziridine ring-opening cyclization, furnishing the corresponding *trans*-3,4-disubstituted-1,4-benzodioxane derivative. Overall, the study has unveiled a new entry to the synthesis of benzoxacycles and has also broadened the impact of aziridines as synthetic building blocks.

Introduction

N-Activated aziridines serve as versatile building blocks to generate (*N*-derivatized)aminoethyl fragment-bearing compounds *via* inter- and intramolecular nucleophilic ring-opening reactions.[1] Today, the portfolio of nucleophiles that are widely used in the manipulations of aziridine ring-opening chemistry includes diverse carbon- and hetero-nucleophiles. Along this line, phenols are notable exceptions as they are scarcely found in the gamut of main line nucleophiles used in the aziridine ring-opening chemistry.[2] This dearth is apparently due to the poor nucleophilicity of phenols/phenolates. Intermolecular ring-opening reactions of aziridines by phenols/phenolates often suffer from disadvantages such as long reaction times, low yields, poor regio- and stereo-

carbon atoms (Scheme 1, upper panel),[3] more often than not they remain unsettled.

On the other hand, benzo-fused oxygen heterocycles such as 2,3-dihydrobenzofuran, chroman, 1,4-benzodioxane, and 1-benzoxepane ring systems are integral parts of a large number of biologically important natural and synthetic compounds.[4] A plethora of methods is available for the stereo- and regioselective synthesis of these *privileged* heterocyclic systems, but the most commonly reported methods are based on intramolecular S_NAr reaction, transition-metal-catalyzed C–O bond formation reaction, and Mitsunobu reaction, with each approach has its own advantages and disadvantages.[4] The development of new approaches for their synthesis involving various advantageous features, such as complete atom-economy, transition-metal-free conditions, shorter reaction

2019

Solar Energy 186 (2019) 360–369

Contents lists available at ScienceDirect

Solar Energy

journal homepage: www.elsevier.com/locate/solener

Polyaniline nanotube/reduced graphene oxide aerogel as efficient counter electrode for quasi solid state dye sensitized solar cell

Kiranjyoti Mohan[a], Anindita Bora[a], Raj Sekhar Roy[a], Bikash Chandra Nath[b], Swapan Kumar Dolui[a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, Assam 784028, India
[b] Department of Physics, Tezpur University, Napaam, Assam 784028, India

ARTICLE INFO

Keywords:
Dye sensitized solar cell
Graphene based aerogel
Polyaniline nanotube
Counter electrode

ABSTRACT

Polyaniline nanotube/reduced graphene oxide aerogel (PAniNT/rGOA) is studied as a potential counter electrode material for a quasi-solid-state dye-sensitized solar cell (DSSC) fabricated with poly(methyl methacrylate) based polymer gel electrolyte. The aerogel, prepared via an organic sol–gel route, having a high surface area of 294.73 $m^2 g^{-1}$ exhibits excellent electro-catalytic activity towards the reduction of triiodide ions in the electrolyte. The excellent catalytic activity of the aerogel based electrodes is manifested with cyclic voltammetry based analyses. Electrochemical impedance analyses and current density vs voltage plots are employed to gauze the photovoltaic performance of the DSSCs fabricated with PAniNT/rGOA counter electrode. The thickness of the counter electrode is a crucial factor that affects the performance of the DSSC: thicker films offer more surface area for electro-catalytic reduction reaction whilst increasing the charge and mass transport resistances simultaneously. At an optimum PAniNT/rGOA electrode film thickness of 8.68 μm, a power conversion efficiency of 5.47% is achieved. In addition, an improvement of open circuit voltage is observed due to the capacitance involved at the electrolyte/electrode interface.

I&EC research
Industrial & Engineering Chemistry Research

Article

Cite This: *Ind. Eng. Chem. Res.* 2019, 58, 22771–22778

pubs.acs.org/IECR

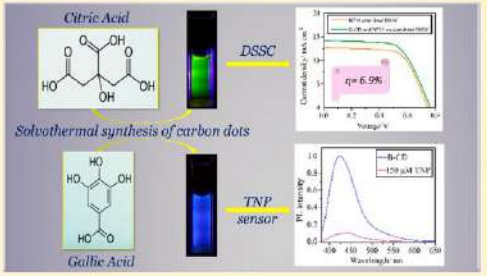
Carbon Dots as Cosensitizers in Dye-Sensitized Solar Cells and Fluorescence Chemosensors for 2,4,6-Trinitrophenol Detection

Anindita Bora, Kiranjyoti Mohan, and Swapan Kumar Dolui*

Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

Supporting Information

ABSTRACT: Carbon dots (CDs) are a unique class of fluorescent nanomaterials, whose emissions can be tuned by manipulating the reaction conditions of their formation. Herein, we report a facile solvothermal route for producing CDs with tunable properties by employing *N,N*-dimethylformamide as the solvent medium. Using completely green carbon sources, two types of CDs are synthesized: citric acid produces green emitting CDs (G-CDs) while gallic acid produces blue emitting CDs (B-CDs). The optical analysis of the G-CDs suggests their application as cosensitizers along with the N719 dye in dye-sensitized solar cells (DSSCs). Following this, the effect of G-CDs in DSSCs was studied and



Applied Polymer SCIENCE

Development of a gelatin-*g*-poly(acrylic acid-*co*-acrylamide)-montmorillonite superabsorbent hydrogels for *in vitro* controlled release of vitamin B_{12}

Jayashree Nath, Anupam Chowdhury, Ilias Ali, Swapan Kumar Dolui

ABSTRACT: Gelatin (Ge)-*g*-poly(acrylic acid-*co*-acrylamide) and montmorillonite (MMT)-clay-based nanocomposite hydrogels were fabricated to study the controlled release of vitamin B_{12}. Polymeric hydrogels were characterized with Fourier transform infrared (FTIR) spectroscopy, X-ray diffraction (XRD), scanning electron microscopy (SEM), and transmission electron microscopy (TEM). FTIR spectroscopy confirmed the grafting of partially neutralized acrylic acid on a Ge backbone. The incorporation of MMT fillers inside the nanocomposite hydrogels and their increased crystallinity were established by XRD analysis. The rough surface morphologies of the composite hydrogels shown by SEM resulted from the assimilation of MMT inside the same. TEM confirmed the formation of nano-sized composites. The average length and width of the MMT platelets were found to be 184.37 and 20.48 nm, respectively. The maximum swelling of the hydrogel was 375 g/g, and the results were established with Design-Expert software. The biodegradability of the nanocomposite increased in comparison to that of the copolymer hydrogel. Biocompatibility and cytotoxicity studies were also performed. During different time intervals, the controlled release of vitamin B_{12} in artificial gastric fluid (AGF) and artificial intestinal fluid (AIF) was evaluated with a UV–visible spectrophotometer; this resulted in different controlled release curves. The release in AGF was 42%, and in AIF, the cumulative release was 80% over 6 h. © 2019 Wiley Periodicals, Inc. J. Appl. Polym. Sci. 2019, 136, 47596.

Journal of Polymer Research (2019) 26: 163
https://doi.org/10.1007/s10965-019-1804-7

ORIGINAL PAPER

A thermally remendable multiwalled carbon nanotube/epoxy composites via Diels-Alder bonding

Junali Handique[1] · Swapan Kumar Dolui[1]

Received: 25 October 2018 / Accepted: 3 May 2019 / Published online: 11 June 2019
© The Polymer Society, Taipei 2019

Abstract
Mechanically robust and self-healing epoxy composites are highly desired to satisfy the increasing demand of high-performance smart materials. Herein, a dual functionalized epoxy composite (EpF-MWCNT-PA-BM) with self-healing performance based on Diels-Alder chemistry has been investigated. The furfuryl grafted epoxy (EpF) and furfuryl modified MWCNTs (MWCNT-F) are reacted with bifunctional maleimide (BM) and normal anhydride curing agent (PA) to form a covalently bonded and reversibly crosslinked epoxy composite with two types of intermonomer linkage. That is, thermally reversible Diels-alder bonds between the furan groups of both epoxy and MWNCTs with malemide and thermally stable bonds of epoxide and anhydride groups. MWCNTs act as both reinforcer and a healant in the epoxy composite. In this way, the cured epoxy composite possessed not only enhanced mechanical properties but also thermal remendability that enabled elimination of cracks. The latter function took effect as a result of successive retro-DA and DA reactions, which led to crack healing upto 79.82% healing efficiency in a controlled manner through chain reconnection.

Keywords Epoxy · Multiwalled carbon nanotubes · Diels-Alder · ATRP · Self-healing

Introduction

thermal stability and solvent resistance, remarkable adhesive

Tetrahedron 75 (2019) 130605

Contents lists available at ScienceDirect

Tetrahedron

journal homepage: www.elsevier.com/locate/tet

Water-soluble polymer anchored peroxotitanates as environmentally clean and recyclable catalysts for mild and selective oxidation of sulfides with H_2O_2 in water

Kabirun Ahmed, Gangutri Saikia, Sivangi Paul, Satyajit Dey Baruah, Hiya Talukdar, Mitu Sharma, Nashreen S. Islam*

Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India

ARTICLE INFO

Article history:
Received 18 July 2019
Received in revised form
5 September 2019
Accepted 11 September 2019
Available online 17 September 2019

Keywords:
Peroxotitanium(IV) complexes
Polymer anchored complexes
Selective sulfide oxidation
Aqueous reaction
Homogeneous catalyst

ABSTRACT

Anchoring of peroxotitanium (pTi) species to linear water-soluble acrylic acid based polymers, poly(sodium acrylate) (PA) and poly(sodium methacrylate) (PMA) led to the successful synthesis of a pair of new, water-tolerant and recyclable catalysts of the type $[Ti_2(O_2)_2O_2(OH)_2]^{4-}$-L (L ¼ PA or PMA), highly effective in chemoselective sulfoxidation of organic sulfides with 30% H_2O_2 in aqueous medium at ambient temperature. The catalytic protocol is high yielding (TOF up to 11,280 h^{-1}), operationally simple as well as environmentally clean and safe, being free from halide, or any other toxic auxiliaries. The catalysts are sufficiently stable to afford easy recyclability for at least 10 consecutive reaction cycles of sulfoxidation with consistent activity selectivity profile. Oxidation of dibenzothiophene (DBT) to respective high purity sulfoxide or sulfone could also be accomplished using the same catalysts by variation of reaction conditions.

© 2019 Elsevier Ltd. All rights reserved.

1. Introduction

Water soluble peroxotitanates have been for the past several years object of intense investigation for a variety of reasons including their utility as ideal environmentally benign precursors for preparation of titanium-containing functional materials by water-based synthesis methods [1]. Most importantly, Ti(IV)ēperoxo systems have proved to be excellent and versatile oxidation catalysts, as elegantly exemplified in a wide range of oxygen transfer processes such as asymmetric epoxidation [2e8], phenol hydroxylation [3e11], ammoximation of ketone [9,12e14], transformation of sulfides to chiral sulfoxides [15e20] etc.

Chemoselective oxidation of organo sulfur compounds has been recognized as a pivotal reaction in organic chemistry, with extensive application in diverse areas ranging from desulfurization of ... including drugs, agrochemicals and chiral auxiliaries has been extensively reported in the literature [24e33].

It has been the pioneering work of Kagan [36,37] and Modena [38], which showed the use of titanium(IV) isopropoxide-diethyltartrate catalyst systems, also known as "modified Katsuki-Sharpless reagents" for asymmetric oxidation of prochiral sulfides by alkylhydroperoxides [15]. However, as the growing ecological concerns triggered an uninterrupted exploration of alternative non-polluting and sustainable oxidation protocols in recent years, aqueous H_2O_2 has emerged as an ideal clean, ecologically acceptable cost effective oxidant among the plethora of traditional oxidants available for organic oxidations [39e43]. Numerous innovative and promising transition metal homogeneous and heterogeneous catalysts with metals like vanadium [44e48], molybdenum [49e55], Iron [56e62], manganese [63e65] etc. have been ...

NJC

PAPER

View Article Online
View Journal | View Issue

Check for updates

Cite this: New J. Chem., 2019, 43, 17251

Polymer immobilized tantalum(v)–amino acid complexes as selective and recyclable heterogeneous catalysts for oxidation of olefins and sulfides with aqueous H_2O_2†

Gangutri Saikia, Kabirun Ahmed, Chandrasee Rajkhowa, Mitu Sharma, Hiya Talukdar and Nashreen S. Islam *

Polymer supported heterogeneous peroxotantalum(v) catalysts were prepared by anchoring Ta(v)-diperoxo species to chloromethylated poly(styrene–divinylbenzene) resin functionalized with amino acids asparagine (L-Asn) and arginine (L-Arg). The structurally well-defined catalysts, $[Ta(O_2)_2(L)_2]^{-}$-MR, [L = asparagine (catalyst 1) or arginine (catalyst 2) and MR = Merrifield resin], were comprehensively characterized by elemental analysis (CHN, ICP-OES, energy dispersive X-ray spectroscopy), spectral studies (FT-IR, Raman, ^{13}C NMR, diffuse reflectance UV-vis and XPS), SEM, XRD, Brunauer–Emmett–Teller (BET) and thermogravimetric analysis (TGA). The supported peroxotantalum (pTa) compounds displayed excellent catalytic performance in epoxidation of alkenes with 30% H_2O_2, under solvent free reaction conditions. Styrene was epoxidized with 499% selectivity with the highest TOF of 1040 h^{-1} obtained within 30 min reaction time, whereas the TOF for norbornene epoxidation was 2000 h^{-1} within 1 h with 495% epoxide selectivity. Furthermore, the immobilized catalysts facilitated chemoselective oxidation of a broad range of organic sulfides to the desired sulfoxides with H_2O_2 in methanol, under mild reaction conditions. The oxidations proceeded with a high H_2O_2 efficiency percentage and are amenable to ready scalability. The heterogeneous catalysts could be easily recovered and reused for several consecutive catalytic cycles with undiminished activity/selectivity profiles in all cases. The developed catalytic strategies are operationally simple and, being free from halogenated solvent or any other toxic auxiliaries, environmentally clean.

Received 12th August 2019,
Accepted 13th October 2019

DOI: 10.1039/c9nj04180j

rsc.li/njc

1 Introduction

The development of heterogeneous, selective oxidation catalyststhat support green and energy-efficient oxidative transformations is of enormous contemporary importance, mainly owing to the mounting environmental concerns in recent times. Epoxidation of olefins is one of the pivotal reactions in organic synthesis as epoxides are valued precursors in the synthesis of a wide range offine ... important organic transformation which holds immense interest from both chemical and biological perspectives.[2]

A large number of promising alkene epoxidation strategies based on supported metal oxide catalysts have been developed over the years,[2] many of which often relied upon expensive, non-aqueous organic oxidants such as *tert*-butyl hydroperoxide(TBHP) and cumene hydroperoxide (CHP) along with chlori- nated solvents to achieve high activity, as the presence of water ...

Convention Special Issue - 2019

J. Indian Chem. Soc.,
Vol. 96, October 2019, pp. 1-13

Peroxo complexes of niobium(v) as potent inhibitors of acid phosphatase and calcineurin enzyme activities†

Sandhya Rani Gogoi, Hiya Talukdar and Nashreen S. Islam*

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur-784 028, Assam, India

E-mail: nsi@tezu.ernet.in, nashreen.islam@rediffmail.com

Manuscript received online 03 October 2019, accepted 10 October 2019

Our recent achievements concerning the synthesis, characterization and exploration of some biochemically significant fea- tures of peroxo niobium (PNb) complexes are highlighted here. Water soluble heteroleptic PNb complexes in a variety of ligand environment were screened for their activity with two types of enzymes viz. calcineurin and acid phosphatase. Employing wheat thylakoid ACP as the model enzyme, it has been demonstrated that peroxoniobium derivatives serve as active inhibitors of phosphatase (IC_{50} values 2–9 □M). Enzyme kinetics data revealed that compounds exert mixed type of inhibition on ACP activity ($K_{i1} > K_i$). Calcineurin inhibitors represent a valuable tool for elucidating CN dependent cellular processes. *In vitro* ef- fect of the complexes on CN activity was examined using physiological substrate RII-phosphopeptide. As revealed by enzyme kinetic investigation, hydrogen peroxide as well as the peroxoniobium derivatives, irrespective of the nature of their ligand environment, inactivated calcineurin exclusively via an uncompetitive pathway. .

Keywords: Calcineurin, acid phosphatase, peroxoniobium complex, enzyme kinetics, RII-phosphopeptide.

Introduction

Peroxo compounds of niobium have been attracting greatdeal of contemporary importance mainly owing to their effi- ciency as versatile oxidation catalysts[1-4] as well as their util- ity as valuable water soluble precursors to obtain Nb-based oxide materials[1,5,6]. It is however surprising that althoughNb belongs to the same periodic group as vanadium and has been reported to be practically non-toxic to animals[7], very few studies dealing with exploration of biochemical po- tential of peroxo compounds of ...

Enzyme inhibition has already been recognized as oneof the important mechanisms of action of inorganic thera- peutic agents[19]. For example, insulin-mimetic activity of va- nadium compounds has been corelated to the phosphatase inhibitory ability of V-compounds[20]. In fact, owing to the cru- cialroleofphosphatases in signal transduction pathways[21,22], this group of enzymes have become a key target for study- ing metabolism[21,22], for modifying cell signalling[22,23] and for treatment of diseases. As observed in a recent review on efficacy of vanadium based phosphatase inhibitors by

Polyhedron 159 (2019) 192–205

Contents lists available at ScienceDirect

Polyhedron

journal homepage: www.elsevier.com/locate/poly

A chitosan supported peroxidovanadium(V) complex: Synthesis, characterization and application as an eco-compatible heterogeneous catalyst for selective sulfoxidation in water

Gangutri Saikia, Kabirun Ahmed, Sandhya Rani Gogoi, Mitu Sharma, Hiya Talukdar, Nashreen S. Islam *

Department of Chemical Sciences, Tezpur University, Tezpur 784028, Assam, India

ARTICLE INFO

Article history:
Received 14 September 2018
Accepted 8 November 2018
Available online 29 November 2018

Keywords:
Peroxidovanadium(V) complex
Chitosan immobilized vanadium(V)
Heterogeneous catalysis
Green oxidation catalyst
Aqueous sulfide oxidation

ABSTRACT

Anchoring of peroxidovanadium(V) (pV) species to chitosan, a natural chelating polymer, afforded a new and structurally defined immobilized complex, $VO(O_2)_2(NH_2)$-chitosan (ChpV) which was comprehensively characterized by elemental analysis (CHN, ICP-OES, energy dispersive X-ray spectroscopy), spectral studies (FT-IR, Raman, ^{13}C NMR, diffuse reflectance UV-Vis and XPS), SEM, XRD, Brunauer–Emmett–Teller (BET) and thermogravimetric analysis (TGA). Apart from being thermally stable, the compound is water-tolerant and non-hygroscopic. The compound effectively facilitated chemoselective oxidation of thioethers with H_2O_2 in aqueous medium to the respective high purity sulfoxide, in impressive yield (TOF 5628 h^{-1}) and with high H_2O_2 efficiency, under mild reaction condition. In addition to water, the heterogeneous catalyst is highly compatible in a variety of organic solvents and is recyclable for several catalytic cycles without significant loss in selectivity. The catalytic procedure is amenable to ready scalability and is free from halogen, co-catalyst and acidic or any other hazardous additive.

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Currently, with an ever increasing emphasis on the development of cleaner and sustainable chemical processes, efforts towards heterogenization of homogenous catalysts by immobilization of active transition metal complexes on insoluble polymer supports appear to have intensified. Various advantages associated with such systems, including their enhanced stability, specific site ... to its attractive physical and mechanical properties, chitosan is also becoming increasingly relevant in a wide variety of applications, including biomedical products [4b,c,5], cosmetics [4b,6], food processing [4b,c,7] etc. Some of the unique features of chitosan and its derivatives which boost their applicability as green supports for heterogenization of metal complexes [2b,3b,4d,8] include: (i) biocompatibility and biodegradability, (ii) non-toxicity, (iii) low cost and eco-friendly, (iv) high metal

Journal of Water Process Engineering
Volume 31, October 2019, 100839

Removal of metals (Pb, Cd, Cu, Cr, Ni, and Co) from drinking water by oxidation-coagulation-absorption at optimized pH

Anup Jyoti Bora, Robin Kumar Dutta

Show more

+ Add to Mendeley Share Cite

https://doi.org/10.1016/j.jwpe.2019.100839

Get rights and content

Abstract

Removal of some metals, *viz.*, Cd, Pb, Ni, Cr, Cu, and Co by oxidation-coagulation-adsorption at optimized pH (OCOP), an efficient and low cost method for simultaneous removal of As, Fe and Mn from groundwater has been studied. $NaHCO_3$, $KMnO_4$ and $FeCl_3$ are used in OCOP as pH

Original Article

JOURNAL OF THERMOPLASTIC COMPOSITE MATERIALS

Journal of Thermoplastic Composite Materials
1–16
© The Author(s) 2019
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0892705719854495
journals.sagepub.com/home/jtc
SAGE

Valorization of waste rice husk by preparing nanocomposite with polyvinyl chloride and montmorillonite clay

Nipu Dutta and Tarun Kumar Maji

Abstract
Naturally available waste biomass rice husk (RH) was modified and used to prepare nanocomposites with polyvinyl chloride (PVC) and montmorillonite clay (MMT) in a green pathway of melt blending. Three different percentages of MMT were introduced into the RH/PVC composites and their effects on various properties of composite were examined. The interaction between PVC, RH, polyethylene-grafted maleic anhydride, and MMT clay in the nanocomposite (RHPNC) was studied by Fourier transform infrared spectroscopy and thermal properties were studied using dynamic mechanical analysis and thermogravimetric analysis. Universal testing machine and limiting oxygen index flammability tester were used to study the mechanical and flame retardency properties, respectively. The delamination of MMT layers and surface morphology of clay-incorporated nanocomposites were analyzed by X-ray diffractometry, scanning electron microscopy, and transmission electron microscopy. Surface of 5 phr (parts per hundred) MMT-loaded composites appeared smoother than those of composites containing 2 or 5 phr MMT. RHPNC with 5 phr MMT showed an overall improvement in mechanical, thermal, and flame-retardant properties. Composites containing 5 phr MMT showed a decrease in water uptake capacity compared to either 2 phr or 10 phr MMT-loaded composites.

Keywords
Rice husk, montmorillonite, polyvinyl chloride, characterization, water vapour uptake

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam, India

Corresponding author:
Tarun Kumar Maji, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India.
Email: tkm@tezu.ernet.in

Fibers and Polymers 2019, Vol.20, No.5, 1061-1068
DOI 10.1007/s12221-019-8843-x

ISSN 1229-9197 (print version)
ISSN 1875-0052 (electronic version)

Study of Properties of Modified Soybean Oil Based Composite Reinforced with Chicken Feather

Gitashree Gogoi, Moon Mandal, and Tarun K. Maji*

Department of Chemical Sciences, Tezpur University, Assam 784028, India
(Received September 12, 2018; Revised February 12, 2019; Accepted February 28, 2019)

Abstract: In present days bio-fibers have attracted many researchers in the field of polymer composites due to their outstanding properties that nature has conferred on them. In this study, epoxidized soybean oil (ESO) was reacted with methacrylic acid and then by methacrylic anhydride, along with suitable catalyst to form methacrylic anhydride based epoxidized soybean oil (MAESO) resin. Chicken feather fibers were used as reinforcing agents in polymer composites due to their high specific strength and modulus. The ratio of fiber/resin was taken as 30:70. The synthesis of resin was confirmed by fourier transfer infrared (FTIR) and nuclear magnetic resonance (NMR) spectroscopy. The interaction between the resin and chicken feather was studied by fourier transform infrared (FTIR) spectroscopy and SEM studies. The thermal stability and mechanical properties of the composites with/without styrene were evaluated using thermogravimetric analyser (TGA) and universal testing machine (UTM). Flame retardancy, water vapour uptake, and chemical resistance properties of the composites with/without styrene, were also studied.
Keywords: Soybean oil, Chicken feather, Composites, Mechanical properties, Thermal properties

Introduction

In recent years, composite materials derived from bio-based substrate are gaining much importance universally because of their environmental friendly behaviour. Bio-degradability of petroleum based materials is a major issue, thus researchers are trying to find various natural alternatives as the number of applications for composite materials are increasing day by day [1,2].

In order to produce renewable and sustainable composite material, both the polymer matrix and the reinforcing agent must be derived from natural sources. The role of matrix in composite materials is to give shape to the composite part, protect the reinforcements to the environment, transfer loads to reinforcements and provide toughness to the material. In addition, the aim of reinforcements in composites is to improve strength, stiffness and other mechanical properties.

In present days, plant oils are the most widely used renewable raw material in such research areas [3]. The most common plant oils that are considered by researchers are soybean oil and linseed oil since they are produced in large amount and are cheaper in price. The term oil refers to the triglycerides (tri-esters of glycerol with long chain fatty acid) which are liquid at room temperature. Soybean oil is a naturally occurring triglyceride [4–7]. Plant oils, although contain unsaturation and ester bonds, are not reactive enough for cross-linking, thus they are functionalized in order to improve their reactivity to synthesize the desired resin [8]. The unsaturation in the plant oil can be epoxidized readily, and the produced reactive epoxides can make the resin more reactive to interact with other functional groups for further modification [9]. Epoxy compounds represent an important group of polymers mainly due to their versatility, liquid processability, ease of application and cured strength. The epoxidized compounds can be further modified for enhancing the reactivity by reaction with methacrylic acid and methacrylic anhydride to form methacrylated epoxidized oils. The ESO modification is required in order to insert further chemical functionality such as C=C double bonds, hydroxyls etc. for making composites [10]. Polymeric resins or their modified form are generally diluted with reactive commonomer, such as styrene or divinylbenzene to bring down the viscosity and improving reactivity [11,12]. The introduction of the stiff aromatic ring in the structure influences the mechanical properties of the resultant composite materials. However, styrene as a comonomer lowers the renewable content of the composite [13–15]. Therefore, researchers all around the globe are concerned to minimize the use of this volatile and substantial health risk component.

Natural fiber reinforced polymer composites have high specific strength and modulus materials, low priced, recyclable and are easily available. Few studies have investigated feather fibers for bio-composite material applications, and it has been found that materials derived from feathers, can be advantageous as reinforcing agents in polymer composites [16]. In this respect, keratin fiber can be a possible replacement for synthetic reinforcing agents. The disposal of chicken feathers arise as waste material from poultry processing industries generate green house gases causing threatening to the environment. These can be made value added by making composites with resins. Because of its extensive cross-linking and strong covalent bonding within its structure, keratin shows good durability and resistance to degradation [17–22]. Chicken feathers have unique structure and properties that are not found in any natural or synthetic fibers. The low density, excellent

*Corresponding author: tkm@tezu.ernet.in

Biodegradability, Flammability, Dimensional Stability, and UV Resistance Study of Green Wood Starch Gluten Nanocomposites

Prasanta Baishya,[1] Devabrata Saikia,[2] Manabendra Mandal,[2] Tarun K. Maji[1]
[1]*Department of Chemical Sciences, Tezpur University, Assam, 784028, India*

[2]*Department of Molecular Biology and Biotechnology, Tezpur University, Assam, 784028, India*

Biodegradable and UV resistant wood starch gluten nanocomposites (WSGNC) were prepared successfully from the natural polymers like starch and gluten, natural crosslinker and natural solvent via a green route using solution blending technique followed by compression molding. In this procedure, the starch gluten (50/50) blend was grafted with methyl methacrylate (MMA-*g*-SG) and citric acid was used to crosslink the MMA-*g*-SG with wood flour from *Ipomoea carnea* using water as a solvent. Later, Nano TiO_2 was added in the composites to improve the properties like UV stability and flammability. The effects of TiO_2 nanoparticles on biodegradability and UV stability of the composites were thoroughly investigated. The bacterial growth on the samples was analyzed by UV spectrophotometry and morphological features of the bacterial degraded samples was investigated by SEM study. The UV-degraded samples were analyzed by FTIR and SEM study. It was observed that the incorporation of 3 phr TiO_2 in the composites significantly improved the UV stability and hardness values of the composites. The flammability and dimensional stability of the nanocomposite were also improved with 3 phr nano TiO_2 loading compared to TiO_2-untreated composites. POLYM. COMPOS., 00:000–000, 2017. © 2017 Society of Plastics Engineers

INTRODUCTION

The development of biodegradable materials and use of sustainable resources have gained research interest in recent years due to the growing environmental awareness [1–3]. Traditional composites prepared from synthetic polymers, fibers have limited use today due to its non-reusability and nonbiodegradability. Wood polymer composite (WPC) has been gaining the importance over the synthetic composites due to its broad applications. Moreover, the use of wood flour in the preparation of composites improves the biodegradability [4]. The applications fields of wood composites include constructions, automotives, marines, electronic components, and aerospace [5]. However, the use of higher percentage of petroleum derived polymers and hazardous solvents in preparation of WPC makes it nonecofriendly and less biodegradable [6, 7]. Also, the petroleum derived polymers are resistant to microbial attack [8]. Hence, the use of natural polymers in the replacement of petroleum derived polymers for making wood composites without compromising their properties have gained much interest recently.

Starch and gluten are the two easily available alternatives which can be used in forming fully biodegradable wood composites. Though starch is widely used in the preparation of different bio-composites but its use is still limited in wood composites due to its brittleness, high hydrophilicity, and low decomposition temperature [9–12]. Modification like grafting, blending with other polymers, and use of plasticizers can make starch an ideal natural polymer to prepare the WPC with outstanding mechanical properties [12–16].

The use of gluten protein in the preparation of wood composites may open a new era as it possesses some outstanding properties like mechanical, viscoelasticity, gas barrier, water resistance, etc. [2, 17, 18]. Besides this, gluten finds it use in the composite due to its good adhesive properties [19]. The use of higher percentage of gluten in the preparation of the composites has some negative effect like decrease in the mechanical properties [20].

Solution blending is one of the techniques to mix different polymers using a suitable solvent [1]. The limitations like low mechanical properties, low thermal stability, brittle nature, and water sensitivities of starch-based wood composites can be enhanced by blending the starch polymer with the gluten protein. The starch/gluten

Correspondence to: T. K. Maji; e-mail: tkm@tezu.ernet.in
Conflict of interest: The authors declare no competing financial interest.
DOI 10.1002/pc.24598
Published online in Wiley Online Library (wileyonlinelibrary.com).
© 2017 Society of Plastics Engineers

Environmental Science Processes & Impacts

PAPER

View Article Online
View Journal

Check for updates

Cite this: DOI: 10.1039/c9em00104b

Oxidation pathways, kinetics and branching ratios of chloromethyl ethyl ether (CMEE) initiated by OH radicals and the fate of its product radical: an insight from a computational study†

Subrata Paul, Nand Kishor Gour * and Ramesh Ch. Deka *

The OH-initiated oxidation reactions of chloromethyl ethyl ether ($CH_2ClOCH_2CH_3$) have been presented by using quantum calculation methods. The Minnesota functional (M06-2X) of the density functional theory method along with a polarization and diffuse 6-311++G(d,p) basis set is chosen for optimization and frequency calculations for H-abstractions from $CH_2ClOCH_2CH_3$ molecules by OH radicals. Furthermore, the CCSD(T) method along with the same basis set is used for energy refinement of all optimized structures to obtain more accurate energies of the species. Our thermo-chemical calculation results show that the $C^{\bullet}HClOCH_2CH_3$ product radical is more stable corresponding to hydrogen atom abstraction from the $-CH_2Cl$ site, than others while the energy profile results indicate that the H-atom abstracted from the $-OCH_2$ site follows the minimum energy path compared to other channels. The rate constants are computed using canonical transition state theory (CTST) within the temperature range of 250–450 K at 1 atm. The overall rate constant (at 298 K) for the abstraction reactions is found to be consistent with the earlier reported rate constant. The percentage branching ratios of different abstraction channels and the lifetime of chloromethyl ethyl ether are also given herein. We further investigated the unimolecular decomposition pathways of the $CH_2ClOCH(O^{\bullet})CH_3$ radical and found that unimolecular C–C bond scission is the kinetically and thermodynamically more feasible pathway compared to other unimolecular decomposition reactions.

Received 27th February 2019
Accepted 27th June 2019

DOI: 10.1039/c9em00104b

rsc.li/espi

Published on 28 June 2019. Downloaded by KEAN UNIVERSITY on 7/17/2019 7:22:16 AM.

Environmental significance

1. Introduction

A large number of oxygenated volatile organic compounds (OVOCs) have been recognized in the environment and they are continuously released into the atmosphere from biogenic and anthropogenic sources. They are also produced *in situ* in the troposphere as a result of the photo-oxidation of all OVOCs. They are used as solvents, refrigerants and fuel additives and thus enter into the atmospheric environment. Therefore, the atmospheric chemistry of these OVOCs has drawn interest with respect to their potential toxicity and their involvement in air quality and in the formation of secondary organic aerosols. Among the various classes of OVOCs, some hydrochloroethers (HCEs) have drawn recurring interest in the current era. HCEs are widely used in laboratories, industries, alkylating agents and protecting groups. Due to the presence of ether connections (–O–), HCEs show greater reactivity in the troposphere. Moreover, the HCEs may transport the Cl atoms present in them into the atmosphere from the degradation products and may deplete the ozone layer. So, it is essential to investigate the kinetics and degradation mechanism of HCEs to assess their atmospheric chemistry.

In recent times, HCEs, particularly Chloromethyl Ethyl Ether (CMEE, $CH_2ClOCH_2CH_3$), have been used in the synthesis of HIV-1 reverse transcriptase inhibitors derived from TNK-651.

Molecular Physics
An International Journal at the Interface Between Chemistry and Physics

ISSN: 0026-8976 (Print) 1362-3028 (Online) Journal homepage: http://www.tandfonline.com/loi/tmph20

Kinetics and mechanism of 3-chloro-2-methyl-1-propene(3-ClMP) initiated by OH radical: an insight from DFT calculations[1]

Saheen Shehnaz Begum, Nand Kishor Gour, Satyajit Dey Baruah & Ramesh Chandra Deka

To cite this article: Saheen Shehnaz Begum, Nand Kishor Gour, Satyajit Dey Baruah & Ramesh Chandra Deka (2018): Kinetics and mechanism of 3-chloro-2-methyl-1-propene(3-ClMP) initiated by OH radical: an insight from DFT calculations[1], Molecular Physics, DOI: 10.1080/00268976.2018.1509146

To link to this article: https://doi.org/10.1080/00268976.2018.1509146

View supplementary material

Published online: 13 Aug 2018.

Submit your article to this journal

View Crossmark data

Full Terms & Conditions of access and use can be found at
http://www.tandfonline.com/action/journalInformation?journalCode=tmph20

Chemical Physics Letters 716 (2019) 36–41

Contents lists available at ScienceDirect

Chemical Physics Letters

journal homepage: www.elsevier.com/locate/cplett

Research paper

Atmospheric degradation pathways and kinetics of 2,2-difluoroethanol (CHF_2CH_2OH) with Cl atom: A theoretical investigation

Nand Kishor Gour[a], Nandini Priyam Rajkumari[b], Ramesh Chandra Deka[a], Subrata Paul[a,*], Ajanta Deka[c,*]

[a] Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India
[b] Department of Chemistry, Nagaland University, Nagaland 798627, India
[c] Department of Physics, Girijananda Chowdhury Institute of Management and Technology, Guwahati 781017, Assam, India

H I G H L I G H T S

- H-abstractions of 2,2-difluoroethanol (CHF_2CH_2OH) initiated by Cl atom are investigated at quantum method.
- Energy profile constructed at CCSD(T)//BHandHLYP/6-311++G(d,p) level of theory for all abstractions.
- Rate constants and branching ratios are calculated by using conventional transition state theory.
- Atmospheric lifetime and global warming potential of the titled molecule are reported in this work.

A R T I C L E I N F O

Keywords:
HFAs
H-abstraction
BHandHLYP
CCSD(T) and GWPs

A B S T R A C T

H-abstractions from CHF_2–, $-CH_2-$ and $-OH$ sites of 2,2-difluoroethanol (CHF_2CH_2OH) molecule by Cl atom into the atmosphere are investigated to understand mechanism and kinetics by quantum calculations. Geometry optimization and frequency calculations are done at BHandHLYP/6-311++G(d,p) level of theory for all stationary points. Energies of all the species are further refined at CCSD(T) method along with same basis set. Our analysis suggests that the H-abstraction from $-CH_2-$ site is kinetically and thermodynamically more predominant than the other sites. The rate coefficients and branching ratios of the reactions and lifetime and global warming potential of the titled molecule are reported.

1. Introduction

The chlorofluorocarbons (CFCs) have been eliminated due to the unfavourable environmental impacts in stratospheric ozone exhaustion and an Earth-wide temperature boost. Due to global warming and its unfavourable effects on the atmosphere, the use of CFCs is banned by the Montreal Protocol and its subsequent amendments [1,2]. Consequently, enormous research is going on to find out new alternatives to CFC, which should have less adverse environmental concerns and can be used for the same applications. Initially, Hydrochlorofluorocarbons (HCFCs) are considered as second generation substituent to CFCs. However, these are also prohibited due to its serious global warming potentials (GWPs) and environmental concern. Further, Hydrofluorocarbons (HFCs), as a new replacement of CFCs are used widely for various applications owing to its shorter lifetime. However, due to the strong infrared activity of the C − F bonds, HFCs has high GWPs and adverse effect after degradation [3]. Recently, Hydrofluoroalcohols (HFAs) are considered as the third generation alternative to CFCs [4–8]. HFAs are used in various fields, such as cleaning of electronic components, refrigeration, and carrier compounds for lubricants [9,10]. For the good replacements of CFCs, it must not affect significantly the atmospheric radiative forcing. Since HFAs has no chlorine atom, they are relied upon to have no commitment to ozone layer depletion. Be that as it may, the existence of C-F bonds in HFAs may improve the assimilation of the environmental infrared windows, transforming into greenhouse gases adding to an unnatural global warming. Thus, it is fundamental to understand the environmental impact of HFAs before wide scale applications and environmental acceptability.

To evaluate the GWP, it requires information of the atmospheric lifetime of HFAs. The atmospheric lifetime is mainly controlled by the kinetics of the reaction of HFAs with atmospheric oxidants (i.e. OH, NO_3 radicals and Cl atom). Various theoretical and experimental studies

* Corresponding authors.
E-mail addresses: spdsh@tezu.ernet.in (S. Paul), ajanta_phy@gimt-guwahati.ac.in (A. Deka).

https://doi.org/10.1016/j.cplett.2018.11.063
Received 21 August 2018; Received in revised form 28 November 2018; Accepted 30 November 2018
Available online 14 December 2018
0009-2614/ © 2018 Published by Elsevier B.V.

Journal of Molecular Modeling (2019) 25:43
https://doi.org/10.1007/s00894-019-3923-9

ORIGINAL PAPER

CrossMark

Mechanistic investigation of the atmospheric oxidation of bis(2-chloroethyl) ether ($ClCH_2CH_2OCH_2CH_2Cl$) by OH and NO_3 radicals and Cl atoms: a DFT approach

Subrata Paul[1] · Nand Kishor Gour[1] · Ramesh Chandra Deka[1]

Received: 26 July 2018 / Accepted: 3 January 2019
© Springer-Verlag GmbH Germany, part of Springer Nature 2019

Abstract

The oxidation of bis(2-chloroethyl) ether ($ClCH_2CH_2OCH_2CH_2Cl$) in the atmosphere, as initiated by various oxidants (OH and NO_3 radicals and Cl atoms), was examined using the functional M06-2X in conjunction with the basis set 6–31+G(d,p). We explored the oxidation pathways and reaction energies (enthalpies and Gibb's free energies) for the abstraction of H from the $-CH_2Cl$ and $-OCH_2$ sites of $ClCH_2CH_2OCH_2CH_2Cl$ by oxidants. The energy profile shows that H abstraction from the $-OCH_2$ site of the title molecule by each atmospheric oxidant is more likely than H abstraction from the other site. The resulting radical $ClCH_2C^{\bullet}HOCH_2CH_2Cl$ was found to more stable than any other product, as shown by their reaction energies. The rate constants of the oxidation reactions were also calculated using canonical transition state theory in the temperature range 298–400 K. The calculated total rate constant at 298 K is consistent with the reported experimental rate constant. The branching ratio percentages and global atmospheric lifetime of the title molecule are also reported herein.

Keywords HCE · BCEE · H abstraction · M06-2X · Rate constant

Introduction

In recent decades, oxygenated volatile organic compounds (OVOCs) have become a major environmental concern due to their detrimental impact on air quality, which poses risks to human health [1–4]. Among the various OVOCs emitted into the atmosphere in large quantities each year, hydrochloroethers (HCEs) are released from both biogenic and anthropogenic sources, and are formed in situ during the oxidation of all atmospheric hydrocarbons. The potential significance of a particular HCE in the atmosphere depends on its transformations in the troposphere, the nature of the products formed during the transformations, and the atmospheric lifetime of each degradation product [5, 6]. Since HCEs have an ether linkage (–O–), they are relatively reactive molecules in the troposphere [7]. Additionally, as HCEs contain Cl atoms, their degradation products can transport Cl atoms into the atmosphere, leading to various adverse effects on the environment, such as depletion of the ozone layer and global warming.

When HCEs enter the atmosphere, they undergo degradation into different products through wet and dry deposition and—most importantly—photolytic degradation by atmospheric oxidants [8, 9]. Among the various HCEs in the atmosphere, bis(2-chloroethyl) ether (BCEE, $ClCH_2CH_2OCH_2CH_2Cl$) has received particular attention. This HCE is extensively used in agriculture and industry as a solvent for fats and oils, as a cleaning agent for textiles, as a component of varnishes and paints, and in the manufacture of pesticides [10–12]. On the other hand, it is considered a probable human carcinogen by the US EPA [13, 14]. Therefore, it is important to evaluate the kinetics and mechanism for the degradation of BCEE in the atmosphere. Aside from wet and dry deposition in the atmosphere, HCE degradation can occur through photolytic processes involving OH radicals during the daytime, Cl atoms in coastal and marine areas during daylight hours, and NO_3 radicals during night-time.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s00894-019-3923-9) contains supplementary material, which is available to authorized users.

Nand Kishor Gour
nkgour1@tezu.ernet.in

Ramesh Chandra Deka
ramesh@tezu.ernet.in

[1] Department of Chemical Sciences, Tezpur University, Tezpur, Assam 784028, India

Published online: 24 January 2019

Tetrahedron Letters 60 (2019) 151044

Contents lists available at ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Cellulose as recyclable organocatalyst for *ipso*-hydroxylation of arylboronic acids

Khairujjaman Laskar, Subham Paul, Utpal Bora *

Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

ARTICLE INFO

Article history:
Received 27 June 2019
Revised 10 August 2019
Accepted 12 August 2019
Available online 13 August 2019

Keywords:
Cellulose
Green synthesis
Ipso-Hydroxylation
Phenol

ABSTRACT

Cellulose catalyzed oxidative hydroxylation of aryl and hetero-arylboronic acids to the corresponding phenols under metal and base free strategy has been demonstrated. The sustainable ipso-hydroxylation takes place using hydrogen peroxide as an oxidant in water under mild condition in shorter period of time. Interestingly, easy recovery and reusability of heterogeneous catalyst without significant loss in catalytic yield makes the protocol environmentally benign.

© 2019 Elsevier Ltd. All rights reserved.

Introduction

Phenols and their derivatives have been found to an integral part of numerous natural products [1].

They act as vital intermediates and building blocks for the synthesis of pharmaceuticals, polymers and naturally occurring compounds [2–4]. Natural phenolic compounds exhibit a broad range of biological activities [4]. Phenolic compounds have privileged scaffold in prevention as well as treatment of various diseases (Fig. 1) [5–8]. The direct hydroxylation to establish mild and efficient access of aromatic motif to corresponding phenols is of great significance in synthetic chemistry. The traditional method for the preparation of phenol involves Dow's process and Hock's process but results low yield [9]. Besides, this using aryl halide as precursor for the phenol synthesis have also suffered from harsh condition and additional purification steps [10,11]. In this context researchers have found arylboronic acid a new avenue for substituting the existing inactive synthetic precursors. The significant attention gained by arylboronic acid in various organic transformations due to their versatile nature, structural diversity, low toxicity, easy availability, greater stability, and reactivity [12–14].

Investigation showed that arylboronic acids can be easily converted into corresponding phenols by oxidative hydroxylation [15,16], upon careful control on the amount of oxidants and reaction time and it is worth mentioning from previous years that efforts have been made to obtain phenols through ipso-hydroxylation. Various protocols for ipso-hydroxylation of arylboronic acids were put forwarded using different catalysts such as mont K-10 supported AgNPs-H_2O_2 [17], biosilica-H_2O_2 [18], mont-KSF encapsulated $Co(OH)_x$ catalyzed [19], I_2-H_2O_2 [16], Al_2O_3-H_2O_2 [20], $CuSO_4$-phenanthroline [21], CuNP [22], TBHP [23] amberlite IR-120 resin [24], lactic acid-H_2O_2 [25], Polymer supported Pd-Ag hybrid [26] etc. Although majority of these protocols found to be effective in conversion of phenol through ipso-hydroxylation of arylboronic acid but mostly lacking "Greener" procedure otherwise uses excess oxidizing agent, volatile organic solvents, higher temperature, base, metal catalysts etc. Thus, the development of a metal and base free and environmentally benign procedure for the ipso-hydroxylation is more viable alternative to be explored [27]. However, the use of organocatalyst for transformations has carried the attention of the researchers from the point of view of green catalyst, easily available, less expensive and economically sustainable.

In recent years, "Green Chemistry" has emerged as major concern for the development of new synthetic methodologies in modern chemistry perspective. The design of new route with green procedure has attracted especially in the areas of organic synthesis, drug discovery and material sciences [28–31]. Cellulose, an inexhaustible natural polymeric material, endowed with a polyfunctional macromolecular structure and an environmentally benign nature, has attracted wide attention in various branches of chemistry, remarkably in the development of new sustainable heterogeneous catalyst [32–34]. Cellulose has an unusual structure in which every other monomer subunit is upside down. This gives it some extraordinary physical and chemical properties, because

* Corresponding author.
E-mail addresses: utbora@yahoo.co.in, ubora@tezu.ernet.in (U. Bora).

https://doi.org/10.1016/j.tetlet.2019.151044
0040-4039/© 2019 Elsevier Ltd. All rights reserved.

Sustainable Chemistry and Pharmacy 14 (2019) 100181

Contents lists available at ScienceDirect

Sustainable Chemistry and Pharmacy

journal homepage: http://www.elsevier.com/locate/scp

Application of bio-based green heterogeneous catalyst for the synthesis of arylidinemalononitriles

Khairujjaman Laskar [a], Prantika Bhattacharjee [a], Minakshi Gohain [b], Dhanapati Deka [b], Utpal Bora [a,*]

[a] Department of Chemical Sciences, Tezpur University, Napaam, 784028, Assam, India
[b] Biomass Conversion Laboratory, Department of Energy, Tezpur University, Napaam, 784028, Assam, India

ARTICLE INFO

Keywords:
Musa balbisiana colla peels
Heterogeneous catalyst
Aryl aldehydes
Malononitrile
Knoevenagel reaction

ABSTRACT

Calcined burnt peel ash (CBPA) obtained from Musa balbisiana Colla peels has been developed as an eco-friendly, reusable and cost effective heterogeneous base catalyst for Knoevenagel condensation reaction. The efficacy of the catalyst was investigated for the first time towards Knoevenagel condensation of aryl/hetero-aryl aldehydes with malononitrile. CBPA showed excellent selectivity towards benzylidenemalononitrile derivatives formation under optimized reaction conditions. The products were obtained in excellent yield in shorter time period and reusability test demonstrated that the catalyst is highly efficient for six consecutive runs.

1. Introduction

Knoevenagel condensation is one of the most important procedures for C–C bond formation in synthetic organic chemistry (Kryszak et al., 2017) that allows the production of various important pharmaceutical products (Volkova et al., 2012) such as 2-(4-Nitrobenzylidene)malononitrile and 2-(3,4,5-Trimethoxybenzylidene)malononitrile are well known potent tyrosine kinase inhibitors (Turpaev et al., 2011), and 2-(3,4-Dihydroxybenzylidene)malononitrile recognized for anti-melanogenic agent (Lee et al., 2017) etc (Fig. 1). Usually, this reaction employs homogenous base catalyst like ammonia, urea, pyridine and amines etc (Climent et al., 2017; Balalaie et al., 2007). However the application of such catalyst less favored in practice due to their difficulty in separation and recyclability. To overcome these drawbacks, development of various heterogeneous base catalysts has allured in great interest with broader attention such as alkylammonium exchanged zeolites (Martins et al., 2000), chitosan biohydrogel (Kühbeck et al., 2012), mesoporous zirconia (Parida et al., 2010), nitride zeolites (Min et al., 2013), Pd/AlO(OH) (Goksu and Gültekin, 2017), SiO_2@LDH (Shirotori et al., 2017) and MOFs (Kolmykov et al., 2016; Dhakshinamoorthy et al., 2010) etc. In recent years, higher attentions have been paid towards utilization of environment benign processes, involving green technology in order to reduce the use of hazardous chemicals for the synthesis. Several water extract of agro-waste ash (AWEs) have emerged as a renewable solvent medium for practicing green reactions in catalysis and organic chemistry (Sarmah et al., 2017; Lakshmidevi et al., 2018). Similarly, Water Extract of Banana peel ash (WEB) has been reported in literature as an efficient and environmentally friendly alternatives for various organic transformations like Suzuki-Miyaura cross-coupling (Boruah et al., 2015), Sonogashira cross-coupling (Dewan et al., 2016), Dakin reaction (Saikia et al., 2015), Henry reaction (Surneni et al., 2016), peptide synthesis (Konwar et al., 2016), symmetrical diorganyl disulfides synthesis (Leitemberger et al., 2019) and azidation reaction (Saikia, 2018). The use of mixed metal oxides as a solid base catalyst for Knoevenagel condensation is well explained in literature (Zhao et al., 2019; Kantam et al., 1998). In this regard, development of renewable heterogeneous catalyst that is active, versatile, cheap, readily available, non-toxic and stable under the reaction conditions which can compete with contemporary commercial catalysts for Knoevenagel condensation has received tremendous interests (Ballini, 2009).

In continuation with our studies on renewable heterogeneous catalyst (Gohain et al., 2017), we have developed calcined burnt peel ash (CBPA) (obtained from *Musa balbisiana* Colla peels) as an eco-friendly, reusable and cost effective heterogeneous base catalyst for Knoevenagel condensation reaction using aryl and heteroaryl aldehydes with malononitrile. Considering the basic sites of prepared catalyst (due to presence of K_2O, K_2CO_3, CaO and MgO), the protocol has been designed for exploration of C–C bond formation. Emphases have been given to study the effect of the EDG and EWG present on substituted

* Corresponding author.
E-mail addresses: ubora@tezu.ernet.in, utbora@yahoo.co.in (U. Bora).

https://doi.org/10.1016/j.scp.2019.100181
Received 23 April 2019; Received in revised form 3 September 2019; Accepted 7 September 2019
2352-5541/© 2019 Elsevier B.V. All rights reserved.

ChemPubSoc Europe

DOI: 10.1002/ejoc.201900909

EurJOC Full Paper

Cyanation

An Insight into Nitromethane as an Organic Nitrile Alternative Source towards the Synthesis of Aryl Nitriles

Rakhee Saikia,[a] Satyajit Dey Baruah,[a] Ramesh C. Deka,[a] Ashim J. Thakur,*[b] and Utpal Bora*[b]

Abstract: Directed by an unusual in situ reduction of Cu^{II}, our protocol is a simple Cu^{I}-mediated synthesis of aryl nitriles, with inexpensive and readily available nitromethane as the cyanating source, in moderate to good yields. Exhibiting a wide substrate scope, the method involves simple reaction conditions, is additive free with low catalyst loading. The plausible mechanism of cyanation of aryl halides is elucidated by a congregation of three cycles, namely the in situ reduction of Cu^{II} species by nitromethane, generation of HCN species from nitromethane and a regular organometallic pathway which releases the nitrile derivative. The detail of the mechanism of generation of CN^- from nitromethane is computationally validated. Our protocol holds the distinction of involving a rarely encountered Cu^{I} catalytic species as well as facile in situ generation of nucleophilic CN^- to yield synthetically useful aromatic nitriles.

Introduction

The exploration of novel methodologies for the introduction of a nitrile group into an aromatic framework is a much desired endeavor, considering the broad synthetic utility of the nitrile functionality.[1] Its appearance in a number of natural heterocyclic products and easy transformation into a plethora of useful functionalities such as aromatic acids, esters, amines, amides, aldehydes and nitrogen heterocycles accounts for its popularity and applications.[2,3] Since the first nitrile synthesis, with Rosenmund-von Braun[4] and Sandmeyer[5] reactions being the breakthrough protocols, all the traditional methods of nitrile synthesis suffered from the use of stoichiometric amounts of toxic metal cyanides (M-CN; M = alkali metal, Cu, Zn, Ag), which generated a significant amount of waste. Requirement of elevated temperatures (150–250 °C) being another shortcoming of those processes. One of the practical solutions that has emerged to reduce the risk of hazardous metal cyanides, is to employ, either non-metallic cyanide sources, such as aryl(cyano)-iodonium triflates,[6] acetone cyanohydrin,[7] malononitrile,[8] AIBN,[9] benzyl cyanide,[10] acetonitrile,[11] butyronitrile,[12] ethyl (ethoxymethylene)cyanoacetate,[13] etc., or sources which can generate CN^- group in situ (indirect sources). Recent examples of such "indirect sources" are nitromethane,[14] the combination of NH_4I-DMF,[15] NH_4HCO_3-DMSO or NH_4HCO_3-DMF,[16] DMF[17] and tBuNC.[18]

The pioneers of employing the inexpensive, less-toxic and readily available indirect organic nitrile source CH_3NO_2, Yu and his group, successfully cyanated aryl C-H bonds with nitromethane, the mechanism of which was rationalized through a radical-cation pathway.[19] Henceforth, nitromethane was utilized to cyanate organic scaffolds with operational simplicity and economic viability.

Although, a variety of typical transition metals, such as Pd,[20] Ni,[12,21] Co,[22] Zn,[14] and Rh[23] have been identified to assist the process of cyanation without the need of pre-functionalized substrates,[24] the role of Cu as an inexpensive and readily available transition metal in cyanation, cannot be overlooked.[25] Moreover, efficient and sustainable process of cyanation of common functionalized substrates, such as aryl halides, needs further exploration.[26] The abundance of aryl halides in nature and their affinity towards a metal in a metal-catalyzed reaction, prompted us to employ them as substrates in our reaction. To the best of our knowledge, Cu-catalyzed cyanation of aryl iodides with nitromethane has been reported only once,[27] mechanistic aspects of which, is unexplored in detail.

Herein, we report a Cu^{I}-catalyzed cyanation of aryl halides (iodides/bromides) with nitromethane. Our protocol highlights an unprecedented, dual role played by nitromethane in the reaction. In addition to being the cyanating source, nitromethane also helps in the in situ generation of active Cu^{I} species by reduction of the parent Cu^{II} salt. The mechanistic aspect of our protocol is explained in detail, by experimental as well as computational methods. Moreover, it involves mild reaction conditions, low catalyst loading and requires no additives.

Results and Discussion

At first, a mixture of 4-iodoanisole (**1a**), nitromethane (**2**) and a catalytic amount of $CuCl_2$ were made to react with each other

[a] Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India
[b] Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, Assam, India
E-mail: utbora@yahoo.co.in
http://www.tezu.ernet.in/dcc/ub.html
https://nanocathetero.wixsite.com/website

Supporting information and ORCID(s) from the author(s) for this article are available on the WWW under https://doi.org/10.1002/ejoc.201900909

© 2019 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Received: 6 October 2018 | Revised: 21 March 2019 | Accepted: 22 March 2019
DOI: 10.1002/aoc.4951

FULL PAPER

WILEY Applied Organometallic Chemistry

A convenient room temperature *ipso*-nitration of arylboronic acid catalysed by molecular iodine using zirconium oxynitrate as nitrating species: An experimental and theoretical investigation

Abhijit Mahanta[1] | Nanda Kishor Gour[1] | Plaban Jyoti Sarma[1] | Raju Kumar Borah[1] | Prasanta Kumar Raul[2] | Ramesh Chandra Deka[1] | Ashim Jyoti Thakur[1] | Utpal Bora[1]

[1] Tezpur Central University, Tezpur (Napaam), Assam 784028, India
[2] Defence Research Laboratory, Tezpur, Assam 784001, India

Correspondence
Ashim Jyoti Thakur and Utpal Bora, Tezpur Central University, Tezpur (Napaam), Assam, 784028, India.
Email: ashim@tezu.ernet.in; utbora@yahoo.co.in

Funding information
Tezpur University; DST-SERB, Grant/Award Number: EMR/2016/005944

A simple and convenient protocol has been developed for *ipso*-nitration of arylboronic acid catalysed by molecular iodine at room temperature, using zirconium oxynitrate as the nitrating species. The protocol is applicable to electronically diverse aryl- and heteroarylboronic acid moieties under mild reaction conditions with good to excellent isolated yields. Furthermore, a theoretical investigation has been performed for the same reaction, and reaction profiles are modelled using modern density functional theory (DFT). DFT-based results support the experimentally observed results.

KEYWORDS
iodine, ipso-nitration, zirconium oxynitrate

1 | INTRODUCTION

In the challenging domain of synthetic organic chemistry, nitration of arenes has emerged as one of the most fundamental and important organic transformation reactions, both for academic interest and industrial applications. In real terms, over the decades, nitroarenes have shown their potentialities by contributing to varieties of important areas like pharmaceuticals, dyes and plastics.[1–4] They have also been used as explosives and precursors for azo dyes.[5] This indispensable significance in organic synthesis may be attributed to their easy availability, ease of transformation to other functional groups and the ability of nitroaryl moieties to impart tunable physical and chemical properties to many structurally targeted organic molecules. In general, the traditional method for synthesis of nitroarenes involves electrophilic nitration of arenes in the presence of excess amount of conc. sulfuric acid and nitric acid under harsh reaction conditions which are problematic, primarily due to the involvement of strong acid and secondly to the requirement of high temperature. Another common reagent for nitration of arenes is dinitrogen pentoxide, which is a hazardous oxidizer and an important reservoir[6,7] for NOx that are responsible for ozone layer depletion and acid rain. Additionally, regioselectivity is a major issue in traditional methods as the reaction is often associated with other oxidation products and mixtures of isomers.[9] Therefore, looking for some efficient alternative strategies eliminating the drawbacks of existing methodologies has significance which has attracted considerable attention among researchers and has become a long-standing challenge for synthetic organic chemists. In contemporary organic synthesis, as far as nitration of arenes is concerned, *ipso*-nitration occupies a much superior position. In 2009, Fors and Buchwald reported[9] the nitration of aryl chlorides, triflates and nonaflates to nitroaromatics catalysed by Pd. It is a fascinating protocol, but use of expensive ligand-based Pd catalyst limits its practical application. An efficient Cu-catalysed protocol for the

© 2019 John Wiley & Sons, Ltd.

ACS Catalysis
Cite This: ACS Catal. 2019, 9, 5860−5875
Research Article
pubs.acs.org/acscatalysis

Pd−Au−Y as Efficient Catalyst for C−C Coupling Reactions, Benzylic C−H Bond Activation, and Oxidation of Ethanol for Synthesis of Cinnamaldehydes

Mukesh Sharma,† Biraj Das,† Manash J. Baruah,† Subir Biswas,† Subhasish Roy,‡ Anil Hazarika,‡ Suresh K. Bhargava,∥ and Kusum K. Bania*,†,∥

†Department of Chemical Sciences, and ‡Department of Electronics and Communication Engineering, Tezpur University, Assam 784028, India
§Department of Chemistry, Indian Institute of Technology, Guwahati 781039, India
∥Centre for Advanced Materials and Industrial Chemistry (CAMIC), School of Science, RMIT University, G.P.O. Box 2476, Melbourne 3001, Australia

Supporting Information

ABSTRACT: Pd−Au nanoalloy supported on zeolite-Y (Pd−Au−Y) matrix was found to be an effective catalyst for C−Cl bond activation and oxidative coupling of 2-naphthol, leading to the formation of various biaryl products and 1,1′-bi-2-naphthol, BINOL. The same catalyst was also highly efficient for selective oxidation of benzylic alcohols to benzaldehydes. Cinnamaldehydes were obtained directly from benzaldehydes by aldol condensation with acetaldehyde generated in situ by partial oxidation of ethanol in the presence of Pd−Au−Y catalyst at 120 °C under basic condition. The biaryl products were also obtained directly from benzylic alcohols in a one-pot system by reacting with phenylboronic acid. The formation of biaryls from benzylic alcohols was believed to occur via one-pot benzylic C−H and C−Cl bond activation. A high % yield of biaryls, BINOL, aldehydes, and cinnamaldehydes was obtained by performing different reactions using the single Pd−Au−Y catalyst. The strong interaction of chloro-benzylic alcohol was predominantly located at active gold species. X-ray photoelectron and diffuse reflectance spectroscopic studies revealed the strong interaction between Pd and Au particles. Electrochemical studies provided proper evidence for the individual role of the nanoparticles (NPs) in one-pot synthesis of biaryls from benzylic alcohols.

KEYWORDS: Pd−Au NPs, zeolite-Y, biaryls, aldehydes, BINOL, cinnamaldehydes

1. INTRODUCTION

C−Cl bond activation, oxidative coupling of 2-naphthols, selective oxidation of alcohols, and aldol-type condensation reaction leading to the formation of C−C coupled product, aldehyde, and cinnamaldehyde are considered to be some of the important classes of organic reactions.[1−14] Out of the different forms of Suzuki−Miyaura cross-coupling (SMCC) reactions, the formation of biaryls by C−Cl bond activation is highly appreciable due to the low cost of chloroderivatives compounds.[7,8,12−19] Pd-based catalysts either in the homogeneous or in the heterogeneous form are best known for SMCC reaction.[5,6,20−22] However, it has been found that the C−Cl bond activation process with single Pd metal is less effective.[5,7,8] Recent studies suggested that alloying of Pd with other metals like Ni, Au, Co, etc., led to successful activation of the C−Cl bond in the SMCC reaction.[5,7,8,23] We also found that Pd−NiO nanocatalyst supported on the zeolite-Y matrix was an effective heterogeneous catalyst for C−Cl bond activation in SMCC reaction.[7] As the reports on C−Cl bond activation for biaryl product formation are limited, finding a highly active and reusable heterogeneous catalyst for C−Cl bond activation would be highly beneficial.

Apart from the coupling of aryl chlorides, the oxidative coupling of 2-naphthol to 1,1′-bi-2-naphthol commonly known as BINOL is considered to be an important oxidative coupling reaction due to the high applicability of BINOL in pharmaceutical products and also as chiral auxiliary.[9−11,24] The oxidative coupling of 2-naphthol is rather a difficult process as the yield is often very poor. Fe(III)-Schiff base catalysts are better known for such catalytic conversion.[10,11,24] Most of the catalytic oxidations of 2-naphthol to BINOL are performed using air or molecular oxygen (O_2).[9−11,24] O_2 as

Received: March 22, 2019
Revised: May 20, 2019
Published: May 22, 2019

Inorganica Chimica Acta 498 (2019) 119160
Contents lists available at ScienceDirect
Inorganica Chimica Acta
journal homepage: www.elsevier.com/locate/ica

Research paper

Synthesis of silver cyanide without poisonous KCN or NaCN

Biraj Das[a], Mukesh Sharma[a], Manash J. Baruah[a], Kamala Kanta Borah[b], Kusum K. Bania[a,*]
[a] Department of Chemical Sciences, Tezpur University, Assam 784028, India
[b] Department of Chemistry, Mangaldai College, Assam 784125, India

ARTICLE INFO

Keywords:
Vanadium pentoxide
Hydrogen peroxide
Acetonitrile
Silver cyanide
C≡CN bond breaking

ABSTRACT

Highly crystalline silver cyanide (AgCN) was synthesized at room temperature using acetonitrile (CH_3CN) as a source of cyanide ion (CN^-). The in-situ generation of CN^- was assisted by the C−CN bond breaking of CH_3CN. The reaction was found to be catalyzed by vanadium pentoxide (V_2O_5) and hydrogen peroxide (H_2O_2). The process was very simple and effective one as it was possible to extract the white precipitate of AgCN simply by filtration method. The overnight standing of the whole reaction mixture resulted in the 100% conversion of $AgNO_3$ to AgCN. The most significant aspect of the process was that it did not involve any poisonous cyanide compounds like potassium or sodium cyanide; KCN or NaCN. Further, it also did not lead to the formation of any hazardous waste. The present synthetic approach was thus regarded as an alternative and greener route for preparation of pure AgCN directly from $AgNO_3$.

1. Introduction

Silver cyanide (AgCN) is considered as an important class of silver materials due to the applications in silver electroplating, photography, etc [1,2]. The most common method for preparation of AgCN involves the reaction of silver nitrate ($AgNO_3$) with potassium or sodium cyanide; KCN or NaCN [3]. AgCN is also extracted in large amount in the mining industries by reaction of silver sulfide (Ag_2S) with KCN or NaCN [4–6]. However, recent studies have demonstrated that the use of KCN and NaCN led to the death of several people in the mining industries [7]. From the laboratory synthesis point of view, the use of toxic reagents like KCN or NaCN is prohibited in most of the chemical laboratories or can only be used with due permission [8,9]. Therefore, it is reasonable to find out an alternative approach for the synthesis of AgCN that could be commonly practiced under nonhazardous conditions and by avoiding the highly toxic chemicals like KCN or NaCN.

Our recent investigation on silver-sulphuroside vanadium cluster provided us an alternative route for the development of a process for the preparation of AgCN without using KCN or NaCN [10]. While working with this metal cluster we found the leaching of silver as AgCN in acetonitrile (CH_3CN in presence of hydrogen peroxide (H_2O_2). From our various spectroscopic analyses we propose for the involvement of peroxo-vanadate species in the cleavage of CH_3CN or its oxidation resulting in the formation of AgCN as precipitate. This was probably the first report on the synthesis of AgCN with CH_3CN under a very mild condition. Formerly, Fan and his coworkers reported for direct cyanidation of silver nitrate using CH_3CN by irradiation under high-pressure mercury lamp at 300 W [11]. Okabayashi et al. synthesized monomeric AgCN via sputtering reaction of Ag sheet and CH_3CN in argon and the monomeric form was characterized using rotational spectroscopy in the gas phase [12]. These known reported procedures for synthesis of AgCN using CH_3CN as source of CN^- are represented in Scheme 1. In addition to these reported procedures there are certain reports on the coordination complex of silver-cyanide that accounts for the cleavage of CH_3CN into CH_3OH and CN^-. Zhou et al. reported for bridging of CN^- in 2D network structure of Ag(I) alkynyl by cleavage of CH_3CN [13]. Corma and his co-workers also reported for photochemical cleavage of C−CN bond with multinuclear Ag(I) complex [14]. Guo et al. synthesized silver (I) pyrophosphonate compounds with cyanide by cleavage of CH_3CN under solvothermal condition [15]. Heath et al. also found the co-ordination of CN^- to silver triazolylidene (trz) species under refluxing condition in CH_3CN [16].

The most difficult aspect of the use of CH_3CN as a source of CN^- is the kinetic inertness and thermodynamic stability of C−CN bond of CH_3CN that limits the synthesis of AgCN in presence of CH_3CN or other alkyl nitriles. The C−C bond energy in CH_3CN is much higher than that of alkanes and makes this molecule highly stable towards any chemical transformation [11,17–19]. Organometallic complexes of transition metals in low oxidation states are known to activate the C−C bond in CH_3CN under ambient conditions [20–24]. However, the ability of vanadium oxide in the oxidation or cleavages of CH_3CN is very less known in the literature. Probably Brazdil et al. [25] reported for the

* Corresponding author.
E-mail address: kusum@tezu.ernet.in (K.K. Bania).

https://doi.org/10.1016/j.ica.2019.119160
Received 1 August 2019; Received in revised form 13 September 2019; Accepted 13 September 2019
Available online 14 September 2019
0020-1693/ © 2019 Elsevier B.V. All rights reserved.

ACS APPLIED NANO MATERIALS
Cite This: ACS Appl. Nano Mater. 2019, 2, 3769−3779
Article
www.acsanm.org

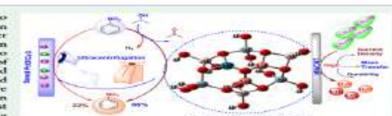
PdO/CuO Nanoparticles on Zeolite-Y for Nitroarene Reduction and Methanol Oxidation

Mukesh Sharma,† Biraj Das,† Anil Hazarika,‡ Ankur K. Guha,§ Suresh K. Bhargava,∥ and Kusum K. Bania*,†

†Department of Chemical Sciences, Tezpur University, Assam, India, 784028
‡Department of Electronics and Communication Engineering, Tezpur University, Assam, India, 784028
§Department of Chemistry, Cotton University, Assam, India, 781001
∥Centre for Advanced Materials and Industrial Chemistry (CAMIC), School of Sciences, RMIT University, G.P.O. Box 2476, Melbourne 3001, Australia

Supporting Information

ABSTRACT: Selective reduction of various nitroarenes to amines was achieved up to 93% under auto-clave condition in isopropanol using catalytic amount of palladium oxide/copper oxide (PdO/CuO) nanoparticles (NPs) supported on mesoporous zeolite-Y, PdO/CuO-Y. The catalyst was also found to be highly effective for one-pot cascade synthesis of the 3,3′-diaminobiphenyl from 3-nitrophenylboronic acid (NPBA). The hybridization of PdO/CuO-Y with multiwalled carbon nanotubes (MWCNTs) resulted in a highly effective and durable electrocatalyst for the methanol oxidation reaction (MOR). The mass activity of the electrocatalyst was found to be 690 A/g and was stable for 4000 s. The catalytic activity of the PdO/CuO-Y catalyst was found to be superior in terms of productivity and recyclability in comparison to that of the bared PdO/CuO NPs separated by the ultracentrifugation (UC) method. On the other hand, the one modified with the carbon matrix retained the same activity and reduced the reaction time in nitroarene reduction reaction (NAR) under identical conditions. Electrochemical studies and density functional theory (DFT) calculations were performed to understand the mechanism of the NAR process. Both the experimental and theoretical evidence explicitly demonstrated the individual role of both palladium (Pd) and copper (Cu). Pd was found to be the active site for nitroarene interaction, while CuO NPs played an important role in isopropanol oxidation.



KEYWORDS: PdO/CuO-Y, bared PdO/CuO NPs, ultracentrifugation, nitroarene reduction, methanol oxidation reaction

1. INTRODUCTION

Zeolite-Y is considered to be one of the important classes of crystalline aluminosilicates because of its high surface area and suitable pore openings.[1] Because this zeolite-Y has been used as a suitable host for encapsulation or immobilization of various homogeneous catalysts.[2,3] The advantages of such a heterogenization approach are in recyclability, selectivity in the reaction, and thermal stability of the catalyst.[1−3] The other zeolitic type materials, such as MCM-41 and SBA-15, are also used as hard templates for the synthesis of fine nanoalloys.[4,5] Out of the various types of bimetallic nanoalloys those containing palladium (Pd) and copper (Cu) have recently found high attention because of their ability to convert various catalytic reactions with high turnover frequency or number (TOF, TON) and efficiency.[6,7] A large number of reports are available in the literature on the synthesis and applications of such nanomaterials.[6,7] Although the reported nanocatalysts were effective, most of them failed in terms of recyclability, lose control over self-agglomeration, and thereby, hamper the catalytic activity. Zeolite-Y is known to be thermally stable and also to control the growth of metal-oxide nanoparticles (NPs).[1,8] Therefore, it will be beneficial if such kind of bimetallic nanoalloys could be synthesized on zeolite-Y using it as support, as well as an internal hard templating agent.[4,5] Recently, palladium oxide (PdO)/copper oxide (CuO) and PdO/nickel oxide (NiO) NPs of smaller dimensions have been synthesized using zeolite-Y as self-templating agent for C−Cl bond activation and benzyl alcohol oxidation reactions.[8,10]

Nitroarene reduction (NAR) is one of the important reactions that are known to be catalyzed by Pd- and Cu-containing catalyst in the presence of external reducing agents like sodium borohydride ($NaBH_4$) or hydrazine (NH_2NH_2).[11−13] Cui et al.[8] found 93% yield of anilines using $NaBH_4$ and Pd-Cu-NPs supported on carbon. Similarly,

Received: April 9, 2019
Accepted: May 13, 2019
Published: May 13, 2019

ChemPubSoc Europe
DOI: 10.1002/slct.201901715
ChemistrySELECT Full Papers

Energy Technology & Environmental Science

Self-Assembled Monolayer Stabilized Gold-Vanadate Nanoflute for Water Splitting Reactions

Biraj Das,[a] Mukesh Sharma,[a] Anil Hazarika,[b] and Kusum K. Bania*[a]

Vanadium oxide (VOx) decorated with gold-nanoparticles via self-assembled monolayer approach is herein reported to be an efficient electrocatalyst for both oxygen and hydrogen evolution reactions (OER and HER) in alkali medium. The voids created in the nanoflute of gold-vanadate were believed to be responsible for high mass transfer allowing the material to be highly applicable as a catalyst for water splitting and nitro-arene reduction. The nanoflute exhibited high current density with low onset potential value in both OER and HER. The overpotential value at 10 mAcm⁻² was observed to be 310 mV with onset potential of 1.43 V in case of OER while the overpotential value for HER was measured to be 282 mV. The nanocatalyst was found to be stable upto 10 h with minimal increment in the overpotential value. The Tafel plot value of 127 mVdec⁻¹ in OER and 131 mVdec⁻¹ in HER also signified for the high efficacy of the catalyst towards splitting of water molecules under high basic condition. The same material was also used as catalyst for reduction of various nitro-arenes in isopropanol with 0.25 M KOH. The liberation of hydrogen via the oxidation of isopropanol was supposed to be responsible for reduction of nitro-arenes. The ability of the catalyst to oxidize isopropanol was substantiated from electrochemical studies.

Introduction

The continuous decrease in the fossil fuels and the increase in the global warming caused by the emission of greenhouse gases compelled the researchers to search for alternate clean and renewable source of energy.[1] Generation of hydrogen fuel from water either by electrochemical or photochemical process is considered to be one of the environmentally benign process.[2,3] Therefore, finding an electrocatalyst for water splitting reactions viz oxygen evolution and hydrogen evolution reaction (OER and HER) requires high attention towards the development of new technology for generation of hydrogen fuel.[4,5] The commercialization of electrocatalyst from precious metal like Pt, Ru, Ir is limited by their high cost, low abundancy and stability.[6,7] Apart from the designing of cost effective electrocatalyst it is also reasonable to find materials that could sustain for a longer period under high acidic or alkaline medium.[8,9] At the same time it is also beneficial to look for new heterogeneous catalysts that are able to perform both the OER and HER in the same medium.[8,9] Most often performance of a particular catalyst in HER is excellent in acidic medium while it loses its stability in alkaline medium and the reverse is observed in OER.[4,5] Hence synthesis of a catalyst performing both OER and HER with high efficiency within the same medium is more desirable.[9,10] To the best of our knowledge only few numbers of Au supported metal oxides has been reported for OER and HER.[2,3,11] Recent studies suggested that the water splitting reactions in alkali medium is more beneficial in comparison to acidic medium.[4,5] So, current emphasis has been put towards the synthesis of new materials for electrocatalytic splitting of water (either OER and HER) under alkali medium.

Like the OER and HER, the success in nitro-arene reduction (NAR) reactions using isopropanol as internal reducing agent is very much limited.[14−17] Till date only few catalytic systems are known to do the NAR at the expense of isopropanol oxidation.[14−16] NAR reactions are commonly performed using reducing agents like sodium borohydride,[17] hydrazine[18] etc. However, the presence of such reducing agents hampers the chemo-selectivity of the product and also destroys the heterogeneity of the nanocatalyst.[18] Nowadays, isopropanol is considered to be one of the alternate sources of hydrogen with no toxicity in NAR.[14,15] Therefore, the catalyst that would do the NAR in isopropanol is highly demanding making the process to be much greener.

In this regards, gold nanoparticles (Au NPs) supported on various metal oxide or alloyed with other metals appeared to be promising catalyst for water splitting reaction[2] and NAR.[20] Among the different forms of Au NPs, the one stabilized by self-assembling monolayer (SAM) formation of thiol-based carboxylic acids has drawn specific attention due to their high applicability in sensing, surface patterning and molecular electronics.[21−26] But such type of Au NPs despite of having good redox potentials have not been explored in water oxidation reaction and in NAR. Apart from SAM stabilized Au NPs,[27] VOx are also known as promising semiconducting materials for its suitable band gap.[28] VOx also serves as good

[a] B. Das, M. Sharma, Dr. K. K. Bania
Department of Chemical Sciences, Tezpur University, Assam, India, 784028
E-mail: kusum@tezu.ernet.in
[b] A. Hazarika
Department of Electronics and Communication Engineering, Tezpur University, Assam, India, 784028

Supporting information for this article is available on the WWW under https://doi.org/10.1002/slct.201901715

© 2019 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Polymer Degradation and Stability 159 (2019) 15–22

Contents lists available at ScienceDirect

Polymer Degradation and Stability

journal homepage: www.elsevier.com/locate/polydegstab

Tough and biodegradable thermosets derived by blending of renewable resource based hyperbranched epoxy and hyperbranched polyester

Aditi Saikia, Deepshikha Hazarika, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

ARTICLE INFO

Article history:
Received 17 July 2018
Received in revised form
29 October 2018
Accepted 11 November 2018
Available online 13 November 2018

Keywords:
Epoxy
Polyesters
Polymer blends
Renewable resources
Thermal degradation
Biodegradability

ABSTRACT

Renewable resource derived polymers are the most widely explored polymers from the past two decades because of their non-toxicity and environment-friendly nature. Therefore, in the present study blends from two different bio-based polymers with the special architecture, viz. hyperbranched epoxy and hyperbranched polyester were prepared by mechanical mixing at different weight ratios. The prepared blends were characterized by Fourier transform infrared spectroscopy and X-ray diffraction technique. The thermosets of these blends showed good tensile strength (34.9 MPa), elongation at break (2.74%), impact resistance (21.3 kJ/m^2), scratch resistance (up to 6.5 kg) and thermal (Onset temperature: 224 °C) properties indicating improvements in flexibility and thermostability up to an appreciable extent. The blends also showed good biodegradability when exposed to gram positive and gram negative bacterial stains.

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Epoxy thermosets widely used as matrix material for different advanced applications like components of hardware, missile equipments, materials for use in boards etc. due to its excellent adhesive, physicochemical, thermal, mechanical, dielectric and aging characteristics [1–4]. These thermosets are however very limited in

Bio-based epoxies obtained from vegetable oils could be used as one of the alternatives to the commercial epoxy as it has much functionality which may take part in crosslinking reactions. Also, the long fatty acid chains present in the vegetable oil results in increasing its flexibility though the decrease in mechanical properties and thereby limiting its use in advanced engineering applications. Therefore, hyperbranched epoxy resins derived from

Contents lists available at ScienceDirect

Chemical Engineering Journal

journal homepage: www.elsevier.com/locate/cej

Hyperbranched polyurethane/reduced carbon dot-zinc oxide nanocomposite-mediated solar-assisted photocatalytic degradation of organic contaminant: An approach towards environmental remediation

Ritupama Duarah, Niranjan Karak*

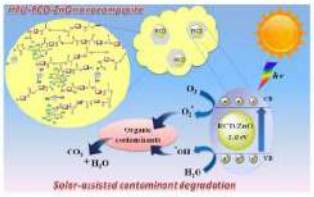
Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

HIGHLIGHTS

- RCD-ZnO nanohybrid was synthesized by a facile and green protocol.
- RCD-ZnO displayed suitable optical band for photocatalytic activity.
- RCD-ZnO was fabricated *in situ* with starch-modified hyperbranched polyurethane.
- Polyurethane nanocomposite showed high mechanical and thermal properties.
- The nanocomposite functioned as an efficient and recyclable photocatalyst.

GRAPHICAL ABSTRACT

Starch-modified hyperbranched polyurethane/reduced carbon dot-zinc oxide nanocomposite as robust and recyclable solar-assisted photocatalyst for degradation of organic contaminants.



ARTICLE INFO

Keywords:
Starch
Hyperbranched polyurethane nanocomposite
Solar-assisted photocatalyst
Organic pollutant degradation

ABSTRACT

Photocatalysis has carved out a niche in the recent times, as an environmentally benign, renewable and innorative technology for degradation of common organic pollutants in nature. The present work focuses on the development of a sustainable hyperbranched polyurethane (HPU) nanocomposite with reduced carbon dot-zinc oxide nanohybrid (RCD-ZnO) as a prospective solar energy-assisted heterogeneous photocatalyst for degradation

Contents lists available at ScienceDirect

Progress in Organic Coatings

journal homepage: www.elsevier.com/locate/porgcoat

Environmentally benign bio-based waterborne polyesters: Synthesis, thermal- and bio-degradation studies

Dutta Kaberi Geeti, Karak Niranjan*

Tezpur University, Napaam, 784028, Tezpur, India

ARTICLE INFO

Keywords:
Waterborne
Bio-based
Sustainable
Polyester
Biodegradable
Hemocompatible

ABSTRACT

With the rising impulse of environmental friendliness and sustainability, the polymer industries are aiming at developing environmentally benign sustainable polymers with desired properties for various applications. In this milieu, the authors wish to synthesize bio-based waterborne polyester using different bio-based reactants such as citric acid, glycerol, tartaric acid, dimer acid and sorbitol via catalyst-free and solvent-free polycondensation reactions. Three different compositions of the polyesters were synthesized by varying the citric acid and tartaric acid contents and characterized by different spectroscopic methods. Thermosets of the synthesized polyesters were obtained by crosslinking them with glycerol-based epoxy and poly(amidoamine) as a hardener. The performances of the cured polyesters were evaluated by mechanical, thermal, biodegradation and hemocompatibility tests. They showed excellent elongation at break (433.5–602.5%), toughness (9.27–17.23 MJ m^{-3}), scratch hardness (7.5–10 kg), gloss value at 60° (89–95), impact resistance (10.78–14.95 kJ/m), moderate tensile strength (2.86–3.77 MPa), good thermal stability (above 210–222 °C) and chemical resistance. Moreover, the thermosets were also found to be biodegradable and hemocompatible with the erythrocytes present in RBCs. Thus, bio-based waterborne polyesters were synthesized successfully with desired properties via environmentally benign route and the thermosets have the potential for various applications including surface coating and biomedical.

1. Introduction

Polyesters are one of the most promising families of polymers as they are found in widely used commodity items in our day to day life. They are frequently used as coating materials, adhesives, laminates, paints, plasticizers, textiles etc., due to their versatile properties [1–3]. However, most of their synthetic procedures still depend on the petroleum-based chemicals and metal-based catalysts. At present, in-

attributes like non-toxic, non-flammable, low odour, no or very low VOC and easy to clean up. In combination with these factors, the cost-effectiveness of water medium progressively expands the use of waterborne polyester systems [10]. To achieve such waterborne systems, it is necessary to have ionic or hydrophilic polar functional groups like carboxylates, sulphonates, tertiary amines moieties etc. which help the polymer surface to interact with the water molecules and solubilize or disperse the polymer [11,12]. Further, biodegradation and bio-

Journal of Colloid and Interface Science 540 (2019) 247–257

Contents lists available at ScienceDirect

Journal of Colloid and Interface Science

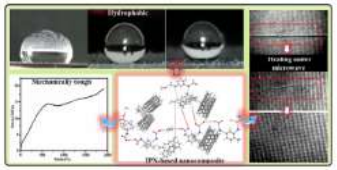
journal homepage: www.elsevier.com/locate/jcis

Multi-walled carbon nanotubes reinforced interpenetrating polymer network with ultrafast self-healing and anti-icing attributes

Tuhin Ghosh, Niranjan Karak*

Advanced Polymer and Nanomaterial Laboratory, Department of Chemical Sciences, Tezpur University, Tezpur 784028, India

GRAPHICAL ABSTRACT



ARTICLE INFO

Article history:
Received 9 November 2018
Revised 2 January 2019
Accepted 3 January 2019
Available online 4 January 2019

Keywords:
IPN
PS-grafted-MWCNT

ABSTRACT

Hypothesis: Fabrication of polymeric nanocomposites with suitable nanomaterial via an *in-situ* polymerization approach results in multifunctional advanced materials.
Experiments: The present work demonstrates the fabrication of interpenetrating polymer network (IPN)-based smart nanocomposites of polyurethane and polystyrene (PS) with different weight percentages of multi-walled carbon nanotubes (MWCNT). The MWCNT was grafted with pre-polymer of PS. The grafted-MWCNT and the nanocomposites were analyzed by Fourier transform infrared and Raman spectroscopic, X-ray diffraction, transmission electron microscopic studies. Further, different properties of the nanocomposites were evaluated.

ChemPubSoc Europe
DOI: 10.1002/ejoc.201900909
EurJOC Full Paper

Cyanation

An Insight into Nitromethane as an Organic Nitrile Alternative Source towards the Synthesis of Aryl Nitriles

Rakhee Saikia,[a] Satyajit Dey Baruah,[a] Ramesh C. Deka,[a] Ashim J. Thakur,*[b] and Utpal Bora*[b]

Abstract: Directed by an unusual in situ reduction of Cu^{II}, our protocol is a simple Cu^{I}-mediated synthesis of aryl nitriles, with inexpensive and readily available nitromethane as the cyanating source, in moderate to good yields. Exhibiting a wide substrate scope, the method involves simple reaction conditions, is additive free with low catalyst loading. The plausible mechanism of cyanation of aryl halides is elucidated by a congregation of three cycles, namely the in situ reduction of Cu^{II} species by nitromethane, generation of HCN species from nitromethane and a regular organometallic pathway which releases the nitrile derivative. The detail of the mechanism of generation of CN^- from nitromethane is computationally validated. Our protocol holds the distinction of involving a rarely encountered Cu^{I} catalytic species as well as facile in situ generation of nucleophilic CN^- to yield synthetically useful aromatic nitriles.

Introduction

The exploration of novel methodologies for the introduction of a nitrile group into an aromatic framework is a much desired

The pioneers of employing the inexpensive, less-toxic and readily available indirect organic nitrile source CH_3NO_2, Yu and his group, successfully cyanated aryl C-H bonds with nitrometh-

ChemPubSoc Europe
DOI: 10.1002/slct.201900187
ChemistrySELECT Full Papers
Check for updates

Sustainable Chemistry

Design of Water Stable 1,3-Dialkyl- 2-Methyl Imidazolium Basic Ionic Liquids as Reusable Homogeneous Catalysts for Aza-Michael Reaction in Neat Condition

Kabita Boruah[b] and Ruli Borah*[a]

In this study, new members of mono cationic basic ionic liquids were synthesized as water stable viscous liquid consisting of 1, 3-dialkyl-2-methyl imidazolium cation and acetate (or hydroxide) anion. Their structures were determined using ^{1}HNMR, ^{13}CNMR, FT-IR and elemental analysis. Thermogravimetric analysis displayed maximum stabilities of six ionic liquids up to 260 °C. The UV-Vis technique was employed to determine their comparable Hammett basicity order. Thermally stable five ionic liquids with less moisture content showed their catalytic activities by formation of 85–97% yields of β-amino carbonyl compound for the model Aza-Michael reaction of piperidine and acrylonitrile in neat condition with 2 and 5 mol% of catalysts for 5–15 min at room temperature. The optimized two catalysts [dblm]OH and [daim]OAc were reused efficiently with slight loss of activity for four cycles after the 1st run.

Introduction

Development of environmentally benign basic catalysts can eliminate enormous drawbacks associated with the use of organic reactions. Thus, increasing number and carbon length of alkyl substituent at the organic cation may contribute significant amount of hydrophobic nature to the basic ionic

Received: 10 July 2018 | Revised: 28 September 2018 | Accepted: 3 October 2018
DOI: 10.1002/aoc.4672

FULL PAPER

WILEY Applied Organometallic Chemistry

Supported dual-acidic 1,3-disulfoimidazolium chlorozincate@HZSM-5 as a promising heterogeneous catalyst for synthesis of indole derivatives

Susmita Saikia | Krishna Puri | Ruli Borah

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, India

Correspondence
Ruli Borah, Department of Chemical Sciences, Tezpur University, Napaam, Tezpur 784028, India.
Email: ruli@tezu.ernet.in

Funding information
SERB-DST India, Grant/Award Number: EMR/2016/002108

HZSM-5-supported Brönsted and Lewis acidic ionic solid 1,3-disulfoimidazolium chlorozincate materials ([dsim]$_2$[$ZnCl_4$]@HZSM-5) were synthesized with various ratios (3, 6, 9, 17 and 50% w/w). The heterogeneous materials were characterized via a variety of spectroscopic techniques. Dual acidity of these materials was determined using specified techniques. These acidic solids were examined as stable heterogeneous catalysts for the Fischer indole reaction of equimolar amounts of phenylhydrazine hydrochloride and various aliphatic or aromatic ketones at 80–90°C in neat condition to produce substituted indole derivatives. The efficient 17% ionic salt-loaded HZSM-5 composite was easily reused for ten consecutive cycles with a slight loss of its activity. The recycled catalyst was further analysed using powder X-ray diffraction and inductively coupled plasma optical emission spectrometric techniques.

KEYWORDS
1,3-disulfoimidazolium chlorozincate, Brönsted-Lewis acidic, HZSM-5-supported ionic salt, indoles, reusable catalyst

1 | INTRODUCTION

The growing importance of supports in research fields has attracted attention towards zeolite materials for their ubiquitous influence as acidic, porous, crystalline, high-

Si/Al ratio of the ZSM-5 support prevents de-alumination of framework Al which is a common problem of many other zeolites used as supports for immobilization of acidic materials. Nowadays, immobilization of catalytically active metals and nanomaterials onto heteroge-

Contents lists available at ScienceDirect
Journal of Molecular Liquids
journal homepage: www.elsevier.com/locate/molliq
ELSEVIER

Comparative study of the physical and electrochemical behavior of direct N-SO_3H functionalized 1, 3-disulfo-2-alkyl-imidazolium trifluoroacetate ionic liquids in molecular solvents

Sukanya Das, Trisha Dutta, Ruli Borah *
Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India

ARTICLE INFO

Article history:
Received 20 April 2019
Received in revised form 22 May 2019
Accepted 29 May 2019
Available online 3 June 2019

Keywords:
2-Alkyl-1,3-disulfoimidazolium cation
Binary solution of ionic liquid
Conductivity
Self-aggregation
Electrochemical window

ABSTRACT

A series of N-SO_3H functionalized imidazolium [RSIM][CF_3COO] ionic liquids, where R = H, CH_3, C_2H_5 and n-C_4H_9 were synthesized and fully characterized with spectroscopic techniques. A detailed study on Brönsted acidity, thermal stability, conductivity, density and electrochemical window of the ionic liquids (ILs) was carried out to analyze the effects of the C-2 alkyl substituent of imidazolium cation. Increasing +I effect of the C-2 substituent decreased the Brönsted acidity of the ILs. The ILs were found to be thermally stable up to 250–260 °C with more loss of physisorbed water below 100 °C as the size of C-2 alkyl group increased. The conductivity of these ILs in molecular solvents (MeOH and MeCN) slowly decreased with the increasing temperature (278.15 K to 333.15 K) at a particular mole fraction (X_{IL} = 0.0255) of the ILs, showing temperature dependent self-aggregation behavior. At a given temperature (298.15 K), the conductivity variation of the ILs in molecular solvents with rising concentration of the IL also evidenced their self-aggregation tendency by displaying a minimum value with its neat condition. The variations of conductivities were also correlated with Kamlet-Taft solvatochromic parameters (E_N^T, α, β) of the solvents. Cyclic Voltammetry study expressed maximum electrochemical window for the acetonitrile solution of bulkier C-2 alkyl groups (R = n-Bu & Et) containing ILs.

© 2019 Elsevier B.V. All rights reserved.

1. Introduction

Exploration of unique physicochemical properties of various classes of ionic liquids (ILs) has been considered as one of the relevant field of research in material sciences. Ranging from biomass conversion [1], catalysis and organic synthesis [2,3], electrochemistry [4], analytical

high electrochemical window (EW) [14–17]. A number of review articles are published on the acidic ionic liquid materials to study their synthesis, properties and uses as catalyst, reaction medium, in carbon dioxide dissolution and fixation, ionogels, electrolytes in battery and fuel-cell, electrophoresis media, conversion of biomass to renewable feedstock etc. These articles also described the literature of the N-

Journal of Photochemistry & Photobiology A: Chemistry 382 (2019) 111960

Contents lists available at ScienceDirect

Journal of Photochemistry & Photobiology A: Chemistry

Journal homepage: www.elsevier.com/locate/jphotochem

Novel g-C_3N_4/graphene/$NiFe_2O_4$ nanocomposites as magnetically separable visible light driven photocatalysts

Gebrehiwot Gebreslassie[a,b,c,*], Pankaj Bharali[a,**], Umesh Chandra[b], Assefa Sergawie[c], Purna K. Boruah[d,e], Manash R. Das[d,e], Esayas Alemayehu[f,***]

[a] Department of Chemical Sciences, Tezpur University, Napaam, 784028, Assam, India
[b] Faculty of Materials Science and Engineering, Jimma University, Jimma, 378, Ethiopia
[c] Department of Industrial Chemistry, Addis Ababa Science and Technology University, Addis Ababa, 16417, Ethiopia
[d] Advanced Materials Group, Materials Sciences and Technology Division, CSIR-North East Institute of Science and Technology, Jorhat, 785006, Assam, India
[e] Academy of Scientific and Innovative Research, CSIR-NEIST Campus, India
[f] Faculty of Civil and Environmental Engineering, Jimma University, Jimma, 378, Ethiopia

ARTICLE INFO

Keywords:
g-C_3N_4/graphene/$NiFe_2O_4$
Magnetic nanocomposite
Photocatalysts
Photodegradation

ABSTRACT

Magnetically separable all-solid-state Z-scheme g-C_3N_4/graphene/$NiFe_2O_4$ (CGN) nanocomposites have been synthesized using one pot hydrothermal method. The as-prepared pristine and nanocomposite samples were characterized using X-ray diffraction (XRD), fourier transform infrared spectroscopy (FTIR), UV–VIS diffuse reflectance spectroscopy (DRS), photoluminescence (PL) spectroscopy, scanning electron microscopy (SEM), energy dispersive x-ray spectroscopy (EDS), transmission electron microscopy (TEM), high resolution transmission electron microscopy (HRTEM), X-ray photoelectron spectroscopy (XPS), Brunauer-Emmett-Teller (BET) surface analysis, and Vibrational sample magnetometer (VSM) characterization techniques. The result reveals that the weight percent of $NiFe_2O_4$ have considerable effect on the optical property and photocatalytic activity of the nanocomposites. The CGN-25% nanocomposite shows the best photocatalytic activity and its activity is about 18, 7 and 6 folds higher than those of $NiFe_2O_4$, g-C_3N_4, and GN-25% respectively on the degradation of methyl orange (MO). This enhancement could be attributed to the synergistic effect between g-C_3N_4, graphene and $NiFe_2O_4$, which could accelerate photogenerated electron-hole separation and prolong the life of the photo-induced carriers to enhance their activity. The CGN-25% was recycled using magnet without significant loss and shows almost the same photocatalytic performance for six runs. Moreover, a possible photocatalytic mechanism was proposed. This could provide new insights to develop highly efficient and stable g-C_3N_4 and graphene based magnetic photocatalysts.

1. Introduction

Environmental pollution is an anticipated effect of economic development and people's desire to improve the quality of their life. Currently, organic substances such as dyes have been of the concerns of environmental pollutants, and its effective remediation is still a challenge [1–3]. There are several potential solutions for environmental treatment, of which is semiconductor based photocatalytic degradation of various organic pollutants because it gives huge development potential for converting light energy into chemical energy to decompose various harmful organic contaminants [4,5]. Therefore, the design and preparation of artificial photocatalysts with high efficiency and stability have fascinated great scientific interests worldwide to employ the solar energy [6]. Recently, the nontoxic and abundant graphitic carbon nitride (g-C_3N_4) materials have been attracting the attention of researchers and have recurrently been used as metal-free photocatalysts for solar energy conversion, environment purification, and hydrogen production [7–9]. However, there are also many drawbacks for the g-C_3N_4 materials, which include: high rate of electron – hole recombination, low specific surface area, and limited visible light absorption [10–12].

Much efforts have been made to overwhelmed aforementioned problems and improve the photocatalytic activity of g-C_3N_4 by means of various strategies, including the morphology controlling [13],

* Corresponding author at: Department of Industrial Chemistry, Addis Ababa Science and Technology University, Addis Ababa, 16417, Ethiopia.
** Corresponding author.
*** Corresponding author.
E-mail addresses: gebrehiwot.gebreslassie@aastu.edu.et (G. Gebreslassie), pankajb@tezu.ernet.in (P. Bharali), esayas16@yahoo.com (E. Alemayehu).

https://doi.org/10.1016/j.jphotochem.2019.111960
Received 1 February 2019; Received in revised form 9 June 2019; Accepted 2 July 2019
Available online 04 July 2019
1010-6030/© 2019 Elsevier B.V. All rights reserved.

ChemPubSoc Europe

DOI: 10.1002/cctc.201900469

CHEMCATCHEM Full Papers

Unique Half Embedded/Exposed PdFeCu/C Interfacial Nanoalloy as High-Performance Electrocatalyst for Oxygen Reduction Reaction

Biraj Jyoti Borah,[a] Himadri Saikia,[a] Chiranjita Goswami,[a] Kumar Kashyap Hazarika,[a] Yusuke Yamada,[b] and Pankaj Bharali*[a]

Design of high-performance non-Pt electrocatalyst for fuel cell applications is greatly anticipated. Herein, we have developed a unique half-embedded and half-exposed interfacial PdFeCu nanoalloy anchored onto carbon matrix. The stable electronic coupling between the carbon matrix and PdFeCu nanoalloy possess very fast interfacial electron transfer which in turn enhances the electron conductivity. This makes the trimetallic nanoalloy high performing oxygen reduction reaction (ORR) electrocatalyst in both basic and acidic media. The PdFeCu/C nanoalloy exhibits enhanced electrochemically active surface area than various PdFe/C, bimetallics as well as benchmark 20 wt% Pt/C and Pd/C. As a result, it offers larger active sites for ORR and eased the electron transport during the electrocatalysis. It exhibits 1.5- and 2.4-fold higher mass activity in comparison to the Pt/C and Pd/C. Furthermore, it exhibits long-term stability and low onset potential compared to those of the other catalysts. Thus, the present investigation shows potential strategy for the design and synthesis of Pt-free electrocatalyst with remarkable catalytic activity and stability.

Introduction

The low physical and chemical stability of nanoparticles (NPs) mainly restrict the practical application of electrocatalysts (ECs) for fuel cell. Throughout the fuel cell operating conditions, NPs are often easily oxidized, dissolved in electrolyte, or separated from the support and agglomerated into larger particles, and thus losing their electrochemical catalytic performance during cycling.[1] Therefore, numerous efforts have been attempted to address the hurdles. These includes modification of NPs with protective layer by carbon and/or modified carbon shells,[2] inorganic oxide[3] and graphitic material[4,5] etc. Eventually, the coated NPs exhibit improved electrocatalytic activity and long-term durability as compared to the uncoated one. Unfortunately, it was assessed that the protective layer can also decrease the activity by blocking the active sites of the EC.[6] For instance, Guo et al.[7a] reported embedded Pt nanocrystals into N-doped carbon on carbon nanotube (Pt@CN$_x$/CNT), where the carbon layer effectively prevents the Pt NPs from migration, dissolution, detachment and aggregation during durability test and heat treatment at 900 °C. In another report, PtFe NPs with a very thin "dual purpose" N-doped carbon shell has been effectively synthesized.[8a] The carbon layer advantageously prevents PtFe NPs from agglomeration during the thermal annealing at ~700 °C. Even at this condition, the layer was still permeable for the reactant molecule and the catalytic activity of the NPs was not affected. Although, the processes exhibit good electrocatalytic activity, they have serious operating limitations. Time-consuming synthetic procedure, use of surfactants and very high pyrolysis temperature (700–900 °C) effectively limits the ECs for practical application. Thus, the engineering of highly stable and efficient strategy for the realization of active fuel cell EC is still desirable. In particular, fuel cell ECs for cathodic oxygen reduction reaction (ORR) need to be very effective for overall performance of fuel cells.[9a–c] This is because of the slow kinetics associated with the ORR process which limits active fuel cell materialization. In addition to this, the ORR activity of noble metals and their compounds are greatly influenced by lattice strain, electronic effect and surface defects.[10a,b] The lattice strain plays an important role in the ORR of noble metal ECs, whereas the compressive lattice strain changes the d-band center of the metal catalysts which weakens the surface oxygen adsorption property of the catalyst surface.[10c] From the electronic effect, the alteration of the d-band center for Pt or Pd through the formation of alloys with second metal could increase the kinetics of the ORR.[11a,b] On the other hand, abundant surface defect on NPs also alter the electrocatalytic performance by improving the accessible active sites for the reactant molecules.[8b]

Inspired by various strategies to improve ORR performance, we herein report the design of unique half-embedded and half-exposed PdFeCu nanoalloy on carbon matrix with multiple surface defects at relatively low temperature as presented in Scheme 1. The half-embedded portion in carbon matrix

[a] B. Jyoti Borah, Dr. H. Saikia, C. Goswami, K. Kashyap Hazarika, Dr. P. Bharali
Department of Chemical Sciences
Tezpur University
Tezpur, Assam-784 028 (India)
E-mail: pankajb@tezu.ernet.in
[b] Prof. Y. Yamada
Department of Applied Chemistry & Bioengineering
Graduate School of Engineering
Osaka City University
3-3-138 Sugimoto, Sumiyoshi-ku, Osaka 558-8585 (Japan)

Supporting information for this article is available on the WWW under https://doi.org/10.1002/cctc.201900469

© 2019 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Received: 27 November 2018 | Revised: 11 April 2019 | Accepted: 27 April 2019
DOI: 10.1002/aoc.5002

FULL PAPER

WILEY Applied Organometallic Chemistry

Hydrothermal Synthesis of g-C_3N_4/$NiFe_2O_4$ Nanocomposite and Its Enhanced Photocatalytic Activity

Gebrehiwot Gebreslassie[1,2,3] | Pankaj Bharali[1] | Umesh Chandra[2] | Assefa Sergawie[3] | Purna K. Baruah[4,5] | Manash R. Das[4,5] | Esayas Alemayehu[6]

[1] Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India
[2] Faculty of Materials Science and Engineering, Jimma Institute of Technology, Jimma University, Jimma 378, Ethiopia
[3] Department of Industrial Chemistry, Addis Ababa Science and Technology University, Addis Ababa 16417, Ethiopia
[4] Advanced Materials Group, Materials Sciences and Technology Division, CSIR-North East Institute of Science and Technology, Jorhat 785006, Assam, India
[5] Academy of Scientific and Innovative Research, CSIR-NEIST Campus, India
[6] Faculty of Civil and Environmental Engineering, Jimma Institute of Technology, Jimma University, Jimma 378, Ethiopia

Correspondence
Gebrehiwot Gebreslassie, Department of Industrial Chemistry, Addis Ababa Science and Technology University, Addis Ababa 16417, Ethiopia.
Email: gebrehiwot.gebreslassie@aastu.edu.et
Pankaj Bharali, Department of Chemical Sciences, Tezpur University, Napaam 784028, Assam, India.
Email: pankajb@tezu.ernet.in

Funding information
Addis Ababa Science and Technology University, Grant/Award Number: IRG 06/08

Herein, for the first time, a direct Z-scheme g-C_3N_4/$NiFe_2O_4$ nanocomposite photocatalyst was prepared using facile one-pot hydrothermal method and characterized using XRD, FT-IR, DRS, PL, SEM, EDS, TEM, HRTEM, XPS, BET and VSM characterized techniques. The result reveals that the $NiFe_2O_4$ nanoparticles are loaded on the g-C_3N_4 sheets successfully. The photocatalytic activities of the as-prepared photocatalysts were evaluated for the degradation of methyl orange (MO) under visible light irradiation. It was shown that the photocatalytic activity of the g-C_3N_4/$NiFe_2O_4$ nanocomposite is about 4.4 and 3 times higher than those of the pristine $NiFe_2O_4$ and g-C_3N_4 respectively. The enhanced photocatalytic activity could be ascribed to the formation of g-C_3N_4/$NiFe_2O_4$ direct Z-scheme photocatalyst, which results in efficient space separation of photogenerated charge carriers. More importantly, the as-prepared Z-scheme photocatalyst can be recoverable easily from the solution by an external magnetic field and it shows almost the same activity for three consecutive cycles. Considering the simplicity of preparation method, this work will provide new insights into the design of high-performance magnetic Z-scheme photocatalysts for organic contaminate removal.

KEYWORDS
dye degradation, g-C_3N_4/$NiFe_2O_4$ nanocomposite, magnetic photocatalyst, Z-scheme

1 | INTRODUCTION

After the discovery of water splitting by Fujishima and Honda, the photocatalysis technology becomes known as most promising new technology in a fuel cell, purification of air, organic pollutant degradation, self-cleaning, and antibacterial activity.[1–7] For the last four decades, various semiconductor photocatalysts, including TiO_2, WO_3, SnO_2 and ZnO have been studied in environmental purposes.[8–13] However, their effective

© 2019 John Wiley & Sons, Ltd.

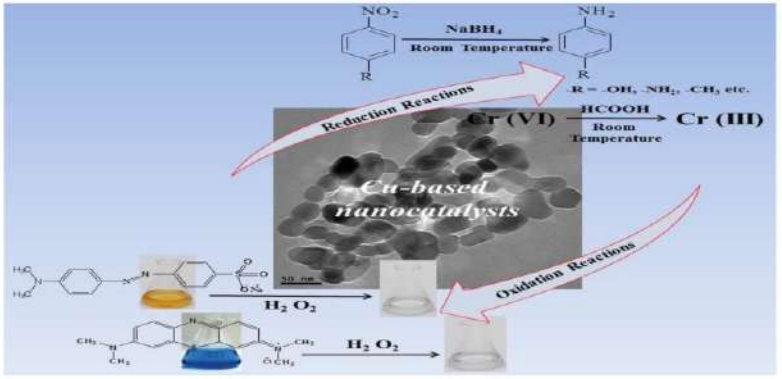
Personal Account

THE CHEMICAL RECORD

DOI: 10.1002/tcr.201800055

Cu-Based Nanoparticles as Emerging Environmental Catalysts

Pangkita Deka, Biraj Jyoti Borah, Himadri Saikia, and Pankaj Bharali*[a]



© 2018 The Chemical Society of Japan & Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim

Organic & Biomolecular Chemistry

ROYAL SOCIETY OF CHEMISTRY

PAPER

View Article Online
View Journal

Check for updates

Cite this: DOI: 10.1039/c9ob02454a

Switching of regioselectivity in base-mediated diastereoselective annulation of 2,3-epoxy tosylates and their *N*-tosylaziridine analogs with 2-mercaptobenzimidazole†

Arup Jyoti Das,‡ Hemi Borgohain,‡ Bipul Sarma and Sajal Kumar Das *

A base-mediated dinucleophilic cyclization of readily accessible 2,3-epoxy tosylates with 2-mercaptobenzimidazole has been developed for the one-pot diastereoselective synthesis of benzimidazole-based tricyclic compounds equipped with two stereogenic centres. With *trans*-substrates bearing an aryl or alkyl substituent at the C3 position, the reaction involves an initial S–C1 bond-forming intermolecular alkylation followed by an N–C3 bond-forming, *endo*-selective intramolecular epoxide ring-opening cyclization reaction. A spectacular regioselectivity switching (tandem S–C3 and N–C1 bond formation reactions) was observed with related *trans*-*N*-tosylaziridine substrates. Wide substrate scope, complete diastereoselectivity, high to complete regioselectivity and mild transition metal-free conditions render this protocol particularly efficient and practical.

Received 13th November 2019,
Accepted 12th December 2019
DOI: 10.1039/c9ob02454a
rsc.li/obc

Introduction

The annulation reaction between a dinucleophile and a dielectro

The scarcity of synthetic exploitations of either **1*ep*** or **1*az*** is probably due to the challenge in the control of regioselectivity during their reactions with dinucleophiles (*vide infra*).

Tetrahedron Letters 60 (2019) 2070–2073

Contents lists available at ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Synthesis of 11-aryl-11*H*-indeno[1′,2′:4,5]imidazo[1,2-*a*]pyridines via dehydrative cyclization of aryl(2-arylimidazo[1,2-*a*]pyridin-3-yl) methanols

Hemi Borgohain, Sajal Kumar Das *

Department of Chemical Sciences, Tezpur University, Napaam, Tezpur, Assam 784028, India

ARTICLE INFO

Article history:
Received 4 June 2019
Revised 28 June 2019
Accepted 30 June 2019
Available online 2 July 2019

Keywords:
Imidazo[1,2-*a*]pyridines
Triarylmethanes
Carbinols
Friedel–Crafts alkylation

ABSTRACT

A series of 11-aryl-11*H*-indeno[1′,2′:4,5]imidazo[1,2-*a*]pyridines was obtained via $AlCl_3$-promoted, dehydrative cyclization of the corresponding aryl(2-arylimidazo[1,2-*a*]pyridin-3-yl)methanols in moderate to good yields. The synthesized compounds can be considered as conformationally restricted, privileged aza-heterocyclic scaffold bearing triarylmethane analogs.

© 2019 Elsevier Ltd. All rights reserved.

The imidazo[1,2-*a*]pyridine structural unit remains as a benchmark aza-heterocycle for decades in fundamental and applied research work across all branches of organic chemistry. Indeed, this scaffold is widespread in natural and synthetic compounds that have been reported to display a wide range of biological activities, such as antitumor, antifungal, antiparasitic, antimicrobial, anti-inflammatory, and hypnoselective activities [1]. Particularly noteworthy is that several marketed clinical drugs like minodronic acid, zolpidem, alpidem, necopidem, zolimidine, olprinone etc. are imidazo[1,2-*a*]pyridine-based compounds. The prevalence of large number of imidazo[1,2-*a*]pyridine-based compounds has underscored the importance of developing new strategies for the construction and derivatization of this scaffold [2].

On the other hand, triarylmethanes (Fig. 1a) have engrossed great attention due to their increasing importance in medicinal chemistry and material science [3]. Nevertheless, the provision of systematically modifying triarylmethanes to find new bioactive compounds still remains an open area of research and should be a worthwhile objective. As part of our efforts to synthesize heterocycle-based compounds via different intramolecular cyclization towards 11-aryl-11*H*-indeno[1′,2′:4,5]imidazo[1,2-*a*]pyridine systems **1** (Fig. 1b). Despite the significant advances that have been made in the synthesis of imidazo[1,2-*a*]pyridine derivatives, to the best of our knowledge, there is no report on the synthesis of such polycyclic systems. Herein, we report our initial synthetic efforts for accessing these compounds.

From a synthetic strategy perspective, we envisioned that the polycyclic compounds **1** could be constructed through the intramolecular cyclization of imidazo[1,2-*a*]pyridine-tethered carbinols **2** or **3** (Scheme 1). The cyclization reaction would involve a dehydrative, intramolecular Friedel–Crafts alkylation that could be realized with the aid of an appropriate Lewis/Brønsted acid catalyst/promoter.

Carbinols **3** might be synthesized from compounds **5** and **6** via **4** in a two-step reaction sequence (Scheme 2). However, compounds **5** are virtually unknown; only two such compounds have been reported [5]. Unfortunately, the described synthetic route is quite tedious and low yielding. Moreover, 2-formylbenzene boronic acids **6** are quite expensive. Contrary to this, synthesis of the alternative precursor carbinol **2** is much simpler (*vide infra*). Therefore,

Organic & Biomolecular Chemistry

ROYAL SOCIETY OF CHEMISTRY

COMMUNICATION

View Article Online
View Journal | View Issue

Check for updates

Cite this: *Org. Biomol. Chem.*, 2020, 18, 220

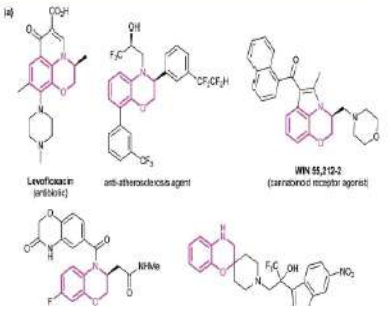
Received 3rd November 2019,
Accepted 3rd December 2019
DOI: 10.1039/c9ob02377a
rsc.li/obc

Base-mediated intramolecular one-pot double-cyclization of epoxide-tethered 2-fluorobenzenesulfonamides: an avenue to 1,4-benzoxazine-fused benzothiaoxazepine-1,1-dioxides†

Jonali Das, Biraj Jyoti Borah and Sajal Kumar Das *

Herein, we describe the synthesis of hitherto unknown 1,4-benzoxazine-fused benzothiaoxazepine-1,1-dioxides by a NaH-promoted intramolecular one-pot double-cyclization of epoxide-tethered 2-fluorobenzene sulfonamides. Mechanistically, the reactions proceed *via* an intramolecular epoxide ring-opening followed by an intramolecular nucleophilic aromatic substitution. The high yields, mild conditions, complete regio- and diastereoselectivity, and a wide substrate scope render this protocol well suited for drug discovery efforts.

Nucleophilic aromatic substitution (S_NAr) is one of the most frequently used reactions that stand tall amongst many recent innovative reactions.[1] Epoxide ring-opening reaction is another major workhorse in synthetic organic chemistry.[2] Despite these attributes, however, a major drawback is that these two reactions in the intermolecular mode often suffer from one or more of the following drawbacks: harsh reaction conditions, excess of reagents, low product yields and long reaction times. On the other hand, their intramolecular counterparts not only circumvent these hurdles, but also often enjoy high to complete regio- and stereocontrol to furnish ring dioxide scaffolds are ubiquitous in a wide range of natural and/or synthetic compounds.[5,6] Fig. 1a and b show some prominent representative examples of compounds based on these two core structures. Owing to their demonstrated pharmacological uses, extensive efforts have been devoted to the development of synthetic methods for diverse 3,4-dihydro-2*H*-1,4-benzoxazines and benzothiaoxazepine-1,1-dioxides.[7,8]



Quest International Multidisciplinary Research Journal
ISSN: 2278 - 4497
Volume – 7, Issue – 2, February – 2018
Available Online at http://www.researchjournals.in
Quality Impact Factor: 6.89 (CARS)
U.G.C. Approved International Refereed Research Journal

RURAL NON- FARM EMPLOYMENT IN NORTH EASTERN REGION: THE CHANGING STRUCTURE

F. Hussain[*], *B. Saikia*[**]
[*]*Assistant Professor, Department of Commerce, Tezpur University, Tezpur, Assam (India)*
[**]*Assistant Professor, Department of Economics, Handique Girls' College, Guwahati, Assam*

ABSTRACT

Structural transformation of an economy brings about a transition in the economy with respect to its economic activities and workforce employment. It causes shifts from low productivity and labour intensive economic activities to higher productivity and skill intensive activities. The shift in workforce is, however, constrained by problems like lack of the required skill in the high productivity sector or inherent ones in developing countries like a higher rural population. The emphasis therefore, transferred to finding out alternative employment opportunities to the low productivity activities in the rural areas which eventually gave rise to the development of a rural no-farm sector in these areas. This paper tries to present a picture of the related situation in the North Eastern States of India. Also, the paper seeks to determine a few factors that have acted as catalyst in bringing about this change and contributing to employment generation in the rural areas. The results obtained from a regression analysis carried out in the study explain that among the factors considered, the growth of rural non-farm employment in the North Eastern Region is due to the increasing size of rural population and smaller sizes of operational holding but it is not caused by increasing literacy.

KEYWORDS: *Structural Transformation, Rural Non-farm Employment, Regression*

INTRODUCTION

Structural transformation or the reallocation of economic activities across the three broad sectors viz., agriculture, manufacturing, and services vis-à-vis the economic growth of a nation was greatly emphasized by the growth stage theories developed by Clark (1940) and Kuznets (1966). Relevantly, this is observed in the developing countries, where the importance of agricultural sector as a driver of economic growth has shredded with the growing importance of the industrial and service sectors along with the progress of these nations. One factor that brings about this structural transformation as Clark (1940) elaborated is the transfer of labour from sectors with low output per worker to sectors with higher output per worker. Past experiences of developing countries including that of India, as held by statistics on the macro economy, seem to have also displayed a picture that falls in line with the framework built in the theories cited above.

Structural transformation is defined as the transition of an economy from low productivity and labour intensive economic activities to higher productivity and skill intensive activities (Oyelaran-Oyeyinka and Lal, 2016). It is characterised by a shift of predominant share of agriculture to manufacturing activities and a moderate to high level of increase in the share of services both for the national product and the work force. This pattern has not only been observed historically, but also holds across the countries with different levels of development (Behera and Tiwari, 2015). The Indian

MEDIA ASIA, 2018
Vol. 44, No.2, 121–133, https://doi.org/10.1080/01296612.2017.1374626

Routledge
Taylor & Francis Group

Check for updates

MEDIA ASIA RESEARCH

Cinematic regimes of otherness: India and its Northeast

SWIKRITA DOWERAH AND DEBARSHI PRASAD NATH

As a cultural text, films are recognized to have powerful influence in the construction of national identities. While debates regarding the scarce representation of Northeast India in the national media continue to become a constant source of deliberation, the paper seeks to look into the dominant Hindi film's representation of the region and how this positions the Northeast in the national imagination of the audience. It discusses the idea of nationhood with the return to the popular concepts of self and the other. The findings are based on the reading of four popular films made on the region post 1990, specifically on Manipur and Assam, viz. *Dil Se* (1998), *Tango Charlie* (2005), *Bumm Bumm Bole* (2010) and *Mary Kom* (2014), selected purposively from the very few films depicting the region. These films facilitate the understanding of various scales of representation of Northeast India and its changing representations over more than a decade.

Keywords: North East India, Bollywood, identity, good Indian, bad Indian, otherness

Introduction

In 2014, the promo episode of *Kaun Banega Crorepati* (KBC) made on the lines of UK based game show *Who Wants To Be a Millionaire*? featured a Northeast Indian girl in the hotseat. The first question the show's host, popular Indian actor Amitabh Bachchan asks is, "In which country is Kohima located?" Some of the options she is given are China, India, Nepal and Bhutan. The scene cuts back and forth to the girl in the studio and the audience watching her on the television screen, which comprises people from both "Northeast" and "mainland"[1] India. Much to the bewilderment of the audience, the girl instead of answering the question requests for the audience poll. While the "supposedly northeasterners"[2] (of the ad) shake their heads in embarrassment, those who represent the "mainland" mock at her for her ignorance. When the poll results come, the host declares that 100 per cent of the audience believes Kohima to be a part of India. To this, the girl replies, "Everybody knows that Kohima is a part of India, but how many of us acknowledge it?" (SET India, 2014).

This advertisement came out in 2014, a time by which people from the Northeastern region had already made a mark in the national space, be it in sports or media or Bollywood or even politics.[3] This was also a time when many from the Northeastern states had come to the notice of the pan Indian audience for their participation in various national level song and dance contests. Yet, the advertisement had to once again remind India of its Northeast. For, as the show's host Amitabh Bachchan remarks at the

Swikrita Dowerah, is a Research Scholar in the Department of Cultural Studies, Tezpur University. Her areas of interest are Gender and Media Studies, Cultural Geography in Films and Critical Theory.
Debarshi Prasad Nath, is a Professor in the Department of Cultural Studies, Tezpur University. His areas of interest include Gender Studies, Comparative Literature, Translation and Critical Theory.
Corresponding author: Swikrita Dowerah. Emails: swikrita@gmail.com, swikrita@tezu.ernet.in

© 2017 Asian Media Information and Communication Centre

UTS ePRESS

Cosmopolitan Civil Societies: an Interdisciplinary Journal

Vol.9, No.1
2017

©2017 Parismita Hazarika and Debarshi Prasad Nath. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 Unported (CCBY4.0) License (https://creativecommons.org/licenses/by/4.0/), allowing third parties to copy and redistribute the material in any medium or form at and to remix, transform, and build upon the material for any purpose, even commercially,provided the original work is properly cited and states its license.

Citation: Hazarika, P. and Prasad Nath, D. 2017, Bishnuprasad Rabha as cultural icon of Assam: the process of meaning making. Cosmopolitan Civil Societies: an Interdisciplinary Journal. 9(1), 60-76. http://dx.doi.org/10.5130/ccs.v9i1.5241

ISSN 1837-5391| PublishedbyUTSePRESS|https://epress.lib.uts.edu.au/journals/index.php/mcs

REFEREED PAPER

Bishnuprasad Rabha as Cultural Icon of Assam: The Process of Meaning Making

Parismita Hazarika
Tezpur University

Debarshi Prasad Nath
Tezpur University

Corresponding author: Parismita Hazarika, Department of Cultural Studies, Tezpur University, Napaam, Sonitpur, Assam-784 028, INDIA.
parismitahazarika91@gmail.com

DOI: http://dx.doi.org/10.5130/ccs.v9i1.5241

ABSTRACT

The term 'cultural icon' is generally used to refer to individuals or images, objects, visual sign, monuments, space and so on. In semiotics the term 'icon' is used to refer to a sign that bears close resemblance to the object that it stands for. Icons are particularly influential signifiers because they are immediately identifiable and carry complex cultural codes in a compact image. In this paper the understanding of 'cultural icon' is not limited to semiotics. Following Keyan Tomaselli and David Scott in *Cultural Icons* (2009), we believe that cultural icons are purposive constructions. An attempt has been made in this paper to analyze the association of 'desirable' meanings to a cultural icon (while dropping 'undesirable' ones); thus, it is imperative that we look at the changing socio-political contexts behind such purposive constructions. With this in mind, we look at the iconic figure of Bishnuprasad Rabha who has been one of the most revered figures in the cultural history of Assam and has been appropriated as a cultural icon in different discourses of the national life of Assam that have emerged in recent times.

Keywords
Cultural icon; *kalaguru*; Assam agitation; nationalist; meaning making

DECLARATION OF CONFLICTING INTEREST The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
FUNDING The author(s) received no financial support for the research, authorship, and/or publication of this paper.

ISSN
2320–6659
EISSN
2320–687X

Indian Journal of Arts

An International Journal

Hegemonic masculinity: rethinking of the concept in art

Goswami, Madhurima

Associate Professor, Centre for Women's Studies, Tezpur University, Napaam, Assam, 784028, India

Publication History
Received: 12 November 2016
Accepted: 25 December 2016
Published: January-March 2017

Citation
Goswami, Madhurima. Hegemonic masculinity: rethinking of the concept in art. *Indian journal of arts*, 2017, 7(21), 59-64

Publication License
This work is licensed under a Creative Commons Attribution 4.0 International License.

General Note
Article is recommended to print as digital color version in recycled paper.

ABSTRACT

This paper attempts to chalk out disjuncture, rupture and challenges in Indian dance practice. This also reveals that the intensified global capitalism is turning the attention of men towards formal economy and away from arts. Furthermore the constant pressure put on men and masculinity by different regimes (state, community, and family is presently threatening the growth of male dancing.) While substantial efforts have been made by Indian dance scholars to address the concerns of male and female dancers, a handful of scholars such as Anne Marie Gaston,(1996)Janet 'o'Shea (2007), Royona Mitra (2009), Hari Krishnan (2009), Mohan Khokar and Ashish Khokar (2011) have critically analysed dancing men in their respective works . Paper will focus on the debate by looking at the different gendered practices in this discussion. The Indian men and the women have explored their respective genders (masculinity and femininity) in the frame of Indian Dance. It also intends to focus on the repercussions there are for men who

© 2017 Discovery Publication. All Rights Reserved

The Chitrolekha Journal on Art and Design (E-ISSN 2456-978X), Vol. 2, No.2, 2018
Themed Issue on "Contemporary Art Practices in Twenty-first Century India"Guest-edited by
Dr. Sanjay Sen Gupta, School of Fine Arts, Amity University Kolkata
DOI: https://dx.doi.org/10.21659/cjad.22.v2n202
PDF URL: www.chitrolekha.com/ns/v2n2/v2n202.pdf

The Patkai Tales: An interpenetration of the folk/ tribal/ avant-garde

Moushumi Kandali
Assistant Professor, Department of Cultural Studies, Tezpur Central University.

Abstract
In the history of modernism, inventing a modern art that is exclusive and one which privileges the speaking subjects of the metropolis has been the normative trend. Here in this exclusive list that includes folk, tribal, popular, other minorities, little tradition and subaltern groups, another category can be added which is a terrain of the under-privileged locations with regard to geo-political domination and economic emancipation welding no hegemonic power in cultural dynamics. However, within such locations too some artists such as Debananda Ulup are seen engaged in symbolic mediation of their existential predicament tethered to the experience of modernity and its associated polemics, the post-colonial-peripheral-tribal which can be seen as an interpenetrative realm of the folk , 'tribal' and the avant-garde.

Keywords: Modernity, Modern Indian Art, Folk, Tribal, Myth.

I

Construction of the Modern Indian Art and the periphery of the Nation's Imagination

Any deliberation on the contemporary/ contemporary art in India inevitably leads to a critical probing about the 'modern' since the contemporary art practices are historical consequences of a cultural departure from the traditional artistic discourse ushering a unique phenomenon called 'Modern Indian art' at the advent of 20th century. The term 'Modern', though highly equivocal, commonly refers to a cluster of international movements and trends in the arts and literature pertaining to a specific periodization within the given historical context. Beyond this rudimentary labelling, however, there is little agreement about the meaning and scope of the term and hence, it jeopardizes any claim for a homogenous wholeness or status as a monolithic entity. Rather the semantic structure of modern can be described as a fuzzy set of meaning horizons determinable functionally and contextually clustered in dynamic hierarchies by degrees of salience. The tendency of upholding a logically intentional definition of modern with an official checklist of necessary and sufficient conditions for all modernist trends to articulate an organic model proves to be too positivistic on the one hand. On the other hand, the logically, extensional definition concerned with the periodization-oriented approach that attempts to define modern simply by enumeration or descriptions of various conventionally associated issues tends to be too relativistic. Both these models make no

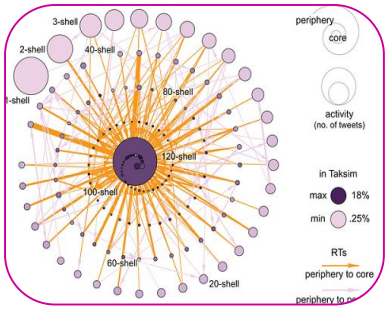
© AesthetixMS 2018. This Open Access article is published under a Creative Commons Attribution Non-Commercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For citation use the DOI. For commercial re-use, please contact editor@chitrolekha.com

REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 7 | ISSUE - 11 | AUGUST - 2018

MEDIA REACHES THE PERIPHERY: STUDYING MEDIA HABITS OF ETHNIC SOCIETIES IN ASSAM

Dr. Jayanta Vishnu Das
Assistant professor , Department of Cultural Studies ,
Tezpur University , Assam, India.

ABSTRACT



The rural as the emerging market place poses challenges to the mass media sector. In under-developed economies the task of creating audiences gets more complicated and challenging. Mass media is a means which caters to a large audience with homogenous fare wherein all audiences are presumed to have the same taste. But this creates a tension of images and sounds, varied audience but similar choices. This paper aims at examining the situation of a rural audience which is bombarded with images and sounds made for an audience keeping in mind a different society with its own set of norms and culture. How this rural community comes to terms with such programming and their ways of appropriating such ideas although alien to them. How the rural people chose one medium over another and the circumstances that influence their choices, whether it be age, gender, or social status. The past two decades has seen a huge influx of media messages reaching the extreme corners of the Indian sub-continent. Communities which were thus far removed from receiving media messages came under the purview of mass media. Ethnic communities started to receive messages that were inconsistent with ideas and values that they held so dear. Thus these ethnic communities faced situations which were brought on by the advent of new technologies and such remote societies were not untouched by them. Younger generations were the one who adapted to mass media early and along with it other sociological changes started taking place in the lives of these communities.

KEYWORDS: *Mass Media, Ethnic Community, Rural society, Media Messages*

INTRODUCTION

In an increasingly media saturated world where audience are bombarded with innumerable signals at every moment whether be it the cell phone in our hands or the graphic board in the side walk, or the advertising panel in an airport, processing media signals has become a challenge. It is during these times that media researchers are excited to lay their hands on communities who are yet to be fully media dependent. This paper locates its study on two distinct villages in Assam, India where media is still a new phenomenon especially traditional electronic media forms such as television. There have been a lot of historical studies on the role of media on rural societies. I have mentioned a few in the following paragraphs.

Media can perform various functions in promoting consciousness for development. Broadly media can help contributed in three areas- economic, social and political, which will in turns make our society cohesive and better organized (Mathur, 2006). Today media is now split into two powerful segments, the print media and the electronic media. There is a rural and urban area divide in the print media as well. The complaint that rural areas which cover 80 per cent of the population get hardly 25 per cent of the coverage in the media is undoubtedly true. (Prabhu, 1995)

Check for updates

Article

Exploring Selfhood through Performance in *The Danish Girl*

Journal of Creative Communications
13(3) 185–196
© 2018 MICA-The School of Ideas
SAGE Publications
sagepub.in/home.nav
DOI: 10.1177/0973258618790792
http://journals.sagepub.com/home/crc

Swikrita Dowerah[1]
Debarshi Prasad Nath[2]

Abstract

The Danish Girl presents the life history of a transgender person in early twentieth century Denmark and is remarkable for its use of visual codes to broach important questions on human subjectivity. The article probes deep into the social structure that frames subjectivity and questions the very idea of the symbolic. It looks at how the filmmaker makes use of cinematic elements as well as various codes and tropes provided to him by psychoanalysis, to critique the conventional understanding of phallic power. Grounded on the established domains of gender theorization, the article is therefore an interpretative analysis of the film that attempts to subvert these very discourses that frame our understanding of gender performance.

Keywords

Subjectivity, feminine, performance, symbolic, transgender

Introduction

Films have been a powerful means of critiquing repressive social norms that stand in the way of self-realization. While some filmmakers have chosen to fight the crusade more dramatically, there are others who have preferred subtler means. Tom Hooper's *The Danish Girl* belongs to the latter category (Bevan & Hooper, 2015). The film has been critically acclaimed for its creation of the characters of the protagonists, Gerda and Einar. These two characters and their life-changing experiences tell us a story of human sexuality from a perspective that has rarely been used in mainstream films. What makes the analysis of the text significant from a film studies perspective is the way this story of human sexuality, extending beyond heterosexual normativity, has been told. However, any attempt to critically assess the cinematic techniques used by the filmmaker to explore the tabooed topic of transsexuality requires that we briefly consider the psychoanalytic and Butlerian ideas of subjectivity.

[1] Research Scholar, Department of Cultural Studies, Tezpur University, Napaam, Sonitpur, Assam, India.
[2] Professor, Department of Cultural Studies, Tezpur University, Napaam, Sonitpur, Assam, India.

Corresponding author:
Swikrita Dowerah, Research Scholar, Department of Cultural Studies, Tezpur University, Napaam, Sonitpur 784028, Assam, India.
E-mail: swikrita@gmail.com

International Journal of Communication
and Media Studies (IJCMS)
ISSN (P): 2250-0014; ISSN (E): Applied
Vol. 8, Issue 3, Aug 2018, 1-6
© TJPRC Pvt. Ltd

TRANS STELLAR
•Journal Publications •Research Consultancy

ARGUING FOR A MEDIA LAW: THE RELEVANCE OF CABLE CHANNELS IN CREATION OF 'LOCAL' IN ASSAM

JAYANTA VISHNU DAS

Assistant Professor, Department of Cultural Studies, Tezpur University, Assam, India

ABSTRACT

I forward the idea of the existence of local cable channels, a distinct media which beams programmes in the local language, on topics that are relevant and belongs to the local area. The 'local' which has lost out in the mainstream media gains importance here, infact the local becomes the site for production of 'culture'. But the existence of such local cable channels which is popular almost all over the country exists by virtue of legal loopholes in the Cable Television Networks (Regulation) Act 1995. The importance of these channels broadcasted over a limited area cannot be discounted as I show with the help of two case studies in my paper. These channels act as essentially selling points for the networks, catering to customer requests and also programming which are uniquely local. These spawn a large number of such channels in every small or big town so much so that their exact numbers can hardly be predicted.

Thus, I argue the case for legalizing the role of local cable channels in creation of an alternate reality, a role which essentially the 'mainstream' has failed to deliver in the course of the last few decades. It is the space left vacant by National and regional media that is essentially covered by local cable channels and it becomes imperative to safeguard this very important democratic tool by proper legal framework.

KEYWORDS*: *Media, Local Cable Channels, Law, Cable & Network

Received: May 11, 2018; **Accepted**: Jun 01, 2018; **Published**: Jul 05, 2018; **Paper Id**.: IJCMSAUG20181

Original Article

INTRODUCTION

Assam witnessed a boom in its media sector in 1990's with language newspapers leading the way. The decade before that the press in Assam had played an active role in the nationalist agitation that took place in Assam. This sudden explosion of the regional press played an important role in the creation of an informed public sphere. The media explosion of the 1990s, commonly going under the shorthand 'globalization', was not without a history, but was marked by a certain concentration of both media forms and temporal acceleration. Consider this: within a few years India saw satellite cable television growing from just a handful to a total of 80 channels, and the growth of other media in the form of cassettes, CDs, VCDs, MP3s, and DVDs. Media ownership was extremely diverse (Sundaram, 2005: 56).

In this paper I analyze the role of local cable channels (henceforth lcc's) in the context of Assam, and what makes the idea of a local press in a globalized world where ideas of culture are increasingly changing with shift in centers of production. For obvious reasons the idea of the local is often constructed on administrative or cartographic definitions of areas. "Lack of clear, shared definitions does not, however, prevent people from being attached to their region of residence" (Aldridge, 2007: 11). Whereas ideas such as multi-national, trans-national, nation states or international organizations are constructed as global ideas, the 'local' struggles for a definitive area.

International Journal of Research in Economics and Social Sciences(IJRESS)
Available online at: http://euroasiapub.org
Vol. 8 Issue 3, March - 2018
ISSN(o): 2249-7382 | Impact Factor: 6.939 |

FOOD CULTURE: A SPACE FOR CREATIVITY, PROTEST AND NEGOTIATION

Dr. Madhurima Goswami

Associate Professor

Chandraprabha Saikiani Centre for Women Studies

Tezpur University

Abstract

This paper will focus on the use of food to signify ritual purity or exclusiveness and separateness in the Boro community rituals .This study examines the process of transition of a traditional performance namely, Kherai of the Bodos of Assam. It explains how an ethnic group engages itself in conserving, through creation and recreation, a traditional performance that faces the threat of extinction. In the process, the study also looks into the processes and strategies deployed by the community members towards making of a performance through ritual sacrifices, ritual dances, ritual food and feast etc .The unique , incorporative nature of eating (assimilating) and offering to god makes food an important social symbol. Relationships between a group and its gods, as well as between members of the community, are manifested in events of food sharing and exchange. This cooking of food also represents their human ability to transform nature..There is transformation by nature also. The uncooked food is transformation by nature. Within the domain of the cooked, two common processes, roasting and boiling are discussed.

Key words: Sacrificial Food, Kherai, food habit, Jumai

The need to eat (essential for human biological survival) provides many opportunities for communication and creativity. Eating events are fraught with rules of precedence and deference as well as etiquette. The individual groups communicate their civility and separate themselves from other class groups. Food becomes a gift or an offering or becomes sacred entity through association with the supernatural. The theme culture focuses on the fact that humans create culture as a way of making sense of their social and physical worlds. This also focuses on the relationship of individuals to other that inhabit their social world. At the same time it also helps individuals consider how their identity was formed and how it influences their attitude and beliefs.

The term food habits or food culture or food ways to describe the manner in which humans use food , including everything from how it is chosen, acquired and distributed to who prepares ,serves and eats it .The significance of the food habits process is that it is unique to human beings . It is interesting

Womanhood in Dahan and Antarmahal: A Cinematic Analysis of Family and Society

Dr.Jayanta Vishnu Das
Assistant Professor
Department of Cultural Studies
Tezpur University

Received: **12 April** Revised: **19 April** Accepted: **25 April**

Abstract

Antarmahal and Dahan represent two films at two ends of the spectrum while representing women and their tribulations in different temporal settings.Dahan depicts a contemporary urban Kolkata where the female protagonist faces molestation at the metro station. Antarmahal on the other hand describes the story of two women stuck within the confines of four wall of a zamindari in colonial times. Although women find themselves in different social settings their predicament is defined by the men in their lives. Rituparno Ghosh masterfully explores the inner feelings of his female protagonists in both the films. In Antarmahal, religion is used as a tool of exploitation and suppression and in Dahan, the law is used as a force to dominate and control the women and their right to protest and express their views as the members of a society. It is the women's bodies which is the site of all struggle, a women has no right over her own self and body. The patriarchal system lays claim over her and she is not allowed to act independent. Ghosh uses the cinematic liberty to establish this truth in light of two distinctly separate settings.Rituparno Ghosh's understanding of the role of women within the confines of her boundaries as determined by the male society is shown in detail in both these films. Women's pain and sufferings are not at all different even if there is a huge difference of time between them. In Antarmahal, the Zamindar Bhubaneswar Choudhury is the only person to decide everything and the others have to follow his rules. Likewise, in Dahan the female characters are dominated by the opposite sex in terms of taking decisions or expressing opinion.

Keywords: Antarmahal, Dahan, Rituparno Ghosh, women, patriarchy.

Introduction

Most of Rituparno Ghosh's films revolved around women and that is why he was often labelled as 'the woman's director of Bangla cinema'. His explanation regarding this is, 'it's just that I feel I understand the inner feelings of women, their passion, agony and suffering.' (Jain and Rai, 2009:18) Rituparno Ghosh is known for his capability to explore human relationship with a rare sensitivity. In all his films he handles human frailties with tenderness and understanding, humour and irony. It is the quality that won the young Bengali director laurels for most of the films he made. In less than a decade, he had acquired a reputation that takes him far beyond his immediate area of creative operation in West Bengal.A simple story line and superb acting makes his films special. As his films revolve around relationship, they are emotionally gripping and do not need the props of songs and dance unnecessarily. Moreover, what gives Rituparno an edge over other directors, is that he wins awards and draws crowds. 'Relationships fascinate me. I was born in a middle class family; so naturally, relationships played a very important part in my life. Even today, relationships are essential to me. So it comes easily to me-it is not a concerted, laborious effort on my part. (Jain and Rai, 2009:18) At the height of his fame stars from the mainstream Hindi cinema would line up to be able to work with him. This essay is based on the comparative analysis of two Bengali films i.e.Antarmahal and Dahan, and looks at the politics of womanhood as portrayed by Ghosh in two different social setting.

Violation and Vulnerability of Human Rights in the Context of Tea Garden Workers in Assam with Special Reference to Social Protection Schemes

Amiya Kumar Das, Parasmoni Dutta** and Rabin Deka****

Abstract

The contributions of the tea gardens to Assam's economy are enormous. The tea garden workers also have contributed to the culture of Assam over the period. Yet, there are recurrent problems pertaining to various aspects of the social and economic conditions of the tea garden workers in Assam. In everyday life, most of the plantation workers have a very low income and most of them lead a low quality of life. They are deprived of the basic facilities needed to live a decent life. Despite the existence of many well-intended social welfare programmes of the government, which are meant to uplift them from the vulnerable conditions, these groups are lacking any effective access to those programmes. Through qualitative data, this paper aims to understand the vulnerabilities of the tea garden workers, violation of their rights to have a dignified life and the barriers in having access to various social welfare schemes of the government. The paper explores conditions of tea garden workers through the assessment of their awareness level on various social welfare and entitlement schemes. Finally, this paper explores the possibilities of human rights approach to address the glaring problems faced by the tea gardens workers perpetually.

Key words: - Tea Garden Workers, vulnerability, health, education, estate.

* Tezpur University, amiyadas@gmail.com
** Tezpur University, parasmoni@gamail.com
*** Tezpur University, rdekatu@gmail.com

Introduction

Since the colonial times, many workers were brought in or came seeking work in the tea gardens of Assam, from areas that today form parts of the states of Orissa, Bihar, Chhattisgarh, West Bengal and Jharkhand. As the trade in tea grew, the lives of the local people and these outside workers became intertwined with the happenings at the tea plantation or the tea "estate". The tea estates were, and are still, run on a capitalist mode for profit basis. The workers or the labour force forms the last link in this chain. The managers and owners of these estates are incentivized to earn the maximum and keeping the costs of production at the minimum. In most cases, the labour force also lives onsite in the estates; in what are called 'Labour Lines', or in some cases, temporary housings. Their non-work life is also part of the tea estate. Children grow up on the estate; they study there; places of worship are built within the boundaries; festivals are celebrated; clinics are built inside the plantations; and in some cases, even funeral processions start from the estate.

When we look into the provisions available for the workers, they are evidently found to be not adequate. They have been controlled and dominated by the tea plantation management. To address their issues, Government of India passed The Plantation Labour Act (PLA) in 1951 with the intention to break the centrality of control and power held by the employers and to provide some semblance of a framework of minimum labour rights to the plantation workers. The Act speaks, amongst other things, of the responsibilities of the plantation owners to provide adequate housing, drinking water and sanitation for all workers, educational and crèche facilities for children, maternity and leave allowances, and guidelines for daily working hours etc. However, as is seen, this Act has remained largely without proper enforcement, or else its requirements have been superficially fulfilled over the years. It may not also be possible for the plantation management to fulfill all the requirements of the act without taking support of the social protection and social welfare schemes provided by the Central and Assam government. It has been reported that,

Violations of the PLA in relation to health care, housing and sanitation are widespread. Workers live crowded together in cramped quarters with cracked walls and broken roofs. The failure to maintain latrines has turned some living are as in to a network of cesspools. APPL is failing to provide adequate health care, both in respect of quality and access (Rosenblum & Sukthankar 2014, p. 9)

The tea garden workers and their welfare can no longer be seen as an isolated agenda wherein the tea garden authorities hold the main stake and are obligated to provide for their entitlements. The State and its

European Journal of Business & Social Sciences
Available at https://ejbss.org/

ISSN: 2235-767X
Volume 07 Issue 04
April 2019

Missionaries and Early Press in Assam: The Question of Language and Identity

Jayanta Vishnu Das
Assistant Professor
Tezpur University
India

Abstract:

The advent of the Missionaries to Assam played a crucial role in establishing a full-fledged press system in Assam and the entire north east. They not only standardized printing practices but in the process worked on language and grammar. The process of recognition to a standard form of language was made after much effort of various groups. Nonetheless, the role of the missionaries was unique not only for evangelical purposes but spread of literacy in the region as well. Orunodoi was established as the first newspaper in Assamese printed by them from Sivasagar in 1846. This was followed by several other newspaper publications and the press revolution had truly started in Assam. The consequent publications not only standardized the language to a great extent but also helped in building the larger Assamese identity that we know today.

Keywords: Press, Missionaries, Assamese, Print, Orunodoi, Identity

1. Introduction

I have divided this paper broadly into two parts, the advent of the American Missionaries into Assam, secondly, the arrival of the printing press and the initiation of literary activities, like the first Assamese print journal Orunodoi. Any historical analysis on the growth of the press in Assam cannot be complete without a mention of the contribution of the missionaries to Assamese language and consciousness. I have selected the three epochs to understand the growth of journalism and journalistic activities in nineteenth century Assam to late twentieth century post-agitation evolution of the press.

The American Baptist Missionaries, who made Assam their field of evangelical activity, had an important role to play in the collective life of the Assamese people. It was the role of resuscitation of the Assamese Language from a ban in administrative and educational matters and its culture as a medium of expression. As a result of the treaty of Yandaboo in 1826, which

Humanizing Alexa: Some Reflections on Recent TV Advertisements of Amazon Echo Smart Speakers

Parasmoni Dutta* & Amiya Kumar Das**

Abstract

This paper presents a critical discussion on the TV commercials of Amazon Echo smart speakers, currently being aired on Indian TV channels and also uploaded in YouTube. It is a textual analysis of the select contents of the advertisements, especially incorporating the subtleties of emergent Indian domestic space which are represented in them to ensure acceptance of the product in Indian familial consumptions. It is argued in the conclusion that a process of dehumanizing automation is creatively altered in these video commercials to make the product feel like a human.

Key words: Advertisements, Gender Role Portrayal, Anthropomorphism, Consumer Culture.

Introduction

As another wonder from the much-cherished digital technology of the current age, the e-commerce giant Amazon Inc launched its versatile smart speaker systems, branded as Echo, also referred through its conversational agent named which is named as *Alexa*, in the later part of 2017 in India (Malik). In post-liberalization India, after the domestication of smartphones and low-cost internet services, one of the next sensations lined up on the doorstep seems to be the smart speakers, or voice-controlled intelligent personal assistants (IPA). In addition to Alexa from the *Amazon*, other virtual assistants which have already become familiar names to Indian consumers are Google's *Assistant*, Microsoft's *Cortana* and Apple's *Siri*.

Amazon Echo Advertisements

To begin with, there are twelve video commercials which have been uploaded in YouTube by Amazon Echo India in the month of June, 2019. These video commercials, which are the subject matter of this paper, are being aired on TV during high-consumption times, including the live telecast of the ICC World Cup 2019. Whereas the earlier such commercials of the same product, which were uploaded within a year or less, were more about making the gadget familiar to the new consumers in India, this later sequel of the commercials is evidently about internalizing this IPA within the domestic fabric of the affluent urban Indian families. A brief summary of these later sequel is described below to begin the discussion of this paper.

In the clip titled *Party anytime with Amazon Echo*, a couple is seen to be preparing to receive their guests for dinner. While preparing the dinning table, the wife commands Alexa to check messages and it is found the guests are not going to turn up for the dinner. To manage this frustrating situation, the husband asks Alexa to play party music which the smart speaker plays instantly. The wife, though initially reluctant, joins the husband for a dance in tune of a bhangra music played by Alexa. Alexa also dims the light in respond to a voice command from the wife. In the clip *Bedtime Stories on Echo*, a little girl during bedtime asks her father, who is seen to be tired, to tell a story. The tired father asks Alexa to tell a story which the speaker responds instantly by narrating a story of lion. When the father begins to doze, the little girl whispers Alexa to play the sound of lion. The roaring sound of lion played by Alexa shocks the dozing father, to the amusement of the little girl. Similarly, in the other clips of the commercials of this sequel demonstrate a kid getting assistance from Alexa for homework when her father is unable to do it; a young woman making hands-free video calling to her father to find that the old man is eating sweets; a man asking Alexa to change timers during his morning exercise; a woman at home asks Alexa to show the front door as the calling bell rings when her hands are busy in nail

* Asstt. Professor,Department of Cultural Studies,Tezpur University, Napam, Assam
**Asstt. Professor,Department of Sociology,Tezpur University, Napam, Assam

International Journal of Research in Social Sciences
Vol. 9 Issue 6, June 2019,
ISSN: 2249-2496 Impact Factor: 7.081
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

HISTORY OF PRESS IN ASSAM: AN ANALYSIS OF PRE AND POST AGITATION PERIOD

Jayanta Vishnu Das*

Abstract

One of the most important events in the history of Assam was the agitation against the illegal migrants from Bangladesh then known as East Pakistan.Many people argue that the whole plot of the agitation was only an urban phenomenon as newspapers had quite limited reach in flaring up the issues in question. Language was at the center of the agitation. "Two key organizations that play a central role in the constitution of Assamese civil society are: the 'Assam Sahitya Sabha'* and the 'All Assam Students Union'. It was during this period of the agitation that the press took an active role in the agitation. Some of the left leaning publications also had to face the brunt of the agitators; while in general, the press supported the idea of the agitation.Press has been the cornerstone of the essence of Assamese identity. It helped formalizing the idea of a modern language system with proper grammar under the guidance of the Missionaries.

Keywords:
Agitation;
Press;
Assam;
Missionarries;
Language.

* **Assistant Professor, Tezpur University, India**

* Assam Sahitya Sabha is a literary body founded in 1917, that works for Assamese literature and culture. It plays an important role in the national life of the state and remains an important voice in matters of national relevance

International Journal of Social Science and Economic Research

ISSN: 2455-8834

Volume: 04, Issue: 04 "April 2019"

ETHNOGRAPHY OF A LOCAL CABLE NEWS CHANNEL: STRUCTURE, ECONOMY AND ENTERTAINMENT OF THE NEIGHBOURHOOD

Dr. Jayanta Vishnu Das

Assistant Professor, Tezpur University

ABSTRACT

This paper is an attempt to understand the anatomy of local cable channels in the context of Assam. Urban centers have long been the centers of cultural dissemination, while the rural has been consumers. Through the example of a local cable news channel and its functioning I try to attempt at an understanding how they are the new nerve centers of an emerging class order which establishes its identity by the content of its own. Barak Television Network is one such channel that records everything from a wedding to a local cricket match to a puja pandal and in the process stays relevant to its loyal subscribers. The economic structure of such an enterprise is not on a firm footing but survival has become synonymous with these channels.

Keywords: local cable channel, media, culture, television, news

1. INTRODUCTION

Assam today has around 250 registered Local Cable Operators (LCO) and Multiple System Operators (MSO). Every town has one or more LCO who compete with each other for the share of households. In some case, a single locality has two operators existing. Larger towns generally have MSO's and have many cable operators under them. Cable networks originated in the early 1990's, and ever since have vied for space with the state run DD. The influx of numerous satellite channels in the late 1990's saw the popularity of such network grow and every person of considerable economic and political clout opened a network. Local Cable Channels (LCC) is not a new phenomenon in India, and most cable networks have one. The most popular form of such channels is ones which plays songs and movies.

2. BARAK TELEVISION NETWORK (BTN)

Cachar district is located in the southernmost part of Assam. Administratively divided into two subdivisions viz. Silchar (Sadar) and Lakhipur, Cachar district occupies an area of 3,786 square

 Copyright © IJSSER 2019, All rights reserved

Journal of Advances and Scholarly Researches in Allied Education
Vol. 16, Issue No. 5, April-2019, ISSN 2230-7540

Editorial Structures of Local Cable Channels in Assam: Legality of News and Content from the Grassroots

Jayanta Vishnu Das*

Department of Cultural Studies, Tezpur University, India

Abstract – The cable revolution in India post 1991 was by no means a small achievement in democratizing the viewers ability to demand content from producers. At the click of a remote the audience was at home with global content with a plethora of choices in multiple languages. But what this largesse hid in plain sight was the systematic erasure of the local content from the screens. By local here I mean grassroots content from the communities. In this paper I study the local cable television channels in Assam by taking one such operator base channels called V&S network. This operated within a community or at best within a district for example and produced programming that was relevant to the immediate masses. The system of operation was a highly localized form of cooperative news and content gathering. This sort of media is termed as truly local which caters to the sections of the neighborhood. Despite legal hurdles local cable channels have thrived and survived although precariously.

Keywords – Channels, Media, Cable, Local, Programme, Community

----------X----------

1. INTRODUCTION

The increase in digitization process of television channels in the Indian cable space has led to a cartelization of content from urban centers. While the quality of content and signals has gone in the positive direction, what has suffered is diversity. Local cable operators (LCO) and Multiple System Operators (MSO) have long tried to neutralize this by operating channels at the grassroots level. While these channels have mushroomed over the years catering to local content, they have also faced legal and economic hurdles to sustain and survive. In this paper I Analyse these aspects of a local cable channel (LCC) called V & S Cable network based out of Dibrugarh, Assam and how it has negotiated the challenges.

2. V&S CABLE NETWORK

Dibrugarh district covers an area of 3,381 square kilometers in Assam. According to the 2011 census Dibrugarh district has a population of 1,327,748. It has a population density of 393 inhabitants per square kilometer. Dibrugarh has a literacy rate of 76.22%. Dibrugarh city is the headquarters of the Dibrugarh district. It is located 439 km. east of Guwahati. It is the gateway to the three tea-producing districts of Tinsukia, Dibrugarh, and Sivasagar. The Brahmaputra passes by the city as it emerges from the mountains of Arunachal Pradesh. Dibrugarh boasts of editions of several state dailies like The Assam Tribune, The Sentinel, *Asomiya Pratidin, Janasadharan, Niyamiya Barta, Dainik Asom* and *Dainik Jugasankha.*

V&S Cable network is a super MSO registered in Tinsukia with their office in Dibrugarh and reaches almost the entire upper Assam districts of Tinsukia, Dibrugarh, Sivasagar and Jorhat. With such a vast distribution asset V&S claims itself to be one of the largest in the North East.

3. ORIGIN

As part of my research I had interviewed the Editor Mr. Chandan Jyoti Kalita of VNS cable (constituent channels of V&S network) channel and also observed the functioning of the Local Cable Channels (LCC) that they run, an important constituent of the distribution network, in an effort to understand the equation between these two entities-the channels and the network.

Mr. Kalita says “we started on July 1, 2009. We have four channels VnS News, *Aamar* VnS is an entertainment channel with local singers and artists and VnS *Bangla*.

www.ignited.in

Article

Conflicts behind the Spectacle: The Turbulent History in Making of the *Karbi Youth Festival* in Assam

Maharshi Dayanand University
Research Journal ARTS
2019, Vol. 18 (1) pp.33-49
ISSN 0972-706X
© The Author(s) 2019
http://www.mdu.ac.in/Journals/about.html

Prafulla Kr Nath
Assistant Professor, Tribal Studies Centre, Assam University Diphu Campus, Diphu.

Amiya Kumar Das
Assistant Professor, Department of Sociology, Tezpur, University, Assam

Parasmoni Dutta
Assistant Professor, Department of Cultural Studies, Tezpur University, Assam

Abstract

The Karbi Youth Festival is one of the most visible and important annually held cultural events in Assam. The formation and development of this iconic cultural spectacle of the indigenous community, the Karbi, of Assam are intricately connected to the ethnic identity assertion of the Karbis since the 1970s. This paper delineates the salient historical factors and incidents of the Karbi identity movement in reference to the making of this festival. Drawing on anthropological theorization of ritual by Victor Turner and other later researchers, this paper analyses the Karbi Youth Festival in terms of its instrumental capacity to intervene with the status-quo, by virtue of its liminality as theorized by Turner in the context of rituals, in consolidating a holistic Karbi identity in the emergent socio-political context.

Keywords: The Karbis, Assam, Ethnic identity, Cultural festival, Cultural Spectacle

Corresponding author:
Prafulla Kr Nath, Assistant Professor, Tribal Studies Centre, Assam University Diphu Campus, Diphu.
Email: khar1khuwa@gmail.com

Asian Cinema
Volume 30 Number 2
© 2019 Intellect Ltd Article. English language. doi: 10.1386/ac_00004_1

SWIKRITA DOWERAH AND DEBARSHI PRASAD NATH
Tezpur University

Cinematic landscapes of Northeast India through an ecocritical lens

ABSTRACT

The exploitation of nature for man's insatiable desires is analogous to the subordination of ethnic minorities in many third world countries. This has also found resonance in the cinematic representations of the natural environment and the ethnic and racial profiling of people of these countries. The Northeast of India has always found little mention in the dominant discourse of the Indian nation. Along with this, the age-old rhetoric of exploitation of its natural resources and the lackadaisical attitude of the Indian state towards its people has led to a growing sense of alienation among the people of this peripheral Indian land. The matter is further aggravated by the region's distorted representations in popular Bollywood films. The article offers an ecocritical reading of two Bollywood films about Northeast India to understand how cinematic landscapes can be used to impart ideas about specific places. We argue that the very landscapes the filmmakers use to present ideas about places can be used to highlight the politics of place-based identities and to attempt a critique of their position in the nationalist discourse.

KEYWORDS

cinematic landscapes
centre
periphery
nature
ecocinema
geopolitics

INTRODUCTION

The divide between the world of nature – the natural world – and that of man – the cultural world – has been articulated most frequently in our daily exchange of ideas, perceptions and even in various forms of textual representations like literary and cinematic texts. The schism opens up the debate to the constructed nature of the natural world itself. While ecocritics conceive of nature as a self-articulating subject, such a stand is complicated by the paradoxical character of reality where any attempt to overcome the human/non-human divides within the discourse is negated by the undeniable presence of the human subject speaking on behalf of nature (Oppermann 1999: 33). The autonomy of the natural world is further compromised by man's insatiable urge to appropriate it for his own gains. This is evident in modern societies where nature is constructed as the 'other' of human civilization and is positioned in opposition to culture. Therefore, the 'civilized' people of modern societies are identified as those who cultivate and change nature and, in doing so, their right over it is established. In this nature/culture dichotomy, nature is often equated with ideas of crudeness, savagery, barbarism as well as servility that allow men to dictate over its resources. It is in this sense that nature has often been used as a trope in the discussion of racial identities, ethnicities and feminist body politics. This nature/culture divide emerged as a meta-narrative of modern thought and was more so during the period of Enlightenment when science provided men means to exert their control over the natural world. Under the rational model of thought, nature was externalized as an object and social and technological changes justified men's use and control over the servile natural 'object'. This led to it being conceived of either as an object of control or as wilderness to be preserved 'apart' from human society (Lee 2000: 23).

This view of nature draws a parallel to the subjugation of racial and ethnic minorities in many third world countries, who live away from the centre of power and in the periphery of decision making. This divide has also found resonance in representations of the natural environment and various ethnic and racial profiling of the people of Asia and Africa in western literature and films in both explicit and implicit ways. It is not uncommon that many films made in the West or European countries project certain parts of Asia as dark, underdeveloped and uninhabitable. Even in much of the postcolonial literature, where colonizers are indicated to be plundering the wealth and natural resources of poor third world countries under the guise of development, nature finds a prominent place. Long after the independence of these countries, the tradition of exploitation continues, of those rich in natural abundance in the 'periphery' by those rich in technology in the 'centre'; from nature to the man-made centre. But together with this rhetoric of exploitation, there is also a conference of 'otherness' to the people residing in less developed territories in terms of their lifestyle, food and culture and, sometimes, as in the case of certain populations of Northeast India, even in terms of their nationality.

Such a discussion leads us to the reading of our natural environment in films in new terms. In such a reading, the natural landscape does not remain confined to the background of the narrative but becomes a powerful means to broach sociopolitical issues and highlight identity positions. This is where we would like to take recourse to ecocriticism to emphasize the ways in which the less industrialized and peripheral territories are relegated to a position of lesser

importance, which leads them to being considered 'apart' from the imaginary map of the nation. Ecocriticism, which emerged in the 1990s, started looking at the natural environment as an autonomous being existing both apart from mankind (not in conflict) but also as an inseparable part of his existence. Ecocinema then emerged as a way of expanding ecocriticism's horizons to the study of film texts. It has opened up the ways in which important questions of subjectivities could be broached through the study of a film's presentation of landscapes by dissolving the hierarchical relationship between self and nature. In Adrian Ivakhiv's book *Ecologies of the Moving Image: Cinema, Affect, Nature* (2013b), he writes about how a film's moving images are ecological in their constitution. This is supported by Rust et al. who write that to qualify as ecocinema, a film need not always raise ecological issues directly; it is rather the interpretation of the films that qualifies them as 'ecocinema' (2013: 2–3). Such a definition opens up ecocinema to a wide range of different conceptualizations and appropriations by film critics and analysts alike. It attests to the fact that all film genres can be subjected to an ecocritical reading. Therefore, the natural landscape in film can be used not only to talk about environmental issues but also to bring up issues of isolation, seclusion and discussions of post-colonial ethnic and racial discriminations. The connecting strand in all these diverse areas is the inherent structure of power that seethes deep into our everyday interaction, in the portrayal and representation of nature and various ethnic and minority identities. Therefore, the politics of nature has become the politics of the nation.

By using ecocriticism as a tool, this analysis tries to understand the dominant gaze of Bollywood filmmakers towards the Northeastern part of India through cinematic landscapes. Landscapes provide essential imagery to aid the interpretation of texts. The study of landscapes offers a view of nature emancipated from the presence of human beings or at least one that makes its presence felt (Lefebvre 2011: 62). On the other hand, an ecocritical reading of the filmic text attempts to examine how the environment is portrayed, how actors negotiate and interact with the environment, how they make sense of the natural place and how nature is anthropomorphized. Therefore, while many ecocritical readings pertain to the examination of issues as vast as the representation of nature and natural environment in films, impacts of urbanization, man–nature conflict, etc., this article tries to use ecocriticism to articulate the way in which less industrialized fringe territories such as the Northeast of India, which abound in natural resources, are positioned in the national imagery of the Indian nation. In this way, we try to expand the ambit of ecocinematic engagement to the study of 'otherness' of places and people within the nationalist discourse.

The aim of this article is to critically examine the various mechanisms by which images of natural landscapes can be used to circulate ideas of 'self' and 'other' in films. It interconnects two related yet diverse areas of study: the area of ecocriticism and that of cultural geography. While ecocinema aims to bring out the multifarious meanings men attribute to natural landscapes to broach ideas of oneness and difference, cultural geography opens up the reading of the texts to the geopolitics of the nation. The cinematic landscape here refers to the filmic representation of an actual or imagined environment viewed by a spectator. The findings are based on an ecocritical reading of two Bollywood films made post the year 2000: *Tango Charlie* (Shankar, 2005) and *Bumm Bumm Bole* (Priyadarshan, 2010). Both these films make excellent cases for ecocinema studies because of the inherent meanings that have been

imbued to the natural landscapes to depict ideas of the wild and the civilized, the dominant and the servile 'other'. Both films foreground the role of landscapes to make them not just objects of interpretation but also to give them the agency to narrate a story of 'otherness'. In a way, such a reading shows how filmmakers can use landscapes as an important element of the *mise en scène* in broaching sociopolitical concerns of the day.

LANDSCAPES OF NORTHEAST INDIA IN *TANGO CHARLIE* AND *BUMM BUMM BOLE*: AN ECOCRITICAL READING

The study of landscapes reveals interesting facets of man's relation to the world around him. It has now been widely recognized that it is not just the narrative content of film but also the natural landscapes that can play an important role in negotiating ideas about the nation. The screen image becomes an important component of the cinematic landscape as it grounds action and creates a sense of space and time for the audience to locate themselves. Apart from being a site for negotiation of cultural identities where meanings and understanding about groups, people, community and region are exchanged between the audiences, the representations of places and cultures in films through landscapes are an interpretation and a record of the space or place in question (da Costa 2003:191). It is this relationship of the film to the natural world that eco-film critics try to emphasize. According to the ecocritical perspective, our environment is not removed from our existence but it comprises of the whole habitat that surrounds us, where the physical world finds itself entangled with the cultural (Rust et al. 2013:1).

Landscapes therefore constitute a vital segment of a film's representational strategy. The director can make use of the barren earth, the mountains, hills, the water bodies or the landscape of the city beings moving on earth to make strong political statements. *Tango Charlie*, a film based on the valiance of the Indian Border Security Force (BSF) tries to depict the BSF soldiers braving all odds to protect the nation from secessionist and ultra-nationalist forces in the various nooks and corners of India. Here, the reading is limited to the various sequences that depict the Northeast of India. The film begins with an aerial shot of the ice-capped Himalayas. Two officers scour the whiteness of the mountains to look for the bodies of Indian soldiers. The whiteness of the snow symbolizes an emotionally estranged site, which diminishes the boundaries between the self and the rest. The stretches of snow-covered landscape depict the transcendence of nature beyond human existence by erasing all traces of human conceit over its power and superiority. This mountain landscape becomes the ideal set up to picturize the gory battle that takes place in it as it signifies the loss of or threat to boundaries which is so very important to men and for the nation. However, very soon, the markers of boundary become obvious as a conversation takes place between the pilots and they express their relief at not spotting any of their 'own' soldiers. The news of enemy bodies delights the commander and he instructs the pilots to return. This however does not materialize as the pilots spot one of their 'own' in the sea of dead bodies, one who has to be rescued and saved. The white and cold mountains provide the perfect backdrop for the dissociated human sentiments when it comes to protecting the nation, from the enemies. The sentiments here are as frozen as the snow. As the film progresses, the landscape itself becomes a character. The landscape stands out as a spatially expressive form, takes on multiple meanings across spaces, sometimes as a hostile landscape (the

jungles of Manipur) and sometimes as a neutralizing space (the snow-covered mountains). The film's narrative is thus preceded by a dramatic geopolitical theme 'written' in the mountains, which not only lends more meaning to the narrative, but also changes the way the landscape is looked at within this film. In other words, the natural scenery is no longer overshadowed by the dramatic action that takes place in it.

Again, the choice of the Himalayas to begin the film is telling in a number of ways. The Himalayas do not just stand as guards of the Indian territory, protecting it from countries like China, but also exist as a dividing line between two cultures and civilizations, the Aryan and the non-Aryans. The Himalayas therefore may be metaphorically used to show the difference between these races. It has to be mentioned here that majority of the population of the Northeastern states of India share similarities with the south-east Asian countries in terms of looks and food habits. According to Wouters and Subba, what an Indian face looks like sets boundaries that are 'not delineated by markers of territoriality but are based on considerations of phenotypes, drawn on the conventional imaginings of what a co-citizen might look like'(2013: 2). Therefore, the film's use of the Himalayas at the beginning is a pointer to the identity paradox that many in the Northeastern regions have to face in 'central' Indian cities. This discussion is important since immediately after the sequence that takes place in the Himalayan mountains, the film takes us to Manipur, a state in Northeast India. The filmmaker's choice of this mountain range to begin the film is significant; throughout the film, it is seen that the essential polyphony of the Indian identity is reflected in the contrast in the ways of seeing between those residing within Northeast India and those from outside it.

In the next sequence, the soldiers are shown reading the diary of one of their injured combatants Tarun Chauhan alias Tango Charlie. The diary takes the narrative back in time to his posting in Manipur. The first shot of Manipur is a jungle. An ecocritical reading of this part of the film is relevant here.

The choice of camera shots assumes great importance in giving meaning to the narrative. A bird's eye shot for example helps locate the place of action and provides an idea about the site where the film will be set. It also sets the mood and tone of the film. The city, for instance, is mostly established with either the bird's eye view or a wide-angle shot of the buildings or its busy streets. Similarly, a village is established by showing long and sustained images of its vast expanse of land and agriculture. Such stereotypical shots to distinguish the busy urban living from the slow and serene rural life enable the technology of film to show man's growing distance from nature with his economic advances and changing social organization. While the bird's eye view of the urban landscape can show man's distance from nature, the rural landscape can show life at harmony with the natural surroundings. For a modern state, the idea of rural life is strongly connected with backwardness, poverty and a traditional way of living which is not progressive. Interestingly, forests abound the cinematic landscape of Manipur even though not a single frame of the film is actually shot in the state. The audience is encouraged to identify Manipur with the jungle, which opens up the text to serious questions about the filmmaker's knowledge of the place. It etches the Northeast in the national imaginations of the spectators, many of whom comprise of people outside the territories in question, in ways that further deepen the divide within the nation.

In the wilderness that the film depicts, life and death hangs in a balance. The aural and visual landscapes augment the feeling of fear, seclusion and

untamed nature of this place in a remote corner of India. The landscape of the jungle is cinematically appropriate to create the adequate backdrop for locating terror and militancy. Amidst the jungle reside the 'deadly' Bodo militants, who make sounds of birds to communicate with each other, attack and kill the soldiers of the Indian State, and talk in a language unintelligible to an average Indian audience. Ironically the Bodos who are in reality inhabitants of Assam are identified with Manipur and are compared to barbarians who practise ancient ways of hunting down enemies. The jungle forms an ideal site for grounding the rustic nature of the militants.

In another sequence, the landscape of India is anthropomorphized when it is compared to Meneka, a Hindu mythical figure. Such an attempt to attribute human features to the natural landscape robs nature of its autonomy and visualizes it as subservient to man. However, this sequence relays more ideas than evident on the surface. The association of the nation state with the Hindu enchantress takes us back to the nationalist discourse where the nation state is likened to a female body and like the female body, it becomes a site for the various struggles that are waged over its meaning and ownership (Datta 2000: 73). Much like the female body, the Indian state is sought after by those who, enchanted by its beauty, wants to lay claim on her. This is akin to the colonization of Asian and African countries, where attracted by the abundance of nature and natural resources, rulers from the colonial nations wagered for the control of power over their territories. Although these states are now decolonized, the cycle of exploitation continues in the same manner, of the less powerful by the powerful within the nation state. Therefore, the fight between men has always been a fight over natural resources, where nature is reduced to a major object to be negotiated, sold, owned, pawned and sometimes erased from existence. In this anthropomorphic description of the Indian landscape, Manipur and the Northeastern states are placed in the periphery.

Just like the ice-capped Himalayas, the film uses landscapes metaphorically in a number of ways. After the platoon of BSF soldiers are killed by the Bodo militants, the surviving Indian soldiers, Tarun Chauhan and Mohammad Ali, swear to avenge the death of their comrades. They launch their attack on the Bodo militants and succeed in killing them. In this battle, the climactic fight sequence is fought out in the sea. The landscape of the sea is highly suggestive. As the vast waters of the sea changes its contours through the day, the use of the sea also comes with its multifarious meanings in a film. While in some cases, it represents life and hope, in others, it represents devastation, wreckage and a sense of loss. The shift of locale from the jungle to the sea also comes with its own host of associations. The fight ensues at night at a time when the sea becomes the most treacherous. This provides the perfect backdrop for the BSF soldiers to avenge the death of the Indian soldiers by killing the Bodo militant leader. However, in this fight they discover a young boy, a member of the Bodo contingent who is barely 13 years old. Armed with weapons, he is a member of an outfit at war with the Indian state. Tarun Chauhan hesitates to kill the young boy but Mohammed Ali shows no mercy. The next shot shows Mohammed Ali deep in his *namaaz* ('prayer') with the calm morning sea in the background as Tarun Chauhan stands near him, his gun pointing at the young boy. It is here that Tarun Chauhan prays for a land that is free from internal strife and innocent killings. Therefore, it can be observed that in the part showing Northeast India, the film begins with the image of the Himalayas, which stand as a giant unmoving block between two countries and on the other hand, it ends in the sea. It is in the shore of the sea that

the actors dream of a land where there are no killings. While the Himalayas signify separation and difference, the calm morning sea signifies unity, peace and cohesiveness, where the boundaries between 'ours' and 'theirs' blend. Nature here is shown not just to nurture life and hope but also to destroy the differences.

The landscape foregrounds the narrative and emerges as a prominent actor in the negotiation of identities in both *Tango Charlie* and in *Bumm Bumm Bole.* Chris Lukinbeal, in his article 'Cinematic landscapes', attributes certain functions to landscapes in film. For Lukinbeal, a cinematic landscape could be used to suggest space, place, spectacle and metaphor (Lukinbeal 2005: 7). In *Bumm Bumm Bole*, the landscape is used to suggest place, to refer to the location where the film is set: in this case Assam, which is another state in the Northeastern part of India. *Bumm Bumm Bole* is a children's film that shows the struggle of a worker family against the oppressive tea garden authorities. Lukinbeal writes that, in certain films, the narrative unfolds in such a way that it allows the viewer to understand the various geographical scales negotiated in its production. This in turn allows the viewers to be never displaced or be lost in narrative space (Lukinbeal 2005: 7). For ecocritics, the natural environment is inextricable from human existence and any fabrication of human reality is incomplete without showing its relationship with the natural surroundings.

The film begins with the landscape of a busy marketplace where a young boy is shown selling colourful balloons to a customer. He is then called by a suspicious looking man who hands him a tiffin carrier. Minutes later, the boy knocks at the window of a police vehicle and then the sound of a huge blast reverberates in the air, killing innocent people, including the boy. The filmmaker does not keep the audience in the lurch but takes them directly to where the story is situated: the lush greenery of a tea garden, to represent the state of Assam, which is famous for its tea. The subsequent shot after the blast is that of a bus driving through the meandering garden lanes of the tea garden, carrying workers for their daily chores. The bus signals the presence of industrialization in the region and so does the visual of the factory. To represent Assam's cultural landscape, the film time and again shows the roadside sellers wearing the *japi* ('traditional Assamese headgear'), the symbol of Assamese agrarian culture worn by farmers while sowing and reaping fields. The film projects nature as an inseparable part of the land by showing repeated shots of the tea gardens and the vast green fields from various angles. The landscape reflects the simple lives of the people who live there, removed from the hum-drum of the big cities, in direct contact with nature. The tea factory on the other hand represents industrialization. It functions as a symbol of exploitation of the region by the 'Indian state' through its control over their natural resources. This becomes more evident as the film progresses.

The film revolves around the family of Khogiram Gowala who, along with his wife, works in the tea garden to sustain their family. Khogiram sends his children Pinu and Rimzhim to missionary schools in order to secure a good future for them. However, as fate would have it, both Khogiram and his wife have to leave their jobs after a brawl with the garden manager, who tries to molest the wife. As the story progresses, Khogiram is also accused of murdering the manager of the tea estate and faces the ire of the police. Due to lack of evidence, he is eventually released but the tag of a terrorist sticks to him costing him his new found job. Amidst the despair and militancy, the lives of Pinu and Rimzhim marked by their innocence, comes as a ray of hope, the

essence of which is matched by the greenery of the land. The wide angle shots of the alleys, the fields and the tea gardens where the children are mostly seen wandering around are used to reflect this innocence, which is as delicate and vibrant as the greenery that surrounds them.

The terror plot against the backdrop of the serene tea gardens is used to reflect how the peace of the land is disrupted by man-made conflicts. In films, it is not uncommon to see reproduction of places in alternative locations by transferring the characteristics of the territory to a different location that is judged to be sufficiently adequate to represent that place. Such duplication of real geographic places limits variety to a few stereotypes like the tropical jungles, deserts, fields, etc. (Orueta and Valdes 2007: 14). Filmed in Ooty, the structure of human settlements, the missionary school, church and market-place all act to transport the audience to a different geography similar to but mostly removed from those found in Assam. This can create misleading ideas about the region.

The cinematic landscapes or the cultural and physical representations of space shown in films carry strong connotations that are deeply ingrained in the minds of the viewers. When particular types of images are circulated by films, it can register strong images about the culture, community and people of that place. Landscapes have been put to various uses in these two films. The use of landscape in *Bumm Bumm Bole* differs from that in *Tango Charlie*. While in *Tango Charlie*, the landscape helps in supporting the narrative in creating a wild space, in *Bumm Bumm Bole*, the landscape helps in indicating the place where the story is set.

LOCATING THE DIVIDE

The above reading of the two films highlights how natural landscapes can also act as a prominent actor in the understanding of our place in the world and in negotiating our identities in the complex fabric of the national space. By providing autonomy to the landscape, even if unintentionally, filmmakers can reveal as well as distort imaginations of the people about the material world. In the above discussions, the sense of otherness pervades throughout the length of the films in the form of dialogues and the political use of natural landscapes. The landscapes here have been used to define the ethnic, racial and perceptive divide among men, the people of the plains and the hill dwellers, which is similar to the divide in the perceptual boundaries between man and nature. Whatever be the light in which the landscape is described, be it the sea, or the wilderness, the reading enables us to associate it with human characteristics and human fate. Despite that, the landscape in these works does not fail to speak for itself. It is not present as a passive, inanimate background for the stories to unfold but as a living and vibrant component that conveys emotions and the ideology of the filmmaker as well as that which transcribes ideas in the popular imagination of the people of the rest of India about the region.

Adrian Ivakhiv in 'An ecophilosophy of the moving image' exalts the power of film by calling it an anthrobiogeomorphic machine which is capable of producing and disclosing worlds of both subjects and objects and thereby radically altering our perception of the world (Ivakhiv 2013a: 88). Here, it is through the cinematic landscapes that the stereotypical notions about Northeast India, which are a vestige of the colonial discourse of binaries between hills/plains dwelling people, are echoed once again in the films. In the readings of both

these films, *Bumm Bumm Bole* and *Tango Charlie*, there is a friction – in the perceptual mapping of Northeast India among 'outsiders' (filmmakers, audiences) and in the reading of the authors as 'insiders' of this region.

An ecocritical reading of the landscapes provides the authors with the means to dig deeper into the ideological 'anthrobiogeomorphic' machine that churns out images imbued with ingredients that make up for the dominant gaze of the mainstream Indian population towards the region in ways that are both resistant to this gaze as well as one that is more aligned to the non-coercive nature of ecocritical interpretation. It focuses on the agency of the natural landscapes in the films to speak up for the geopolitics of the region. Nature is presented in all its rawness to denote the simple lives of the people of Northeast India. In *Tango Charlie*, the dense jungles of Manipur not only enhance the raw appeal of this region but also impose a sense of eeriness which marks the land as a terror torn, wild territory located in one extreme corner of the country. On the other hand, *Bumm Bumm Bole* provides a glimpse into the simple lives of the people residing in natural abundance and how the repressive powers of the state forces such as the police, and the exploitation by industrialists such as the tea garden owners, lead to rise in sub-national sentiments among the natives. It tries to tap the root cause of the conflict between the state and the people in the 'fringe' territories. Stereotypical notions about life and the people of the region circulated through popular media like films and literature continue to foster a sense of distance between the people of the region and the rest of India.

Eminent social scientist Sanjib Baruah (1999) writes that the root of this imagination of Northeast India as an uninhabitable crude way of life dates back to the British colonial period when all aspects of the lives of the colonized masses were objectified. While preparing a case for the neglect and domination of Northeast by the colonizers, he points out the case of Assam and writes,

> The logic of British attitudes towards the hills of Assam was the same; however, they considered most of the peoples living in these hills as 'primitive tribes'. Even in the narrow confines of the hills, there was therefore no pretension of recognizing their independence. They were kept in reservation-like territories called 'backward' or 'excluded' tracts. The experience of colonial rule in these areas, to say the least, was profoundly different from that of the regular administered parts of British India.
>
> (Baruah 1999:28)

This divide between the plains dwelling mainlanders and the hill dwelling people, who differ from each other in terms of both physical features as well as in their habits continued and the colonial perspective about the land and its people was sustained in the literature, arts and political and government policies towards this region. This is echoed in the popular films that project the region mostly in terms of a homogenous block where differences in habits, cultures, terrain as well as physical features are overlooked. Bhattacharjee (2011) writes that two kinds of colonialism inflict the people of the Northeastern region of India, 'settler colonialism', which, she writes, 'involves a large number of colonists who came to the colony seeking fertile land to farm and turned indigenous people into minority in their own land' and indulged in 'exploitation colonialism'. This, she writes, involves ruling the indigenous

people who continue to be a majority in their lands by capturing administrative machineries. This extends the colonial exploitation at the economic and political levels to the psychic and the spiritual life of the people, which led to what is called the 'colonization of the mind' (Bhattacharjee 2011: 2). Indeed, the story of Northeast India is a culmination of both these forms of colonialism – settler and exploitation colonialism.

Stereotypical notions of the Northeast as a piece of under-developed territory known for its rustic ways of living are circulated in mainstream Hindi films by using the landscapes of the forests, jungles, mountains or the tea gardens. This sanctions the use of force and violence to control and domesticate them. The presence of BSF soldiers in the Manipur jungles in *Tango Charlie* is an indicator of the same. This is similar to many developed countries of Europe who colonize the territories of various Asian and African countries under the garb of peace and development and extract resources from them. This is often complemented by military coercion. The cases of the United States' engagement in Syria, Iraq and many of the Gulf countries is also a way of providing her easy excess to their rich fields of mineral resources and oil, although much of such exercises are done under the pretext of maintaining peace. Most of the great wars across the world have been caused by the quest for resources, mainly from the less developed countries by the more powerful ones. The less developed ones are forever kept under a state of dependence on nations who first plunder their wealth and then provide aid for their reconstruction. Similar is the case within nation states. The subservience of fringe territories is maintained sometimes through diplomatic channels, while at other times, with the might of weapons; as is evident in the case of the existence of Special Acts like the Armed Forces Special Powers Act (1958), which is implemented in certain pockets of Northeast India.

The realization of the unjust exploitation of these lands for its rich resources, has provided fodder to the sense of alienation festering among the native population of these states. Misra (1980) writes that the cause of the various ethnic struggles within the Northeastern states, emergence of insurgency and armed conflicts as well as revolutions like the Assam movement, etc. were caused by the differential treatment of the centre towards the Northeastern part of India in terms of policies and the rampant exploitation of resources. Some of the core concerns of the armed groups fighting for secession are the exploitation of the region's rich mineral resources without benefitting the local populace as well as the growing number of migrant settlers in the region whom they accuse of vitiating the culture and traditions of the indigenous people of these states. The realization of such exploitation also leads to dissidence within such territories. An example can also be cited of the Lower Subansiri Hydroelectric Power project, which had met with vociferous protests by various groups residing in the Assam–Arunachal Pradesh borders due to the uncertainties that surrounded its implementation. The project is touted to tap the immense hydroelectric potential of rivers in the sub-Himalayan belt of Arunachal Pradesh and Bhutan, produce large amounts of electricity, which many believe will be of little use to the states in question and will mainly fulfil the centre's electricity requirements. This, according to many, is in total disregard of the perils that the inhabitants of these areas will be confronted with as the project materializes (Gohain 2008:19). This instance highlights that the fight among men has always been a fight over natural resources.

In the films, the jungles, the vast green fields as well as the tea gardens attempt at justifying the presence of the Indian state to control the spate of

terror in the region as well as to 'develop' it through industrialization. While *Bumm Bumm Bole* shows how the exploitation of the poor lead to the rise of insurgency in the region, *Tango Charlie*'s depiction of the militants amidst the dense jungles associates them with the likes of inhuman beings who are as wild and ominous as the forest in which they reside and hence need to be controlled by the state. Such labelling only widens the already existing grievances of the people of Northeast India. Therefore, what emanates from this distancing is recourse to mass movements, insurgency and violence, and various modes of protest against the dominant section who apes the colonial ways of governance by subjugating the people in the 'fringes'. Moreover, the above assessment of the region and its people in the films also reveal that a boundary indeed lies within the nation, which, analogous to the role of the Himalayas which separates two cultures, divides its own people. The presence of the BSF *jawans* in the jungles of Manipur is meant to give a glorified image to the soldiers who brave through all odds to 'manage, control and erase' the 'wild' militants in the Northeastern state of Manipur. Such a discourse reflects the colonial mindset within post-colonial countries. The way places and geographies are interpreted in Bollywood is also on offshoot of such a discourse.

CONCLUSION

Popular films serve as a battleground where such politics of identities are given its naturalized meanings; where the audio-visual technology of film attempts to produce a dominant gaze towards the socio-cultural landscapes of certain places. There is no doubt that the movement of images in films influences the perception of the viewers towards themselves as individuals and groups and also frames the world around them (Ivakhiv 2013a:100). As Ivakhiv writes,

> The worlds constituted through film relate in various ways to the extra filmic world, in that, they mirror that world, refract and diffract its meanings and infuse or diffuse meaning and aura into or out of the people, objects and places portrayed.
>
> (2013a:100)

Therefore, films form a site of continuous negotiation of the self whereby the cinematic place is not limited to the world represented on the screen (a geography in film) but also to the meanings which are constructed through the experience of films (Hopkins 1994: 50). An ecocritical reading of the films under study enable the authors to provide a resistant reading of the text and show how the very natural landscapes that filmmakers use to broach ideas about places can become a means to expose the skewed projection of Northeast India in the national imagination of people.

The above analysis of the films provides a window to assess the broader questions of the oft quoted ideas of alienation that people from Northeast India experience in 'mainstream' India and how that is reflected in the films under study. Secondly, an ecocritical analysis enables us to understand the divides between organic and mechanical ways of living, and in narrating how the story of the less developed is mostly told using existing stereotypes with very little attempt to reverse it. Most importantly, the two examples expand the field of ecocinema studies to the study of territorial conflicts in films. Although there are no overt references to nature as a central theme

of discussion in the films, it is through the landscapes that the story of differences, the demarcations between self and the other, is told. Perhaps, while showing confused boundaries, homogenized cultures and imaginary geographical landscapes such as the sea in *Tango Charlie*, the filmmaker tries to make a conscious attempt to obliterate the divides of the mind and the discrimination between 'our' space and 'their' space. It is in the constitution of these underlying meanings, that the cinematic landscape can play an important role. The landscapes here not only provide rhyme and rhythm to the pace of the film or enable it to ground the action but also make it a prominent actor in the film narrative with its metaphorical use. It acts as a *mise en scène* to embed an alternate story that accentuates the narrative of alienation.

Amidst the entire rhetoric of neglect, which is so elaborate in the discussion of the above films, what also surfaces is the agency that is imparted to the natural landscape to depict the man/nature conflict which is analogous to the domination of the rural and hill territories by the more industrialized ones. Just like man domesticates nature for his own benefits, these territories are also domesticated to serve man's multiple needs. As civilization grew more aggressive, man began to exploit nature for his self-aggrandizement and self-indulgence. Ecocinema helps in untangling man from the self-made cocoon of superiority and comfort to confront directly with the realities of the natural world. Analyses of films like *Bumm Bumm Bole* and *Tango Charlie* help to problematize our understanding of Indianness. Quite obviously the naïve and parochial anthropomorphic and geopolitical understanding of Indianness that these films propagate only help to establish the folly of man trying to subjugate nature. Man can never establish absolute control over nature. Just as the people associated with nature keep striking back in various forms and guises, nature herself keeps growing back, posing a threat to 'civilized' man's neat boundaries of nature/culture.

REFERENCES

Baruah, Sanjib (1999), *India against Itself: Assam and the Politics of Nationality*, Philadelphia, PA: University of Pennsylvania Press.

Bhattacharjee, Sukalpa (2011), 'Understanding the "tribal": Postcolonial identity and creativewriting', *Man and Society*, VIII, Summer, pp. 1–13.

da Costa, Maria Helena B. V. (2003), 'Cinematic cities: Researching films as geographical texts', in A. Blunt, P. Gruffudd, J. May, M. Ogborn and D. Pinder (eds), *Cultural Geography in Practice*, London: Arnold Edward Publishers Limited, pp. 191–201.

Datta, Sangeeta (2000), 'Globalisation and representations of women in Indian cinema', *Social Scientist*, 28:3&4, pp. 71–82, https://www.jstor.org/stable/3518191?seq=1#page_scan_tab_contents. Accessed 23 October 2016.

Gohain, Hiren (2008), 'Big dams, big floods: On predatory development', *Economic and Political Weekly*, 42:30, pp. 19–21, https://www.epw.in/system/files/pdf/2008_43/30/Big_Dams_Big_Floods_On_Predatory_Development.pdf. Accessed 30 January 2018.

Hopkins, Jeff (1994), 'Mapping of cinematic places: Icons, ideology, and the power of (mis) representation', in S. C. Aitken and L. E. Zonn (eds), *Place, Power, Situation and Spectacle: A Geography of Film*, Lanham, MD: Rowman and Littlefield, pp. 47–61.

Ivakhiv, Adrian (2013a), 'An ecophilosophy of the moving image: Cinema as anthrobiogeomorphic machine', in S. Rust, S. Monani and S. Cubitt (eds), *Ecocinema Theory and Practice*, New York: Routledge, pp. 87–100.

——— (2013b), *Ecologies of the Moving Image: Cinema, Affect, Nature*, Waterloo, ON: Wilfrid Laurier University Press.

Lee, Golden (2000), 'Nature as the other: The legal ordering of the natural world', Ph.D. thesis, Gold Coast: Griffith University.

Lefebvre, Martin (2011), 'On landscape in narrative cinema', *Canadian Journal of Film Studies*, 20:1, pp. 61–78, http://www.filmstudies.ca/journal/pdf/cjfs-20-1-lefebvre-landscape-narrative.pdf. Accessed 25 July 2016.

Lukinbeal, Chris (2005), 'Cinematic landscapes', *Journal of Cultural Geography*, 23:1, pp. 3–22, https://www.tandfonline.com/doi/abs/10.1080/08873630509478229. Accessed 16 July 2016.

Misra, Tilottoma (1980), 'Assam: A colonial Hinterland', *Economic and Political Weekly*, 15:32, pp. 1357–64, http://www.epw.in/journal/1980/32/special-articles/assam-colonial-hinterland.html?0=ip_login_no_cache%3Dc7df55053aa8c94620ca668c53e6880e. Accessed 16 February 2017.

Oppermann, Serpil (1999), 'Ecocriticism: Natural world in the literary viewfinder', *Journal of Faculty of Letters*, 16:2, pp. 29–46.

Oreuta, A. Gamir and Valdes, Carlos M. (2007), 'Cinema and geography: Geographic space, landscape and territory in the film industry', *Boletin de la A.G.E.*, 45, pp. 407–10, http://age.ieg.csic.es/boletin/45/22-cinema.pdf. Accessed 15 August 2016.

Peckham, Robert Shannan (2004), 'Landscape in film', in J. S. Duncan, N. C. Johnson and R. H. Schein (eds), *A Companion to Cultural Geography*, Oxford: Blackwell Publishing Ltd, pp. 420–27.

Priyadarshan (2010), *Bumm Bumm Bole*, India: Orion Pictures.

Reicher, Stephen and Hopkins, Nick (2001), *Self and Nation: Categorization, Contestation and Mobilization*, London: Sage Publications.

Rust, Stephen and Monani, Salma (2013), 'Introduction: Cuts to dissolves: Defining and situating ecocinema studies', in S. Rust, S. Monani and S. Cubitt (eds), *Ecocinema Theory and Practice*, New York: Routledge, pp. 1–13.

Shankar, Mani (2005), *Tango Charlie*, India: Neha Arts.

Wouters, Jelle J. P. and Subba, Tanka B. (2013), 'The "Indian face," India's north-east, and "the idea of India"', *Asian Anthropology*, 12:2, pp. 126–40, http://dx.doi.org/10.1080/1683478X.2013.849484. Accessed 23 October 2017.

SUGGESTED CITATION

Dowerah, S. and Prasad Nath, D. (2019), 'Cinematic landscapes of Northeast India through an ecocritical lens', *Asian Cinema*, 30:2, pp. 205–218, doi: 10.1386/ac_00004_1

CONTRIBUTOR DETAILS

Swikrita Dowerah is a doctoral scholar in the Department of Cultural Studies, Tezpur University, Napaam, Sonitpur, Assam, India. Her areas of interest include film studies, gender and media studies, media and conflict, cultural memory and media.

Contact: Department of Cultural Studies, Tezpur University, Napaam-784028, Sonitpur, Assam, India.
E-mail: swikrita@gmail.com

https://orcid.org/0000-0003-2136-9934

Debarshi Prasad Nath is professor and head of the Department of Cultural Studies, Tezpur University, Napaam, Sonitpur, Assam, India. He is also the chief coordinator of the Centre with Potential for Excellence in Particular Area (CPEPA), Tezpur University and coordinator of the Special Assistance Programme – Departmental Research Support II (SAP-DRS II) in the Department of Cultural Studies. The author's areas of interest are cultural theory and contemporary culture, comparative literature and translation, cultural memory and history.

Contact: Department of Cultural Studies, Tezpur University, Napaam-784028, Sonitpur, Assam, India.
E-mail: dpnath1975@gmail.com

https://orcid.org/0000-0002-6028-6341

Swikrita Dowerah and Debarshi Prasad Nath have asserted their right under the Copyright, Designs and Patents Act, 1988, to be identified as the authors of this work in the format that was submitted to Intellect Ltd.

Antrocom Online Journal of Anthropology vol. 16. n. 2 (2020) 341-353 – ISSN 1973 – 2880

Antrocom Journal of Anthropology

journal homepage: http://www.antrocom.net

The Anthropology of Dress: A Study in the change of Assamese women dress in Assam

Siwani Mech[1] and Debarshi Prasad Nath[2]

[1] Research Scholar,Department of Cultural Studies, Tezpur University; [2] Professor in the Department of Cultural Studies, Tezpur University. Corresponding author: Siwani Mech. Emails: siwanimech@gmail.com

KEYWORDS

Assamese, Dress, Identity, Meaning, Photographs, Women

ABSTRACT

As a cultural artefact, the dress holds an important position in everyday life. Other than covering one's body, it is representational and can be linked to questions of identity, nationalism, status, class and caste. This paper highlights the importance of clothing as a significant part of material culture and analysing the factors that have influenced the change in women's dress in different periods during the twentieth century Assam. It discusses the symbolic value and meaning attached to the dress and explains how it becomes a carrier of ethnic identity and class. The finding in the study is based on a structured interview using a visual ethnographic tool (photographs) as well as literature selected purposively.

Introduction

Anthropology contributes scholarship that relates to understanding the place of dress in culture, and I define the anthropology of dress simply as the study of the dress by anthropologists (Eicher,2000). The evolution of dress in society within its socio-economic and political scenario represents much more than it is being assigned as a part of material culture. Simply, the dress can be defined as something that helps in covering one's body protecting one from the extreme weather condition. However, eventually, changes in the dress habits of society are quite frequently the result of political movements, state-interventions, and the rise of identity-consciousness adding new meaning to clothing. From being a product of utility, its representational value has increased phenomenally. Such as other than covering one's body it now has become more symbolic when linked with the question of identity, nationalism, status, class, and gender. Dress as an important part of material culture is recognized in a way how people construct their identity within a community through their clothing. The unique pattern, motif, and sartorial style in the clothing help in identifying a community or tribe representing their identity in a society. However, the impact of modernity in traditional societies has been deeply influenced by the series of events encountered, while affecting the social and cultural structure.

Assam is a state situated in the North-Eastern part of India. It is bounded by other north-eastern Indian states (popularly known as 'Seven Sisters of India') namely Arunachal Pradesh to the north, Manipur, and Nagaland in the east, and Meghalaya, Tripura, and Mizoram to the south. The north-eastern states are connected with the rest of the country through a narrow 22 km corridor via a strip of land in West Bengal called the 'Siliguri corridor' or 'Chicken's Neck'. It also shares international borders with Bhutan to the north and Bangladesh to the south. North-East India consists of various tribes

Please cite this article as: Siwani Mech and Debarshi Prasad Nath, The Anthropology of Dress: A Study in the change of Assamese women dress in Assam. *Antrocom J. of Anthropology 16-2 (2020) pp. 341-353.*

সাতসৰী
ষোড়শ বছৰ, দ্বিতীয় সংখ্যা • ছেপ্টেম্বৰ, ২০২০

SATSARI
Vol. No.: 16, Issue No. 02 • September, 2020 • Pages : 128
Reg. No. : ASSASS/2011/35776
ISSN: 2319-8893 • Rs.30:00

প্ৰবন্ধ / নিবন্ধ

অপূর্ব শর্মা • সৌৰভ কুমাৰ চলিহা স্মৰণ আৰু কিঞ্চিৎ ব্যক্তিগত • ২৪
জুৰি দত্ত, দেৱর্ষি নাথ • সংকটকালীন সাহিত্য আৰু অধ্যয়নৰ প্রাসংগিকতা • ২৭
ড° দীপকজ্যোতি বৰুৱা • মহামাৰী আৰু বিশ্বসাহিত্য • ৩৮
ধ্রুব শইকীয়া • লেবাননত চার্নবিল দুর্যোগৰ পুনৰাবৃত্তি • ৪২
ড° গৰিমা কলিতা • অস্তিত্ববাদ আৰু সমকালীনতাৰ প্রতীকী অনুধাৱন • ৪৪
অৰিন্দম বৰকটকী • জাকৰ মাজত থাকিও কিছুমান তৰা অকলশৰীয়া • ৪৮
ড° ভুবন গগৈ • সাম্প্রতিক অসমীয়া সংগীতৰ ধাৰা • ৫২
জয়ন্ত মাধৱ তামুলী • উত্তৰ-পূর্বাঞ্চলীয় সাহিত্য : স্থিতি আৰু সম্ভাৱনা • ৫৭
ড° মালিনী • প্রাচীন ভাৰতীয় সাহিত্যত আধুনিক বিশ্বৰ ইংগিত • ৬০

কবিতা

কৰবী ডেকা হাজৰিকা, উদয় কুমাৰ শর্মা • ৬৩
জীৱন নৱহ • ৬৪
ধ্রুবকুমাৰ তালুকদাৰ • ৬৫
ড° পূর্ণ ভট্টাচার্য • ৬৬
গার্গী ভূঞা, দীপিকা দেৱী কলিতা • ৬৭

গল্প

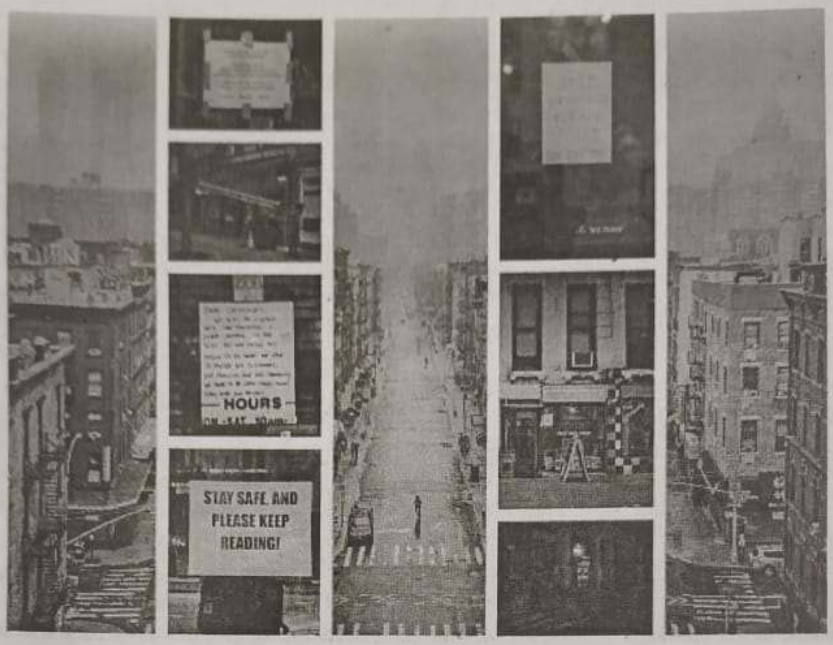
ৰত্নোত্তমা দাস বিক্রম • খুনখ'ৰা • ৬৮
ড° মানিক শইকীয়া • পুনর্জন্ম • ৭৫

অনুবাদ গল্প

মূল : কল্পনা ৰায়, অনুবাদ : মীৰা গোস্বামী • লক্ষ্মীনাথ • ৮১

ধাৰাবাহিক উপন্যাসে

ড° ধ্রুবজ্যোতি বৰা • কৃষক-বিদ্রোহী-সৈনিক-ৰাজন • ৮৭
য়েছে দৰজে ঠচি • ঢোলৰ ছেৰত লামছিৰা • ৯১
গী দ মোপাছাঁৰ বেল-আমি, অনুবাদ : মীনাক্ষি বৰুৱাগোহাঁই • ৯৫



সংকটকালীন সাহিত্য আৰু অধ্যয়নৰ প্ৰাসংগিকতা

জুৰি দত্ত
দেৱৰ্ষি নাথ

সাহিত্যৰ সংজ্ঞা নিৰূপণ আৰু প্ৰাসংগিকতাৰ প্ৰশ্ন অতীত কালৰ সমালোচক-দাৰ্শনিকসকলৰ মনত এক আলোচনাযোগ্য গুৰুত্বপূৰ্ণ বিষয় আছিল। প্ৰাচীন কালৰ গ্ৰীক দাৰ্শনিক প্লেটো আৰু এৰিষ্টটলৰ দিনৰে পৰা সাহিত্য সৃষ্টি, সাহিত্য পঠন, চৰ্চা আৰু সাহিত্য আলোচনাৰ প্ৰাসংগিকতাৰ বিষয়ে পৃথিৱীৰ বহু বিখ্যাত চিন্তাবিদ-লেখকে অনেক কথা কৈ আহিছে। কিন্তু আধুনিক জীৱনত সাহিত্য সৃষ্টি, সাহিত্য চৰ্চা আৰু সাহিত্য অধ্যয়নৰ ভূমিকা সম্পৰ্কে সৰ্বসাধাৰণ গৱেষক-চিন্তাবিদ আৰু দাৰ্শনিকসকলৰ ধাৰণা কি— এই বিষয়ে সম্প্ৰতি বৰ বিশেষ আলোচনা হোৱা চকুত পৰা নাই। সৰ্বসাধাৰণৰ বিশ্বাস যে জীৱনৰ নিশ্চয়তা আৰু আশাবাদৰ সন্ধান দিয়াত বিজ্ঞান আৰু বিজ্ঞানৰ নিত্য-নতুন আৱিষ্কাৰসমূহৰ এক গুৰুত্বপূৰ্ণ অৱদান আছে। প্ৰচলিত বাগ্‌ধাৰাত বাহ্যিক আৰু বস্তুগত লাভালাভৰ দিশৰ পৰা বিশ্লেষণ কৰিলে কেৱল বৈজ্ঞানিক আৱিষ্কাৰসমূহে নতুন পৃথিৱীৰ কাৰণে গুৰুত্বপূৰ্ণ।

ওঠৰশ শতিকাৰ ঔদ্যোগিক পুঁজিবাদৰ উত্তৰণৰ লগে লগে এনেধৰণৰ বস্তুবাদী চিন্তাচৰ্চাৰ প্ৰকাশ সঘনে দেখিবলৈ আৰু শুনিবলৈ পোৱা গৈছিল। এনেধৰণৰ মানসিকতাৰ জন্ম ঔদ্যোগিক পুঁজিবাদৰ ফল, যি প্ৰতিটো কথাই বস্তুবাদী লাভালাভ আৰু উপযোগিতামূলক দিশৰ পৰাই জুখিব বিচাৰে। সেয়ে বাস্তৱবাদীসকলে যুক্তি দিয়ে— 'এজন উৎপাদনশীল ব্যক্তি হ'বলৈ, গোলকীয় অৰ্থনীতিত প্ৰতিযোগিতা কৰিবলৈ কাকো সাহিত্য নালাগে। আচলতে সাহিত্যৰ ন্যূনতম জ্ঞান নোহোৱাকৈ অৰ্থনৈতিক বজাৰত কোনো ব্যক্তি বৰ সফল হ'ব পাৰে— তেনেকুৱা বাস্তৱ উদাহৰণ অলেখ। ভৱিষ্যতৰ কাৰণে গুৰুত্বপূৰ্ণ পঠনযোগ্য বিষয় হৈছে তথ্য আৰু মূল পঠনশৈলী হৈছে তথ্য সংগ্ৰহ আৰু তথ্য আদান-প্ৰদান প্ৰক্ৰিয়া। সাহিত্য হৈছে অপেৰাধৰ্মী কলা (opera-an ancane), জীৱনৰ মচলা আৰু একধৰণৰ বাখৰৰা প্ৰলেপ। কিন্তু ই জীৱনৰ মূল বা প্ৰধান অংশ নহয়। সেয়ে সাহিত্য যিহেতু অপৰিহাৰ্য নহয়েই, ই পাঠ্যক্ৰমৰ এটা প্ৰধান অংগ বা অংশ হোৱাৰ কোনো যুক্তি

SOUTH ASIAN POPULAR CULTURE
2020, VOL. 18, NO. 1, 103–107
https://doi.org/10.1080/14746689.2020.1733803

Routledge
Taylor & Francis Group

WORKING NOTES

Check for updates

Migration and mobility in petrolands: Reflections on home films of Kerala

Hashik Nadukkandiyil

Department of Cultural Studies, Tezpur University, Assam

ABSTRACT

This article examines the representation of *pravasam* (gulf migration) and *pravasi* (gulf migrant) in two "home films" from Malabar, South India, and identifies the shift in the representation of the Gulf in mainstream Malayalam popular culture with the arrival of "home films" in the 2000s. Most of the home films in the early period had the gulf migration as the central theme and the migrant as the central character. Most of these films were also made by gulf migrants themselves, making them self-representations to an extent. The article also examines the various connotations the term *pravasi* (migrant) acquires at various phases such as when the migrant lives in the gulf, visits the homeland on leave, and finally returns home forever. This article argues that while religion, society, and profession pose challenges to the migrant's expected, imagined and practiced identity, his/her struggle to (re)-fit into the societal frame reflects on his/her self and family, and explores how home films address these issues.

KEYWORDS

migration; family; Malayalam Cinema; sponsor; other

Gulf migration is one of the most remarkable episodes in the history of modern Kerala. It has irrevocably reshaped the socio-economic structures of Kerala (Rajan and Prakash 2012). While there has been migration to the Gulf countries since the first oil boom in 1930, Gulf migration reached its peak with the second oil boom in the 1970s. The new job market opened up by oil boom attracted labourers from Kerala – most of them unskilled men from lower socio-economic backgrounds. The representation of the Gulf migrant and gulf migration in Malayalam cinema – both popular and experimental – has been problematic with gulf migrant subject being reduced to an object of ridicule and contempt for his show of his newly acquired wealth (Radhakrishnan 2009). But for a few exceptions, the representation of the Gulf in Malayalam cinema has failed to recognize the nuances of migration, the identity of the migrant and the socio-cultural trauma resulting from the same. Thus, without first-hand experience of the complexities of life in the Gulf States, these films portray a distorted picture. During the 2000s, home films emerged in Kerala as a reaction to the stereotyped images of Gulf migrants produced by popular Malayalam films. This article offers a close reading of two home films to explicate attempts to redefine the way in which the gulf migrant's life is represented. I advance my arguments through a textual analysis of two home films – *Parethan Thirichuvarunnu* (The Return of the

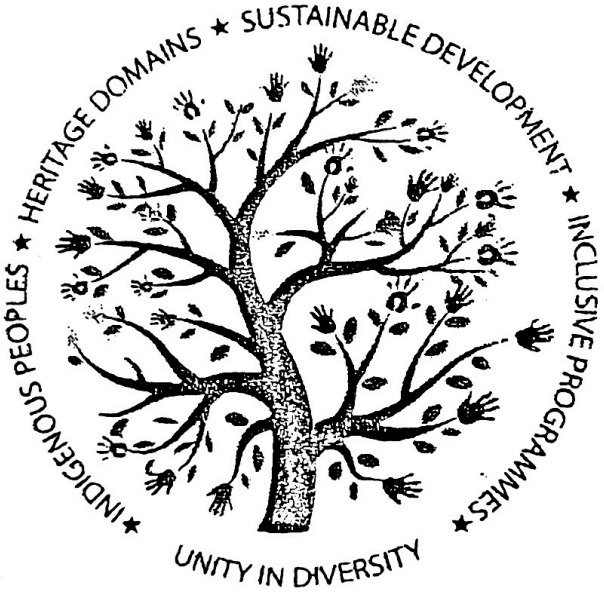
CONTACT Hashik Nadukkandiyil hashikknk@gmail.com

© 2020 Informa UK Limited, trading as Taylor & Francis Group

ANTHROPOLOGY TODAY
AN INTERNATIONAL PEER REVIEWED NEIRA JOURNAL

North East Institute for Research in Anthropology (NEIRA)

6/2/12



DON BOSCO CENTRE FOR INDIGENOUS CULTURES (DBCIC)

Mawlai, Shillong – 793008

Meghalaya, India

Health Status, Health Policy and Lisu Tribe of North East India: Critiquing Implementation of Schemes - Is it Wilful Negligence or Failure?

Kuntala Dowarah & Kedilezo Kikhi

Abstract

Health is an essential component of the well-being of mankind and is a pre-requisite for human development. Yet the Lisu community in Arunachal Pradesh hardly have access to public healthcare facilities. The community is solely dependent on the traditional methods of healing. This paper therefore is an attempt to account for the health status of the Lisu community. The paper also intends to critically analyse some of the existing schemes of the Government of India at the level of its implementation. The paper thus delves into some of the severe questions like – are these plans the right schemes/policies? Do the schemes really cater or reach the inaccessible areas such as that of the Lisu community? Is it failing and why so or is it wilfully neglected by the implementing agencies?

MAN and SOCIETY

A Journal of North-East Studies

VOLUME XVI ❖ Winter 2019

ICSSR-NERC

Indian Council of Social Science Research
North Eastern Regional Centre
Shillong, Meghalaya

Man and Society
A Journal of North-East Studies

@ ICSSR-NERC reserves the copyright to all articles and book reviews published and no article/review or a part thereof may be reprinted without written permission from the ICSSR-NERC.

Editor
R.K.Satapathy

Editorial Advisory Board
S. K. Srivastava
Vice-Chancellor, NEHU and
Chairman ICSSR-NERC

D. R. Syiemlieh
Former Chairman
UPSC, New Delhi

K. S. Rao
Vice-Chancellor
Mizoram University, Aizawl, Mizoram

Gopa Kumar
Former Vice-Chancellor,
Kerala Central University

Chintamani Mahapatra
Rector, Jawaharlal Nehru University
New Delhi

Copy Editor
K. I. Lyngdoh

The views and interpretation expressed in the journal are those of the individual author(s) and do not necessarily represent the views of the ICSSR-NERC.

Subscription: Rs.150 / US $10

Manuscript, editorial, correspondence and books for review should be sent to the Editor, ***Man and Society***, ICSSR-NERC, NEHU Campus, Shillong-793022, Meghalaya.
For information concerning the preparation of paper, see Style Sheet at www.icssrnerc.org
ICSSR-NERC acknowledges financial support from ICSSR, New Delhi

Printed at : Modern Offset, Shillong - 793002, Ph. No 0364-2243437

Contents

Editorial v

Re-presenting Otherness: Contemporary Perspectives 1
- Sukalpa Bhattacharjee

Gendered Implications of Customary Laws on the Women of Northeast India: The Case of Nagaland 17
- Sarmistha Das

China, India & Pakistan Geo Strategic Triangle – The Pakistan Factor in Sino-Indian Relations 48
- C. Joshua Thomas & Haans J. Freddy

Situating 'the Ruling Class' and 'the Social Masses' in Contemporary Naga Society: A Nuanced Perspective 75
- Kedilezo Kikhi

Without Railway, Is Manipur as the Gateway to Southeast Asia meaningful? 88
- I. Yaipharemba

The Economy of Human Trafficking: A Study on Trafficking of Women and Children from Manipur 107
- Gaithoilu Gangmei

The Militarisation in the Frontier Spaces: A post-script of the Armed Forces (Special Powers) Act, 1958 in Assam 131
- Juri Baruah

Taking its Toll: Burden of Work on Working Women and its Impact on Health: A Study in Tripura 160
- Paramita Saha

Situating 'the Ruling Class' and 'the Social Masses' in Contemporary Naga Society: *A Nuanced Perspective*

Kedilezo Kikhi*

Abstract

This essay is an attempt to critically situate the Naga society in its present context and also looks at how or what it offers in terms of sociological perspectives or theoretical formulations? And therefore, questions like why Althusser? Why Gramsci? Why Marx? Why Weber? - becomes all the more relevant. Is the answer to these questions – 'capitalism' or simply understood as a Weberian situation of conflict? Or is there an emerging capitalist society and a capitalist class in its real sense (Naga society) or any other nuanced situation?

> As we are living in a capitalist society and a capitalist economy, whereby every commodity and supply are (re) produced in order to be sold at a profit, we are not able to understand or comprehend the narrative (literature) and traditions (culture) of that given society devoid of thinkers like Althusser... To call a nation "good on top" but fewer excellent in reality is to indicate to what the Marxist belief expresses as "ideology". This very term has to be understood as having a complex history, but what is supposed by it is fundamentally this... Capitalism

* The author is Professor, Department of Sociology & Chair Professor, Dr. Ambedkar Chair, Tezpur University, Tezpur, Assam.

INDIAN JOURNAL OF INTEGRATED RESEARCH AND ANALYSIS
(IJIRA)
(A Peer Reviewed Refereed Journal)
Vol. No.1, Issue No. 4 ISSN 2456-2181 April 2017

CONTENTS

Sociological Perspective on Mental Health of Women 01-07
Nandarani Choudhury and Prof. Kedilezo Kikhi
To be Continued

Kedilezo

ISSN 2456-2181

Sociological Perspective on Mental Health of Women

[1]Nandarani Choudhury (nandaranic@gmail.com) and [2]Professor Kedilezo Kikhi (kedi@tezu.ernet.in)
[1]Research Scholar, Department of Sociology, Tezpur University, Assam, Tezpur – 784028
[2]Professor, Department of Sociology, Tezpur University, Assam, Tezpur - 784028

Abstract

Discourse on mental health has been articulated under varied paradigms viz. the biological, the psychological and the sociological. While the biological and the psychological are credible frameworks for understanding the cause and shaping the response towards mental disorders, the same, nevertheless, fail to grasp the phenomenological aspect of the life and experience of individuals who suffer from mental disorder. The present paper adopts the sociological paradigm in exploring mental health particularly that of the women whose social circumstances and vulnerabilities is believed to cause Common Mental Disorders such as depression, anxiety disorders, somatoform disorders etc. among them. The argument mooted here is that the inimical social circumstances women are mired in cause's mental disorders among them. Women's mental health, it is emphasized, should be approached from the distress perspective owing to the fact that the same is impacted most often than not by their social circumstances than by biological or psychological factors.

Keywords: *Mental Health, Women, Sociological Paradigm*

The sociological paradigm has added a significant dimension towards a more comprehensive understanding of the norm of literature on mental health. Peggy Thoits points out that the sociological paradigm views mental disorders as resulting from environmental factors rather than as physical anomalies (as in the case of the biological paradigm) or as aberrations in the mind or psyche (as in the case of the psychological paradigm). Whereas the latter paradigms locate the determinants of mental disorder within the human entity, the former locates it without – in the social environment, one is situated in (2010). Though the biological paradigm held its influence on the way mental disorder was conceptualized and addressed, it was pointed out by many scholars that social, economic and cultural aspects also ought to be factored in as biological factors occur in conjunction with the socio-cultural reality of an individual's life rather than in isolation from the same (Addlakha, 2008).

Sociological Perspective on Mental Health

Addlakha refers to the works of Freud on psychoanalysis which took cognizance of childhood development, culture and sexuality in affecting mental health thereby opening up to perspectives from psychology, sociology, and anthropology and questioning the singular claim of the biological paradigm in unfurling the intricacies of the disorder. In the view posited by the sociological paradigm, the bio-medical and the psychological stance lead to pathologisation of the individual. Sociologists forward the opinion that mental disorder is not caused by biological and psychological characteristics of the human subjects alone but also by structural features which impact the role, status, behaviour and resources privileging some members of the society to the detriment of others. Genetic and psychological factors on their own cannot account for mental disorder; cognizance has to be taken of social dynamics in explaining mental health and disorder. As Bus field articulates, "Geneticists' reported claims notwithstanding, social processes are crucial to the understanding of mental health and disorder in a range of ways. First, social processes shape the very concepts of mental health and

Anukriti (An International Refereed Research Journal), Vol. 7, No. 3, April-June, 2017 ISSN : 2250-1193

Understanding Mental Health – Perspectives from Three Competing Paradigms

Nandarani Choudhury*
Professor Kedilezo Kikhi**

Abstract

Discourse on mental health has been articulated under varied paradigms viz. the biological, the psychological and the sociological. This paradigm has an organic or biological genesis and builds itself upon the claim that mental health issues trace their cause to genetic, biological and neurological causes. The psychological model forwards the view that core element of individual personality development is pinned on its ability to adjust to the external environment. To the advocates of this school of thought, dysfunction occurs when along the trajectory of development; an individual fails at appropriating the ability to adjust or develops mal-adaptive practices in response and reaction to the external circumstances. The sociological paradigm mulls the structural elements embedded in an individual's social circumstances and the individual's subjective experience as causal factors to be considered in understanding the nuances of mental health and disorder. Though, the three competing models reflect their perspectives on mental health, the biopsychosocial paradigm integrates perspectives from all three paradigms and provides a holistic approach to the discourse.

Keywords: Mental Health, Biological Paradigm, Psychological Paradigm, Sociological Paradigm

1. Introduction

Mental health may be understood as "...state of successful performance of mental function, resulting in productive activities, fulfilling relationships with people and the ability to adapt to change and to cope with adversity" (U.S Department of Health and Human Services 1999 p.4 as cited in Keyes, 2002). For long sociologists have advocated in favour of a definition of mental health as more than just an absence of mental illness because more often than not the term continued to be used as no more than an antonym of mental illness (Keyes, 2002). Mental Health and Mental Illness represent two distinctive areas of theory, research and policy implications (Scheid and Brown, 2010), therefore to define one as merely an absence of the other is to subsume the scope of each category. Keyes explains mental health as a syndrome... a state of health which is indicated "when a set of symptoms at a specific level are present for a specified duration and this constellation of symptoms coincides with distinctive cognitive and social functioning (Keyes 2001; Mechanic 1999)" (2002 p.208). Keyes informs us that for the last four decades or so social scientists have attempted to conceptualize mental health in terms of subjective well-being which may be understood as an individual's personal assessment of her/his affective state and psychological and social functioning. Affective or emotional wellbeing is reflected by the positive feelings one nurtures towards life, whereas the presence of negative feelings is contraindicative in this regard. Another aspect pertinent in understanding mental health as held up by Keyes is psychological wellbeing which is accounted for by factors such as self-acceptance, positive relations with others, personal growth, sense of purpose in life, control over one's environment and self-determination. Yet another dimension of mental health includes social well-being and may be understood in terms of social coherence, social actualization, social integration, social acceptance and social contribution. Several studies on the domain have asserted that subjective well-being encompasses hedonic well- being (i.e. positive emotions towards one's life) and eudemonic well-being (i.e. psychological and social well-being (Keyes and Michalec, 2010). The point mooted here is that mental health is a holistic state which is characterized not only by an absence of mental illness, not by the presence of subjective well-being but a state marked by presence of distinctive mental health symptoms outlined above (2002).

* Research Scholar, Department of Sociology, Tezpur University, Assam
** Professor, Department of Sociology, Tezpur University, Assam

Simulated Study on Nonisolated DC-DC Converters for MPP Tracking for Photovoltaic Power Systems

Barnam Jyoti Saharia, M.ASCE[1]; and Kamala Kanta Saharia[2]

Downloaded from ascelibrary.org by IIUNT LIBRARY ACQ DEPT on 01/27/15. Copyright ASCE. For personal use only; all rights reserved.

Abstract: This paper discusses a comparative investigation of the three basic nonisolated DC-DC converters used as interfaces for maximum power point tracking (MPPT) in photovoltaic (PV) generators using the direct duty ratio control tracking algorithm. Analysis of buck, boost, and buck-boost converters is undertaken to study the behavior of converter performance with respect to changing atmospheric conditions, in-turn duty ratio variation (as a result of MPPT), and tracking efficiency. As atmospheric conditions change, the operating value of resistance at the maximum power point (R_{mpp}) changes. To effectively drive the system at the maximum power yield point, the MPPT algorithm has to drive the system operation point close to the value of R_{mpp} for the varying atmospheric profile of change in insolation and temperature. The efficiency of the MPPT algorithm lies in meeting this very requirement. The simulation study shows that, although buck, boost, and buck-boost converters are used as power converters in MPPT applications, not all converters perform with high efficiency. The effect of different resistive loads that have values other than R_{mpp} on converter-side output is considered for the three topologies, and it is observed that the buck-boost converter is the only one that is able to track the maximum power point (MPP) under variations in insolation, temperature, and loading effect with the highest tracking efficiency. DOI: 10.1061/(ASCE)EY.1943-7897.0000261. © *2015 American Society of Civil Engineers.*

Author keywords: Photovoltaic (PV); DC-DC converters; Maximum power point tracking (MPPT); Tracking efficiency; Hill climb algorithm.

Introduction

The photovoltaic (PV) generation system as a renewable energy source has attracted the attention of researchers in recent decades because it is nonpolluting, renewable, and inexhaustible. There is an immense demand for feasible and environmentally friendly renewable energy sources to meet future energy requirements as fossil fuel reserves deplete. Solar energy is a viable substitute for fossil fuels among other available renewable energy sources such as wind, hydroelectric, and geothermal power (Freris and Infield 2008). Solar PV generators have been used in small-scale, stand-alone systems at low voltage levels as well as in high-power installations connected in grid mode and operating at medium- or high-voltage levels.

The drawback of PV generators is their low conversion efficiency. Efficiencies of typical crystalline PV cells are 12–18%, although experimental cells have been constructed that are capable of efficiencies over 30% (Freris and Infield 2008). PV generators exhibit nonlinear current voltage (I–V) and power voltage (P–V) characteristics (Liu et al. 2013), a phenomenon that is more serious in partially shaded conditions because of more than one maximum power point (MPP). For optimum use, it is important to operate PV generation systems in the maximum available power production state for an available solar irradiation, temperature, and load. Thus, implementation of maximum power point tracking (MPPT) control techniques to maximize the available output from a PV generator is an essential constituent of any PV system.

The MPPT control algorithm adjusts the power interface (DC-DC converters) associated with the PV system such that the greatest possible power yield is achieved during moment-to-moment variations in insolation level, temperature, and load connected to the system. Most investigations have focused on the development, improvement, and implementation of tracking algorithms to achieve MPP operation. Under the changing conditions of irradiance and temperature, the operating power point of the PV panel changes, leading the MPPT to change the duty ratio of the DC-DC converter interface such that it matches the operating point of the converter with the MPP of the PV panel.

However, the behavior of individual interfacing converters with respect to duty ratio variation in MPPT applications has not received the required attention. The change in duty ratio has a corresponding changing effect on converter performance parameters, which may be in violation of the design constraints of the converter topology such as ripple in inductor current and in output voltage. To develop a PV power generation system with a suitable converter topology that can track MPP operation, it is imperative to analyze DC-DC converters used for this purpose and their performance with respect to tracking ability and behavior with different loading demands.

Many researchers are associated with the development and design of a number of MPPT algorithms using different techniques. Takashima et al. (2000) use a curve-fitting technique to calculate the operating point of the PV panel for a given value of insolation and temperature. Ibrahim et al. (1999) discuss fuzzy logic and look-up tables to identify the PV panel's MPP locus. Masoum et al. (1998) present computational methods to model I-V characteristics of solar panels using mathematical equations or numerical approximations between solar cell open-circuit voltage and solar cell short-circuit current to calculate the MPP for different load conditions. Noguchi et al. (2002) discuss short current pulse–based adaptive MPPT for PV systems, observing that a proportional

[1]Faculty of Engineering, Dept. of Electrical and Instrumentation Engineering, Assam Engineering College, Jalukbari, Guwahati, Assam 781013, India (corresponding author). E-mail: bjsaharia@gmail.com

[2]Professor, Dept. of Extension Education, College of Veterinary Science, Assam Agricultural Univ., Khanapara, Guwahati, Assam 781022, India. E-mail: bjsaharia.cle@aau.ac.in

Note. This manuscript was submitted on April 4, 2014; approved on November 26, 2014; published online on January 8, 2015. Discussion period open until June 8, 2015; separate discussions must be submitted for individual papers. This paper is part of the *Journal of Energy Engineering*, © ASCE, ISSN 0733-9402/04015001(10)/$25.00.

Viability Analysis of Photovoltaic/Wind Hybrid Distributed Generation in an Isolated Community of Northeastern India

Barnam Jyoti Saharia and Manish Manas
Department of Electronics and Communication Engineering

ABSTRACT

This article examines the viability of standalone PV/Wind Hybrid system for remote household in north eastern region (NER) of India. Sizing, optimization, and the economical analysis of the Hybrid system is done through HOMER software. Sensitivity analysis is carried out with solar radiation data, wind speed data, cost of PV and Wind system for a 1kW PV/Wind Hybrid system. Annual peak, scaled annual average, and the average load of 697 W, 3.85 kWh/day, and 0.175 kW respectively are assumed for a remote household for analysis purpose. This article presents the optimal sizing, cost of electricity (COE), battery profile, and converter profile of PV/Wind hybrid system for different NER states. The outcome of this study shows that COE for the NER states lies in the range of 0.279-0.518 $/kWh, making hybrid PV/Wind system the most successful option for mitigation of power demand in the rural areas of the region concerned.

Keywords: Hybrid Distributed Generation, Renewable Energy, Optimization, Homer, Economic Assessment

INTRODUCTION

The utilization of renewable energy resources has shown promising results in recent years due to the large power demand throughout the globe due to exhausting fossil fuel, ever rising fuel price, economic development and increasing global warming [1]. With an expected average growth rate of 2.8% globally, the anticipated electricity demand will get doubled by 2020. Owing to economic advances in Developing countries, like India, a rapid increase in energy demand has been seen

Saharia et al., Cogent Engineering (2016), 3: 1137206
http://dx.doi.org/10.1080/23311916.2015.1137206

cogent engineering

ELECTRICAL & ELECTRONIC ENGINEERING | RESEARCH ARTICLE

Comparative evaluation of photovoltaic MPP trackers: A simulated approach

Barnam Jyoti Saharia[1], Munish Manas[1*] and Bani Kanta Talukdar[2]

Received: 22 October 2015
Accepted: 24 December 2015
First Published: 15 January 2016

*Corresponding author: Munish Manas, Department of Electronics Communication Engineering, Tezpur University, Assam 784028, India
E-mail: munish@tezu.ernet.in

Reviewing editor:
Kun Chen, Wuhan University of Technology, China

Additional information is available at the end of the article

Abstract: This paper makes a comparative assessment of three popular maximum power point tracking (MPPT) algorithms used in photovoltaic power generation. A 120 W_p PV module is taken as reference for the study that is connected to a suitable resistive load by a boost converter. Two profiles of variation of solar insolation at fixed temperature and varying temperature at fixed solar insolation are taken to test the tracking efficiency of three MPPT algorithms based on the perturb and observe (P&O), Fuzzy logic, and Neural Network techniques. MATLAB/SIMULINK simulation software is used for assessment, and the results indicate that the fuzzy logic-based tracker presents better tracking effectiveness to variations in both solar insolation and temperature profiles when compared to P&O technique and Neural Network-based technique.

Subjects: Electrical & Electronic Engineering; Engineering & Technology; Power Engineering

Keywords: PV; boost converter; perturb and observe; fuzzy logic; neural networks; tracking factor

1. Introduction

Power generation through photovoltaic (PV) generation system is one of the most sought after forms of renewable energy sources, popularity of which has been in the rise due to its non-polluting, renewable and inexhaustible nature (Eltawil & Zhao, 2013). Immense demand for finding feasible and environmental-friendly renewable energy sources to meet the future energy requirements as

ABOUT THE AUTHORS

Barnam Jyoti Saharia completed his MTech in power electronics and his research area is concerned with converter topology for MPPT algorithms. Currently he works as an assistant professor in ECE Department of Tezpur Central University in India.

Munish Manas is the recipient of meritorious UGC BSR fellowship for his research in microgrid design and optimization. Currently he works as an assistant professor in ECE Department of Tezpur Central University in India.

Bani Talukdar is a professor in Assam Engineering College and does his research in power system deregulation and system design.

PUBLIC INTEREST STATEMENT

I am sending this manuscript for consideration for publication in your esteemed journal to assist the scientific community in the area of Comparative Evaluation of Photovoltaic MPP Trackers: A Simulated Approach. This paper makes a comparative assessment of three popular maximum power point tracking (MPPT) algorithms used in photovoltaic power generation. A 120 Wp PV module is taken as reference for the study that is connected to a suitable resistive load by a boost converter. Two profiles of variation of solar insolation at fixed temperature and varying temperature at fixed solar insolation are taken to test the tracking efficiency of three MPPT algorithms based on the Perturb and Observe, Fuzzy logic, and Neural Network techniques. MATLAB/SIMULINK simulation software is used for assessment, and the results indicate that the fuzzy logic-based tracker presents better tracking effectiveness to variations in both solar insolation and temperature profiles when compared to Perturb and Observe technique and Neural Network-based technique.

cogent oa

© 2016 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

A review of algorithms for control and optimization for energy management of hybrid renewable energy systems

Barnam Jyoti Saharia,[1,a)] Honey Brahma,[2,b)] and Nabin Sarmah[2,c)]
[1]*Department of Electrical Engineering, Tezpur University, Tezpur, Assam 784028, India*
[2]*Department of Energy, Tezpur University, Tezpur, Assam 784028, India*

(Received 3 April 2018; accepted 12 September 2018; published online 9 October 2018)

Hybrid renewable energy systems (HRESs) can alleviate the grid dependence for power in rural and distant locations. The intermittent nature of renewable energy sources acting alone does not make the system reliable; however, combining one or more sources (like solar, wind, diesel, biomass, micro-hydel, etc.) with adequate storage options or intelligent control of hybrid systems ensures power availability to the end user. As a result, it is imperative that the technical aspects of such a hybrid system can be analyzed with respect to optimal sizing of sources, proper control design and mechanism for energy management, and adequate backup via the storage option that ascertain reliable power supply to the consumer/end user or at the distributed generation end. This paper presents an overview of the applications of Genetic Algorithms, Fuzzy logic, Particle Swarm optimization, and similar other evolutionary and nature inspired algorithms that have been employed for the optimization, control, and power management strategies for renewable energy studies involving hybrid power generation schemes. Analysis of the algorithms and the potential applications of new improved algorithms for optimization, control, and power management of HRES is discussed and reported. *Published by AIP Publishing.* https://doi.org/10.1063/1.5032146

I. INTRODUCTION

With the ever increasing demand for energy and power,[1] the limitation of the generation of energy from fossil fuel reserves, greenhouse gas emission leading to global warming,[2,3] and the polluting nature of such means of power harvesting led to the search for alternate energy sources in order to generate power in a non-polluting and sustainable manner.[4] This steered the exploration of the renewable energy sources[5,6] in the form of solar energy and wind energy systems, which are the most widely used forms of alternate energy.

However, the adverse impact of weather and climatic conditions on the generation output of the solar and wind energy systems cannot be neglected. An optimal mix of two or more sources with complementary nature backed up with an added storage option to meet a specific load demand[7] is called hybrid renewable energy systems (HRESs) and can act as an alternate viable option[8] for generation of power apart from the conventional schemes, i.e., from fossil fuels.[1] Figure 1 shows the schematic of HRES with Solar and Wind as the primary resources.

Generally, a hybrid renewable energy system can be defined as an energy system[9] consisting of two or more renewable sources to generate power more reliably and cost effectively with power conditioning equipment acting as a controller and with the option of an energy storage system.[8] They may work in grid connected mode or in isolation and may have the option for storage and back-up with more conventional sources like diesel generators. In remote locations where conventional power generation schemes are not available and are not cost effective, HRES can be a suitable deployment option to meet the consumers' demand for reliable supply of power.[10] Additionally, HRES acts as a cost-effective, reliable, and environmentally friendly

a)bjsaharia@gmail.com
b)honeybrahma325@gmail.com
c)Author to whom correspondence should be addressed: nabin@tezu.ernet.in

IET Power Electronics

Research Article

IET Journals
The Institution of Engineering and Technology

Switched capacitor-based continuous input current high step-up impedance source DC–DC converter

ISSN 1755-4535
Received on 12th July 2020
Revised 7th October 2020
Accepted on 6th November 2020
E-First on 17th February 2021
doi: 10.1049/iet-pel.2020.0862
www.ietdl.org

Anish Ahmad[1], Kharan Shiluveru[2], Rajeev Kumar Singh[2] ✉

[1]Department of Electrical Engineering, Tezpur University, Napaam, Sonitpur, Assam, India
[2]Department of Electrical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi 221005, Uttar Pradesh, India
✉ *E-mail: rksingh.eee@iitbhu.ac.in*

Abstract: The conventional converter needs to be operated at a high duty cycle to achieve maximum possible voltage gain. This leads to severe reverse recovery of switches, increases losses, and reduces efficiency. This study presents a modified switched-capacitor-based high gain continuous input current quasi-Z-source converter (qZSC) for DC microgrid applications. The proposed converter utilises the embedded switched-capacitor techniques and can give a high voltage gain with a low duty ratio compared to the conventional converters. The proposed converter also experiences less capacitor voltage and inductor current stresses compared to the conventional Z-source converters. This facilitates the use of lower-rated capacitors and inductors for higher power applications. Detailed steady-state, small-signal, and power loss analysis of proposed qZSC is discussed in this study. A prototype of 100 W is designed and implemented using TI TMS320F28335 Experimenter Kit to verify the operation of the proposed converter.

1 Introduction

The renewable energy sources (RESs) like the photovoltaics, batteries, fuel cells etc. are becoming an important part in the day-to-day electrical applications as they do not emit harmful gasses which are dangerous to nature, unlike the conventional fossil fuels which emit a lot of them [1, 2]. In recent years, a lot of research is carried out on increasing the efficiency of these RESs. However, research alone on them is not sufficient as the output voltage–current characteristics of the RES at their efficient design may not be suitable for various electrical applications. Hence, there is a need to develop better power converters which can help in converting the energy by the RES. In general, the RES provides a voltage which is very small when compared to the standard bus/grid voltages. This voltage needs to be stepped up by a huge value before connecting to the bus/grid [3–6]. A discontinuous current from the RES at high frequency may deteriorate the life of the RES. Hence, a power converter which can result in a continuous current from the RES uses to be helpful. Also, the continuous current helps in achieving MPPT with ease in case of photovoltaic.

To achieve the high boost factor, the conventional boost converter having a continuous input current may be used. The conventional boost converter needs to be operated at an extreme duty cycle. However, due to the losses, the desired boost factor may not be achieved using the conventional converter. Also, this activity leads to severe reverse recovery of the diodes, increases EMI and decrease efficiency making it unsuitable for high gain applications [7]. These serious limitations of a conventional converter can be eliminated by different converter topologies which have a high boost factor even at a small duty cycle. Later, the Z-source DC–DC converters (ZSCs) have been developed as a solution to the above problems. However, they suffered from an important drawback, i.e. the discontinuous input current making them unsuitable for the renewable energy applications [8, 9]. The capacitor voltage stresses are also high resulting in usage of high-power rated capacitors which increases the size of the converter. These drawbacks are eliminated with a quasi-Z-source converter (qZSC) [10]. The conventional qZSC is shown in Fig. 1. The qZSC has less capacitor voltage stresses.

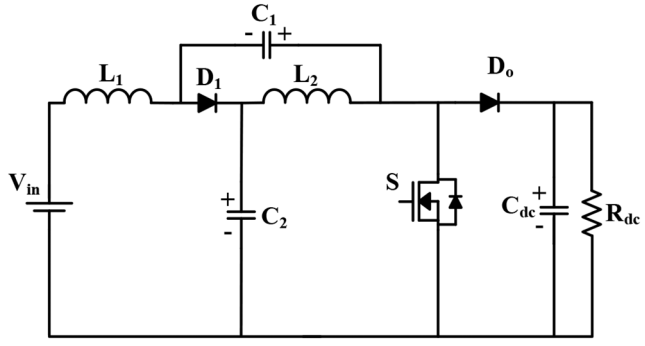


Fig. 1 *Conventional quasi-Z source DC converters*

If the switch S, diode D_O and capacitor C_{dc} of ZSC or qZSC are replaced with the full-bridge single-phase inverter or three-phase inverters, ZSI or qZSI are achieved which have the same voltage gain. Both ZSI and qZSI have inherent shoot-through protection and are not affected by electromagnetic interference (EMI). In the case of conventional boost converter or its derivatives, if the output diode and filter capacitor are replaced with an inverter, it may result in a current source inverter (CSI) which is prone to EMI. Thus, the Z-source networks may be switched between DC and AC outputs with ease.

Using several techniques, such as coupled inductors, switched inductors, switched capacitors, voltage multiplier, voltage lift etc., many different converter topologies based on the conventional boost converter and qZSC have derived and implemented [11–28]. In switched-inductor and coupled inductors techniques additional electromagnetic devices are used which are generally bulky and increase the weight, volume, and size of the converter. Moreover, the coupled inductors-based converters have a problem with the leakage inductance. Leakage inductance leads to increased power losses and thus decreases the efficiency. Switched-capacitor concept gives improved voltage gain but capacitor voltage contribution for boost factor are not fully utilised [24, 25]. So, effective switched-capacitor should be used to reduce the capacitor voltage stress.

In this paper, a switched capacitor-based continuous input current high-step-up qZSC is presented. The proposed converter gives a high voltage gain compared to conventional qZSC. The same voltage gain in the proposed converter is achieved at a comparatively small duty cycle as compared to conventional qZSC. The proposed converter circuit utilises the embedded switched-

© The Institution of Engineering and Technology 2020

Hybrid Buck–Boost Multioutput Quasi-Z-Source Converter With Dual DC and Single AC Outputs

Kharan Shiluveru, *Student Member, IEEE*, Akash Singh, *Student Member, IEEE*, Anish Ahmad, *Member, IEEE*, and Rajeev Kumar Singh, *Senior Member, IEEE*

***Abstract*—This article presents two hybrid multioutput buck–boost quasi-Z-source converters (q-ZSCs) capable of giving two dc and one ac outputs simultaneously from a single dc input. One dc and the ac outputs of the proposed multioutput q-ZSCs have both buck and boost capabilities and the other dc output has the property of boosting the input voltage, thereby capable of giving a wide range of voltage gain both for dc and ac outputs. The rationale behind proposing two variants of the hybrid multioutput q-ZSCs is to have more flexibility on voltage gains as per the load requirements. The proposed converters are derived from the quasi-Z-source concept and hence inherit all the properties of q-ZSI, which realize buck/boost, single-stage inversion, and power conditioning with improved reliability along with inherent shoot-through protection capability. All the three outputs of the proposed converters can be independently controlled making them suitable for various applications. The proposed converters can be utilized for various modern multioutput dc–dc and dc–ac power conversion applications, such as renewables and the uninterrupted power supplies. Detailed steady-state operation, loss/efficiency analysis of the proposed converter, and discussion on the hybrid pulsewidth modulation are presented in this article. In order to bring out the advantages of the proposed multioutput converter, a detailed comparative analysis among the proposed and other closely related existing multioutput converters is carried out in this article. A 310-W prototype is developed to verify the performance of the proposed multioutput buck–boost q-ZSC.**

***Index Terms*—DC–DC converter, hybrid converter, impedance source, inverter.**

I. Introduction

NOWADAYS, single-output converters are not able to meet simultaneous requirements of different types and the voltage level of modern electrical applications, such as hybrid electric vehicles, hybrid microgrid, and standby power supplies [1]–[3]. On the other hand, multioutput converters are becoming popular because of their ability to supply simultaneous multioutputs, high power density, compact size, and lower cost. Owing to these benefits and the demand of multioutput converters, many research works are currently focusing on them [4]–[7].

Manuscript received July 6, 2019; revised October 25, 2019; accepted December 2, 2019. Date of publication December 14, 2019; date of current version March 13, 2020. This work was supported by the Department of Science and Technology, Government of India, under Grant DST/CERI/MI/SG/2017/086(IIT(BHU), Varanasi(G)). Recommended for publication by Associate Editor D. Vinnikov. *(Corresponding author: Kharan Shiluveru.)*

The authors are with the Department of Electrical Engineering, Indian Institute of Technology (BHU), Varanasi, Varanasi 221005, India (e-mail: s.kharan.eee15@iitbhu.ac.in; akash.singh.eee15@iitbhu.ac.in; aahmad.rs.eee13@iitbhu.ac.in; rksingh.eee@iitbhu.ac.in).

Color versions of one or more of the figures in this article are available online at http://ieeexplore.ieee.org.

Digital Object Identifier 10.1109/TPEL.2019.2960268

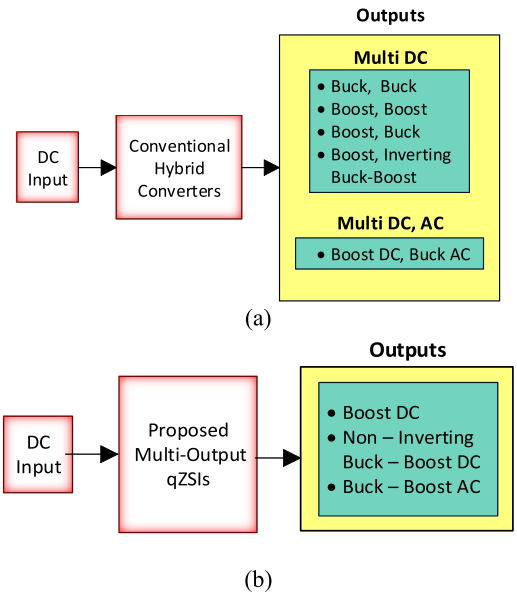


Fig. 1. (a) Representative system of conventional multioutput converters. (b) Representation of the proposed multioutput converter.

Lately, various multioutput converters are reported in the literature [8]–[18]. Multioutput converters discussed in [8]–[13] are predominantly dc–dc converters that only give multiple dc outputs and do not have ac at the output. Literature [14]–[18] give two simultaneous dc and ac outputs and do not have the provisions of multi dc and ac outputs. Moreover, the ac output obtained in the converters reported in the literature [14]–[18] is inherently step down. Split-source-based hybrid converter topology discussed in [19] gives one ac and one dc outputs. In this case also, the ac output is lower than the input voltage. Hybrid multioutput converter discussed in [20] gives *n*-ac and one dc outputs. The hybrid multioutput converter discussed in [20] gives one dc with boost capability and the ac outputs are lesser than the input voltage. A dual-input dual-output Z-source inverter is presented in [21]. In general, a representative system of the conventional multioutput converters can be shown, as given in Fig. 1(a). It may be observed from Fig. 1(a) that there are two categories of existing multioutput converters: 1) converters with multi dc outputs having buck and boost ability, and 2) multioutput converters giving dc and ac outputs simultaneously with boost dc and buck ac outputs. The conventional

0885-8993 © 2019 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See https://www.ieee.org/publications/rights/index.html for more information.

Authorized licensed use limited to: Tezpur University. Downloaded on March 17,2020 at 03:30:06 UTC from IEEE Xplore. Restrictions apply.

IET Power Electronics

Research Article

IET Journals
The Institution of Engineering and Technology

Embedded dual switched-capacitor based continuous input current switched-inverter for renewable energy application

ISSN 1755-4535
Received on 3rd October 2018
Revised 10th January 2019
Accepted on 22nd January 2019
E-First on 21st February 2019
doi: 10.1049/iet-pel.2018.6062
www.ietdl.org

Anish Ahmad[1] ✉, *Rajeev Kumar Singh*[1]

[1]*Department of Electrical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi 221005, India*
✉ *E-mail: aahmad.rs.eee13@iitbhu.ac.in*

Abstract: This study presents a high voltage gain embedded dual switched-capacitor-based continuous input current impedance source inverter for renewable energy applications. Renewable energy resources have low-output voltage generation capability, and the converter needs to operate on the extreme duty cycle for high voltage requirements. To achieve high voltage gain, a conventional impedance source inverter needs to operate on a high duty cycle, which leads to the reduction in modulation index. Operating at a reduced value of modulation index leads to poor inversion operation with poor output power quality. In order to take care of this issue, an embedded dual switched-capacitor-based inverter is presented for high voltage gain in low shoot-through duty cycle. The proposed inverter is suitable for DC–AC power conversions such as solar photovoltaic where a low-input voltage is available, and it needs to be converted into high DC–AC output voltages. Anatomisation of operating principle, steady-state analysis, passive design criteria, and comparison are discussed. The proposed inverter also has less capacitor voltage stress, less diode current stress, and higher efficiency than other impedance-source inverters. The operation of the proposed inverter is verified through simulations and experimental results with a 600 W prototype.

Nomenclature

B	boost factor
D	shoot-through duty cycle
M	modulation index
G	AC peak voltage gain
V_{tri}	peak value of the triangular wave
f_{s}	triangular wave frequency
k_{st}	number of shoot-through intervals in one period of the triangular wave
V_{L1}, V_{L2}	voltage across the inductors L_1 and L_2 respectively
V_{C1}, V_{C2}, V_{C3}	voltage across the capacitors C_1, C_2 and C_3 respectively
I_{L1}, I_{L2}	currents flowing through the inductors L_1 and L_1 respectively
I_{C1}, I_{C2}, I_{C3}	currents flowing through the capacitors C_1, C_2 and C_3, respectively
I_{pn}	inverter current in power interval
P_{o}	total output power
r_i%	percentage current ripple of current flowing in the respective inductor
r_{v}%	percentage voltage ripple of the voltage across the respective capacitor
V_{in}	DC input voltage
V_{pn}	inverter input switched voltage

1 Introduction

1.1 Motivation

In recent times, renewable energy resources (such as solar photovoltaic) have become a popular area of research due to the various advantages associated with it [1–3]. These renewable energies used in microgrid have main power generation units. The power electronics converters are the key components for power conversions used in renewable energy. A high step-up DC–AC converter is obligatory to upgrade the low voltages generated from the renewable energy resources to meet the household requirement (in standalone mode) or to connect the system with the grid [4]. These inverters used in renewable energy resources are either voltage source inverter or current source inverters. In this conventional system, a cascaded boost converter with a voltage source inverter is used. This two-stage conventional system still has less output due to boost gain constraint, less efficiency and complex control.

The limitation of the two-state conventional system is overcome by the impedance source inverter (ZSI). The ZSI has numerous advantages over the conventional system such as buck–boost capability, single-stage conversion, inherent shoot-through protection abilities and increase reliabilities [5, 6]. However, the maximum AC output voltage is restricted by modulation index (M) and shoot-through duty cycle (D) as there is a constraint of $M + D \leq 1$ for simple boost pulse width modulation (PWM) technique. To achieve high voltage gain, the converter needs to operate on high D which leads to the reduction in M. Operating at a reduced value of M leads to poor inversion operation with more harmonic distortions that lead to the poor output power quality.

1.2 Literature review

To improve voltage gain, different topologies such as voltage multiplier, switched-capacitor, switched-inductor, and voltage lift techniques are also used in the inverter for high gain applications [6]. One of the other popular methods is to use coupled-inductor or transformer-based topologies for high gain. By regulating the turn's ratio of the transformer in isolated converters, high voltage step-up can be achieved [7–10]. However, coupled-inductor suffers from high voltage spikes and problem associated with the leakage inductance and thus, deteriorates the efficiency. Implementation in galvanic isolation also increases the size and cost of the system [11]. Thus, transformerless topologies have got attention because of smaller size, weight, and higher efficiency [12]. The switched-inductor and switched-capacitor or combinations of these switching circuits are extensively used to achieve extended voltage gain [13–17]. Zhu *et al*. [18] used two switched networks in the classical ZSI as a result, the boost factor of this inverter is converted from $1/(1 - 2D)$ to (1) as follows:

$$B = \frac{V_{pn}}{V_{\text{in}}} = \frac{1 + D}{1 - 3D}. \quad (1)$$

© The Institution of Engineering and Technology 2019

IEEE Access
Multidisciplinary | Rapid Review | Open Access Journal

Received November 13, 2019, accepted December 2, 2019, date of publication December 12, 2019,
date of current version December 23, 2019.

Digital Object Identifier 10.1109/ACCESS.2019.2959136

Switched-Capacitor Based Modified Extended High Gain Switched Boost Z-Source Inverters

ANISH AHMAD[1], (Member, IEEE), R. K. SINGH[2], (Senior Member, IEEE), AND ABDUL R. BEIG[1], (Senior Member, IEEE)

[1]Advanced Power and Energy Center, Department of Electrical and Computer Engineering, Khalifa University, Abu Dhabi, United Arab Emirates
[2]Department of Electrical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi 221005, India

Corresponding author: Anish Ahmad (anishahmad.ee@gmail.com)

This work was supported by the Advanced Power and Energy Center, Khalifa University of Science and Technology, Abu Dhabi, UAE, under Grant RC2-2018-06.

ABSTRACT Two novels switched Z-source inverters (ZSI) based on the active switched capacitor with high voltage conversion ratio are presented. These are active switched capacitor-based capacitor assisted extended boost ZSI and diode assisted extended boost ZSI. High voltage gain is required in various applications such as electric vehicles, grid integration of renewable energy sources, etc. The voltage gain of conventional ZSIs are limited and these conventional ZSI has high voltage conversion ratio at a high duty cycle, which results in poor inversion and poor efficiency. In this work, only one additional diode and one active switch are used with the conventional extended boost ZSI to achieve high voltage conversion ratio without adding any additional passive components. Compared to other ZSI topologies, the proposed inverter also guarantees low voltage across capacitors, a wide range of duty cycle operation and continuous source current in addition to high voltage conversion ratio. The detailed operating principles and steady-state analysis and design details are presented. The performance of the inverters is verified through simulation and also through experiments. Both the simulation and experimental results are presented.

INDEX TERMS Switched boost ZSI, switched capacitor, extended boost ZSI, Z-source inverter, DC-DC converters, high gain, Z-source-topologies.

I. INTRODUCTION

DC-DC converter and DC-AC inverter are essential power electronic circuits used in almost all power electronics applications. In most of the application, DC input voltage is provided by renewable energy sources or battery [1]. In hybrid electric vehicle (HEV) systems, the energy source is battery and output stage has DC to AC converter. In HEV high gain converter is required for low voltage input battery system. Low voltage battery is generally used for size, cost and reliability point of view. In micro-grids the gird voltage is as per the distribution voltage levels (110V or 230V Phase to neutral voltage) and the grid interface voltage source inverters (VSIs) have high DC bus voltage. Renewable energy sources or energy storage systems will have low input voltage levels. Therefore, a high gain DC to DC converter is very much required in these applications. The conventional VSI is derived from the buck converter so gain of the converter will be less. In the conventional system, cascaded boost with VSI are generally used for voltage gain. However, this leads to increased losses and decreased efficiency as the converter is two-stage [2].

The problem with a conventional VSI is eliminated with the Z- Source inverter (ZSI). It has single-stage conversion having the buck-boost capability with improved reliability [2]. However, conventional ZSI has discontinuous input current and higher voltage stress across capacitors. In order to address this issue, quasi-ZSI (qZSI) topologies as shown in Fig. 1(a) and (b) are developed [3]. Even though the qZSI addresses the limitations of the conventional ZSI, the boost factor (B) or the voltage conversion ratio is low and equal to that of the conventional ZSI [3]. The voltage conversion ratio known as boost factor (B) for the qZSI and conventional ZSI is given by,

$$B = \frac{V_{pn}}{V_{dc}} = \frac{1}{1-2D} \tag{1}$$

whereas D is shoot-through duty cycle of the ZSI/qZSI at steady state, V_{pn} is the switched voltage of the input side of inverter bridge and V_{dc} is input voltage. The B depends upon the duty cycle as given in (1). For simple boost PWM

The associate editor coordinating the review of this manuscript and approving it for publication was Zhixiang Zou.

This work is licensed under a Creative Commons Attribution 4.0 License. For more information, see http://creativecommons.org/licenses/by/4.0/

IET Power Electronics

Research Article

IET Journals
The Institution of Engineering and Technology

Single-phase high-voltage gain switched LC Z-source inverters

ISSN 1755-4535
Received on 8th September 2017
Revised 13th November 2017
Accepted on 14th December 2017
E-First on 9th February 2018
doi: 10.1049/iet-pel.2017.0634
www.ietdl.org

Vinod Kumar Bussa[1] ✉, *Anish Ahmad*[1], *Rajeev Kumar Singh*[1], *Ranjit Mahanty*[1]

[1]*Department of Electrical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi 221005, India*

✉ *E-mail: vinod.rs.eee14@iitbhu.ac.in*

Abstract: Recently, switched-inductor Z-source inverters (SL-ZSIs) have been reported to achieve high-voltage gain and good power inversion operation at low shoot-through duty ratio *D* as compared to conventional ZSI. As the SL-ZSIs have high passive component count, weight, volume and losses of the system increases that lead to reduction in efficiency. To address the issues of conventional ZSI and SL-ZSIs, two single-phase switched LC (SLC)-ZSIs (Type 1 SLC-ZSI and Type 2 SLC-ZSI) are proposed in this study to achieve high-voltage gains at low values of *D* with lower passive component count as compared to SL-ZSIs. At low values of *D*, modulation index *M* approaches to higher values which results into improved AC output at reduced harmonic distortion. Due to low passive component count in the proposed inverters, weight, volume and losses decreases resulting into increase in efficiency. The proposed inverters can be used in various DC–AC and DC–DC power conversions in renewable energy applications due to their high-voltage gain, better immunity to EMI noise and higher reliability. The detailed steady-state analysis of the two proposed SLC-ZSIs is given in this study. Scaled down experimentation has been carried out to verify the performance of the proposed inverters.

1 Introduction

Conventional voltage-source inverter (VSI) and current-source inverters (CSIs) are commonly used in different applications such as UPS systems, distribution generation systems (nano-grid, micro-grid and smart-grids), motor drives, electric vehicles. However, when these are operated from renewable energy sources such as solar PV and fuel cells to match AC distribution system voltage levels, due to low-voltage gain of VSI and limitations of conventional inverters (VSIs and CSIs), they are not suitable for such systems [1]. To overcome the limitations of conventional inverters, a new topology called the Z-source inverter (ZSI) [2] was introduced. In recent times, many researchers have shown improvements in the ZSIs in different ways which includes new topologies, control strategies, modelling and applications [3–14]. The forbidden shoot-through state in the conventional VSI decides the required boost gain of the ZSI. The boost factor *B* of the conventional ZSI is given by

$$B = \frac{1}{1-2D} \tag{1}$$

The shoot-through duty ratio (*D*) and modulation index (*M*) are interdependent in single-phase ZSI systems under the constraint of ($M + D \leq 1$). Thus, increase in the boost gain would reduce the modulation index. The inversion at low values of *M* will result into poor fundamental frequency component with increased harmonic distortion. To obtain high-voltage gain along with high modulation index; switched-inductor (SL), switched-capacitor (SC), hybrid SC/SL and voltage multiplier cells [15, 16] are integrated in ZSIs. Successful integration of SL cell with the ZSI [17–23] provides high boost inversion with reduced harmonic distortion at low output voltages of renewable sources as compared to conventional ZSI. Although, SL-ZSIs give high boost inversion, they have high passive component count which leads to reduction in efficiency and increase in weight and volume of the system.

In this paper, two single-phase switched LC ZSIs (SLC-ZSIs) are proposed to address the issues associated with SL-ZSIs. The proposed inverters have higher voltage gains which can be achieved at low values of *D* with lesser number of passive components as compared to the SL-ZSIs [17–21]. Due to low values of *D*, modulation index can be increased which gives power inversion at reduced harmonic distortion [17]. Due to lesser number of passive components, the SLC-ZSIs are more efficient and reduced in volume and weight as compared to SL-ZSIs. The proposed SLC-ZSIs can be applied to various DC–AC and DC–DC power conversions in renewable energy applications. Moreover, the voltage stress on capacitors, shoot-through current through the inverter switches and current stress on diodes and inductors in the proposed inverters are lower than the SL-ZSIs for the same input and output voltages.

2 Review of SL-ZSIs

Switched-inductor (SL) ZSI reported in [17] to achieve high-voltage gain at low values of *D* is shown in Fig. 1*a*. Although it gives high boost inversion at low shoot-through duty ratio, it has more passive component count which leads to increase in weight and volume resulting into decrease in efficiency of the system. It also suffers from drawbacks such as discontinuous input current, high start-up inrush current and different DC and AC grounds. The boost factor *B* of the SL-ZSI topology is given as

$$B = \frac{1+D}{1-3D} \tag{2}$$

SL-qZSI reported in [18] to address the challenges of SL-ZSI and quasi-ZSI (qZSI), is shown in Fig. 1*b*. Although it overcomes the drawbacks of SL-ZSI and qZSI [18], it has less boost inversion ability compared to SL-ZSI at low shoot-through duty ratio. The boost factor *B* of the SL-qZSI topology is given as

$$B = \frac{1+D}{1-2D-D^2} \tag{3}$$

Two modified SL-qZSIs, namely ripple current SL-qZSI (rSL-qZSI) and continuous current SL-qZSI (cSL-qZSI), are reported in [19] to achieve high-voltage gain at low values of *D*, are shown in Fig. 1*c*. Even though they give high-voltage gains, they have more passive component count such as SL-ZSI. The boost factor *B* of the rSL-qZSI topology is given as

© The Institution of Engineering and Technology 2018

Interleaved Hybrid Converter With Simultaneous DC and AC Outputs for DC Microgrid Applications

Vinod Kumar Bussa, *Student Member, IEEE*, Anish Ahmad, *Student Member, IEEE*, Rajeev Kumar Singh, *Senior Member, IEEE*, and Ranjit Mahanty, *Member, IEEE*

***Abstract*—This paper proposes an interleaved hybrid converter (IHC) with simultaneous dc and ac outputs for dc microgrid applications. The IHC is realized by interleaving two conventional boost converters and replacing the active switch of lower boost converter by an H-bridge voltage source inverter. This arrangement enables the proposed IHC to operate at the condition where the sum of duty ratio (D) and modulation index (M) can be more than or equal to one, i.e., $D + M \geq 1$, unlike the conventional hybrid converters. The proposed IHC is capable of giving dc with high voltage gain and improved ac with reduced harmonic distortion. Due to interleaving nature of the IHC, input current is shared between the power converters and thus enables the use of low current rated switching devices and lower values of inductors. This results in reduced power losses and increased efficiency as compared to the conventional hybrid converters. The IHC also has inherent shoot-through protection capability, better electromagnetic interference immunity, and reliability. A modified unipolar sinusoidal pulse width modulation technique is used to control the power flow of the IHC. Detailed mathematical modeling of the proposed IHC is carried out and its steady-state behavior is validated through experimental results on a 500 W laboratory prototype.**

***Index Terms*—DC microgrid, interleaved hybrid converter (IHC), modified unipolar sinusoidal pulse-width modulation (SPWM), shoot-through operation.**

I. Introduction

THE USE of dc microgrids is on the rise in present smart electrical power distribution systems, in which they are connected to different kinds of loads (dc and ac), supplied from different types of nonconventional energy sources using power electronic converters in an efficient manner. Generating power from nonconventional energy sources is advantageous for residential systems as they are located close to the consumer load premises [1]–[4]. Schematic of conventional dc microgrid supplied through a solar panel is shown in Fig. 1(a). It uses two separate power converters, one dc–dc converter and another voltage source inverter (VSI) for delivering power to dc and ac loads in conventional dc microgrids. As VSIs do not have inherent shoot-through protection capability, it requires dead time compensation circuits to prevent short circuits, which leads to further increase in cost.

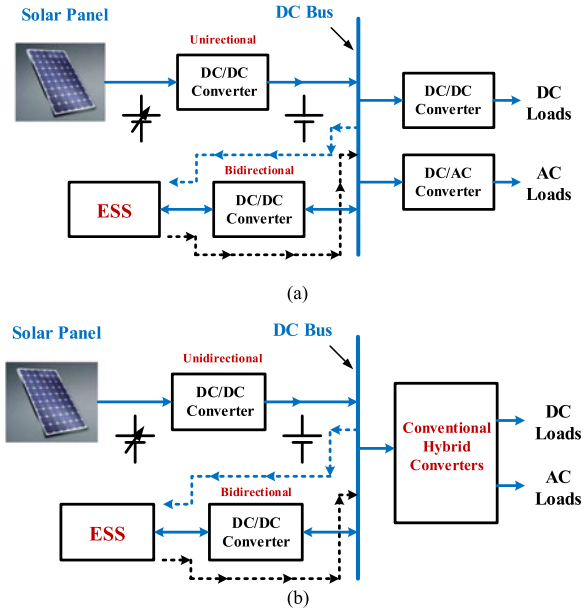


Fig. 1. Schematic of dc microgrid supplied through a solar panel: (a) conventional architecture for supplying dc and ac loads; and (b) hybrid architecture for supplying dc and ac loads.

To address these issues, hybrid converter topologies were introduced [5]–[9] to supply dc and ac loads simultaneously. Schematic of microgrid using conventional hybrid converters is shown in Fig. 1(b). The conventional hybrid converters have following major limitations.

1) They operate under the constraint $D + M \leq 1$, where D is the steady-state duty ratio and M is the modulation index. Thus, if D increases, M is reduced and therefore, there has to be a tradeoff between the dc voltage gain and improved ac output power quality due to narrow operating ranges of D and M.
2) In high power applications, high current rated switches are required to withstand high current stresses. This results in increased power losses and reduction in efficiency.
3) To obtain continuous input current with less ripples, high values of inductors are required.

Manuscript received August 30, 2017; revised November 4, 2017; accepted December 9, 2017. Date of publication December 26, 2017; date of current version May 18, 2018. Paper 2017-IACC-1033.R1, presented at 2016 Energy Conversion Congress and Exposition, Milwaukee, WI, USA, Sep. 18–21, and approved for publication in the IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS by the Industrial Automation and Control Committee of the IEEE Industry Applications Society. *(Corresponding author: Rajeev K. Singh.)*

The authors are with the Department of Electrical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi 221005, India (e-mail: vinod.rs.eee14@iitbhu.ac.in; aahmad.rs.eee13@iitbhu.ac.in; rksingh.eee@iitbhu.ac.in; rmahanty.eee@itbhu.ac.in).

Color versions of one or more of the figures in this paper are available online at http://ieeexplore.ieee.org.

Digital Object Identifier 10.1109/TIA.2017.2787617

0093-9994 © 2017 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See http://www.ieee.org/publications_standards/publications/rights/index.html for more information.

Switched-Boost-Modified Z-Source Inverter Topologies With Improved Voltage Gain Capability

Anish Ahmad, *Member, IEEE*, Vinod Kumar Bussa, *Student Member, IEEE*, Rajeev K. Singh, *Senior Member, IEEE*, and Ranjit Mahanty, *Member, IEEE*

***Abstract*— This paper presents three-phase switched-boost-modified Z-source inverter (ZSI) topologies with improved boost capabilities. In the proposed ZSIs, the voltage gain is increased significantly by adding one auxiliary switch and one diode without using additional passive components. The concept is applied to traditional ZSI, discontinuous input current quasi-ZSI (DC-qZSI), and continuous input current qZSI (CC-qZSI) resulting into three new inverter topologies: switched-boost ZSI, DC-qZSI, and CC-qZSI. Anatomization of operating principle, steady-state analysis, voltage gain, voltage stress, current stress, stored energy analysis, power loss, total harmonic distortion, and efficiency analysis are carried out to highlight the advantages of the proposed inverters as compared to the conventional ZSIs. Finally, the operation of the proposed CC-qZSI is validated through simulation and experimental results.**

***Index Terms*— Buck-boost converter, inverters, power conversion, quasi-ZSI (qZSI), Z-source inverter (ZSI).**

I. Introduction

THE converters are essential parts of the domestic, commercial, and industrial necessities of energy conversion from one form into another. The classical converters are voltage-fed and current-fed converters [1]–[3]. The classical voltage-fed converter is realized by connecting a dc voltage source in parallel with a large capacitor. It behaves as a buck inverter for dc–ac power conversion and a boost converter for ac-to-dc power conversion. The shoot-through problem in voltage-fed caused by misgating due to electromagnetic interference (EMI) is one of the main causes of concern in terms of inverter's reliability [4]–[6]. However, the current-fed converter is realized by connecting a dc voltage source in series with a large inductor. It behaves as a boost inverter for dc–ac power conversion and a buck converter for ac–dc power conversion. The open-circuit operation, which may happen due to misgating of the switches caused by EMI, is a serious problem in current-fed converter [7]–[9].

Manuscript received August 21, 2017; revised November 30, 2017 and February 7, 2018; accepted March 18, 2018. Date of publication April 5, 2018; date of current version October 30, 2018. Recommended for publication by Associate Editor Xing Zhang. *(Corresponding author: Anish Ahmad.)*

The authors are with the Department of Electrical Engineering, IIT (BHU) Varanasi, Varanasi 221005, India (e-mail: aahmad.rs.eee13@iitbhu.ac.in; vinod.rs.eee14@iitbhu.ac.in; rksingh.eee@iitbhu.ac.in; rmahanty.eee@itbhu.ac.in).

Color versions of one or more of the figures in this paper are available online at http://ieeexplore.ieee.org.

Digital Object Identifier 10.1109/JESTPE.2018.2823379

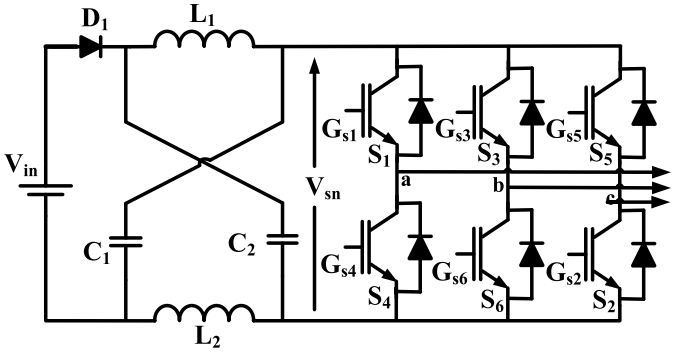


Fig. 1. Classical ZSI.

The disadvantages of classical voltage-fed and current-fed converters are overcome by impedance source network. The Z-source converters are one of the most promising converter topologies which overcome the disadvantages of classical converters. The power conversion concept of Z-source converters is successfully applied in different applications such as hybrid electric vehicles, multilevel inverters, renewable power conversions, matrix converter, motor drives, and other industrial applications [10]–[16]. The traditional Z-source inverter (ZSI) [17] is shown in Fig. 1. The ZSI has many advantages over conventional voltage-fed and current-fed converters which includes buck-boost and inherent shoot-through protection abilities. The ZSI has a single conversion stage and has increased reliability against EMI.

Classical ZSI consists of two capacitors and two inductors of symmetrical values. Switched-boost inverter (SBI) derived from inverse Watkins–Johnson topology [18] has similar characteristics as ZSI. The SBI has less number of components' count over classical ZSI but has less voltage gain compared to ZSI. Both ZSI and SBI utilize shoot-through duty cycle in the inverter leg to improve reliability against EMI but both have discontinuous input current profile.

The disadvantages of discontinuous input current profile of ZSI is eliminated by the continuous input current qZSI (CC-qZSI) with the same gain factor and have reduced capacitor voltage stress. Different variants of quasi-ZSI (qZSI) are presented in [19]. Continuous input current-based qZSI and discontinuous input current qZSI (DC-qZSI) are shown in Fig. 2(a) and (b), respectively. Current-fed switched

2168-6777 © 2018 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See http://www.ieee.org/publications_standards/publications/rights/index.html for more information.

IET Power Electronics

Special Issue: Flexible Operation and Control for Medium Voltage Direct-Current (MVDC) Grid

IET Journals
The Institution of Engineering and Technology

Quadratic boost derived hybrid multi-output converter

ISSN 1755-4535
Received on 28th February 2017
Revised 1st September 2017
Accepted on 9th September 2017
E-First on 27th October 2017
doi: 10.1049/iet-pel.2017.0171
www.ietdl.org

Anish Ahmad[1] ✉, Vinod Kumar Bussa[1], Rajeev Kumar Singh[1], Ranjit Mahanty[1]

[1]Department of Electrical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi 221005, India

✉ *E-mail: aahmad.rs.eee13@iitbhu.ac.in*

Abstract: In this study, two quadratic boost derived hybrid multi-output converter topologies are proposed. The proposed converters are capable of giving *n*-number of simultaneous ac and one dc outputs. The proposed converters are developed from a single switch quadratic boost converter by replacing its main switch by either *n*-number of series connected H-bridge or *n*-number of parallel connected H-bridge inverter topologies. The converter developed from *n*-series connected H-bridge inverters give series mode of the proposed converter and is capable of giving *n*-number of ac outputs with variable voltages and same currents (to all the ac loads) along with one dc output. Further, the converter developed from *n*-parallel connected H-bridge inverters give parallel mode of the proposed converter and can give *n*-number of ac outputs with same voltages (to all the ac loads) and variable currents along with one dc output. Due to the quadratic behaviour of the proposed hybrid multi-output converters, high voltage gain can be achieved from small shoot-through duty cycle. The proposed converter topologies can be applied for simultaneous dc/ac and dc/dc power conversion in a hybrid microgrid. Steady state and dynamic modelling have been carried out for analysing the steady state and transient behaviour of the proposed hybrid converters for two ac and one dc outputs. Simulation and experimental results are presented and efficiency analysis is carried out to validate the performance of the proposed converter topologies for two ac and one dc outputs.

1 Introduction

Recently, multi-output converters have become popular solutions for various applications such as hybrid ac/dc microgrids, ac/dc networks supplying the load with different requirements [1–6]. Fig. 1*a* shows the structure of a microgrid with conventional hybrid multi-output converter [7]. It is clear from Fig. 1*a* that conventional hybrid converter gives simultaneously two (one ac and one dc) outputs. The microgrid architecture by using proposed multi-output hybrid converter topologies is shown in Fig. 1*b*. The microgrid shown in Fig. 1*b* has *n*-number of ac outputs with one dc output and therefore, it can directly (without any extra regulator or adaptor) supply more than one different ac load demands unlike the conventional microgrid architecture as shown in Fig. 1*a*.

The authors of [8–10] discuss the multi-output converters for various applications, but all of these are prominently dc/dc converters that give multiple dc outputs. A hybrid multi-output converter proposed in [11–14] gives simultaneously two (one ac and one dc) outputs. A multi-output hybrid interleaved boost converter discussed in [15] also gives single ac and dc outputs. Kishore and Bhimasingu [16] discuss a hybrid topology with multilevel ac and one dc outputs simultaneously. A split-source based hybrid converter gives only single ac output [17]. Overall, it may be observed that the existing multi-output converters give either multiple dc outputs or only one ac and one dc outputs simultaneously.

With the objective of multiple ac outputs and one dc output, two (series and parallel modes) quadratic boost derived hybrid multi-output converters are proposed in this paper. The proposed converters are derived by replacing the main switch of the quadratic boost converter with *n*-number of H-bridge inverters connected either in series or parallel. The topology which is developed from *n*-series connected H-bridges gives series mode of the proposed converter and it is capable of giving *n*-number of ac outputs with variable voltages and same currents (to all the ac loads) along with one dc output. Moreover, the topology which is developed from *n*-parallel connected H-bridges gives parallel mode of the proposed converter and it is capable of giving *n*-number of ac outputs with same voltages (to all the ac load) and variable currents along with one dc output. In this way, the proposed hybrid converter topologies are capable of directly meeting out more than one different ac load demands directly (without any extra regulator or adaptor), unlike the conventional existing hybrid converters. Due to quadratic behaviour relatively (compared to the classical hybrid converters), small shoot-through duty is required to achieve high voltage gain therefore, the proposed multi-output hybrid converters are capable of operating on a wide range of shoot-through duty cycle ($0 < D_{st} < 1$). Moreover, the proposed topologies (series and parallel modes) have higher power density and improved reliability (due to inherent shoot-through protection property) which make them suitable to be used in compact systems with multiple ac and one dc loads. Steady-state analysis, small-signal modelling, and design of hybrid pulse-width modulation

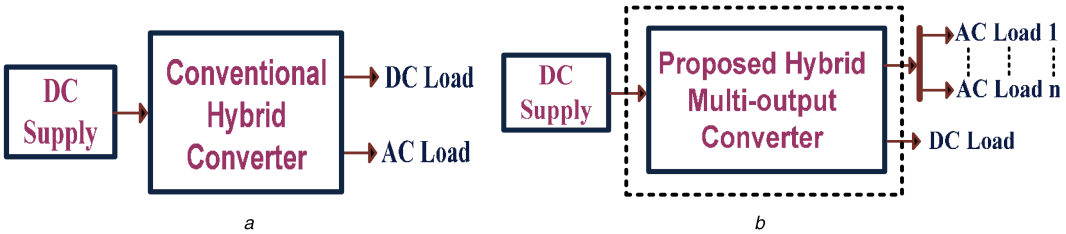


Fig. 1 *Hybrid microgrid architecture*
(a) Conventional hybrid microgrid architecture, ***(b)***Schematic of proposed hybrid multi-output converter

© The Institution of Engineering and Technology 2017

IETE JOURNAL OF RESEARCH, 2018
VOL. 64, NO. 1, 76–86
https://doi.org/10.1080/03772063.2017.1343157

Enhanced Performance in Trajectory Tracking of a Ball and Plate System using Fractional Order Controller

Manashita Borah*, Prasanta Roy and Binoy Krishna Roy

Department of Electrical Engineering, NIT Silchar, Assam, India

ABSTRACT
This paper presents a comparative analysis of performance between integer order proportional derivative (IOPD) and fractional order proportional derivative (FOPD) controllers for the trajectory tracking of a ball in ball and plate system. The controllers are designed minimising integral square error using Bat Algorithm, Gravitational Search Algorithm, and Firefly Algorithm. Effectiveness of the controllers is tested by the ability of the ball to track a circular, square, cardioid, and star shaped trajectories. Results verify that FOPD outperforms IOPD when tuned by the same algorithm. Comparisons with reported works show that the proposed controllers provide fairly improved results.

KEYWORDS
Ball and plate system; Bat algorithm; Firefly algorithm; Fractional order PD; Gravitational search algorithm; Trajectory tracking

1. INTRODUCTION

1.1 Motivations and Prime Objectives

In a ball and plate (BP) system (Figure 1), motion of a ball on a plate is controlled to make the ball follow a desired trajectory. The BP system is highly nonlinear because of the nonlinearity of ball-plate dynamics and electromagnetic actuators. The ball generally rolls off to the edges in the absence of any control action, implying open loop instability. Moreover, motion of the ball having four degrees of freedom and being controlled by two actuating inputs (tilts about the diagonals) leads to a situation of under actuation [1]. The inherent nonlinearity, open loop instability and under actuation of the system have added to the inquisitiveness of the authors of this work. Controlling such a system is a challenging task which has motivated the authors.

The objectives of present work are to (1) stabilise the system and make the ball follow a reference trajectory, (2) keep the significant nonlinear characteristics intact while designing the controllers so that simulated model closely imitates the behaviour of the actual system. (3) design controllers in such a way so that the merits of fractional order are incorporated but the mathematical complexity of fractional order controllers is avoided, (4) validate that the fractional order controllers outperforms its integer order counterparts, and (5) present a comparative study of performance between the proposed controller and earlier reported similar works.

1.2 Organisation of the Paper

Motivations and prime objectives are highlighted in Section 1.1. The literature review on BP system is presented in Section 1.3 followed by the novelty of the proposed work in Section 1.4. In Section 2, modelling of BP system is carried out. The design of controllers is elaborated in Section 3. Results are discussed and compared with similar reported works in Section 4. Finally, conclusions are drawn in Section 5 along with the future scope of work.

1.3 Literature Survey

The literature survey throws light on the reported works to stabilise the ball on the plate as well as to make it follow a desired trajectory. The BP system, considered in this paper, has already an in-built PD controller provided by the manufacturer [2]. Stabilisation and control of BP system has been achieved by mechatronic design principles in [3]. Trajectory tracking of the ball has been carried out using various fuzzy control techniques such as fuzzy adaptive integral action, indirect hierarchical fuzzy cerebellar model articulation controller, interval Type-2, and hierarchical fuzzy logic schemes, respectively in [4–6], and [7], respectively. Visual servoing control with an industrial robot manipulator as actuator is proposed in [8]. An iterative control scheme and a nilpotent approximation of the system dynamics is used in [9]. A back stepping controller has been designed in [10] while, a control strategy using switching-driving Lyapunov function has been proposed in [11]. Likewise, a pneumatic controller along with touch screen and rotary cylinder

* Present address: Department of Electrical Engineering, Tezpur University, Assam, India.

© 2018 IETE

On Coexistence of Fractional-Order Hidden Attractors

Manashita Borah

Manashita Borah
Department of Electrical Engineering,
Tezpur University,
Tezpur 784028, India
e-mail: manashitaborah@gmail.com

This paper proposes new fractional-order (FO) models of seven nonequilibrium and stable equilibrium systems and investigates the existence of chaos and hyperchaos in them. It thereby challenges the conventional generation of chaos that involves starting the orbits from the vicinity of unstable manifold. This is followed by the discovery of coexisting hidden attractors in fractional dynamics. All the seven newly proposed fractional-order chaotic/hyperchaotic systems (FOCSs/FOHSs) ranging from minimum fractional dimension (n_f) of 2.76 to 4.95, exhibit multiple hidden attractors, such as periodic orbits, stable foci, and strange attractors, often coexisting together. To the best of the our knowledge, this phenomenon of prevalence of FO coexisting hidden attractors in FOCSs is reported for the first time. These findings have significant practical relevance, because the attractors are discovered in real-life physical systems such as the FO homopolar disc dynamo, FO memristive system, FO model of the modulation instability in a dissipative medium, etc., as analyzed in this work. Numerical simulation results confirm the theoretical analyses and comply with the fact that multistability of hidden attractors does exist in the proposed FO models. [DOI: 10.1115/1.4039841]

Keywords: FO coexisting attractor, FO hidden attractor, bifurcation, chaos

1 Introduction

1.1 A Brief Literature Review. The term "hidden attractor" was coined by Leonov et al. who discovered it first in the Chua circuit [1]. Such attractors refer to those displayed by systems whose basins of attraction do not contain neighborhoods of any equilibrium. Unlike the Lorenz attractor, Chen attractor, or other such conventional self-excited attractors [2], is excited by initial conditions (ICs) in the vicinity of unstable equilibrium points; hidden attractors, on the other hand, have basins which do not overlap with the vicinity of equilibria [1]. They can, therefore, be manifested by systems with no equilibrium [3], a single nonhyperbolic equilibrium [4], stable equilibria [5], a line of equilibria [6], etc. Apart from the classical Chua circuit [1], hidden attractors are prevalent in numerous real-life systems such as Rikitake system which models the reversals of the earth's magnetic field [7], generalized Lorenz–Stenflo system which models the convective fluid motion inside rotating ellipsoid, rotation of rigid body in viscous fluid, gyrostat dynamics, harmonics oscillations of the convection layer of fluid, etc. [8].

Multistability refers to the peculiar coexistence of multiple attractors depending on the choice of initial conditions (ICs). Such coexisting attractors display a rich diversity of nonlinear dynamical behavior such as the rotating phenomenon [9], sudden transition to a different attractor due to a slight change in ICs, etc., and thereby offer the system a great deal of flexibility. Coexistence of attractors is exhibited in many nonlinear physical systems, such as the geophysical fluid dynamics (climate and marine ecosystems) to models of finance in economics [10], memristive circuit [11], active band-pass filter [12], Henon maps, mechanical systems, Duffing oscillators, neuronal models, etc. [13]. Hidden attractors that display multistability are termed "coexisting hidden attractors," and they have grabbed the attention of the contemporary research fraternity. An emerging field of research has been studying the combined dynamics of coexisting hidden attractors as in Refs. [10–12] and [14–17]. However, such study reported so far in the literature is only confined to integer-order (IO) dynamics.

Fractional calculus has seen a dramatic rise in engineering, biological and medical applications, owing to its two striking advantages. First and foremost, a fractional-order system (FOS) has an unlimited memory, because fractional derivative takes into account the previous responses up to the present time. In fact, the integer-order systems are special cases of FOSs. As the order approaches the integer value, the memory dependence becomes shorter [18]. Second, the exposure of the system to more space and flexibility is enabled by the additional FO parameterα. This in turn unveils the various unobserved and exceptional system behavior, that enhances physical modeling with superior adequacy and accuracy compared with their IO counterparts. It is for these very reasons that application of FOSs ranging from the FO Duffing oscillators [19] to FO modeling of high energy yielding crops as the palm oil [20] and secure communication using FO hyperchaotic systems (FOHSs) [21], from FO micro-electromechanical resonator and memristor in electromagnetics [22,23], to FO chaos in electrical drives [24], from FO neural networks [25] to trajectory tracking [26], from FO dynamics of HIV infection [27–29], to fractional-order chaotic systems (FOCSs) [30], FO energy demand-supply system [31] to epidemiology [32], etc., have shown a drastic rise in recent research. Though, FO hidden attractors as in Refs. [3], [5], and [8] and FO coexisting attractors as in Ref. [9] are reported in the recent literature, nevertheless, a blend of the two, i.e., FO coexisting hidden attractors have not been reported in the literature so far; a fact that arouses the intrigue of the author to pursue research in this field.

1.2 Novelty and Highlights of the Work. Due to the unexpected behavior of multistability of FO hidden attractors in a variety of nonlinear physical systems, the author is motivated to study and explore their underlying dynamics.

According to Ref. [33], a newly proposed system must satisfy any of the following criteria: (I) the system should credibly model some important unsolved problem in nature and shed insight on that problem. (II) The system should exhibit some behavior

Contributed by the Design Engineering Division of ASME for publication in the Journal of Computational and Nonlinear Dynamics. Manuscript received August 1, 2017; final manuscript received March 21, 2018; published online July 26, 2018. Assoc. Editor: Dumitru Baleanu.

Copyright © 2018 by ASME

Chaos, Solitons and Fractals 102 (2017) 372–386

Contents lists available at ScienceDirect

Chaos, Solitons and Fractals

Nonlinear Science, and Nonequilibrium and Complex Phenomena

journal homepage: www.elsevier.com/locate/chaos

An enhanced multi-wing fractional-order chaotic system with coexisting attractors and switching hybrid synchronisation with its nonautonomous counterpart

Manashita Borah[a,b,*], Binoy K. Roy[b]

[a] Department of Electrical Engineering, Tezpur University, Tezpur, 784028, India
[b] Department of Electrical Engineering, National Institute of Technology, Silchar, 788010, India

ARTICLE INFO

Article history:
Received 31 January 2017
Revised 22 March 2017
Accepted 27 March 2017
Available online 3 April 2017

Keywords:
Coexisting attractors
Fractional-order chaotic system
Switching synchronisation
Nonautonomous

ABSTRACT

This paper presents a new chaotic system that exhibits a two wing (2W) chaotic attractor in its integer order dynamics, three-wing (3W) and four-wing (4W) chaotic attractors in its fractional-order (FO) dynamics, and an eight-wing (8W) attractor in its nonautonomous fractional dynamics. An interesting feature of the proposed system is that two distinct periodic orbits coexist with a strange attractor that gradually evolves into a 4W attractor. The asymmetry, dissimilarity and topological structure of this proposed system with respect to those available in literature, manifest increased irregularity, which in turn indicate more chaos. Besides, the authors have drawn its comparison with various well-known fractional-order chaotic systems (FOCS)s to prove its enhanced features in terms of higher Lyapunov Exponent, fractional order orbital velocities, bandwidth, density, range of dynamical behaviour, etc. A control scheme is proposed to enable switching hybrid synchronisation between the 8W nonautonomous FOCS and the 4W autonomous FOCS, using the former as master and the latter as slave. This work throws light on the potential practical applicability of the proposed system by designing a circuit using minimum circuit components possible, thus signifying the objectives of the paper are finally achieved.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

1.1. Fractional-order chaos

The interesting phenomenon of chaos is characterised by its deterministic nature, unpredictability and extreme sensitivity to initial conditions, all of which stem out from nonlinear systems. Chaos has been intensively researched for its profound applications in secure communication, chaos based cryptography, modelling biological systems, medicine [1], etc. One of the latest trends of interest is to study and explore the fractional dynamics of chaotic systems. All physical systems in the universe exist in the FO configuration, with the integer-order being only a particular case. It has been observed in the last decade or two, that be it the FO predator-prey model [2] in Biology or the FO PMSG in electric drives [3], ranging from the fractional image mapping of human brain [4] to the fractional wave equations [5], all these real life problems of fractional calculus have contributed immensely towards the rapid growth of research in this area. It is because fractional-order systems (FOS)s being the superset of integer-order (IO) systems, can not only model real life systems far more adequately but also are bestowed with more flexibility in choosing the best possible option for control strategies. In addition to this, FOSs possess long memory characteristics and when compared with their integer order counterparts, exhibit more sophisticated dynamics, which is of great significance in secure communications. Proposal of some new FOCSs [6–12], synchronisation of FOCSs [13–17], discovery of novel FO phenomenon [18] etc. have been studied in recent literature. However, most FOCSs proposed in literature are either FO models of previous IO chaotic systems (IOCS)s [19–25] or inherently generate only a 2W chaotic attractor (CA) [21–26]. Also, though hyperchaos indicates enhanced complexity in terms of its ability to diverge in two or more directions, yet it can be displayed only in systems with a dimension higher than three [27,28].

The generation of multi-scrolls or multi-wings in FOCSs has been so far accomplished by adding multi-segment piecewise-linear (PWL) [29], saturated function series and heteroclinic loops [30], trigonometric functions [31], etc. Although inherently multi-winged (MW) FOCSs [32–33] and IOCSs with coexisting attractors [34–35] have been proposed, yet a blend of the two i.e. an

* Corresponding author.
E-mail addresses: manashitaborah@gmail.com (M. Borah), bkr_nits@yahoo.co.in (B.K. Roy).

http://dx.doi.org/10.1016/j.chaos.2017.03.055
0960-0779/© 2017 Elsevier Ltd. All rights reserved.

ISA Transactions 82 (2018) 2–17

Contents lists available at ScienceDirect

ISA Transactions

journal homepage: www.elsevier.com/locate/isatrans

Research article

Can fractional-order coexisting attractors undergo a rotational phenomenon?

Manashita Borah [a,*], Binoy Krishna Roy [b]

[a] Assistant Professor, Department of Electrical Engineering, Tezpur University, Tezpur, Assam-784028, India
[b] Professor, Department of Electrical Engineering, National Institute of Technology (NIT), Silchar, Assam-788010, India

ARTICLE INFO

Article history:
Received 31 August 2016
Received in revised form
13 January 2017
Accepted 8 February 2017
Available online 15 February 2017

Keywords:
Fractional-order chaotic system
Rotational attractors
Synchronisation
Circuit implementation

ABSTRACT

This paper presents an interesting phenomenon unobserved so far in literature to the best of the authors' knowledge in fractional-order chaotic systems (FOCSs). It is the rotational phenomenon of fractional-order coexisting attractors. Another significant feature of the newly proposed FOCS is that two 2-wing chaotic attractors coexist in its fractional-order dynamics i.e. $\alpha < 1$. But once the system attains integer-order, the two attractors merge and evolve into a single 4-wing attractor. Furthermore, the authors have drawn its comparison with various well-known FOCSs to prove its superior features. In a novel attempt, the authors have utilised the property of simultaneous existence of coexisting attractors in the FOCS to carry out the synchronisation. A fractional-order circuit implementation with minimum components, has been performed using numerous audio signals with variable frequencies and amplitudes, as test signals. The objectives of the paper are finally achieved as the circuit implementation results are in perfect agreement with those of the theoretical analyses.

© 2017 ISA. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Fractional calculus dates back to 17th century, however, it is in the recent times that its application in medical and engineering has grabbed the attention of the research fraternity worldwide. Be it the human heart [1], or his cluster of brain neurons [2], be it the predator-prey model in the biological food chain [3] or wind turbine [4], be it the rigorous operation of electrical drives [5] or the mechanism of a robot [6]; it is all by dint of the level of accuracy and superiority of fractional- order differential equations (FODEs) that have aided in successful modelling of a great variety of real life systems compared with their integer-order counterparts. This dramatic rise in the popularity of using FODEs is basically due to two prominent advantages. Firstly, fractional derivative being a long term operator, takes into account the previous responses up to the present time. A fractional-order system (FOS) has an unlimited memory or is an infinite-dimensional system, of which the integer-order system (IOS) or no memory system, is only a particular case [7]. Nearer the order approaches the integer value, shorter the memory dependence becomes. Secondly, the addition of the fractional order (FO) parameter α, exposes the system to more space and flexibility. This in turn helps unveil the various unusual and enriched system behaviours, which otherwise may remain concealed in integer-order dynamics.

Distinguished by many a complex nonlinear behaviour all arising from a deterministic system, chaos is a fascinating phenomenon that manifests aperiodic long term behaviour, response irregularity due to nonlinearity, severe sensitivity to initial conditions (SIC), etc. [8]. Chaos has been discovered in numerous real life systems such as cancer and tumour cells [9], coronary artery of blood vessels [10], wave dynamics of Tsunami [11], magnetic resonance imaging (MRI) and spectroscopy [12], etc. but it is in secure communication where its application has been the cynosure of all eyes. With a view to improving security in communication, signals are masked by utilising the additional and enhanced properties of fractional dynamics of chaotic systems [13–17] by means of chaos based cryptographic schemes [16,18]. Most FOCSs proposed in literature are either FO models of previous IO chaotic systems (IOCS) or inherently generate only a single 1 or 2 scroll chaotic attractor [19–27] or otherwise their analysis is limited by the use of frequency domain approximations [28]. A number of synchronisation schemes adopted in literature are often bound by certain limitations as in, [29], where the main drawback is either the difficulty in extracting the exact fuzzy rules for high-dimensional systems, or that the fuzzy controllers often fall short of providing the exact solutions, or [30], which is dependent on the proper choice of Lyapunov function candidate, or the problem of chattering in SMCs [4]. Active control methods [31–33] are advantageous in the sense that there are no derivatives in the controller and they do not depend on the knowledge of the Lyapunov

* Corresponding author.
E-mail addresses: manashitaborah@gmail.com (M. Borah), bkr_nits@yahoo.co.in (B.K. Roy).

http://dx.doi.org/10.1016/j.isatra.2017.02.007
0019-0578/© 2017 ISA. Published by Elsevier Ltd. All rights reserved.

Chaos, Solitons and Fractals xxx (xxxx) xxx

Contents lists available at ScienceDirect

Chaos, Solitons and Fractals

Nonlinear Science, and Nonequilibrium and Complex Phenomena

journal homepage: www.elsevier.com/locate/chaos

Frontiers

Manashita Borah

Systematic construction of high dimensional fractional-order hyperchaotic systems

Manashita Borah [a,*], Binoy Krishna Roy [b]

[a] Department of Electrical Engineering, Tezpur University, Tezpur, Assam 784028, India
[b] Department of Electrical Engineering, National Institute of Technology, Silchar, Assam 788010, India

ARTICLE INFO

Article history:
Received 31 August 2019
Revised 6 November 2019
Accepted 18 November 2019
Available online xxx

Keywords:
Fractional-order hyperchaotic system
Control
Design
Secure communication

ABSTRACT

The problem of designing fractional-order hyperchaotic systems (FOHSs) by a consistent and systematic procedure is still an open one at large. The tedious hit and trial design procedures adopted in literature to generate hyperchaos pose as a hindrance; especially when the dimension of the system is high. The paper thus presents a solution to the above problem and further discusses the application of FOHSs by putting forward three proposals. First is the design of the simplest possible single state nonlinear feedback controller based on fractional-order stability theorems for creating hyperchaos from a nominal system. The design is organised and even higher dimensional FOHSs can be easily constructed. Secondly, a hybrid synchronisation controller is designed so that the FOHSs obtained using the proposed systematic methodology, are both completely synchronised and antisynchronised simultaneously. Thirdly, a public key cryptographic algorithm is presented using the higher unpredictable nature and complexity of FOHSs to encrypt and decrypt private messages. Two representative examples presented in this work distinctly confirm the effectiveness of the proposed techniques.

© 2019 Elsevier Ltd. All rights reserved.

1. Introduction

1.1. An introductory review on fractional-order hyperchaos

All physical systems in the universe exist in the fractional-order (FO) configuration, with the integer-order (IO) being only a particular case. Many natural systems are also found to display the intriguing nonlinear phenomena of chaos and hyperchaos. Chaos is characterised by extreme sensitivity to initial conditions (SICs), aperiodic long term behaviour, irregularity in response due to nonlinearity, etc. in a deterministic system. On the other hand, coupled with the aforementioned properties, it is the presence of more than one positive Lyapunov exponents (LEs) that characterise hyperchaos [1]. Chaos has been extensively researched for its profound applications in secure communication [2], chaos based cryptography [3,4], predicting critical transitions in biological systems [5], studying mechanism of homopolar disc dynamo in [6], etc. Infact by dint of their increased unpredictability and more degree of randomness, the high-dimensional hyperchaotic systems are termed superior to chaotic systems [7] and hence are more beneficial in scientific applications such as secure communication.

The generalisation of orders of integration and differentiation of classical calculus to non-integer values, termed as fractional calculus, allows a wider and more flexible range of applications. Unlike the IO operator, the FO operator incorporates all the past responses up to the present time, as it is a long time operator. By virtue of the flexibility of the additional FO parameter, the FO models can mimic the physical systems more closely, compared with their IO counterparts. Also, the limitation of the fractional derivative for its dependence on power law can be overcome by introducing the Mittag–Leffler function having non-local kernel [8,9]. Real life problems of fractional calculus have been the most sought after topics of research recently as their applications range from FO modelling of the nuclear reactor [10], to coexistence of FO hidden attractors [11] and synchronisation of FOCSs [12,13], set-point and trajectory tracking [14,15], etc. The hyperchaotic systems that along with their multi-dimensional expansion capability, also blend the added advantages of fractional dynamics are termed as fractional-order hyperchaotic systems (FOHSs). The construction and study of dynamics of high dimensional FOHSs define the interest of the authors of this paper.

1.2. Scope, motivation and novelty of the work

Literature throws light on the fact that existing IO hyperchaotic systems (IOHSs) and FOHSs proposed so far have used linear state

* Corresponding author.
E-mail address: manashitaborah@gmail.com (M. Borah).

https://doi.org/10.1016/j.chaos.2019.109539
0960-0779/© 2019 Elsevier Ltd. All rights reserved.

Investigation of Chip Temperature on Response Characteristics of the Humidity Sensor From ppm to %RH

Md Rahat Mahboob, Anwar Ulla Khan, *Member, IEEE*, Lokesh Kumar, and Tarikul Islam, *Senior Member, IEEE*

***Abstract*—Many research articles are reported on humidity measurement in the literature. But there is no critical study of temperature on the response characteristics of the humidity sensors, particularly in ppm-level. Developing an experimental set up for studying the temperature effect is challenging as the variation of the ambient temperature not only varies the response of the sensor but also the humidity level inside the chamber. Commercial humidity-controlled chamber to maintain humidity and temperature is bigger in size and costly. Purposes of the present work are (i) to investigate the chip temperature effect on the characteristics of metal oxide humidity sensors in ppm level and in %RH (ii) to enhance the sensitivity of a sensor by suitably controlling its temperature in ppm level (iii) to refresh the sensor by intermittent heating pulse. A suitable experimental set up is also developed to study the temperature effect on the sensors. The chip temperature may be another method to enhance the sensitivity in low ppm moisture detection.**

***Index Terms*—Moisture, aluminium oxide, capacitive sensor, chip temperature effect.**

I. Introduction

IMPORTANCE of ceramic materials particularly aluminium oxide (Al_2O_3) is considerably increased in recent times for sensing humidity over a wide dynamic range. Thin-film aluminium oxide (AO) humidity sensors are fabricated mainly by two different methods, namely electrochemical anodization known as anodised aluminium oxide (AAO) and the sol-gel method. The AAO sensors are investigated in detail in different applications and commercially used for sensing humidity in ppm to %RH level [1]–[3]. Many commercial dew point meters such as SHAW, U.K., [4], Xentaur Corporation, USA [5], GE Panametric [6], etc. use AAO films and Vaisala, Finland [7] uses polymer film to fabricate capacitive sensors for moisture measurement from ppm to high humidity. But the commercial moisture sensors are expensive (1000 U.S.$). Thin-film of AO has many nanosized pores, resulting in a large surface area suitable for water molecules adsorption [1]. Because of high temperature sintering from 400 °C to 500 °C, the nanostructure of AO, prepared from the sol-gel method has high thermal and chemical stability and excellent pore morphology to detect moisture at very low vapour pressure [8]–[9]. Also, highly pure ceramic films can be fabricated. Over the years, several works have been published by the authors with an aim to develop dew point meter for ppm moisture detection at relatively lower cost using sol-gel thin film parallel plate capacitors with comparative parameters. But the sensitivity of the sensor below 100 ppm is small. Mahboob *et al.* published work to enhance the sensitivity nearly by two times by altering the pore morphology of the film [10]. But this method is time-consuming and requires a judicious selection of surfactants. Also, the sensitivity enhancement is not guaranteed many times. Islam *et al.* enhanced it by varying the effective area without increasing the overall size of the sensor [11] but this is possible only when the film is produced by the dip coating method. Although the electrical response characteristics of the AO capacitive sensors were investigated and reported in the past [1]–[3], [12] there is very limited work done on the influence of sensor temperature (chip temperature) on the response parameters [3]–[8]. Only the basic temperature effect of the sensors is reported for *%RH* level humidity detection and its compensation by the ANN technique [11]. Chen and Jin observed an increase in capacitance value with temperature at different *%RH* [13]. A preliminary temperature study of AO was reported by Islam *et al.* at dry humidity and a negligible decrease in capacitance with temperature from 20-85 °C was observed [14]. In 2016, a sol-gel thin film AO sensor was utilized to detect the presence of superheated steam at 165 °C temperature and 1 bar pressure [15] but no study of the temperature effect on the sensor was reported.

In the proposed work, the detailed investigation of the chip temperature on a sol-gel AO sensor keeping environment temperature constant is reported for sensing the moisture in ppm-level. A proper experimental setup was developed to study the temperature effect. The experimental setup monitors the actual temperatures of the sensor and the environment without affecting the moisture inside the chamber. With the help of the proposed setup, the γ-AO sensor was heated

Manuscript received April 22, 2020; revised May 20, 2020, June 13, 2020, June 25, 2020, and July 9, 2020; accepted July 14, 2020. Date of publication July 24, 2020; date of current version September 3, 2020. This work was supported by Maulana Azad National Fellowship, UGC, Government of India. *(Corresponding author: Tarikul Islam.)*

Md Rahat Mahboob is with the Department of Electrical Engineering, Tezpur University, Tezpur 784028, India (e-mail: rahat@tezu.ernet.in).

Anwar Ulla Khan is with the College of Applied Industrial Technology, Jazan University, Jazan 82723, Saudi Arabia.

Lokesh Kumar and Tarikul Islam are with the Department of Electrical Engineering, Jamia Millia Islamia University, New Delhi 110025, India (e-mail: tislam@jmi.ac.in).

Color versions of one or more of the figures in this article are available online at http://ieeexplore.ieee.org.

Digital Object Identifier 10.1109/TDMR.2020.3011736

1530-4388 © 2020 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See https://www.ieee.org/publications/rights/index.html for more information.

Authorized licensed use limited to: Tezpur University. Downloaded on September 21,2020 at 05:20:43 UTC from IEEE Xplore. Restrictions apply.

Journal of Ambient Intelligence and Humanized Computing
https://doi.org/10.1007/s12652-018-1101-z

ORIGINAL RESEARCH

A novel approach for IoT based wearable health monitoring and messaging system

Munish Manas[2] · Aniruddha Sinha[3] · Shubham Sharma[3] · Md Rahat Mahboob[1]

Received: 5 April 2018 / Accepted: 24 August 2018
© Springer-Verlag GmbH Germany, part of Springer Nature 2018

Abstract
A smart, non-invasive wearable physiological parameters monitoring device has been developed and reported in this paper. The proposed system monitors body temperature, heart rate and is able to detect fall of a human subject. The devise houses several sensors to measure vital parameters of an individual. A user interface platform on an android-based mobile phone has also been developed to keep track of the human health through a wireless network from anywhere in the world. The device detects whether a person is medically distressed and automatically sends a text message to his/her caregiver or to the concerned doctor for proper attention along with his/her location. The implemented heart rate sensor avoids the use of discrete components as compared to traditional photo-plethysmography (PPG) circuit. The proposed digital filter directly filtered the signal of TCRT1000 which is processed inside the programming board to increase the accuracy of heart rate measurement and to minimize the power consumption. The device is battery powered and can be easily adapted to monitor athletes, infants and old aged people. Finally, the overall heath credential is updated online on the developed Fusion table, which can be accessed via email.

Keywords Internet of things (IoT) · PPG · Fusion table · Health monitoring · MIT app inventor · Smart system · BPM

1 Introduction

Over the past one decade, world is going through a dramatic transformation from an isolated system to a pervasive internet enabled thing capable of generating, transmitting and receiving valuable information. There has been an immense increase in the use of autonomous sensing systems due to the reduction of the on-state power consumption of the electrical components and the spread of the wireless communication technologies. Furthermore, even if clinical measure protocols are detailed and formally structured they however, represent review at relatively coarse-grain granularity, typically not involving the use of particular measurement instrumentation (Kikhia et al. 2018). In this technology-rich scenario, real-world components interact with cyberspace via sensing, computing and communication elements, thus driving towards what is called the Cyber–Physical World (CPW) convergence (Fenza et al. 2012). Specifically, we analyze four successful networking paradigms, mesh, sensor, opportunistic, and vehicular networks, that emerged from the MANET world as a more pragmatic application (Tambe and Gajre 2018). This protocol is supposed to work in the networks with high traffic because multiple sources try to send their packets to a destination at the sametime, which is a typical scenario in IoT applications for remote healthcare monitoring (Azimi et al. 2018). Its adaptive framework collects only relevant contextual data for evaluating health status. By monitoring the achievement of daily activities, the system learns the behavior of the monitored person (Haider et al. 2018). The next wave in the era of computing will be outside the realm of the traditional desktop (Haider et al. 2018; Mukhopadhyay 2015; Mukhopadhyay et al. 2014). Internet of Things (IoT) conceptualizes the idea of remotely connecting and monitoring real world objects (things) through the Internet. With the increasing use of sensors by medical devices, remote and continuous monitoring of a patient's health is becoming feasible (Alam et al. 2012;

✉ Md Rahat Mahboob
rahatmahboob@gmail.com; rahat@tezu.ernet.in

[1] Electrical Engineering Department, Tezpur University, Sonitpur, Assam, India

[2] Central University of Haryana, Mahendragarh, Haryana, India

[3] ECE Department, Tezpur University, Sonitpur, Assam, India

Published online: 02 November 2018

A Passive Wireless Tag With Digital Readout Unit for Wide Range Humidity Measurement

Asim Siddiqui, Md Rahat Mahboob, and Tarikul Islam, *Member, IEEE*

***Abstract*— Moisture measurement in ppm level is always challenging and costly. Among different technologies available for moisture measurement, the thin film capacitive sensor-based dew point meter offers a low-cost solution. Still, the cost of the dew point meter is high and it suffers from high response time. There is a need of wireless moisture measurement in ppm level that is not available with the commercial meter according to our knowledge. This paper deals with development of a low-cost passive wireless tag for capacitive type sensors. The tag can be energized by any 13.56-MHz commercial tag reader from a distance of 1 cm (approx). The tag is capable of transmitting sensor data at 2.4-GHz ISM band up to a distance of 12 m. An efficient algorithm has been developed to reduce the power consumption. The prototype system has been tested with two custom designed capacitive sensors to measure humidity over a wide range. Both sensors, having a highly stable hygroscopic film of Al_2O_3, are fabricated in the lab. Finally, a low-cost (approximately U.S. $250) digital hygrometer to measure trace moisture has been developed. The performances of the digital hygrometer have been compared with the commercial dew point meter, and accuracy is found to be nearly 1% in the range of 6.5–127-ppm moisture. The system can be employed for contactless measurement with any capacitive sensor in the range of 50–3200 pF.**

***Index Terms*— Capacitive sensor, moisture measurement, passive wireless tag, PIC microcontroller (μC), ppm, radio frequency identification (RFID) tag, ultralow power.**

I. Introduction

SENSING of certain physical or chemical quantities always requires sensors, but those with wired connections are either found unpleasant or sometimes even inapplicable. Examples of such applications are the intraocular pressure measurement of human eye [1], the pressure measurement of the pressure garment for curing burnt patient [2], and monitoring of water content in civil engineering structure for maintaining their quality and reliability [3]. Varieties of quantities such as temperature, pH, humidity [4], [5], pressure [6], and force [7] have been proposed or even measured by the passive wireless sensor.

Capacitive type sensor is found to be quite linear, requires less complex circuitry for interfacing, consumes less power, and has relatively lower temperature error [8]. For these reasons, several commercial humidity sensors are of capacitive type like Shaw dew point meter, Xentaur dew point meter, General Electric parametric, and Honeywell %RH sensor. Various types of humidity sensors have been developed and commercially used [3], [9]. For noncontact parameter measurement, the capacitive type sensor integrated with inductor, known as LC sensor reported in the literature, is simple to fabricate and has low power dissipation [10]–[12].

The importance and applications of humidity sensors are great and wide [13]. To measure the moisture in trace level, commercial systems use the diode laser spectroscopy, chilled mirror hygrometer, microgravimetric quartz crystal micro balance [14], phosphorous pentoxide-based electrochemical sensor, and thin film capacitive sensors. Among different methods, the capacitive sensor-based meter provides a low-cost solution, but has long response time and relatively high cost. However, the challenge is in the utilization of these humidity sensors in toxic, sealed, and harsh environment without a wired connection. A battery-less noncontact measurement system with a digital display unit is essential to detect and measure humidity in such applications. But till now, no complete single system is proposed or brought into practice to measure moisture from trace level to %RH level using wireless passive tag with required resolution.

In this paper, effort has been made for the first time to develop a complete wireless solution for humidity measurement over a wide range. Special attention has been given to the measurement of trace moisture as the measurement of trace moisture is more challenging and costly [15]. The system has been designed to keep the hardware implementation simple with minimum power consumption. The interface circuit is a Colpitt oscillator, which is modified to give pulse wave directly compared with sinusoidal wave obtained from conventional Colpitt oscillator. The frequency of oscillator changes due to change in capacitance value of the capacitive sensor, which in turn changes due to change in moisture concentration exposed to the sensor. The effectiveness of the tag has been tested with two capacitive sensors having different humidity measurement ranges. Both sensors are fabricated in the lab using highly stable porous metal–oxide thin film of Al_2O_3. Sensor S1 having polyimide as substrate is used in the range of 5.6–96 %RH. Sensor S2 for trace moisture measurement is fabricated on an alumina substrate for the range of 6.5–127 ppm [16]. There are so many important applications for this range such as moisture measurement in transformer oil, plutonium glove box, medical grade oxygen, carbon dioxide, and gases used in semiconductor industries [8], [14] . Initially, the prototype tag is tested in higher humidity range with S1; later, exhaustive experimentss have been conducted in trace moisture range of 6.5–127-ppm range by sensor S2. The wireless passive tag can

Manuscript received October 17, 2016; accepted October 20, 2016. Date of publication March 2, 2017; date of current version April 5, 2017. The Associate Editor coordinating the review process was Dr. Huang-Chen Lee.

A.Siddiqui is with Technical University Berlin, Berlin, Germany.

M. R. Mahboob is with Tezpur University, Tezpur, Assam (e-mail: rahat@tezu.ernet.in).

T. Islam is with the Department of Electrical Engineering, Jamia Millia Islamia, New Delhi 110025, India (e-mail: tislam@jmi.ac.in).

Color versions of one or more of the figures in this paper are available online at http://ieeexplore.ieee.org.

Digital Object Identifier 10.1109/TIM.2016.2647478

0018-9456 © 2017 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See http://www.ieee.org/publications_standards/publications/rights/index.html for more information.

Sensors and Actuators B 228 (2016) 658–664

Contents lists available at ScienceDirect

Sensors and Actuators B: Chemical

journal homepage: www.elsevier.com/locate/snb

A sensitive and highly linear capacitive thin film sensor for trace moisture measurement in gases

Md. Rahat Mahboob [1], Zubair Hassan Zargar [1], Tarikul Islam *

Department of Electrical Engineering, Faculty of Engineering & Technology, Jamia Millia Islamia (A Central University), Maulana Mohammed Ali Jauhar Marg, New Delhi 110025, India

ARTICLE INFO

Article history:
Received 9 September 2015
Received in revised form
26 December 2015
Accepted 20 January 2016
Available online 23 January 2016

Keywords:
Al_2O_3
PEG
Pore morphology
Thin film
Moisture measurement
Sensitivity

ABSTRACT

This paper presents the experimental work on the sensitivity enhancement of porous aluminium oxide based capacitive humidity sensor for trace moisture measurement. The pore morphology of nanostructured Al_2O_3 sensing film has been tuned by adding the different amount of polyethylene glycol (PEG) in the sol solution. X-ray diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM) and Bruner–Emmet–Teller (BET) were performed for pore morphology analysis of thin films prepared by sol–gel technique. Three parallel plate capacitive sensors with identical geometries but different pore morphologies have been fabricated on Fluorine doped Tin Oxide (FTO) substrate and experimented to analyze the effects of PEG addition. The electrical characterization of the sensors has been performed to determine sensitivity, hysteresis, response and recovery time using Agilent 4294A impedance analyzer with frequency range of 1–1000 kHz. It has been observed that the addition of suitable amount of PEG improves the electrical characteristics of the sensor significantly in the range of 10–210 ppm moisture. Response characteristics of the sensors are highly linear ($R^2 = 0.995$) and the sensitivity is almost twice in comparison to a sensor without PEG addition.

© 2016 Published by Elsevier B.V.

1. Introduction

The important electrical characteristics that decide the application area of a humidity sensor in a particular humidity range are sensitivity, response time, recovery time, short term and long term stability, power consumption and linearity [1–4]. The sensitivity and stability of a humidity sensor are cause of concern for almost all types of sensors, particularly in ppm level, as it affects the signal conditioning circuit [5–7]. The amount of complexity of an interfacing circuit is very much related to the sensitivity and stability of the sensor output [8–10]. Also, the reliability and effectiveness of a sensor strongly depends on the material used for sensing, its method of preparation, the pore size of nanostructured sensing film and the distribution of the pores [11–13]. The porous metal oxide film of alumina has been considered as a promising material for sensing moisture in trace level [3,14]. With proper control of hygroscopic properties of alumina, small amount of water vapor can also be detected [14–17]. Very high sensitivity can be obtained with porous ceramics owing to their immense surface-to-volume ratio and abundant void fraction [14,18].

The sensitivity of thin film nanostructured Al_2O_3 capacitive sensor can be attributed to (i) reduction in film thickness, (ii) increase in the effective electrodes area and (iii) increase in porosity of alumina film [3]. The problem with sensitivity enhancement by reducing the thickness of sensing film leads to shorting of parallel electrodes thus the device fails which directly affects the yield ratio [3,14]. Similarly large electrode area which is the cross sectional area between the two parallel electrodes increases the device size which is contrary to the demand of micro size sensor. Thus the best way to enhance the sensitivity is to increase the effective surface of the nanostructure film [19,20]. The other way of sensitivity enhancement after fabrication of the sensor is to use effective signal conditioning circuit [8]. Highly sensitive circuits are needed to detect small changes in capacitance which require high precision electronic components and a relatively complex circuit [8,21]. The trace moisture meter costs thousands of dollars which may be due to the difficulties in fabrication of linear sensor [6,22]. So, the sensitivity with linear response of a sensor is an important parameter for lowering the cost of trace moisture meter. Without changing effective electrodes area and thickness of the film, the sensitivity can be increased by increasing the effective surface area which means the surface area of the nanostructure aluminum oxide thin film within

* Corresponding author. Fax: +91 11 26982651.
E-mail address: tislam@jmi.ac.in (T. Islam).
[1] Ph.D. students in the Department of Electrical Engineering, Jamia Millia Islamia (Central University), New Delhi 110025, India.

http://dx.doi.org/10.1016/j.snb.2016.01.088
0925-4005/© 2016 Published by Elsevier B.V.

Journal of Engg. Research Vol. 8 No. (4) December 2020 pp. 117-138 https://doi.org/10.36909/jer.v8i4.8492

Closed Loop Tuning of Cascade Controllers Based on Setpoint Experiment

Mohammad Atif Siddiqui*, MN Anwar**, SH Laskar***, M Shamsuzzoha**** and MR Mahboob*****

**Department of EIE, National Institute of Technology Silchar-788010, India*
***Department of EE, National Institute of Technology Patna-800005, India*
****Department of EIE, National Institute of Technology Silchar-788010, India*
*****Department of Chemical Engineering, KFUPM, Dhahran 31261, Saudi Arabia*
******Department of EE, Tezpur University, Sonitpur, Assam-784028, India*
**Corresponding Author: atif@rs.ei.student.nits.ac.in*

Submitted: 02/08/2019
Revised: 28/01/2020
Accepted: 06/02/2020

ABSTRACT

This study presents online PI/PID controller tuning rules for cascade control configuration. The necessary process data are determined with the help of a simple setpoint experiment in a single closed-loop mode with the proportional controller only. The obtained process data is recorded in terms of the overshoot, controller gain, peak time, and relative output change. The data is then utilized to establish a correlation with PI/PID settings through simulations. Further, the proposed PI/PID controller tuning rule for a single loop has been extended to the cascade control configuration. The inner loop controller is tuned first, and then the primary loop is tuned by considering a well-tuned inner loop as a part of the primary plant. Finally, simulation examples demonstrate that the proposed method delivers significant disturbance rejection and better setpoint response when compared to the recently reported methods from the literature. The proposed method is also able to deliver stable closed-loop performances when subjected to large parametric uncertainties and measurement noise.

Keywords: Cascade control structure; PI/PID controller; Setpoint experiment.

INTRODUCTION

Proportional integral and derivative (PID) controllers are mostly utilized in the process industry due to their ease of applicability and flexibility. In the literature, numerous PI/PID controller tuning approaches are available (Luyben, 1989; Lee et al., 2002; Chen & Seborg, 2002) that utilize either open-loop plant test or closed-loop plant test. The majority of the design methods are reported on the open-loop plant model (Rivera et al., 1986; Chen & Seborg, 2002; Mellichamp et al., 2010; Anwar et al., 2019; Badgwell et al., 2019) and, therefore, require a two-fold procedure. The plant parameters are first recognized using the system identification method and experimental data. Subsequently, the parameters of the PI/PID controller are obtained by using a suitable design technique. For model identification, a step or pulse test is carried out to find plant data. This may make the model identification process sluggish, trouble the process, or even make the process out of control (Shamsuzzoha, 2013; Jeng, 2015). The closed-loop experiment is a viable solution to the drawbacks of the open-loop test that can be utilized to execute the online tuning of controllers. The classical method of Ziegler-Nichols (Z-N) (Ziegler & Nichols, 1995) is an illustration of a closed-loop test experiment, but with few drawbacks such as

i) For lag/delay dominant process setting is aggressive/sluggish, which results in poor robustness.

ii) It cannot be used on second-order processes.

ScienceDirect

Get Access

ISA Transactions
Available online 22 December 2020
In Press, Corrected Proof

Research article

A unified approach to design controller in cascade control structure for unstable, integrating and stable processes

Mohammad Atif Siddiqui [a], M.N. Anwar [b], S.H. Laskar [a], M.R. Mahboob [c]

Show more

Outline | Share | Cite

https://doi.org/10.1016/j.isatra.2020.12.038

Get rights and content

Abstract

This article presents a unified approach of controller design in cascade control structure (CCS) for unstable, integrating and stable processes with dead-time to achieve enhanced load disturbance rejection. The design of inner and outer loop controllers in CCS is based, partially on the direct synthesis approach and partially on the pole placement method. First, the parameters of the inner loop controller are obtained and then the outer loop controller is designed by considering the inner loop as a part of the primary plant. The proposed design approach deals with a wide range of processes having unstable, integrating and stable dynamics in a unified way. It is applied directly on the higher and lower order processes, as the proposed strategy is acquitted from the approximation of the dead-time and model order reduction of the plant. Simulations have been conducted to show the efficacy of the present approach. The results shows that the present approach provides enhanced regulatory performance as compared to the recently reported approaches from the literature.

Keywords

PID controller; Cascade control; Stable process; Unstable process; Integrating process

FEEDBACK

ISSN 0259-1006

Nepalese Linguistics

Volume 34 November 2019

भाषाविज्ञान समाज नेपाल
Linguistic Society of Nepal

Scanned with CamScanner

A Peer-reviewed Journal of Linguistic Society of Nepal

Nepalese Linguistics

Volume 34 November 2019

Editor-in-Chief Kamal Poudel

Editors Ram Raj Lohani
Dr. Tikaram Poudel

Scanned with CamScanner

gmi
alise
tiwada
i

l Sharma
Limbu
lit

l published by Linguistic Society of
o the scientific study of languages,
sponsible for the views expressed in

cademy.

CONTENTS

CREATIVE ADJUSTMENT OF LINGUISTIC AND TEXTUAL RESOURCES IN LITERARY TRANSLATION	Bal Ram Adhikari	1
A PRELIMINARY SOCIOLINGUISTIC SURVEY OF NUBRI VALLEY	Cathryn Donohue	10
THE COMPLEXITY OF TONE IN NUBRI	Cathryn Donohue & Mark Donohue	18
PATTERNS OF SOUND CHANGE IN DEORI AND DIMASA	Monali Longmailai & Jonali Saikia	26
INTER-CLAUSAL DEPENDENCY IN WESTERN TAMANG	Ambika Regmi	36
CODING GRAMMATICAL SIGNALS IN WESTERN TAMANG: A TYPOLOGICAL PERSPECTIVE	Dan Raj Regmi	43
A COMPARATIVE STUDY OF THE TENSE AND ASPECT IN STANDARD KHASI AND ITS VARIETIES	Rymphang K. Rynjah	52
CULTURAL AND LINGUISTIC AFFINITIES AMONGST MEITEI-SIZANG-THADOU	Bobita Sarangthem and Lhingneilam Lhouvum	58
INTEGRATING MOBILE PHONES IN ENGLISH LANGUAGE TEACHING: A STUDY IN MANIPUR UNIVERSITY	Irom Gambhir Singh	68
INDEX AND LOCALISATION IN SIGN LANGUAGE: INTERFACE REQUIREMENT IN SEARCH OF FEATURES	Samar Sinha	73
LANGUAGE SHIFT AND MAINTENANCE: A CASE STUDY OF KANI TRIBES	Sreelakshmi K M	81
Memoir		
REFLECTIONS ON THE BEGINNINGS OF LINGUISTICS AT TRIBHUVAN UNIVERSITY	Austin Hale	87
PRESIDENTIAL ADDRESS	Bhim Narayan Regmi	90
LIST OF LIFE MEMBERS		92

Scanned with CamScanner

CULTURAL AND LINGUISTIC AFFINITIES AMONGST MEITEI-SIZANG-THADOU

Bobita Sarangthem and Lhingneilam Lhouvum

This paper attempts to highlight the cultural and linguistic affinities amongst Meitei, Sizang and Thadou people. The data are collected from the field works in Imphal (Manipur, India), Tamu (Sagaing division of Myanmar) and Diphu (KarbiAnglong of Assam, India) for Meitei, Sizang, and Thadou respectively. Linguistically, Meitei, Sizang and Thadou share common Tibeto-Burman feature of SOV word order, agglutinative forms, sharing lexical cognates due to language contact. Culturally, these languages show some similarities; however, Thadou and Sizang are more similar. Nonetheless, languages have been a reflection of those cultural distinctions as well as their identities.

Keywords: Ritual affinities, cognates, birth, marriage.

1. Introduction

Linguistically, Meitei, Sizang, and Thadou share similarities in word orders as verb final, clause chaining, and post verbal negation. They are agglutinative languages in which almost all the syllable boundaries correspond to morpheme boundaries. For Example:

Meitei: əycakca-i
1SG rice.eat-ASP
'I eat rice.'

Thadou: kei-n buka-ne-zi-e
1SG-ERG rice1-eat-ASP-DECL
'I (usually) eat rice.'

Sizang: key ənkə-ne hi
1SGrice 1-eat DECL
'I eat rice.'

One of the distinctive features of Sizang and Thadou is verb agreement system consisting of preverbal pronominal elements indexing subject (cf.2&3). This feature is totally absent in Meitei language. The sound inventories for these 3 languages: Meitei has 24 consonants and 6 vowels and two tones; Sizang has 16 consonants and 15 vowels and three tones; Thadou has 20 consonants, 8 vowels and three tones. However, lexical cognates such as səm 'hair', mei 'fire', nan 'you' etc., are similar in these languages. According to Burling (2003:187), Meitei has often been taken to be a member of the larger Naga-Kuki groupings, but it would be safest to leave Meitei by itself. On the other hand, Sizang and Thadou belong to the Kuki-Chin group and the Northern-Chin sub-group of languages (Grierson:1904).

The paper further intends to observe the important organizing principles of social relationship and see in what respect they could be considered important in structuring the society. At least three factors could be identified at the basic level. These are marriage, kinship, and ritual. Kinship is the pivot on which rests the whole of society, but its ultimate source is marriage. The importance of marriage and kinship are examined with reference to the Meitei, Sizang, and Thadou. Again, it is ritual which could inculcate a sense of continuity of traditional social relationships. To have a better understanding the following section highlights an ethnographic overview of the three languages.

2. Ethnographic overview of Meitei, Sizang and Thadou

Meitei is the name of the ethnic group and Meiteilon is the language spoken by Meiteis a Tibeto-Burman language spoken chiefly in Manipur state in India, with Myanmar on its eastern border. Located strategically in the North-eastern part of India on the Indo-Myanmar border, the land has been historically the frontier of Southeast Asian and mainland Indian cultures and peoples. Generally identified as Tibeto-Burman on linguistic basis, contemporary Meiteis are a unique people who have absorbed both cultural and racial crosscurrents unto themselves and yet managed to preserve a unique identity of its own. The Meiteis are one of few monarchies in Northeast India from ancient times, the other two

Scanned with CamScanner

COMMUNICATION STUDIES AND LANGUAGE PEDAGOGY
VOL. 2, NO. 1-2, JAN-DEC 2016

Reflection of Sexism and Gender Inequality in the Assamese Language

ARUP KUMAR NATH
Tezpur University, Assam, India

ABSTRACT

Gender inequalities or sexism in languages is a common phenomenon in almost all human languages, including the most influential and rich language of the world – English. Like other languages, the Assamese language is also not free from the influence of sexists' terminologies in various spheres of life. Though the social scientists from this region and some sociologists (Devi 2013) who worked on the Assamese society are of the view that in some indices, such as, education, decision making in the family, choosing life partners, etc., women in Assam have better indications in comparison to the other states of India; the language itself is not completely out of sexist terminologies which are totally biased and dominated by the male folks. Women in Assam at large are cocooned by various social customs and taboos, that they often cannot and do not want to bring changes in their own traditional lifestyle (Devi 2013). Hence, language is also no exception

IJDL

INTERNATIONAL JOURNAL OF DRAVIDIAN LINGUISTICS

Reg. No. 22651/72 ISSN No. 0378-2484

VOLUME XLVIII NUMBER 2 JUNE 2019

H.S. Ananthanarayana	*Nāgavarma's Karṇāṭaka Bhāṣābhūṣaṇa*	1
Rajendran S.	*Cognitive Extensions of Meaning in Verbs of Movement in Tamil*	23
Alibha Dakshi	*Kol and Dravidian Influences in the Structure of Bengali*	42
Denes Gazsi	*Perso-Arabic Linguistic Influence on Dravidian Languages: Phonological and Orthographic Patterns*	61
Lata Atreya	*Compound Verbs and their Inflected Form in Magahi*	81
Srinivas S.	*Non-Uniform Lengthening Processes in Adhilabad Gondi*	98
Bidisha Som	*Structure of Bodo Motion Verbs: Salience of Path Component*	118
Widinibou Charengna	*Structure of Reduplication in Liangmai*	137
✓ Bobita Sarangthem	*An Introduction to Sizang Kinship Terms*	153
Review		
G.K. Panikkar	*Essays on the History of Malayalam* (S.V. Shanmugam)	165
Venugopala Panikkar	*Reflections on Applied Linguistics* (G. Balasubramanian)	181
Index		
Bindu R.B.	*Index to IJDL* [Vol. 43 No. 1 (2014) to Vol. 47 No. 2 (2018)]	185

DRAVIDIAN LINGUISTIC ASSOCIATION OF INDIA

V.I. SUBRAMONIAM MEMORIAL ISDL COMPLEX

ST. XAVIER'S COLLEGE P.O., THIRUVANANTHAPURAM - 695 586

KERALA, SOUTH INDIA

ijdlisdl@gmail.com **0471-2704282** *www.ijdl.org*

Scanned with CamScanner

International Journal of Dravidian Linguistics
Vol. 48 No. 2 June 2019

AN INTRODUCTION TO SIZANG KINSHIP TERMS

BOBITA SARANGTHEM

Abstract

This paper is an attempt to classify the Sizang kinship terms with reference to categories such as sex, generation (in respect of ego), the difference between lineal and collateral relationship, and affinal distinction. The study is aimed to identify the features which make distinctions in Sizang kinship terms. It is hoped that this study reveals a few culturally important features by which speakers of the Sizang language distinguish different words in the kinship domain.

(**Keywords**: Affinal, semantic, ego, parental, collateral, lineal, generation)

1. Introduction

Sizang is a Kuki-Chin language of the Tibeto-Burman family. This paper is an attempt to classify the Sizang kinship terms with reference to categories such as sex, generation, distinction of blood and affinal relationship. Palmer (1981) states "sex provides one set of components for kinship terms; generation differences and degree of relationship provide two others". To understand the kinship terminology, it is necessary to know about the society first. Sizang is a patriarchal society. Inheritance is legitimate to sons only and daughters are illegitimate to inherit any inheritance. If a person has more than one son, the youngest son is the rightful heir. Sizang kinship terms are utilized in daily life, both in reference and in direct

Scanned with CamScanner

Volume 69 Issue 2 August 2020 **Sociological Bulletin**

Contents

Articles

Contested Borders and Borderlands in Northeast India: (IL) Legitimate Claims of Naga Identity Assertion 141
Kedilezo Kikhi and Daveirou Lanamai

Jeevika, Women and Rural Bihar: Cultural Impact of a Development Intervention 158
Ashok Pankaj

Recast(e)ing Scientific Temper in a Democracy: The Eccentricities of Ambedkarian Science 174
Subhasis Sahoo

Bounded Solidarity and Mobile Technology: The Decline of Core Networks in Kerala 191
Jiabin Fan, Oliver Garretson, Antony Palackal, Paige Miller and Wesley Shrum

Creating the Urban Corridors: The Role of Colonial Railways in India 215
Dipsikha Sahoo

From Medical Pluralism to Medical Marginality: Changing Dynamics Within Unani System of Medicine 234
Priyam Sharma

Problems of Sanitation in India: Does Culture Matter? 252
B. K. Nagla

Farmers' Suicides and the Agrarian Crisis in Punjab: Some Sociological Observations 270
Birinder Pal Singh

Check for updates

Article

Contested Borders and Borderlands in Northeast India: (IL) Legitimate Claims of Naga Identity Assertion

Sociological Bulletin
69(2) 141–157, 2020
© 2020 Indian Sociological Society
Reprints and permissions:
in.sagepub.com/journals-permissions-india
DOI: 10.1177/0038022920923203
journals.sagepub.com/home/sob
SAGE

Kedilezo Kikhi[1] and Daveirou Lanamai[2]

Abstract

Borders are not to be understood merely as lines where one society or state ends and another begins, but they reflect of how societies get constituted and configured through them. Societies do not constitute borders, but borders constitute societies. The article revisits the northeast as a 'borderland', as a land with many visible and invisible borders. It is an attempt to probe into the complexities of ethnic boundaries by the enforcement of arbitrary dividing lines without cognisance of the local context. The article also endeavours to set a discourse on the proposed Naga 'Framework Agreement' (FA) which requires a deep-seated understanding of its historicity and unique cultural identity. It intends to question the possibility of Nagas nurturing a common supra-national or transnational structure that offers an accepted platform to their life patterns and customs. Very crucially, the article also attempts to explore the several nuanced exemplary models seen elsewhere, amongst those geographically bordering people with analogous but delicately diverse cultures.

Keywords

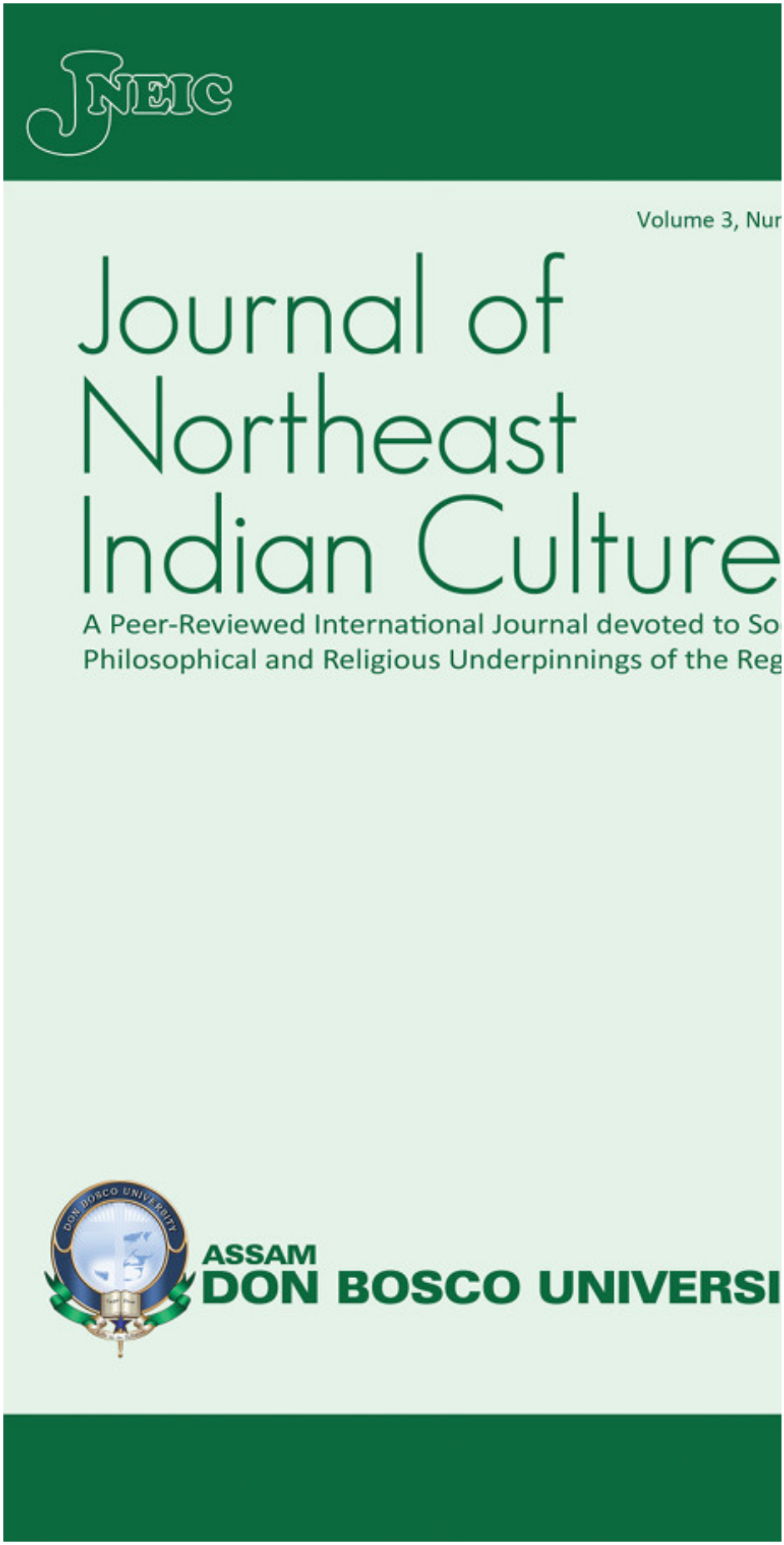
Ethnicity, borders, borderlands, state, framework agreement, Naga

Introduction

While much of the northeast used to be loosely governed as 'frontier' in colonial times, it is only with the emergence of modern states that borders as sharply drawn

[1] Professor of Sociology, Tezpur University, Tezpur, Assam, India.
[2] Assistant Professor, Department of Foreign Languages, Tezpur University, Tezpur, Assam, India.

Corresponding author:
Kedilezo Kikhi is currently Chair Professor, Dr. Ambedkar Chair, Tezpur University, Tezpur, Assam 784028, India.
E-mail: kedithejakikhi@yahoo.co.in



Vol 4, No 2 (2019)

Table of Contents

Articles

Cover page UNTITLED
Dominic Meyieho

Inner page PDF PDF
Dominic Meyieho

Editorial Page PDF
Dominic Meyieho

Theorising Social Fear in the Context of Collective Actions in Manipur PDF PDF
Samson Kamei

Parallels and Contrasts in the Popular Folklore of the Chinese and the Nagas PDF
Daveirou Lanamai

The Dilemma of the Bishnupriya Identity PDF PDF
Naorem Ranjita

HISTORY OF NEO-ASSAMESE MUSLIMS OF ASSAM AND THEIR CONTRIBUTION TO THE STATE PDF
Ashit Kumar Paul, Dominic Meyieho

Teachers' Professional Ethics and Its' Implications PDF
Baldwin Banrapbor Sumer, Ibadani Syiem

Socio-economic factors Influencing Infant and Child Mortality among the Zou of Manipur PDF PDF
Gin Khan Khual, D K Limbu

ISSN: 2322-0988

ISSN - 2348-2397
APPROVED UGC CARE
BBS

SHODH SARITA

SHODH SARITA
Vol. 7, Issue 28, October-December, 2020
Page Nos. 29-33

AN INTERNATIONAL BILINGUAL PEER REVIEWED REFEREED RESEARCH JOURNAL

"THE ROLE OF EMOTIONS IN IDENTITY FORMATIONS OF FEMALE LITERARY CHARACTERS IN PARTITION-NARRATIVE"

Pallavi*

ABSTRACT

Locating itself in the context of the study of emotions in literary and cultural studies, the paper examines the role of complex dimensions of emotions in the identity formation of female literary characters in Partition-Literature. The theoretical understandings of identity establish how identity is fluid and is in flux all the time. The nature of selfhood and identity is very much related to the fact: how we feel? Emotions are what move us, and thus various emotions create different facets of identity and idea of selfhood. Judith Butler in Gender Trouble. Feminism and Subversion of Identityexplains the concept of 'performativity' and how the repetition of culturally normative gestures generates the gendered self. In this repetition of culturally normative gestures emotions play crucial role. Therefore, emotions can be apprehended as also performed practices and as learned behaviour. In the construction of identity, emotions are not passive but active (Barclay 14-16). The present paper analyses the fictional representation of such performance of emotions and the process of identity formationwith specific reference to the female characters 'Banti' and 'Tara' in Yashpal's (1903-1976) novel Jhutha Sach I & Jhutha Sach II (This Is Not That Down, 2010), originally written in Hindi, one of the most celebrated narratives of Partition. At the historical conjuncture of Partition, these two literary characters show their distinct emotional reactions which shaped their identity and their future lives. This article is an attempt to capture the complex and multidimensional emotional response of these two literary characters to the society and culture.

Keywords : Emotions and Gender, Anger, Apathy, Hate,Female Identity, Partition-Narratives

The Partition of India in 1947 is one of the most important conjunctures in the history of South Asia. This event has been marked by mass-migration, displacement and large scale death caused by violent communal clashes. Specially, women witnessed such brutality and violence that the Partition is still viewed as frightening scar on the civilization. The human suffering of this event finds its voice in creative narratives, which has been later termed as Partition-Narrative or Partition-Literature. Gyanendra Pandey writes about the significance of the numerous life writings and oral-narratives of human lives during this time period:

Whereas historians history seems to suggest that what Partition amounted to was, in the main, a new constitutional political arrangement, which did not deeply affect the central structures of Indian society or the board contours of its history, the survivors' account would appear to say that it amounted to a sundering, a whole new beginning and, thus, a radical reconstitution of community and history. (7)

According to Jill Didur these works offered "an alternative, record of the period"(4). Jhutha Sach I and Jhutha Sach II– first part published in 1958 under the title Vatanaur Desh and second part published in 1960 under the title Deshka Bhavishya in Hindi deconstructs female victimization and women's experience of violence in the backdrop of Partition. It depicts the journey of female literary characters and the formation of their identity and

*Assistant Professor, Department of Foreign Languages, Tezpur University

subjecthood. The narration of rape and sexual violence is not the central theme of the novel, but the life of the female protagonists before and afterPartition. Both the literary characters Banti and Tara were abducted, raped and sexually assaulted during the Partition, but Banti commits suicide as she was not 'accepted' by her family, and Tara chooses to live her life further. The character Banti depicts the emotion of 'anger' upon betrayal by her own family and Tara distances herself from being guilty and ashamed of having being raped and makes choices for survival.She fights back the negative emotion of 'hate' and 'apathy' and chooses compassion for herself and for others, who have suffered during this conflict time. Her resistance to 'apathy' plays crucial role in her survival. These emotions ofanger, apathy, hate and compassion play crucial role to shape the surface and identity of these two individuals, as also explained by Sara Ahmed "emotions work to shape the surfaces of individual" (1).

Banti's' Anger'

The character of Banti shows a complex model of identity. Kumkum Sangri suggest a concept of 'multiple identities' and argues that "the notion of femaleness, self or identity' are so tied up with questions of family, class, religion and other forms of collectivity that they cannot be framed in terms of 'a single unified axis'"(871). Banti's notion of identity can be understood in relation to her family and her hope that one day she will be unified with her family.

The character Bantiwas abducted during the communal clashes and in her captivity she pleads: "What can't happen if Maharajji wills it to happen? He might arrange for us to meet again. Mother Sitaji was held in captivity by Ravana, but was eventually reunited with Lord Ramji."(461). But Banti was encountered by other women: "A woman who separated from her family and a fruit plucked from the tree cannot be put back as before" (461). This explanation angers Banti: "Banti was angry […] whatever happened, happened in front of everybody. Did I leave my home of my own free will. They were coward enough to leave me behind, and I was taken away by force. Whatever happened, nobody could have prevented it. And now, who's to blame for all that?" (461). After arriving to India,Banti finds her family, but her

husband and other family members humiliate her and refuseto 'accept' her in the family. They 'reject' Bantiby saying "Of what use you are to us!" (605). They didn'teven allow her to meet her child. In this distress, anger andpainBanti commits suicide at the doorstep of her home.

In above mentioned quotes the word "fruit"expresses the position of women within family, society and nation. The experience of violence makes Banti a rotten "fruit" in the eyes of her family. It also symbolizes a week, fragile, vulnerable body. Once this body gets exposed to outside world, it loses everything. The analogy between fruit and women can be understood as how societal understandingsreduce female body to purity and reproduction. Historically, the female body is repeatedly appropriated as a marker of national, racial, religious and ethnic communities and in any communal conflict, here for instance in the communal conflict in 1947, the communal terror has been exercised on women's body. By associating the female body with community origins, many identity narratives position 'woman' as 'place', as the pure space of 'home' in which tradition is preserved from outside contamination (Irene Gedalof44-45).Banti's body has been allegedly 'contaminated' and thus of no 'use'.

In the societal context of this period, ideas of purity and honor are reflected through this event in Banti's life. Her family willed her to die for the family honor. From Banti's dialogue it is very much clear that she considers herself neither guilty nor ashamed, rather shows strong will to be unified with her family. She reacts with anger as the auctorial narrator writes her emotion in this moment of encountering injustice: "Banti was angry […]".The social norms are determining for Banti, what is appropriate and desirable for her, and her failure to meet these social norms angers her. Rigid social norms expect women to react in a particular manner in case they witness and experience sexual violence, following the 'cultural rules' of the society. The injustice done to Banti'sbody and further injustice by the family membersangers her. Susan Broomhall argues how gender and emotions, play in producing both stability and

instability (1). By refusing Banti to let into the family, the

family maintains it's 'order' and 'stability' and there is no space for Banti's anger. Her lived emotional state is anger, but shame is from her the desired emotional state. Her survival would have been a shameful survival in the eyes of others. Banti's anger functions here to overcome the obstacles and to reintegrate in the family. Her anger is directed towards unjust institutions like family and society. Aristotle in Nicomachean Ethics (1999) discusses the emotion of anger as well its justified intensity in various circumstances and argues how anger aimed at the unjust circumstancesis needed for ethical life.

In the state of anger, Banti's idea about her selfhood is realized, as she sees herself innocent in this entire process. Therefore, her death can be viewed as institutional murder. Sara Ahmed writes: "If anger pricks our skin, if it makes us shudder, sweat and tremble, then it might just shudder us into new ways of being; it might just enable us to inhibit a different kind of skin, even if that skin remains marked or scarred by that which we are against" (175). Banti's emotions of anger leads her towards new way of being, a tragic being, as she is scarred by that which she was against. Another female character Tara chooses the path of life and positive emotions constructs a new-identity in Tara. Tara's journey can be also viewed as continuation of Banti's struggle to live.

Tara's fight against 'Apathy' and 'Hate'

According to Mirriam Webster dictionary: "'Apathy' was borrowed into English in the late 16th century from Greek 'apatheia', which itself comes from the adjective 'apathes', meaning 'without feeling'. 'Apathes', in turn, was formed by combining the negating prefix a- with 'pathos', meaning 'emotion'". According to Tiffany Watt Smith, apathy isan 'antisocial' emotion, an'unwell individual psychology' which can obstruct someone to stand on the side of right or ethical. Smith gives an example of murder of a 28 years old woman Kitty Genovese in 1964 in New York. Kitty's murder was witnessed by 38 people and no one came to help or rescue her. This big group of people showed 'collective apathy' towards her suffering, and according to Smith, there was complete absence of any positive emotion (45-46). In the novel the female character Tara

fights back the hate and apathy shown to her by own family members; father, brother and husband. She fights back the normalized hate and apathy of the patriarchal systems of family and nation towards women.Tara fights back and resists this apathy from the early stage of her life and her fight against these negative emotions shape her identity and subjecthood. Therefore, the character of Tara also shows intersectionality of identity. Her identity in pre-Partition narration and the construction of her identity in post-Partition phase reflect the construction of her identity from various standpoints. Similarly, the complexities of various emotions shape her female agency as well as constructs and re-constructs her identity.Susan Broomhall argues"Emotions, like ideologies of gender, can be interpreted as cultural-historical discourses of power" (5). The subjectivity of the protagonist Tara takes a new form, because there is a break in these capillaries of power, during the 'instable' time of partition. I interpret the journey of female protagonist Tara infoucauldian view where there is 'politics of refusal' in Tara's action,i.e. "[…] not to discover what we are, but to refuse what we are [...] to promote new forms of subjectivity through the refusal of [the] kind of individuality which has been imposed on us for several centuries." (Foucault 785).The event of Partition changes her life and gives it different direction; towards the direction of'politics of refusal'.

The first part of the novel depicts Tara's life along with her family in Lahore before Partition. Tara at her home is the victim of gender discrimination and had to give up her studies at her father's wish and she is forced to marry a person not of her choice. When she fights back this injustice, her brother shows complete apathy towards her choices and lack of any kind of positive emotional connection leaves Tara shattered: "Staring into her brother's eyes, Tara out a deep breath of despair, as if life itself would go out of her body with that breath. Stunned into silence, she just looked at him in disbelief. Her eyes said, how could you twist the fact of my helplessness?" (217). This apathy shown by her own brother leaves her speechless and socked. On her wedding night as Tara for the first time confronts her husband Somnath, she was

brutally beaten up by Somnath, because she has earlier

refused to marry Somnath. Somnath male-ego is unable to accept this refusal and he says: "[...]'You daughter of that starving schoolteacher, you dared refuse to marry me! You're proud of having passed your B.A.! I've had my way with dozens like you! I will teach you a lesson! I'll have you raped by dogs and asses in front of everyone in the bazaar …" (355). Somnath dialogues are intended to humiliate and destroy Tara's sense of self. He gives her rape threat and he is also aware of the fact that the public is going to be apathetic towards such violence against women. This prior knowledge about people's apathy is Somnath's power and his sense of entitlement. Tara takes up the opportunity, provided by the instable time of Partition to escape Somnath's hate and apathy towards her.On her journey to reach India, she was raped and sexually assaulted. Eventually, she manages to come to Delhi and makes a successful carrier in her post-Partition life. She chooses to remain silent about the sexual violence, as she doesn't want to be stigmatized and shamed by the society.As argued by Sharon Markus (1992), the character Tara chooses life "[…] against the political efficacy of seeing rape as the fixed reality of women's life, against an identity politics which defines women by our violability […]"(Markus: 387). In refugee camp other women show hate towards Tara on the revelation that she has been raped. These women thus tried to define Tara by her violability:

As she lay surrounded by jeering women, her head and face covered by her dupatta, she thought grimly that she'd soon be an outcast. They would grab by her plait and drag her away, ripping off her clothes. She was the object of their anger and hatred because she had fallen victim to her torturers, and they were angry because she had fought back, because she resisted being abused by Somraj and Nabbu. (608)

Sara Ahmed discusses hate as "a negative attachment to another"(51) and argues "hate is an intense emotion, it involves a feeling of 'againstness' that is always, in the phenomenological sense, intentional" (49).The group of women shows their negative attachment towards Tara and this intentional emotion of hate also works as punishment, punishment for being survived the violence. Such emotional

responses, for instance making Tara object of hate, teaches Tara to maintain silence about her victimization, so that she could survive. Tara's silence is here context and cultural specific, a response to hate and rejection.

Tara'ssurvival can be also understood as voicing against"historical wound"inflicted on her body and as suggested by DipeshChakrabarty this wound should be publicized. Her survival is an evidence of publicizing the wound, which is "to be already on the path of recovery" (Chakrabarty 77). The wound and the pain need positive emotions like compassion and empathy, so that it can be healed. The novel gives powerful dialog to its female character as Tara says:"Let bygones be bygones. I am good as I am. Why do I have to admit that my sense of self has been destroyed?"(885)or the auctorial narrator expresses her feelings: "She never considered herself guilty of doing anything wrong, it was the idea of a humiliating reputation that she loathed, […]"(1114). When people, institutions, culture and society at large are apathetic and full of hatred towards her, she chooses to be compassionate towards her own 'self' and Tara's positive emotional response towards her 'self' forms a new subject: brave and compassionate Tara. As writer and philosopher Voltaire articulates in his work Candide "one must cultivate one's own garden", Tara cultivates her own garden of life.

References :

- Ahmed, Sara.The cultural politics of Emotion. Edinburgh: Edinburgh University Press, 2004.
- Aristotle.NicomacheanEhicks. Translated by W. D. Ross. Kitchener: Batoche Books, 1999.
- Pandey, Gyanendra: Remembering Partition, Violence, Nationalism and History in India, Cambridge: Cambridge University Press, 2001.
- Barclay, Katie"Performance and Perfomativity". Early Modern Emotions. An Introduction. Ed. Susan Broomhall. New York: Routledge, 2017.14-17. Print.
- Broomhall, Susan. "Introduction. Destroying Order, Structuring Disorder. Gender and Emotions". Gender and Emotions in Medieval and Early Modern Europe: Destroying Order,

Structuring Disorder. Ed. Susan Broomhall.USA:
- Ashgate Publishing Company, 2015. 1-13. Print.
- Butler, Judith.Gender Trouble. Feminism and Subversion of Identity. London: Routledge, 1999.
- Chakrabarty, Dipesh."History and the Politics of Recognition", Manifestos for Historians. Eds. Jenkins, Keith et. al. London: Routledge, 2007. 77-88. Print.
- Das, Veena.Life and Words: Violence and the Descent into the Ordinary. Berkeley:University of California Press,2007.
- Didur, Jill.Unsettling Partition: Literature, Gender, Memory, India: Dorling: Kindersley, 2006.
- Gedalof, Irene.Against Purity: Rethinking Identity with Indian and Western Feminisms. London and New York: Routledge,1999.
- Foucault, Michel. "The Subject and Power".Critical Inquiry. Vol. 8, No. 4 (1982). 777-795.Print.
- Marcus, Sharon."Fighting Bodies, Fighting Words. A Theory and Politics of Rape Prevention".Feminists Theorize the Political. Ed. Judith Butleret.al.New York: Routledge, 1992. 385-404. Print.
- Sangri, Kumkum. "Consent, Agency and Rhetorics of Incitement".Economic and Political Weekly.1 May, 1993. 867–82. Print.
- Smith, Tiffany Watt.Das Buch der Gefühle. Translated from English into German by Birgit Brandau.München: dtv, 2015.
- Yashpal: Jhootha Sach. Vatan Aur Desh. Part 1. and Part II. Second edition. Lucknow: Lokbharti Paperbacks2012.

Dictionary :

- "Apathy." Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/apathy. Accessed 20 Sep. 2020.

ISSN 2321-4945

द्विभाषी राष्ट्रसेवक

वर्ष : 8 ❖ अंक : 6-9 ❖ सितंबर-दिसंबर, 2016

Postal Rgd. No. GH-127/2016-2018

ISSN 2321-4945

असम राष्ट्रभाषा प्रचार समिति का

साहित्य-कला-संस्कृति विषयक मासिक मुख-पत्र

द्विभाषी राष्ट्रसेवक

वर्ष : 8 | सितंबर-दिसंबर, 2016 | अंक : 6-9

एक हृदय हो भारत जननी

असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी

[केंद्रीय हिंदी निदेशालय, मानव संसाधन विकास मंत्रालय, भारत सरकार के आर्थिक सहयोग से प्रकाशित]

सलाहकार

श्री हरिकांत नाथ

डॉ. अच्युत शर्मा

डॉ. ताराकांत झा

श्री गोलोक चंद्र नाथ

श्री धीरेन चंद्र शर्मा

श्री विष्णु कमल तामुली

संपादक

डॉ. क्षीरदा कुमार शइकीया

(मो. 9435340285)

कार्यकारी संपादक

रामनाथ प्रसाद

(मो. 9435147126)

शब्द-संयोजन व अलंकरण

रति कांत कलिता

वार्षिक शुल्क : दो सौ रुपये

अर्द्धवार्षिक : सौ रुपये

एक प्रति : बीस रुपये

प्रकाशक

डॉ. क्षीरदा कुमार शइकीया

मंत्री, असम राष्ट्रभाषा प्रचार समिति

गुवाहाटी-781032

'द्विभाषी राष्ट्रसेवक' में प्रकाशित लेखों में व्यक्त विचार एवं दृष्टिकोण लेखक के हैं। संपादक या प्रकाशक का उनसे सहमत होना आवश्यक नहीं है।

लेखादि भेजने का पता :

संपादक, द्विभाषी राष्ट्रसेवक

असम राष्ट्रभाषा प्रचार समिति,

रूपनगर, गुवाहाटी-781 032

फोन : (0361) 2462811, 2463394

फैक्स : 0361 - 2463394

विषय-सूची

हिंदी विभाग

• सामयिकी		2
• कैसे आगे बढ़ेगी विश्व भाषा हिंदी	प्रोफेसर हेमराज मीणा 'दिवाकर'	3
• भूमंडलीकरण के दौर में भारतीय भाषाएँ और बोलियाँ	सुरेश चंद मीणा	5
• भक्तिकाव्य का समाज-दर्शन : कबीर के संदर्भ में	डॉ. आकाश वर्मा	7
• जलवायु परिवर्तन और जीवन पर इसका प्रभाव	डॉ. अनुशब्द	10
• भीष्म साहनी की कहानियों में राजनीतिक चेतना	प्रा. हरिशभाई बी. पटेल	15
• साहित्य में शरत की स्तुति	डॉ. नवकांत शर्मा	19
• नदी के द्वीप : अस्तित्व की पुकार	नंदिता दत्त	21
• काणखोवा काव्य : भूमिका	मूल : डॉ. गिरिकांत गोस्वामी अनुवाद : गीतामाला बरा	23
• पहचाने अपने आपको	मदन प्रसाद गुप्ता	28
• भारत के धार्मिक जीवन में शक्ति तत्व	राकेश पाठक	30
• भगवतीचरण वर्मा कृत चित्रलेखा : एक मूल्यांकन	डॉ. राजकुमारी दास	33
• अविच्छेद्य (असमीया कहानी)	मूल : शीलभद्र अनुवाद : हीरेंद्र कुमार शर्मा	35
• राष्ट्रभाषा हिंदी (कविता)	संतोष कुमार महतो	38
• मेरा प्यारा मणिपुर (कविता)	मनोहरमयुम यमुना देवी	38
• मनीषा पाल की दो कविताएँ		39
• समिति समाचार		40

असमीया विभाग

• ফুটা কলহ আৰু লেকাই চেতীয়াৰ কাহিনী	দাসো কলিতা	৪৩
• যুগে-যুগে দেৱী দুৰ্গা	কামিনী দেৱী	৪৬
• কলম (কবিতা)	ড° পৰীবুল দেৱী	৪৮
• ঠেকা খাওঁতাই (কবিতা)	মূল ঃ লীলাধৰ জগুড়ী অনুবাদ ঃ ড° বিনীতা নাথ দত্ত	৪৮

लेखक/लेखिकाओं से अनुरोध : • 'द्विभाषी राष्ट्रसेवक' के लिए भेजे जाने वाले लेखादि साहित्य, कला, संस्कृति विषयक होने चाहिए। • भेजे गये लेखादि साफ अक्षरों में या टाइप कराकर ही भेजें। • अनूदित लेखों के लिए मूल लेख का उल्लेख करना अनिवार्य है।

जलवायु परिवर्तन और जीवन पर इसका प्रभाव

❖ डॉ. अनुशब्द ❖

विश्व में अलग-अलग भौगोलिक प्रदेश हैं और इन प्रदेशों के पर्यावरण का अलग-अलग मिजाज भी है। पर्यावरण के मिजाज परिवर्तनशील होते हैं। इनके मिजाज में परिवर्तन दो तरह के होते हैं। कुछ अल्पकालिक होते हैं तो कुछ दीर्घकालिक। अल्पकालिक परिवर्तन को भौगोलिक शब्दावली में मौसम तथा दीर्घकालिक परिवर्तन को जलवायु कहते हैं। इसलिए मौसम और जलवायु पर्यावरण के दो अलग-अलग मूड्स हैं। समाजशास्त्रीय शब्दावली में बात करें तो मौसम को पर्यावरण की सभ्यता तथा जलवायु को उसकी संस्कृति कह सकते हैं। कारण कि सभ्यता में परिवर्तन तीव्रगति से होता है और संस्कृति में मंदगति से। यानी संस्कृति समाज की दीर्घकालिक अवस्था है और जलवायु पर्यावरण की।

जलवायु के मुख्यत: तीन घटक हैं-वायु, ताप और आर्द्रता। इन तीनों में किसी एक, दो या तीनों में होने वाले परिवर्तन को जलवायु परिवर्तन कहते हैं। यह तो हम सभी जानते हैं कि पृथ्वी के जन्मकाल से ही जलवायु में परिवर्तन की प्रक्रिया शुरू हो गयी थी। तब यह प्रक्रिया एक सहज स्वाभाविक प्राकृतिक घटना थी, क्योंकि उसका एक निश्चित पैटर्न था। उस परिवर्तन में एक लय थी, जो समस्त प्राणी-जगत या जैव-चक्र के संतुलन के लिए अनिवार्य एवं अपेक्षित भी थी, लेकिन आज जलवायु परिवर्तन की यति-गति में भारी असंतुलन आ गया है। हाल के वर्षों में जिस तेजी से दुनिया में जलवायु-परिवर्तन हो रहा है, उतनी तेजी से पिछले दस हजार वर्षों में कभी नहीं हुआ। उन्नीसवीं शताब्दी की औद्योगिक क्रांति एवं मानवीय क्रियाकलापों में आये गंभीर बदलावों ने जलवायु-परिवर्तन को सबसे ज्यादा शक्ति और स्फूर्ति दी है। इसीलिए जलवायु-परिवर्तन आज सहज स्वाभाविक प्राकृतिक घटना न होकर अभूतपूर्व भौगोलिक दुर्घटना बन गयी है। और आज के समय की सबसे ज्वलंत पर्यावरणीय समस्या भी। इस समस्या के मुख्यत: दो कारण हैं। पहला, प्राकृतिक वैविध्य और दूसरा, मानवीय हस्तक्षेप। गौरतलब है कि यूनाइटेड नेशंस फ्रेमवर्क कन्वेंशन ऑन क्लाइमेट चेंज 1992 ने यह सुनिश्चित किया था कि मानवीय हस्तक्षेपों से होने वाले परिवर्तन को ही जलवायु परिवर्तन कहा जाएगा तथा प्राकृतिक कारणों से होने वाले परिवर्तन को जलवायु वैविध्य (climate variation) कहा जाएगा। लेकिन इंटर गवर्नमेंटल पैनल ऑन क्लाइमेट चेंज (आई.पी.सी.सी.) 2001 के अनुसार पर्यावरण में उपर्युक्त किन्हीं कारणों से आये परिवर्तन को जलवायु परिवर्तन कहा जाएगा। चाहे वह परिवर्तन मानवीय गतिविधियों से हो या प्राकृतिक गतिविधियों से।

प्राकृतिक वैविध्य के अंतर्गत मुख्यत: ज्वालामुखी विस्फोट, महाद्वीपों का खिसकना, धरती का घुमाव, समुद्री तरंगें आदि आते हैं। ज्वालामुखी विस्फोट के दौरान प्रचुर मात्रा में कार्बन गैसों, सल्फर डायऑक्साइड, धूलकण और राख का उत्सर्जन होता है, जिससे सूर्य की किरणों का मार्ग बाधित हो जाता है। हालांकि ज्वालामुखी थोड़े दिनों तक ही क्रियाशील रहते हैं। लेकिन इनसे निकली हुई गैसें जलवायु को दीर्घावधि

अनुशब्द

सहृदय

(साहित्य, संस्कृति, संवेदना और सोच का त्रैमासिक)

ISSN : 2230-8997
वर्ष : 8, अंक 27
जनवरी-मार्च 2016

सहृदय

'नव उन्नयन'

अनुक्रम

संपादकीय का होना, न होना! / **संपादकीय** – (v)

आलेख

इक्कीसवीं सदी के उपन्यासों में सामाजिक चेतना / **प्रो. शंकर बुंदेले** – 1

कविता का भविष्य बनाम भविष्य की कविता / **प्रो. सत्यदेव मिश्र** – 9

नाटक : दृश्यं श्रव्यं व यद्भवेत / **डॉ. अनुशब्द** – 15

रघुवीर सहाय के गद्य साहित्य में भाषा चेतना / **डॉ. आरती गोयल** – 19

रघुवीर सहाय की रचना में मुक्ति की परिकल्पना / **डॉ. स्वाति कुमारी** – 28

भूमंडलीकरण और उसकी संस्कृति का प्रभाव / **डॉ. प्रदीप कुमार** – 33

बालमन का सच और कमलेश्वर की कहानियाँ / **डॉ. आलोक रंजन पांडेय** – 41

गुरु तेग बहादुर की वाणी में पौराणिक संदर्भ / **डॉ. देवेंद्र कुमार** – 46

भाषा-विमर्श

बल्गारियन भाषा का वैश्विक स्वरूप / **वनिका** – 55

हिंदी के आधुनिकीकरण और वैश्वीकरण में अनुवाद की भूमिका / **डॉ. हरदीप कौर** – 63

तकनीकी विकास और भाषाई एकता : प्रगति के सोपान / **प्रदीप कुमार अग्रवाल** – 67

विमर्श

'रामचरितमानस' का विमर्शगत अध्ययन / **शिवांग कुमार भावसार** – 74

संस्मरण

अरे! / **डॉ. बी.एस. त्यागी** – 78

सहृदय : जनवरी-मार्च 16; अंक--27 : (iii)

अनुक्रम

डॉ. अनुशब्द

नाटक : दृश्यं श्रव्यं व यद्भवेत

ऐंद्रिक संपर्क के आधार पर भारतीय मनीषा ने काव्य को दो भागों में विभक्त किया है -- दृश्य एवं श्रव्य। नाटक दृश्य काव्य है। दृश्यत्व इसकी पहचान है। यही तत्त्व नाटक को कलात्मक अभिव्यक्ति की अन्य विधाओं से अलग व्यक्तित्व देता है, पृथक परिभाषा देता है। यही वजह है कि नाटककार कालिदास ने नाटक को 'चाक्षुष यज्ञ' या 'नयनोत्सव' का विशेष्य माना है। पाश्चात्य नाट्य समीक्षक बेकरमैन कहते हैं--''नाटक का आलेख कंकाल मात्र होता है, प्रदर्शन ही उसे मांस-मज्जा से भरता है।''[1] निस्संदेह दृश्यत्व नाटक का एक महत्वपूर्ण अवयव है और उसकी जैविकी में इसकी महत्वपूर्ण और अनुपेक्षणीय भूमिका है, मगर दृश्यत्व ही नाटक का सर्वात्मभाव नहीं होता, श्रव्यत्व भी उसका अपरिहार्य अंग होता है। कारण कि नाटक सिर्फ क्रीडनीयक ही नहीं, काव्य भी होता है। डॉ. धर्मवीर भारती ने लिखा है कि, ''लगता है पृथ्वी थियेटर्स में सब कुछ था, सिर्फ एक चीज नहीं थी यानी नाटक।''[2] जाहिर है, नाटक मात्र प्रदर्शन नहीं है। डॉ. दशरथ ओझा भी लिखते हैं कि, ''वह केवल खेल तमाशा नहीं है, उसका परीक्षण उसमें निहित सांस्कृतिक तत्त्वों और जीवन की शाश्वत समस्याओं के उद्घाटन के आधार पर करना चाहिए।''[3] गरज कि नाटक शिल्प भी है, कला भी है और कला होने के कारण इसमें उस 'कुछ' की अपेक्षा हमेशा रहती है, जो किसी कृति को साहित्य बनाता है।[4]

बहरहाल, नाटक में अभिव्यक्ति और संप्रेषण के दो आयाम हैं--दृश्य और श्रव्य।[5] पश्चिम में इन दोनों आयामों की प्राथमिकता विवादास्पद रही है। दोनों पक्षों के समर्थकों ने अपनी-अपनी महत्ता और अर्थवत्ता सिद्ध करने की कोशिश की है। एक पक्ष का तर्क है कि नाटक पर केवल रंगमंच का ही अधिकार नहीं है। ''वह केवल रंगमंच के लिए नहीं, वरन साहित्यिक अभिव्यक्ति के लिए भी लिखा जाता है।''[6] दूसरे पक्ष का प्रतितर्क

31/2/16

ISSN 2349-6444

विश्वविद्यालय अनुदान आयोग द्वारा अनुशंसित मूल्यांकनपरक पत्रिका

अरुण प्रभा संयुक्तांक (सात-आठ) जनवरी-दिसम्बर-२०२२

अरुण प्रभा

सम्पादक :
प्रो. ओकेन लेगो

हिन्दी विभाग
राजीव गांधी विश्वविद्यालय
रोनो हिल्स, नेरमूल, ईटानगर
अरुणाचल प्रदेश-७९११२

CS Scanned with CamScanner

जनवरी-दिसम्बर, 2016

अरुण प्रभा

मूल्यांकनपरक पत्रिका (Reffered Journal)

हिन्दी शोध एवं आलोचना की अर्द्धवार्षिकी

संरक्षक

प्रो. नानो मिबाङ

कुलपति

प्रधान सम्पादक

प्रो. हरीशकुमार शर्मा

भाषा संकायाध्यक्ष

सम्पादक

प्रो. ओकेन लेगो

मूल्यांकन विशेषज्ञ

प्रो. एम. वेंकटेश्वर (सेवानिवृत्त) इफ्लू, हैदराबाद

प्रो. कृष्ण मुरारि मिश्र (सेवानिवृत्त) इलाहाबाद विश्वविद्यालय

प्रो. नन्दकिशोर पाण्डेय, राजस्थान विश्वविद्यालय जयपुर

प्रो. अनन्त कुमार नाथ, तेजपुर विश्वविद्यालय, तेजपुर

सम्पादक मंडल

डॉ. श्याम शंकर सिंह

डॉ. जमुना बीनी तादर

डॉ. अभिषेक कुमार यादव

डॉ. जोरम यालम नाबाम

डॉ. विश्वजीत कुमार मिश्र

डॉ. सत्य प्रकाश पाँव

श्री राजीव रंजन प्रसाद

Scanned with CamScanner

अरुण प्रभा

विश्वविद्यालय अनुदान आयोग द्वारा अनुशंसित

मूल्यांकनपरक पत्रिका (Reffered Journal)

जनवरी- दिसम्बर, २०१६

प्रकाशक :

कुलसचिव, राजीव गाँधी विश्वविद्यालय, ईटानगर

सम्पादकीय पता :

हिन्दी विभाग,

राजीव गाँधी विश्वविद्यालय, रोनाके हिल्स, दोइमुख - ७९१११२

दूरभाष - ०३६० - २२७७२६७, मो.- ०९४०२२७५६१५

E-mail: okeargu05@gmail.com

(c) सर्वाधिकार सुरक्षित

अरुण प्रभा में प्रकाशित रचनाओं के साथ राजीव गाँधी विश्वविद्यालय, ईटानगर या सम्पादकों की सहमति अनिवार्य नहीं है।

मूल्य : एक प्रति पचास रुपये

वार्षिक सदस्यता राशि : १५०/-

द्विवार्षिक सदस्यता राशि : ३००/-

मुद्रक :

मास्टरमाइंड

एन. टि. रोड, लखिमपुर, असम।

पिन- ७८७००१

E-mail : masterminsnlp2015@gmail.com

Arun Prabha An half yearly journal in Hindi

Publised by Register, Rajiv Gandhi University, Rono Hills, Itanagar- 791112

Scanned with CamScanner

विश्वविद्यालय अनुदान आयोग द्वारा अनुशंसित
मूल्यांकनपरक पत्रिका (Reffered Journal)

अनुक्रम

- रवीन्द्रनाथ ठाकुर के उपन्यासों में स्त्री जीवन की त्रासदी और विडम्बना
  //डॉ. एम. वेंकटेश्वर - 6
- असमिया संस्कृति पर श्रीमन्त शंकरदेव का प्रभाव
  //प्रो. हरीशकुमार शर्मा - 12
- मध्यकालीन काव्य का शास्त्रीय स्वरूप
  //प्रो. सुशील कुमार शर्मा- 16
- कबीर की दीपकधर्मी काव्य-संवेदना
  //डॉ. मधु सूदन शर्मा- 21
- साम्प्रदायिक सौहार्द के कवि दादू दयाल
  //प्रो. ओकेन लेंगो- 29
- नाट्यतत्वों की कलात्मक अन्विति
  //डॉ. अनुशब्द-35
- आदिवासी विमर्श: वैचारिकी का प्रश्न
  //डॉ. अभिषेक कुमार यादव-38
- स्त्री-विमर्श के आलोक में अन्या से अनन्या आत्मकथा का मूल्यांकन
  //डॉ. अमृता बीनी तादर- 42
- अयोध्या प्रसाद खत्री और हिन्दी आलोचना
  //राजीव रंजन गिरि- 47
- भाषा विज्ञान का समाज भाषिक स्वरूप
  //डॉ. जोराम यालाम नाबाम-55
- अरुणाचल प्रदेश के 'नोक्टे' जनजाति में नारी चेतना
  //डॉ. दोन्चा तोंदुक-59
- वर्तमान परिदृश्य और 'मन:विकार' के सन्दर्भ में श्री राम चरितमानस की चिन्तन दृष्टि
  //डॉ. विश्वजीत कुमार मिश्र-63
- भूमण्डलीकृत समय-समाजपूर्व के कन्नड़-हिन्दी नाटकों में अभिव्यक्त राजनीतिक संवेदना
  //डॉ. मीना कुमारी-70
- हिंदी भाषा : प्रयोजनमूलक सन्दर्भ एवं विमर्श
  //राजीव रंजन प्रसाद- 81
- भक्ति आन्दोलन एवं शिवकुमार मिश्र के विचार
  //डॉ. सत्य प्रकाश पाल- 89
- भक्तिकाव्य के कालजयी कवि और हमारा समय
  //डॉ अभिषेक कुमार मिश्र- 93
- 'साग आकाश' और स्त्री-विमर्श
  //डॉ रितेश कुमार मिश्र- 106
- देखिए, जब जिंदगी की तर्जुमानी है ग़ज़ल
  //लक्ष्मण प्रसाद गुप्ता- 111
- डॉ. वीरेन्द्र कुमार भट्टाचार्य के 'मृत्युंजय' का सामाजिक मूल्यांकन
  //मनोज कुमार कलिता- 121
- कुँवरनारायण की कविताओं में सामान्यजन का इतिहास और तदयुगीन सांस्कृतिक सौन्दर्य
  //अमरनाथ प्रजापति- 126
- नागार्जुन: मैं तुम्हारा कवि हूं
  //आशा सिंह- 131
- आदी लोक गीतों आदी समाज-संस्कृति का चित्रण
  //आईनाम ईरिंग- 138
- अनहीन पीड़ा की 'धार'
  //अंजना यादव- 147

CS Scanned with CamScanner

नाट्य-तत्वों की कलात्मक अन्विति

● डॉ. अनुशब्द

संस्कृत व्याकरण ने 'तत्व' शब्द की व्युत्पत्ति दी है: 'तनोति सर्वं इति तद तस्य भाव: तत्वम्'। गरज कि जिसकी व्याप्ति सर्वत्र रहे, उसे तत्व कहते हैं। परंतु यह व्युत्पत्यर्थ नाट्य तत्व को परिभाषित करने में पूर्णत: समर्थ नहीं है। साहित्य-सृष्टि के संदर्भ में नाट्यतत्व एक पारिभाषिक पद है। यह नाट्यविधान के उन विशिष्ट अवयवों का ज्ञापक है जिनके विनियोग से नाट्य-प्रभाव की सृष्टि होती है। प्रसिद्ध नाटककार एवं नाट्यालोचक डॉ. सिद्धनाथ कुमार लिखते हैं कि 'तत्व तो केवल उन मूल पदार्थों को कहते हैं जिनसे किसी वस्तु का निर्माण होता है।'[1] यह परिभाषा वस्तु के संदर्भ में जितनी सार्थक है उतनी विधा के संबंध में नहीं। कारण कि नाटक के सर्वस्वीकृत तत्व नाटक के कच्चा माल नहीं होते। रामगोपाल सिंह चौहान की दृष्टि में 'किसी भी रचना के मूल तत्व होने का गौरव वही तत्व प्राप्त कर सकते हैं जिनकी अवहेलना रचनाकार किसी भी दशा में न कर सके और अन्य रचना विधानों से उसके पार्थक्य को स्पष्ट कर सके।' प्रस्तुत संदर्भ में, नाट्यकृति और नाट्य-प्रस्तुति की प्रक्रिया में जिन सक्रिय अंगों और उपांगों का सहयोग प्राप्त होता है, वे सभी नाट्य-तत्वों की सीमा में आते हैं। दूसरे शब्दों में, नाट्य-तत्व उन समस्त साधनों को कहते हैं जिनके सहयोग से नाट्य-प्रस्तुति में सहृदय को रसोद्रेक होता है। तात्पर्य यह कि नाट्य-तत्व रस-निष्पत्ति का कारण है। इसी वजह से डॉ. मांधाता ओझा लिखते हैं- 'भारतीय नाट्य-चिंतन के अनुसार नाट्य-तत्व रस-निष्पत्ति का हेतु है जिसकी विवृत्ति अवस्थानुकृति या अभिनय द्वारा की जाती है।' बहरहाल, प्रभाव-सृष्टि और नाट्यानुभव में सहायक एवं समर्थ अंगोपांगों को नाट्य-तत्व कहते हैं।

भारतीय नाट्यदर्शन में नाटक के अंगोपांगों का सूक्ष्म विवेचन-विश्लेषण साकल्य में हुआ है, लेकिन कहीं भी नाट्य-तत्वों की स्थिति सुनिश्चित एवं सुनिर्धारित नहीं है। आद्याचार्य भरत ने नाट्योद्भव के प्रसंग में चार तत्वों का संकेत किया है। उनकी नजर में पाठ्य, गीत, अभिनय, और रस नाटक के मूलभूत तत्व हैं और इन सभी के उपजीव्य वेद हैं।[2] परवर्ती आचार्यों ने इस संदर्भ में इन तत्वों की अनुशंसा की है। आचार्य धनंजय ने 'दशरुपक' में नाटक के भेदक तत्वों की चर्चा की है, सामान्य तत्वों की नहीं। 'वस्तुनेतारसम्तेषां भेदकाः'। धनिक ने अपने भाष्य में स्पष्ट किया है कि 'वस्तु, नेता, रस के भेद से रुपक के भेद होते हैं।' महत्वपूर्ण नाट्यरूपों का स्थापत्य भी इस कारिका के मूल अभिप्राय को प्रमाणित करता है। वैसे रुपकों की संख्या दस हैं। किन्तु पूर्णांक रुपक मात्र तीन है: नाटक, प्रकरण और नाटिका। नाटक और प्रकरण में वस्तु-भेद है। नाटक की कथावस्तु प्रख्यात और प्रकरण की उत्पाद्य होती है। नाटिका में इन दोनों कथानकों का योग होता है। इन तीनों में नायक-भेद या नायकान्तर भी होता है। नाटक का नेता धीरोदात्त, प्रकरण का धीरप्रशांत और नाटिका का धीरललित। इनमें रस-भेद गौण होता है। शृंगार रस की योजना इन तीनों में स्वीकृत है। नाटक और प्रकरण में वीर रस की योजना भी वैकल्पिक रुप से संभव है। इन तथ्यों से सत्यापित होता है कि धनंजय द्वारा कथित नाटक के त्रितत्व नाटक के सामान्य तत्व नहीं हैं। ध्यातव्य है कि कुछ सुधी विद्वानों ने इन त्रितत्वों को ही नाटक का मूलभूत तत्व मान लिया है। डॉ. लक्ष्मीनारायण लाल नाट्य-तत्वों का उल्लेख करते हुए कहते हैं कि 'नाटक के तीन मूलभूत तत्व हैं: वस्तु, नेता और रस।

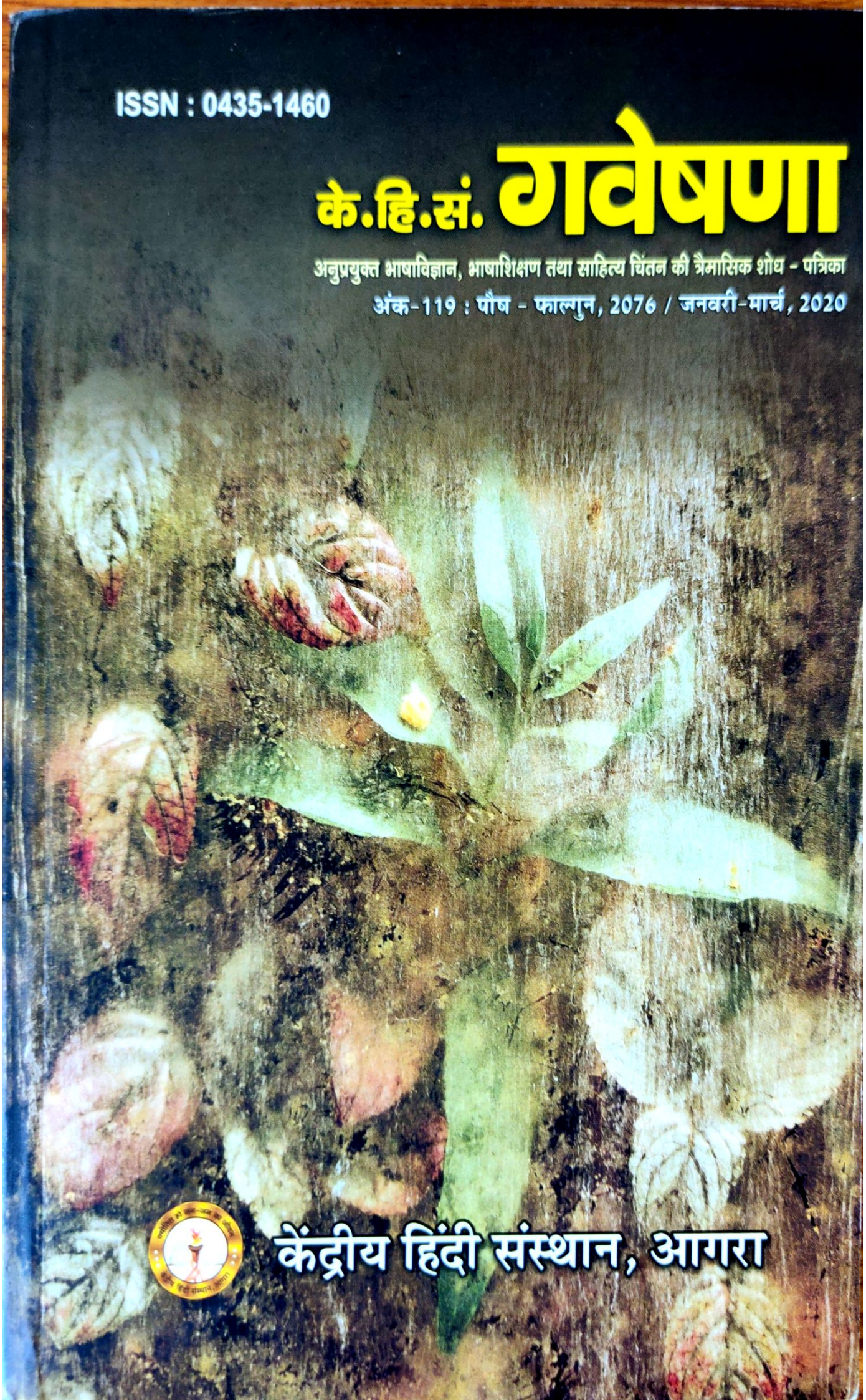
CS Scanned with CamScanner

ISSN : 0435-1460

के.हि.सं. गवेषणा

अनुप्रयुक्त भाषाविज्ञान, भाषाशिक्षण तथा साहित्य चिंतन की त्रैमासिक शोध - पत्रिका

अंक-119 : पौष - फाल्गुन, 2076 / जनवरी-मार्च, 2020



केंद्रीय हिंदी संस्थान, आगरा

ISSN 0435-1460
यू.जी.सी. केयर लिस्ट नं. 25

के.हि.सं. गवेषणा

अनुप्रयुक्त भाषाविज्ञान, भाषा शिक्षण तथा साहित्य-चिंतन की शोध पत्रिका

अंक-119 : पौष-फाल्गुन, 2076/जनवरी-मार्च, 2020

परामर्श मंडल

प्रो. एम. वेंकटेश्वर
पूर्व प्रोफेसर, हिंदी विभाग, अंग्रेजी एवं विदेशी भाषाएँ
विश्वविद्यालय हैदराबाद 500007
ई–मेल : mannar.venkateshwar9@gmail.com

प्रो. उमाशंकर उपाध्याय
पूर्व प्रोफेसर, सावित्री बाई फुले पुणे विश्वविद्यालय,
पुणे, महाराष्ट्र
ई–मेल : usupadhyay@gmail.com

प्रो. रामबख्श मिश्र
पूर्व प्रोफेसर, बनारस हिंदू विश्वविद्यालय
बनारस, उ.प्र.

प्रो. सुरेश गौतम
पूर्व प्रोफेसर, केंद्रीय हिंदी संस्थान,
आगरा 282005

प्रो. कुमुद शर्मा
प्रोफेसर, हिंदी विभाग, कला संकाय
दिल्ली विश्वविद्यालय, दिल्ली–110007

संरक्षक
डॉ. कमल किशोर गोयनका
उपाध्यक्ष, केंद्रीय हिंदी शिक्षण मंडल, आगरा
ई–मेल: kkgoyanka@gmail.com

प्रधान संपादक
प्रो. नन्द किशोर पाण्डेय
निदेशक, केंद्रीय हिंदी संस्थान, आगरा
ई–मेल: nkpandey65@gmail.com

संपादक
डॉ. ज्योत्स्ना रघुवंशी
विभागाध्यक्ष, अनुसंधान एवं भाषा विकास विभाग
केंद्रीय हिंदी संस्थान, आगरा
ई–मेल: drjyotsnar@gmail.com

अनुसंधान एवं भाषा विकास विभाग

केंद्रीय हिंदी संस्थान, आगरा
शिक्षा मंत्रालय, भारत सरकार
हिंदी संस्थान मार्ग, आगरा – 282005
दूरभाष : 0562-2530683/684/705

अनुक्रम

प्रधान संपादक की कलम से...

भलि मरवणरी बात/ **प्रो. नन्द किशोर पाण्डेय** 5–10

संपादकीय/ **डॉ. ज्योत्स्ना रघुवंशी** 11

विरासत

आस्वादधर्मी आलोचक डॉ. आनंद प्रकाश दीक्षित — **मनोज पाण्डेय** — 12–20

हिंदी आलोचना की संस्कृति और आचार्य रामचंद्र शुक्ल — **रवि रंजन** — 21–32

डॉ. उदयनारायण तिवारी का भाषा विज्ञान को योगदान — **दानबहादुर सिंह** — 33–38

मीमांसा

दशम ग्रंथ में संस्कृति बोध — **हरीश अरोड़ा** — 39–57

भक्तिकालीन साहित्य का सामाजिक संदर्भ — **आभा गुप्ता ठाकुर** — 58–67

जातिगत संघर्ष से भारतीय राज्यों के पतन का ऐतिहासिक प्रत्याख्यान : गढ़ कुंडार — **श्याम नन्दन** — 68–73

मानस का चित्रकूट प्रसंग : एक विराट सांस्कृतिक बिंब — **शीताभ शर्मा** — 74–81

साहित्य की आत्म-सत्ता — **सर्वेश कुमार सिंह** — 82–94

साहित्य

अज्ञेय के काव्य में अलंकार धर्मिता — **प्रभात कुमार प्रभाकर** — 95–105

लीलाधर जगूड़ी के काव्य का व्यंग्यात्मक सत्य	दीपशिखा	106-116
स्त्री महत्वाकांक्षा और उसका शोषण : 'मैं और मैं' के परिप्रेक्ष्य में	मुकेश कुमार त्रिपाठी	117-124
संस्कृतियों के मध्य संवाद का सशक्त माध्यम : हिंदी का यात्रा साहित्य	नवीन नन्दवाना	125-137
हिंदी उपन्यासों के आइने में थर्डजेंडर	प्रियंका कुमारी गर्ग	138-147
नये प्रतिमानों के निर्माण और सामाजिक हस्तक्षेप की कविता (केदारनाथ सिंह की कविताएँ)	अनुशब्द	148-154
विस्थापन की समस्या और हिंदी साहित्य	प्रशान्त कुमार सिंह	155-162

विविध

शिकस्त पर फतह का परचम लहराते कृष्ण बलदेव वैद	दत्ता कोल्हारे	163-168
समकालीन समय की शिनाख्त करती कहानियाँ : 'सुरखाब के पंख' कहानी संग्रह के संदर्भ में	भारती	169-174
मैं कहता आँखिन देखी: प्रो. रजनीश कुमार शुक्ल	अमित कुमार विश्वास	175-187

इस अंक के लेखक

सदस्यता फार्म

नये प्रतिमानों के निर्माण और सामाजिक हस्तक्षेप की कविता

[केदारनाथ सिंह की कविताएँ]

अनुशब्द

केदारनाथ सिंह ने अपनी कविताओं के लिए जिन प्रतीकों को चुना और उन प्रतीकों से जिन प्रतिमानों को गढ़ा, वह आधुनिक हिंदी कविता में उनको खास स्थान प्राप्त कराता है। प्रियतम के हाथ की तरह सुंदर और गर्म दुनिया का आकांक्षी कवि जब इस दुनिया के वास्तविक चेहरे को देखता है, तो वह एक ऐसे संवेदनहीन संसार को पाता है जिसे प्यार और सड़क के बीच फर्क करना नहीं आता, या जिसने इस फर्क को गैरजरूरी मानकर भुला दिया है। केदारनाथ सिंह 'फर्क नहीं पड़ता'[1] को अपने युग का मुहावरा बना लेने वाले समाज पर आक्रोशित हैं, अपनी कविता में इसी आक्रोश की सृजनात्मक और काव्यात्मक अभिव्यक्ति करते वे नजर आते हैं। इसलिए कई मायनों में उनकी कविता एक कवि की काव्यात्मक अभिव्यक्ति मात्र न होकर एक चेतना-युक्त, प्रज्ञासंपन्न, संवेदनशील मनुष्य का सामाजिक हस्तक्षेप है। इस सामाजिक हस्तक्षेप में चूल्हे की आँच, रोटी, बारिश, नदी, चाँद, पगडंडी, चौखट आदि उनके साथी बनते हैं और सर्वथा नये रूप में हम इनको केदार जी की कविता में पाते हैं। कभी प्रतीक तो कभी प्रत्यक्ष रूप में ये शब्द इनकी कविता में नजर आते हैं, परंतु इस साथी बनने और उपस्थिति दर्ज कराने की पूरी प्रक्रिया में उक्त शब्दों की अभिव्यक्ति हम जिस रूप में केदार जी के यहाँ पाते हैं वह हिंदी कविता में उसके पूर्व प्रयोग और उस प्रयोग से निर्मित प्रतिमानों को नकारती हुई अपनी समझ और व्याख्या के लिए नये सौंदर्यबोध की माँग करती है।

ध्यातव्य है कि हिंदी कविता में बारिश की सुंदर व्याख्या पहले भी हुई है परंतु जब कवि अपने प्रिय के आने के संदर्भ में लिखते हैं कि, "आना जैसे बारिश के बाद बबूल में आ जाते हैं नए-नए काँटे।"[2] तो एक पल को काँटे की चुभन ध्यान में नहीं आती अपितु बबूल में नये काँटों का उग आना उस अवश्यंभावी घटना-सा मालूम पड़ता है जिसका घटित होना बारिश के बाद लाजमी है। शायद कवि अपनी प्रिय के आने में भी कोई शक की गुंजाइश नहीं छोड़ना चाहते। इसी कविता की पहली पंक्ति में जब कवि लिखते हैं कि, "आना जब समय मिले।"[3] तो यह एक सामान्य-सी पंक्ति

अंक 273 वर्ष 57

भाषा

सितंबर–अक्तूबर 2017

विशेषांक

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सत्यमेव जयते

केंद्रीय हिंदी निदेशालय
भारत सरकार

Skill India

ISSN 0523-1418
भाषा (द्वैमासिक)
वर्ष : 57 □ अंक : 1 (274)
सितंबर–अक्तूबर, 2017

संपादकीय कार्यालय
केंद्रीय हिंदी निदेशालय,
उच्चतर शिक्षा विभाग,
मानव संसाधन विकास मंत्रालय, भारत सरकार,
पश्चिमी खंड-7, रामकृष्णपुरम्,
नई दिल्ली-110066
वेबसाइट : www.hindinideshalaya.nic.in
ईमेल : bhashaunit@gmail.com

बिक्री केंद्र :
नियंत्रक, प्रकाशन विभाग, सिविल लाइंस, दिल्ली - 110054
सदस्यता हेतु ड्राफ्ट नियंत्रक, प्रकाशन विभाग, दिल्ली के पक्ष में भेजें।

मूल्य :		
स्वदेश में : एक प्रति :	₹ 25/–	(डाकखर्च अतिरिक्त : ₹ 11/–)
वार्षिक :	₹ 125/–	(डाकखर्च अतिरिक्त : ₹ 66/–)
विदेश में : एक प्रति :	£ 1 अथवा $ 2	(डाकखर्च सहित)
वार्षिक :	£ 6 अथवा $ 12	(डाकखर्च सहित)

वेबसाइट : www.deptpub.gov.in
ई–मेल : pub.dep@nic.in
दूरभाष : 011-23817823/ 9689
फैक्स : 011-23817846

पत्रिका में व्यक्त विचार लेखकों के अपने हैं। इनसे भारत सरकार या संपादन मंडल का सहमत होना अनिवार्य नहीं है।

5609 CHD/2017—1B

भाषा
सितंबर–अक्तूबर 2017

अनुक्रमणिका

निदेशक की कलम से
संपादकीय
आपने लिखा
आलेख

1. दीनदयाल उपाध्याय : सांस्कृतिक राष्ट्रवाद	डॉ. महेश चंद्र शर्मा	9
2. दीनदयाल उपाध्याय, भारतीय संस्कृति तथा भाषा	डॉ. श्याम सिंह शशि	15
3. दीनदयाल उपाध्याय : जन्मशती वर्ष के संकल्प	विजय कुमार	20
4. सबका साथ : सबका विकास बनाम अंत्योदय	अशोक बजाज	27
5. पं. दीनदयाल उपाध्याय और एकात्म मानववाद	डॉ. कमल किशोर गोयनका	29
6. एकात्म मानववाद और भारतीय चिति	प्रो. त्रिभुवननाथ शुक्ल	34
7. एकात्म मानववादी का साहित्यिक दर्शन	डॉ. रचना विमल	38
8. आइए बनाएँ एकात्म मानव दर्शन पर आधारित मीडिया	संजय द्विवेदी	44
9. एकात्म मानववाद और धर्म	नवीन मणि त्रिपाठी	47
10. पं. दीनदयाल उपाध्याय: सामाजिक और एकात्म मानववादी दर्शन	डॉ. दिनेश कुमार शुक्ला	54
11. पं. दीनदयाल उपाध्याय की लगन, एकात्म मानववाद, चिंतन व मरण से भारत ले सीख	प्रो. आनंद वर्धन	58
12. एकात्म मानववाद की वैचारिक पृष्ठभूमि	किरण राठौर	62
13. पंडित दीनदयाल उपाध्याय के एकात्म मानववाद की प्रासंगिकता	डॉ. अमित रंजन सिंह	67
14. मानवीय मूल्यों के संवाहक : पं. दीनदयाल उपाध्याय	डॉ. हरिप्रसाद दुबे	74
15. भारतीय जीवन-मूल्य और पं. दीनदयाल उपाध्याय	माधव गोविंद वैद्य	80
16. पंडित दीनदयाल जी और प्राकृतिक समरसता	रमेश पतंगे	84
17. समरसता के संवाहक पं. दीनदयाल उपाध्याय जी	शैलेंद्र प्रसाद सिंह	88
18. पंडित दीनदयाल उपाध्याय जी का समय और विचार	डॉ. दिनेश प्रताप सिंह	91
19. पं. दीनदयाल उपाध्याय : आदर्श पत्रकारिता के पुरोधा	लोकेंद्र सिंह	96

20. पं. दीनदयाल उपाध्याय का शैक्षिक दर्शन	डॉ. सुधाकर प्रसाद सिंह	103
21. पं. दीनदयाल उपाध्याय और उनका जीवन-दर्शन	डॉ. सुरुचि मिश्रा	107
22. पं. दीनदयाल जी की वैचारिक क्रांति-दर्शिता	डॉ सी. जयशंकर बाबु	112
23. पं. दीनदयाल उपाध्याय और उनकी चिंतन-दृष्टि	सोना पाठक	118
24. राष्ट्रवाद के मूलमंत्र को जागृत करता उपन्यास 'जगद्गुरु शंकराचार्य'	शैलेंद्र कुमार शुक्ल	122
25. पं. दीनदयाल उपाध्याय : एक महात्मा	जमना प्रसाद गुप्त	126
26. प्रेरक विभूति पं. दीनदयाल उपाध्याय जी	डॉ. सुनील कुमार सारस्वत	132
27. बहुत याद आते हैं दीनदयाल जी	सर्वेशचंद्र शर्मा	135
28. समन्वयवादी पं. दीनदयाल उपाध्याय	प्रो. जगत पाल सिंह तोमर	140
29. संस्कारशीलता के उपासक- दीनदयाल उपाध्याय	डॉ. बद्रीप्रसाद पंचोली	144
30. दीनदयाल उपाध्याय की दृष्टि में अल्पसंख्यक और भारत	भगवान अटलानी	147
31. पंडित दीनदयाल उपाध्याय का आर्थिक लोकतंत्र	प्रो. ओमप्रकाश पांडेय	152
32. पंडित दीनदयाल उपाध्याय की अर्थ-नीति	प्रसेनजीत कुमार	156
33. 'नींद क्यों रात-भर नहीं आती...'	डॉ. अनुशब्द	158
34. वर्तमान समाज में पंडित दीनदयाल उपाध्याय के विचारों की प्रासंगिकता	डॉ. आलोक रंजन पांडेय	162
35. मूल्य, आदर्श और प्रतिभा की त्रिवेणी : पं. दीनदयाल उपाध्याय	प्रो. दिनेश चमोला 'शैलेश'	166
36. 'राष्ट्रवाद' - दीनदयाल उपाध्याय की नजर से	डॉ. प्रतिष्ठा श्रीवास्तव	169
37. एकात्म मानववाद : भारत-बोध की पुनर्गवेषणा	बृजेंद्र पांडेय	171
प्राप्ति स्वीकार		178
संपर्क सूत्र		179

'नींद क्यों रात भर नहीं आती...'

डॉ. अनुशब्द

पं. दीनदयाल उपाध्याय का 'एकात्म मानववाद' एक विचार नहीं है, सिद्धांत है। यह एक जीवन-दृष्टि नहीं, समग्र जीवन-दर्शन है। इसकी व्याप्ति व्यक्ति से लेकर समष्टि तक, प्राचीन से लेकर अर्वाचीन तक, विकृति या अपसंस्कृति से लेकर संस्कृति तक है। यह मनुष्य और समाज में, व्यक्ति और प्रकृति में द्वंद्व और संघर्ष का प्रत्यय नहीं है। यह उनके बीच सहयोग और सौहार्द का दर्शन है, सामंजस्य और समन्वय का निदर्शन है तथा सामरस्य का सार्थक प्रदर्शन है। मुरली मनोहर जोशी का यह कथन सर्वाधिक उपयुक्त है कि "एकात्म मानववाद स्वस्थ समाज की रचना के लिए जीवन-दर्शन एवं विचार-दर्शन के रूप में हमारे सामने उपस्थित है।"[1] समतामूलक समाज के लिए उसकी उपस्थिति निहायत जरूरी है। संभवत: इसलिए भी विश्वग्राम के इश्तहार पर भारतीय चिति यानि अस्मिता के विनाश की जो इबारत लिखी जा रही है, उसको यही मानवतावाद की अवधारणा विनष्ट करने में सक्षम है। भारतीय संदर्भों में अपने आपको परिभाषित करने में यही जीवन-चिंतन समर्थ है। इसलिए इसका समग्रता में अनुशीलन आज की जरूरत है और पूरी तन्मयता और आत्मीयता के साथ स्वीकृति ही आज एकमात्र विकल्प है।

पं. दीनदयाल उपाध्याय जी ने भारतीय संस्कृति का गहन अध्ययन किया था और इसके सत्व की पड़ताल करते हुए अनुभव किया था कि जहाँ भारतीय संस्कृति समग्रता का दर्शन है, वहीं पाश्चात्य संस्कृति आंशिकता का चिंतन है। हमारी संस्कृति जहाँ किसी विषय को संपूर्णता में देखती है, वहीं यूरोपीय संस्कृति उसको टुकड़ों में बाँटकर देखती है। टुकड़ों में बाँटकर देखना व्यावहारिक पद्धति हो सकती है, किंतु इससे सत्यांश का ही अनुभव होता है, सर्वांश का नहीं। भारतीय नजरिया 'गज-अंध-न्याय' में विश्वास नहीं करता। लिहाजा पंडित जी नए-पुराने मूल्यों के चयन में वैज्ञानिक दृष्टि से इत्तेफाक रखते थे। उन्होंने भारतीय मनीषा की इस सूक्ति को आत्मसात किया था :

'पुराणमित्येव न साधु सर्वं न चापि काव्यं नवमित्यवद्यम्।

सन्त: परीक्ष्यान्तरद्भजन्ते मूढ: परप्रत्ययनेयबुद्धि:॥[2]

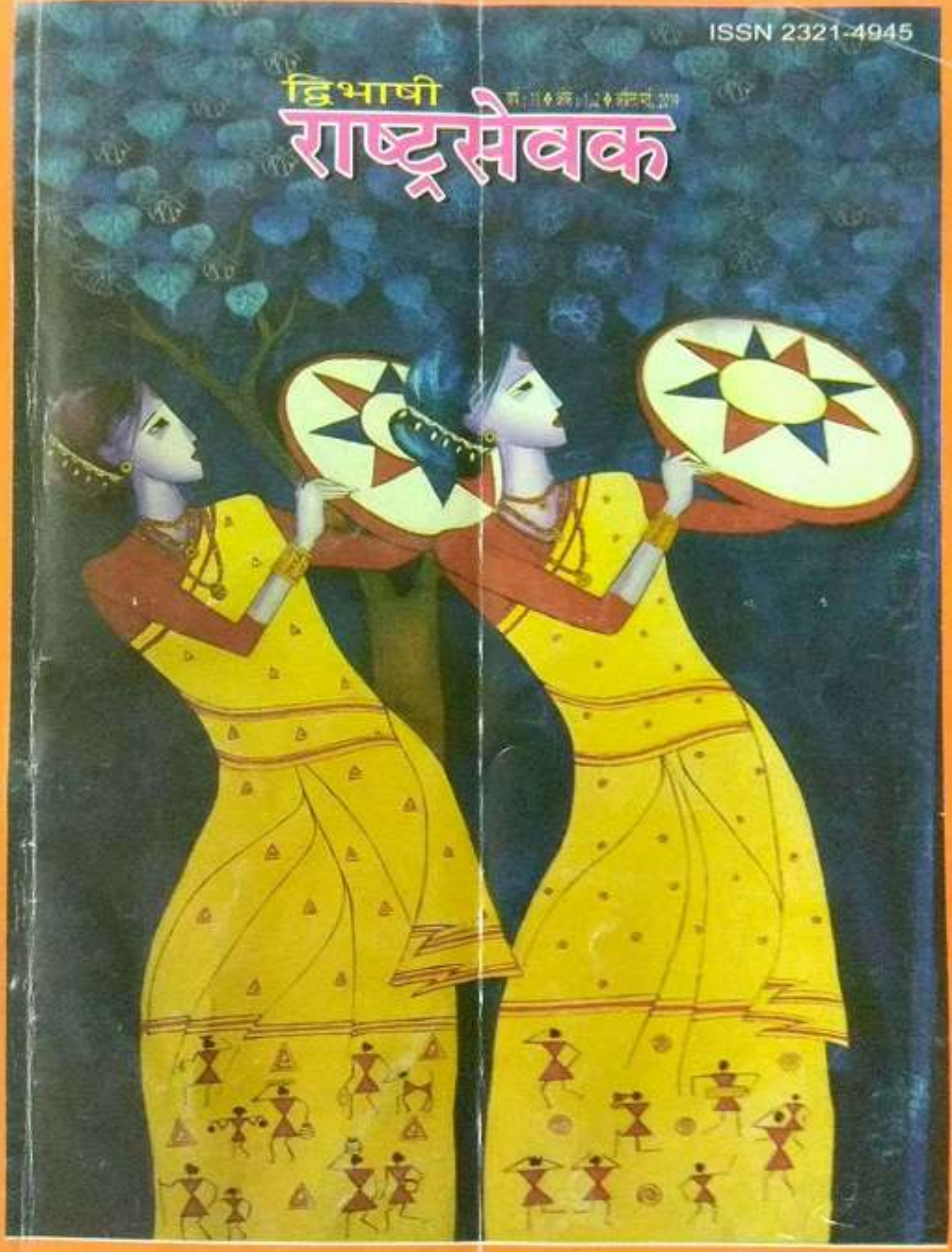
इसी साधु दृष्टि को अपनाते हुए वे कहने में समर्थ हो सके हैं कि "हजारों वर्षों में हमने जो कुछ किया है, वह विवशता में हमें मिला हो या हमने प्राप्त किया हो, उसमें से हर वस्तु को हटाकर नहीं चल सकते ... बाहरवालों ने जो कुछ किया, हम केवल उसका प्रतिकार ही नहीं करते रहे, हमने भी परिस्थितियों के अनुसार अपने जीवन को ढालने का प्रयत्न किया। इसलिए उस सब जीवन को भुलाकर तो नहीं चल सकते ..."[3] गरज कि अपनी आतंरिक संपदा और बाहरी प्रभावों में श्रेष्ठ और श्रेयस्कर है, उसको नजरअंदाज करना न्यायसंगत नहीं और न विवेकसंगत ही। कारण कि हम अपने स्वस्थ भविष्य और सार्थक जीवन-चर्या के लिए कल्याणकारी तत्वों एवं मंगलकारी मूल्यों को अपनाकर ही प्रगति-पथ पर अग्रसर हो सकते हैं। महज भारतीय और पाश्चात्य रूढ़ियों के अंधानुकरण से हम आगे नहीं बढ़ सकते और न ही विश्व में अपनी पहचान और निजता को अक्षुण्ण रख सकते हैं। इस प्रसंग में यह भी ध्यातव्य है कि कोई भी विचार सार्वकालिक या सार्वभौमिक नहीं होता क्योंकि उसकी जमीन और आबोहवा अलग-अलग होती है। चिकित्सा विज्ञान में लिखा भी

भाषा ISSN 0523-1418

ISSN 2321-4945

द्विभाषी

राष्ट्रसेवक



CS Scanned with CamScanner

एक हृदय हो भारत जननी

असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी

[केंद्रीय हिंदी निदेशालय, मानव संसाधन विकास मंत्रालय, भारत सरकार के आर्थिक सहयोग से प्रकाशित]

सलाहकार

श्री हरिकांत नाथ

डॉ. अच्युत शर्मा

डॉ. नारायण तालुकदार

प्रो. दिलीप कुमार मेधी

संपादक

डॉ. क्षीरदा कुमार शइकीया

(मो. 9435340285)

कार्यकारी संपादक

श्री धीरेन चंद्र शर्मा

(मो. 6001523674)

शब्द-संयोजन व अलंकरण

रति कांत कलिता

वार्षिक शुल्क : दो सौ रुपये

अर्द्धवार्षिक : सौ रुपये

एक प्रति : बीस रुपये

प्रकाशक

डॉ. क्षीरदा कुमार शइकीया

मंत्री, असम राष्ट्रभाषा प्रचार समिति

गुवाहाटी-781032

'द्विभाषी राष्ट्रसेवक' में प्रकाशित लेखों में व्यक्त विचार एवं दृष्टिकोण लेखक के हैं। संपादक या प्रकाशक का उनसे सहमत होना आवश्यक नहीं है।

लेखादि भेजने का पता :

संपादक, द्विभाषी राष्ट्रसेवक

असम राष्ट्रभाषा प्रचार समिति,

रूपनगर, गुवाहाटी-781 032

फोन : (0361) 2462811, 2463394

फैक्स : 0361 - 2463394

Postal Rgd. No. GH-127/2019-2021 ISSN 2321-4945

असम राष्ट्रभाषा प्रचार समिति का

साहित्य-कला-संस्कृति विषयक मासिक मुख-पत्र

द्विभाषी राष्ट्रसेवक

वर्ष : 11 अप्रैल-मई, 2019 अंक : 1, 2

विषय-सूची

हिंदी विभाग

• सामयिकी		2
• प्रेम और भाइचारे का प्रतीक - रंगाली बिहू	रामनाथ प्रसाद	3
• बहागीर बिया : असम में वसंत	अजयेंद्रनाथ त्रिवेदी	6
• प्रासंगिकता का प्रश्न और कबीर की कविता	डॉ. अनुशब्द डॉ. चारु गोयल	9
• भक्त सम्राट गुरु रविदास	शंकर प्रसाद साहू	13
• यशपाल की कहानियों में यथार्थ चित्रण	पल्लबी दास	16
• विज्ञापनों में नैतिकता का सवाल	प्रवीण बोरा	20
• हमारा भारत/भूल गया क्यों इंसान (कविता)	आकाश गुप्ता	24
• समिति समाचार		25

অসমীয়া বিভাগ

• বিভিন্ন মনিষীৰ দৃষ্টিত বিহু আৰু বিহুগীত	মহম্মদ শিকদাৰ	31

लेखक/लेखिकाओं से अनुरोध : • 'द्विभाषी राष्ट्रसेवक' के लिए भेजे जाने वाले लेखादि साहित्य, कला, संस्कृति विषयक होने चाहिए। • भेजे गये लेखादि साफ अक्षरों में या टाइप कराकर ही भेजें। • अनूदित लेखों के लिए मूल लेख का उल्लेख करना अनिवार्य है। • सभी कानूनी विवादों का निपटारा गुवाहाटी न्यायालय के अधीनस्थ होगा।

CS Scanned with CamScanner

प्रासंगिकता का प्रश्न और कबीर की कविता

✍ डॉ. अनुशब्द एवं डॉ. चारु गोयल

साहित्य के संदर्भ में प्रासंगिकता का अर्थ है किसी भी रचना या रचनाकार का कालजयी एवं कालजीवी होना। प्रासंगिकता समाजशास्त्रीय उपकरणों से तय होती है और इन समाजशास्त्रीय उपकरणों का संबंध केवल साहित्य से नहीं होता बल्कि यह इतिहास से भी अभिन्न रूप में जुड़ा होता है। रचना की प्रासंगिकता के संबंध में मैनेजर पांडेय का मत दृष्टव्य है-'कोई भी सार्थक रचना इतिहास की उपज होती है, लेकिन उसका अपना भी एक इतिहास होता है, जिसे वह स्वयं बनाती है। उसका वर्तमान होता है तो उसका अतीत भी होता है। उसके पाठकीय ग्रहण का वर्तमान होता है तो उत्पत्तिमूलक अतीत भी होता है। इन दोनों के द्वंद्वात्मक संबंध के बोध के आधार पर ही किसी रचना की प्रासंगिकता का निर्णय हो सकता है।' (आलोचना की सामाजिकता, पृष्ठ-292) कबीर के काव्य के संदर्भ में जब हम उपर्युक्त कथन की मीमांसा करते हैं तो पाते हैं कि कबीर के काव्य का संबंध न सिर्फ अपने समय और अतीत से है, बल्कि उसमें भविष्य की आहट भी है। यही कारण है कि कबीर जितने प्रासंगिक अपने समय में थे, कई मायनों में उससे ज्यादा प्रासंगिक आज नजर आते हैं।

कबीर जिस भारतीय समाज में पैदा हुए थे, वह बहुत उथल-पुथल का समय था। उसमें संस्कृति, धर्म और विचार की अनेक तेज धाराएं परस्पर टकरा रही थीं। एक ओर हिंदू समाज की भेदभाव पर आधारित जाति-व्यवस्था की संरचना थी तो दूसरी ओर इस्लाम था, जिसमें उग्रता थी। उसमें धार्मिक स्तर पर समानता के बावजूद सामाजिक विषमता थी। उसके विरुद्ध प्रेम की पीर का संदेश देने वाले सूफी संत थे। साधारण जनता इस भंवर जाल में फंसी हुई थी। हिंदू जनता जिस तरह जाति-व्यवस्था के भेदभाव और धार्मिक कर्मकांड की चक्की में पिस रही थी, उसी तरह मुस्लिम जनता इस्लाम की कट्टरता और कर्मकांड की चक्की में। इन दोनों के ऊपर राजसत्ता और शोषण का चक्र चल रहा था। यही देखकर कबीर ने कहा होगा-

चलती चक्की देखकर, दिया कबीरा रोय।
दो पाटन के बीच में साबुत बचा न कोय॥

उस कठिन समय में भारतीय मनुष्य की मनुष्यता खतरे में थी। वह हिंदू या मुसलमान होकर अपनी चेतना और संवेदना को धर्म के हाथों गिरवी रख कर ही बच सकता था। वर्णव्यवस्था और सांप्रदायिकता ने मानव समाज को खंडित किया हुआ था। धर्म का आडंबरकारी रूप धर्म के वास्तविक स्वरूप का स्थान ले चुका था। अभिजात्यवादी प्रवृत्तियों ने मानव मानव के बीच की दूरी को और गहरा दिया था। ऐसे में कबीर ने अपने काव्य के माध्यम से न सिर्फ मानव एकता को स्वर दिया बल्कि यह उद्घोषणा कर डाली कि 'साईं के सब जीव हैं, कीरी कुंजर दोय।'

ऐसे समय में एक ऐसे व्यक्ति की जरूरत थी, जो उस काल के भारतीय समाज की समग्रता को जानता हो, साथ ही मनुष्य की मनुष्यता में जिसकी अटूट आत्मा हो। ऐसे ही व्यक्ति थे कबीर। उनके काव्य में उस समय की जटिल स्थिति का बोध है और उसके

CS Scanned with CamScanner

Reg. No. 694/2009-10

ISSN : 2250-1193

अनुकृति

An International Refereed Research Journal

वर्ष–6, अंक–8

अक्टूबर–दिसम्बर, 2016

प्रधान सम्पादक
प्रो. विजय बहादुर सिंह
हिन्दी विभाग
काशी हिन्दू विश्वविद्यालय
वाराणसी

सम्पादक
डॉ. रामसुधार सिंह
पूर्व अध्यक्ष, हिन्दी विभाग
उदय प्रताप स्वायत्तशासी महाविद्यालय
वाराणसी

प्रकाशक
सृजन समिति प्रकाशन
वाराणसी (उ.प्र.)

विषयानुक्रमणिका

- वैदिक साहित्य का स्वरूप — 1-2
  डॉ0 हर्षवर्धन मिश्र
- कालिदासयुगीन गायन की प्रचलित विधाएँ — 3-4
  डॉ0 अनामिता कुमारी
- पूर्व मध्यकालीन उत्तर भारतीय मुद्रानिधियां : एक संक्षिप्त विवरण — 5-10
  हेमंत सिंह
- प्राकृतप्रातःसवनीयाध्वर्यवेतिकर्तव्यता — 11-16
  डॉ0 ज्ञानेन्द्र सापकोटा
- انقلاب اسلامی سے پہلے کی فارسی شاعری — 17-22
  ڈاکٹر ذیشان حید
- आप्रवास — 23-26
  सन्तोष कुमार
- 1990 से 2005 के महिला कहानीकारों की कहानियों में चित्रित नारी समस्या — 27-28
  राम आशीष तिवारी
- गोस्वामी तुलसीदास का भाव सौन्दर्य — 29-32
  रामयश पाण्डेय
- भारतीय संविधान में सामाजिक न्याय — 33-36
  मनोज कुमार गौतम
- सूचना प्रौद्योगिकी से बदलता ग्रामीण जीवन स्तर : एक समाजशास्त्रीय विश्लेषण — 37-40
  राजा बाबू गुप्ता
- संस्कृत वाङ्मय में नारी के बदलते प्रतिमान–एक दृष्टि — 41-44
  अमित सिंह
- हेत्वाभासस्वरूपविमर्शः — 45-50
  डॉ0 राजेशकुमारसिंहः
- आचार्य शशधर के अनुसार वायु का स्वरूप — 51-52
  राजेश कुमार मिश्र
- परमार सम्राट सिन्धुराज — 53-54
  डॉ0 देवाराम
- कठोपनिषद् में प्रतिपादित अध्यात्मतत्त्व — 55-58
  डॉ0 अनुला मौर्य
- वृत्तरत्नाकरस्य सेतुटीकायाः वैशिष्टयम् — 59-62
  धर्मेन्द्र कुमार
- प्रेमचंद साहित्य वाया दलित साहित्य — 63-66
  डॉ0 अनुशब्द
- पूर्व–मध्यकालीन कश्मीर राज्य तथा उसके समकालीन राज्यों के मध्य अन्तर्राज्यीय सम्बन्ध — 67-70
  डॉ0 मंजु कश्यप

31/2/16

प्रेमचंद साहित्य वाया दलित साहित्य

डॉ0 अनुशब्द*

मराठी में दलित लेखन और आलोचना दोनों सर्वोच्च स्तर पर है। उसे इस स्तर पर पहुँचाने में मार्क्सवादका पूरा सहयोग लिया गया है। वहाँ अम्बेदकर और मार्क्सवाद आपस में इस कदर घुले–मिले हैं कि दोनों को अलगाना अब प्रायः नामुमकिन हो गया है। वहाँ भी हिंदी की तरह ही एक वर्ग है जो मार्क्सवाद से परहेज रखता है किन्तु दलित साहित्य की मुख्य धारा इस हठधर्मिता को मान्यता नहीं देती। वहाँ के मार्क्सवादी दलितोन्मुख और दलित मार्क्सोन्मुख हैं। इसकी जानकारी दलित लेखक शरणकुमार लिम्बाले की पुस्तक 'दलित साहित्य का सौंदर्यशास्त्र' में मिलती है।

"दलित साहित्य दलितों के संघर्ष का साहित्य है। अब दलित साहित्य आंदोलन को अम्बेदकरवाद के साथ–साथ मार्क्सवाद को भी स्वीकार करना होगा। तभी यह संघर्ष अर्थपूर्ण होगा, ऐसी समझ स्थापित करनी पड़ेगी।" कारण कि "दलितों की दरिद्रता का मूल धर्म और इतिहास में भले ही जिक्र हुआ लेकिन उसका आज का स्वरूप समूल परिवर्तित हो गया है। यह भी ध्यान देना होगा कि शासन की लोक कल्याणकारी योजनाएँ, आरक्षित स्थान और दलितों में नये रूप में बढ़ते हुए मध्यवर्ग के कारण दलितों की दरिद्रता का स्वरूप केवल धार्मिक और ऐतिहासिक नहीं रहा, वह और अधिक जटिल हुआ है।"

दलितों की आर्थिक दासता का कारण यहाँ की भारतीय समाज–व्यवस्था में छिपा हुआ है, तो इस मुक्ति का अंतिम मार्ग मार्क्सवाद और अम्बेदकरवाद दोनों के समन्वय में मिल सकेगा।

कहना न होगा कि अम्बेदकर का एक वर्णविहीन समाज जातिविहीन बनने का महास्वप्न भी जिसका जिक्र– ओमप्रकाश वाल्मीकि बार–बार अपनी पुस्तक में करते हैं– तभी पूरा हो सकता है जब मार्क्सवाद से मित्रता स्थापित की जाए। इस स्वप्न के पूरा होने की एक ही प्रक्रिया समझ में आती है कि वर्ण–व्यवस्था नष्ट हो , वर्ग–व्यवस्थामें पर्यवसित हो और, फिर बात आगे बढ़े।

हिंदी और मराठी के सौंदर्यशास्त्रीय चिंतन में सबसे बड़ा अंतर यही है कि मराठी के दलित लेखक बुद्ध के स्थान पर मार्क्स को लेकर चलते हैं जबकि हिंदी के दलित लेखक मार्क्सवाद को परे कर बौद्ध धर्म की शरण में जाना ज्यादा उचित समझते हैं।

मराठी दलित विमर्श में भी दलित लेखकों का झुकाव बौद्ध विचार–प्रणाली की ओर था लेकिन तब उस दौर में नवबौद्ध लेखकों का जोर था। अंततः उन्होंनेइसका मोह छोड़ दिया है। मगर हिंदी में दलित विमर्श अभी मराठी के नवबौद्ध दौर से आगे नहीं बढ़ा है।

ओमप्रकाश वाल्मीकि नैतिक मानवीय दृष्टिकोण को दलित साहित्य का मूलाधार मानते हैं और बुद्ध के आध्यात्मिक आख्यानों को इसका उत्स। उनका मानववाद मार्क्स से कहीं ज्यादा बुद्धोन्मुख है। वे लिखते हैं:

"दलित साहित्य की मान्यताएँ नैतिक मानवीय दृष्टिकोण पर आधृत हैं। इसीलिए उसके दार्शनिक आख्यानों में 'बुद्ध' की गहन मानवीय सोच उसे मानव केंद्रित करती है।"

वाल्मीकि वर्ण–व्यवस्था को अंतिम सत्य की ओर स्वीकार करते हैं और विकास की अगली संभावनाओं को स्थगित कर देते हैं जबकि लिम्बाले लिखते हैं कि "समाज में एक तरफ जातीय भावना प्रबल हुई है तो शोषितों का शोषण और उनके समान हित संबंध के कारण जातीय भावना के पार जाकर वर्गीय भावना भी बढ़ रही है। आंदोलन और संगठन में वाम विचारधारा जोर पकड़ रही है, जिसके कारण ऐसा लगता है कि जाति–व्यवस्था नष्ट होकर वर्ग–व्यवस्था अस्तित्व में आएगी।"

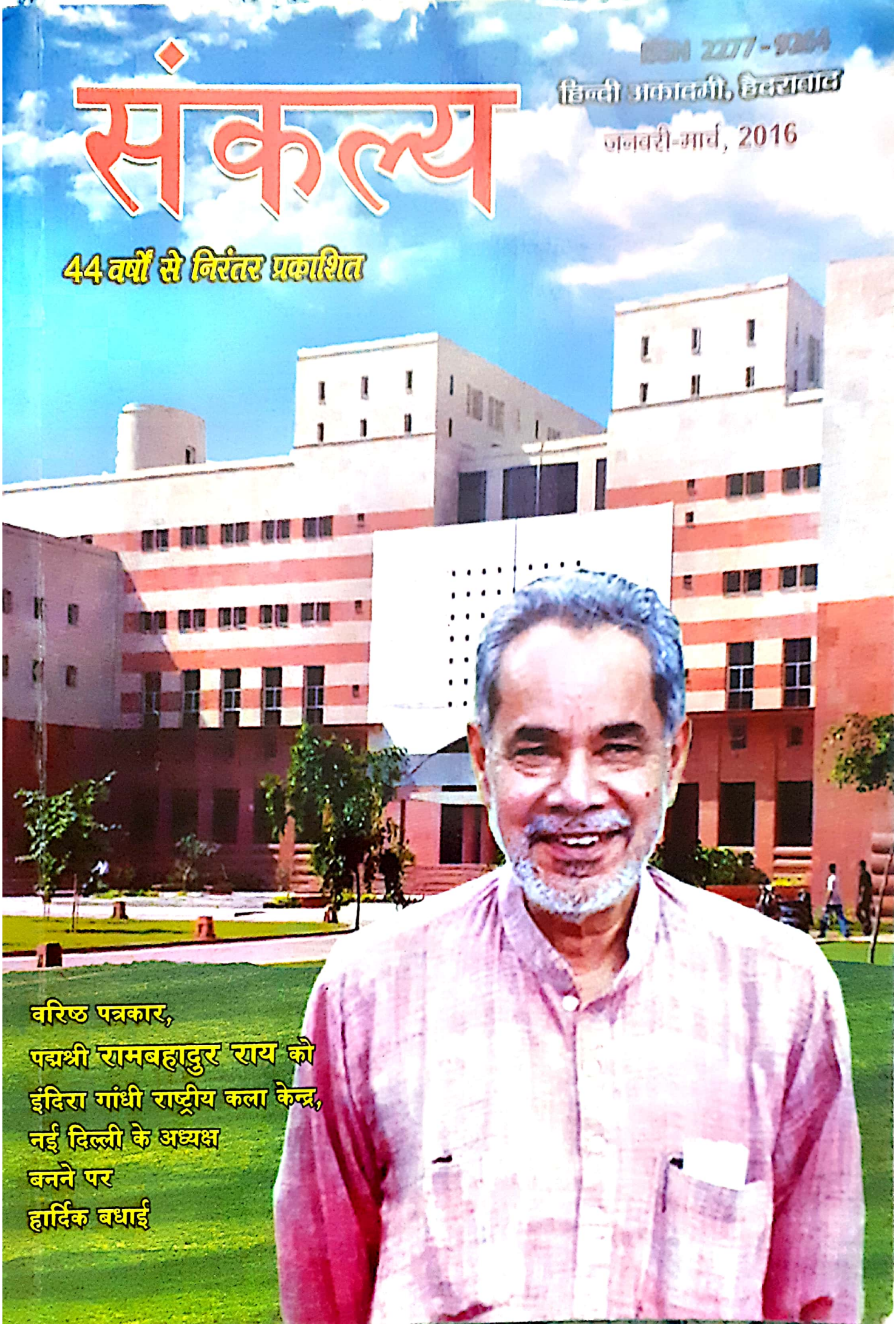
---

* सहायक प्रोफेसर, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, नपाम, असम

संकल्प

ISSN 2277-5064
हिन्दी अकादमी, हैदराबाद
जनवरी-मार्च, 2016

44 वर्षों से निरंतर प्रकाशित



वरिष्ठ पत्रकार,
पद्मश्री रामबहादुर राय को
इंदिरा गांधी राष्ट्रीय कला केन्द्र,
नई दिल्ली के अध्यक्ष
बनने पर
हार्दिक बधाई

Scanned by CamScanner

विषय-क्रम

संपादकीय

5 प्रो.टी.मोहन सिंह - विश्वविद्यालयों में राजनीतिक हस्तक्षेप : समस्याएँ और समाधान

जन्मदिन स्मरण

15 डॉ.गोरखनाथ तिवारी - दक्षिण हिंदी महासमर के अर्जुन : बदरीविशाल पित्ती जी

विशेष

22 प्रो.दिलीप सिंह - कहाँ-कहाँ से गुजर गया किताबों के बहाने

आलेख

32 डॉ.विवेकी राय - डॉ.वेदप्रकाश अमिताभ : समीक्षक व्यक्तित्व का निखार

39 मांधाता राय - सूर की रामकथा और मानस

47 प्रो.विजय कुलश्रेष्ठ - गत शती के महिला उपन्यास और परिवर्तित मनोवैज्ञानिक संदर्भ

52 डॉ.इसपाक अली - हिंदी कथा साहित्य में वृद्धा विमर्श

55 डॉ.सुनीति आचार्य - श्री कृष्ण-भक्ति में अवतारवाद की चेतना

60 डॉ.माधुरी पाण्डेय गर्ग - प्रेमचंद और शरतचंद्र के उपन्यासों में सामाजिक-संचेतना

64 डॉ.राजेश चंद्र पाण्डेय - निराला के नवगीत और संवेदना के विविध आयाम

67 कृष्ण कुमार यादव - प्रकृति का उल्लास पर्व है वसंत

71 सूर्यकांत त्रिपाठी - विद्यापति के काव्य में स्वरों की संगीतमयता

74 डॉ.किरण बाला अरोड़ा - वर्णभेद एवं श्री नरेश मेहता का काव्य शबरी

78 डॉ.अंजु लता - नासिरा शर्मा का कथा साहित्य : एक आलोचनात्मक अध्ययन

84 डॉ.विजय पाटील - हिंदी कहानी में मूल्य संक्रमण

88 डॉ.के.माधवी - अंतिम दशक के हिंदी नाटक-मानवीय मूल्य

91 डॉ.पार्वती - स्त्रीवाद और ओल्गा का साहित्य

95 लाङ्जम रोमी देवी - साधारण के असाधारण कवि: मत्स्येंद्र शुक्ल

99 मुकेश कुमार - ज्ञानी देवी के काव्य में चित्रित प्रेम-भावना

Scanned by CamScanner

नासिरा शर्मा का कथा साहित्य : एक आलोचनात्मक अध्ययन

डॉ.अंजु लता

समकालीन कथा साहित्य में नासिरा शर्मा एक प्रमुख नाम है। नासिरा उर्दू, हिंदी, फारसी और अंग्रेजी भाषाओं पर समान अधिकार रखती हैं। इनके कथा साहित्य में संवेदना के विविध रंग देखने को मिलते हैं। हिंदी साहित्य में इनकी पहचान ईरानी क्रांति पर गंभीर लेखन के कारण बनी। ईरान जब क्रांति के दौर से गुजर रहा था उस समय में लेखिका वहाँ जाकर अयातुल्लाह खुमैनी का इंटरव्यूह लेकर आती है। यह वह समय था जब ईरान की पूरिमा हर किसी की गतिविधि पर चौकन्नी हो जाती थी। ईरान में खुमैनी की इस्लामिक सत्ता के दौर में इन्होंने साम्यवादियों के पक्ष में कलम उठाई। ईरान पर अपने लेखन के अतिरिक्त इन्होंने इराक, अफगानिस्तान तथा अन्य मध्य पूर्व के देशों को अपने लेखन में स्थान दिया।

नई कहानी आंदोलन के दौर में साहित्य में भोगे हुए यथार्थ और अनुभव की प्रामाणिकता को संवेदनात्मक रूप में विकास मिलता है। इस समय में लेखिका का सारा ईरानी साहित्य भोगा हुआ तथा प्रामाणिक जान पड़ता है। इस दौर के अन्य महिला लेखिकाओं ने स्त्री देह को मुक्ति के प्रमुख टूल के रूप में अपनाया है। वहीं नासिरा के यहाँ धर्म, विचारधारा और राजनीति की आड़ में औरत पर होनेवाले अत्याचार को रेखांकित करने का कार्य किया गया है। इनके यहाँ स्त्री विमर्श का एक अलग रूप देखने को मिलता है। आज़ादी के बाद कथा साहित्य में मध्यवर्गीय स्त्री और संवेदना को प्रमुख रूप से स्थान दिया गया है। जिसे लगातार स्त्री विमर्श के नाम पर आलोचना के केंद्र में भी रखा गया। दो पुरुषों के बीच असमंजस की शिकार स्त्री, पति-पत्नी के बीच में आने वाली स्त्री, कई पुरुषों के साथ रहनेवाली तथा अकेले रहने वाली स्त्री आदि कथा साहित्य में अधिकांशतः इसी तरह की औरतों की संवेदना को व्यक्त करने का प्रयास स्त्री लेखिकाओं की तरफ से किया गया। नासिरा के यहाँ स्त्री विमर्श का अलग ही रूप दिखाई देता है। नासिरा स्वयं को स्त्रीवादी नहीं मानती हैं। इनके लेखन में स्त्री का एक अलग ही स्वरूप दिखाई देता है। इन्होंने औरत को एक तरफ और पूरे समाज को दूसरी तरफ करके किसी भी चरित्र को नहीं रचा। इनके यहाँ औरत अपनी पूरी सामाजिकता के साथ प्रस्तुत की जाती है। प्रेम, सेक्स और देह से इतर भी इसके जीवन में कई समस्याएँ हैं। जिसंको लेखिका ने रचना के केंद्र में लाने का प्रयास किया है। इनकी कहानियों का सिलसिला थमा हुआ नज़र नहीं आता है। धर्म की आड़ में औरत पर हो रहे अत्याचार, विभाजन की त्रासदी झेल रहे लोग, किसी जेल में पड़े सियासी कैदी तथा शरणार्थी शिविर में पड़े बच्चों और बूढ़ों पर लेखिका ने अनवरत कलम चलाई है।

नासिरा का फारसी भाषा और ईरान के साथ कोई प्रत्यक्ष संबंध नहीं था। लेकिन फारसी भाषा का लगातार अध्ययन करने के कारण इस भाषा के प्रति इनका मोह बढ़ गया। ईरान प्रवास के दौरान इनको वहाँ के साहित्यकारों के साथ रहने का मौका मिला, जो वहाँ की विपरीत परिस्थितियों के बीच अपना लेखन जारी रखे हुए थे। ईरान में क्रांति के बाद सत्ता और साहित्यकारों की आपस में कभी नहीं बनी। इस प्रकार इस विपरीत परिस्थितियों में

Scanned by CamScanner

UGC Sl. No. 46977 Reg. No. 1680/2011-12

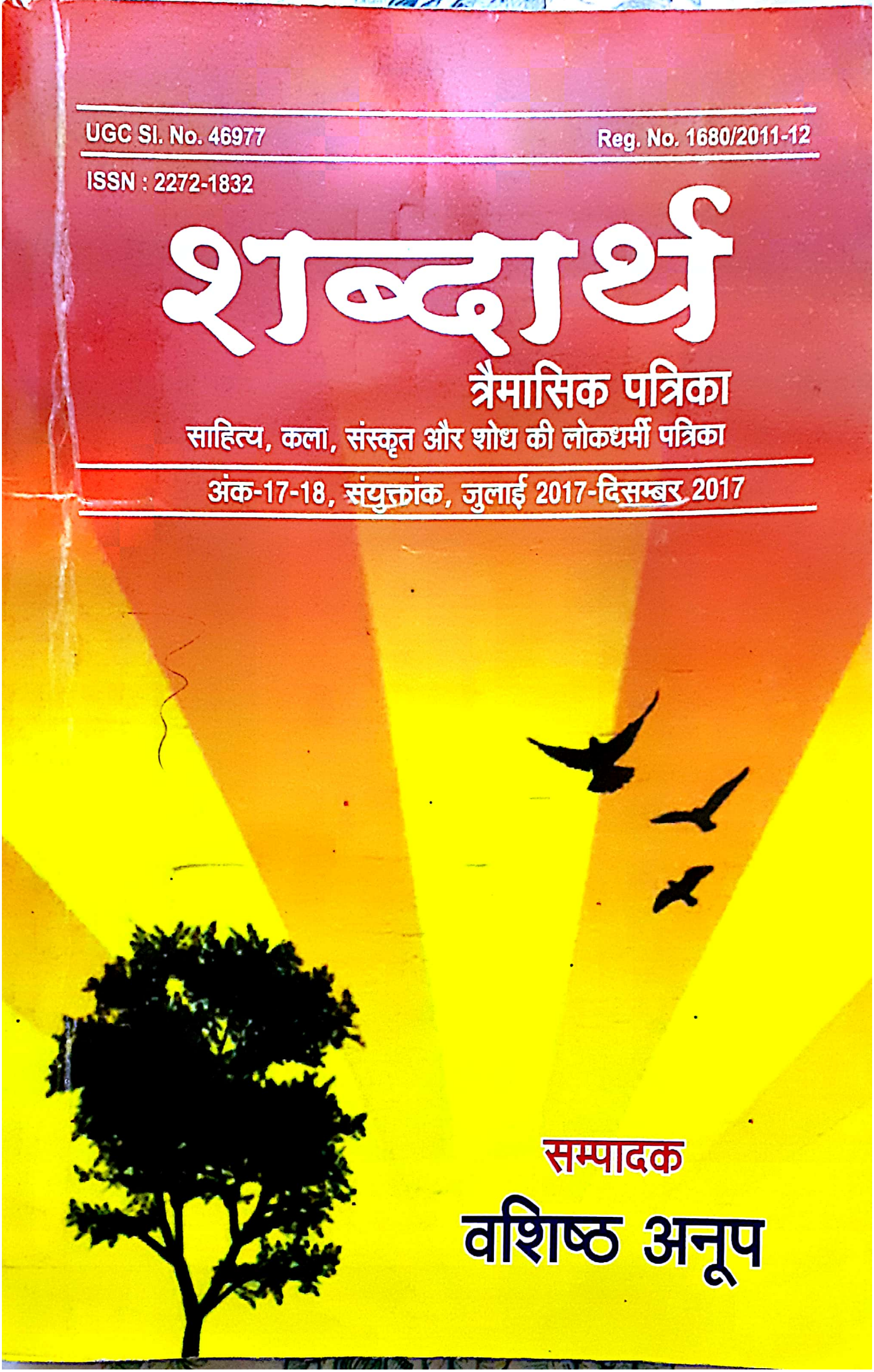
ISSN : 2272-1832

शब्दार्थ

त्रैमासिक पत्रिका

साहित्य, कला, संस्कृत और शोध की लोकधर्मी पत्रिका

अंक-17-18, संयुक्तांक, जुलाई 2017-दिसम्बर 2017



सम्पादक

वशिष्ठ अनूप

Scanned by CamScanner

UGC Sl. No. 46977 Reg. No. 1680/2011-12

ISSN : 2272-1832

शब्दार्थ

त्रैमासिक पत्रिका

(साहित्य, कला, संस्कृति और शोध की लोकधर्मी पत्रिका)

अंक- 17-18, संयुक्तांक, जुलाई 2017 - दिसम्बर 2017

सम्पादक

वशिष्ठ अनूप

प्रोफेसर, हिंदी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी-221005

सम्पादकीय सम्पर्क

204/11, राजेन्द्र अपार्टमेंट्स,

रोहित नगर (नरिया) वाराणसी

शब्दार्थ अकादमी, वाराणसी

Scanned by CamScanner

अनुक्रमणिका

- सुदामा पाण्डेय 'धूमिल' : राजनीतिक एवं सामाजिक जीवन दृष्टि — 1–6
  शिव प्रताप सिंह
- 'बेतवा बहती रही' के आगे.....। — 7–13
  डॉ0 विश्वजीत कुमार मिश्र
- प्रेमचन्द की कहानियों में नारी विमर्श — 14–17
  बृजेश कुमार
- पं0 विद्यानिवास मिश्र के लिए लोक–संस्कृति और संस्कृत–साहित्य — 18–21
  उदय प्रताप पाल
- हजारी प्रसाद द्विवेदी का उपन्यास अनामदास का पोथा : एक लोकपरक आख्यान — 22–28
  डॉ0 अनुपम पटेल
- श्री अरविंद दर्शन में नैतिकता : विकास के साधन के रूप में — 29–30
  सीमा चौरसिया
- स्वामी दयानन्द सरस्वती की त्रैतवादी अवधारणा — 31–39
  वीरेन्द्र कुमार
- भारतीय समकालीन कला में जहाँगीर साबावाला की फंतासी कलाकृतियों का विश्लेषणात्मक अध्ययन — 40–45
  प्रीति यादव
- हिन्दी सिनेमा में महिला चरित्र के बदलती छवि का ऐतिहासिक सर्वेक्षण — 47–51
  अंकिता पाठक

Scanned by CamScanner

- **असंगठित क्षेत्र : भारतीय अर्थव्यवस्था का इंजन** 52–65
  विनीत कुमार तिवारी
- **प्राचीन भारतीय समाज में वर्ण–व्यवस्था** 66–70
  सत्य प्रकाश
- **मिर्जापुर जिले से प्राप्त प्रागैतिहासिक चित्रों का अध्ययन** 71–74
  राकेश कुमार यादव
- **राजा की स्थिति वैदिक एवं पौराणिक काल के विशेष सन्दर्भ में** 75–80
  आलोक कुमार सिंह
- **बौद्ध धर्म में पर्यावरणीय संरक्षण के विचार** 81–84
  अखिलेश कुमार
- **गुप्तकालीन नारी : शालभंजिका रूप में** 85–89
  डॉ0 स्मिता सिंह
- **बौद्ध साधना का आध्यात्मिक आदर्श : प्रवज्जा** 90–92
  अजेन्द्र प्रताप राय
- **उत्तर प्रदेश के ग्रामीण क्षेत्रों में महिलाओं की आर्थिक स्थिति पर मनरेगा के प्रभाव का अध्ययन** 93–100
  Nidhi Tripathi
- **संगीत के संवर्द्धन में दरबारी कलाकारों की भूमिका** 101–109
  रिंकी सिंह
- **महाभाष्यस्थश्लोकवार्तिकानां संक्षिप्तः परिचयः** 110–115
  धर्मराजबागः
- **लोक, शास्त्र और आदिवासी जीवन** 116–121
  डॉ. सूर्यकांत त्रिपाठी

Scanned by CamScanner

- महिलाओं और बच्चों के मानवाधिकार : एक सैद्धांतिक विवेचन — 122–129
  कृष्ण मोहन कुमार
- ग्रामीण विकास में पंचायती राज की भूमिका — 130–141
  मुन्ना कुमार
- पंचायती राज संस्थाओं की पृष्ठभूमि एवं विकास — 142–150
  डॉ0 ललिता कुमारी
- बच्चन के साहित्य में राष्ट्रीय चेतना के स्वर — 151–156
  डॉ0 नम्रता गुप्ता
- प्राचीन शिक्षा का केन्द्र : विक्रमशिला — 157–160
  डॉ0 मनोज कुमार
- गाँधीजी के चिंतन में राजनीति का आध्यात्मिककरण और प्रशासनिक भ्रष्टाचार — 161–167
  डॉ0 प्रभाकर
- राही मासूम रज़ा और 'सीन 75' उपन्यास पटकथा की संरचना — 168–170
  राहुल मिश्रा
- मैला आंचल उपन्यास में स्त्री – विमर्श के आयाम — 171–174
  डॉ0 अंजु लता

✷

Scanned by CamScanner

मैला आंचल उपन्यास में स्त्री – विमर्श के आयाम

डॉ0 अंजु लता*

मैला आंचल उपन्यास का प्रकाशन आजादी के बाद होता है। यह वो समय था जब विभिन्न प्रकार की विचारधाराओं के प्रकाश में आजादी की लड़ाई लड़ी जा रहीं थी। गांधीवाद, मार्क्सवाद, हिंदुत्व आदि विचार अपने चरम पर विकसित हो रहे थे। मैला आंचल उपन्यास भारत छोड़ों आंदोलन के चरमोत्कर्ष से लेकर गांधी की हत्या तक की कथा कहती है। बिहार के पूर्णिया अंचल की कहानी कहते हुए लेखक कहते है कि इस कथा में फूल भी है और शूल भी । आंचलिक उपन्यास की अपनी विशेषताएं होती है। यह उपन्यास इन विशेषताओं से परिपूर्ण हैं। पूर्णियां अंचल की सीमा से एक तरफ नेपाल दूसरी तरफ बंगाल और पाकिस्तान की सीमा रेखा से इसकी बनावट पूरी होती है। विभिन्न प्रकार के भाषा भाषी क्षेत्रों से घिरे होने के कारण इस क्षेत्र का विकास अलग ढंग से होता है।

मैला आंचल एक प्रखर राजनैतिक उपन्यास के रूप में साहित्य में अपनी सार्थकता को स्थापित करता है। बावनदास, बालदेवजी, कालीचरण, लक्ष्मी कोठारिन, डॉ. प्रशांत आदि अपने आप में सिर्फ चरित्र ही नहीं वरन् उस दौर में चल रहे विचारों के प्रतिनिधि भी हैं। सब किसी ना किसी उद्देश्य को लेकर राजनीतिक में उतर आये है। आरंभ में कहानी बहुत ही चुलहबोध और मजाक के रूप में चलती है किस तरह देश में विकसित राजनैतिक समझदारी को गांवों की जनता ग्रहण करती है। जाति के समीकरण का टूटना, राजनैतिक चेतना का विकसित होना, अर्थात गांव की सामंती व्यवस्था के बीच विकसित स्वतंत्रता और समानता के भाव का विकास अत्यंत सहज ढंग से होता दिखाई देता है। जैसे – जैसे कथा आगे बढती है कहानी लगातार विड़बनाबोध का शिकार होती है। अंत में आकर आस्मिता का प्रश्न महत्वपूर्ण हो जाता है। उपन्यास में बालदेव जी सोचते है कि '' वह पुरैनियां जाएगा, वहीं से चन्ननपट्टी चला जाएगा। वह अब अपने गांव में रहेगा, अपने समाज में, बड़ी चीज हैं। .....जाति की बात ऐसी है कि सभी बड़े – बड़े लीडर अपने जाति की पार्टी में हैं। – यह तो राजनीतिक हैं!''

भारतीय इतिहास में राष्ट्रवादी आंदोलन तथा स्वतंत्रता, समानता और बंधुत्व की लड़ाई के दौरान देश की जनता अपनी अस्मिता से बाहर आती दिखाई देती है। साम्राज्यवादी शक्ति से लड़ने के लिए लेकिन एक जुट होने वाली जनता का उल्लास उपन्यास में स्वतंत्रता प्राप्ति के जश्न से पता लगाया जा सकता है। बाद में अधिक समय तक यह स्थिति बनी नहीं रह सकी। बहुत

---

* सहायक प्रोफेसर, तेजपुर विश्वविद्यालय, तेजपुर, असम।

Scanned by CamScanner

ISSN : 2393-8358

UGC Approved, Journal No. 48416 (IJCR)
Impact Factor : 2.314

Interdisciplinary Journal of Contemporary Research

An International Peer Reviewed Refereed Research Journal

Vol. 5, No. 18 Peer Reviewed Journal November, 2018

Scanned by CamScanner

Interdisciplinary Journal of Contemporary Research
(An International Peer Reviewed Refereed Research Journal)

Head Office :
S.K.C. School of English and Foreign Languages
Assam, India
E-mail : ijcrjournal971@gmail.com
Website : ijcrjournal.com

Branch Office :
H.No. 498, Kakarmatta (South), P.O.-D.L.W., Distt.-Varanasi-221004 (U.P.)
Mob. 9415388337

ISSN 2393-8358

Scanned by CamScanner

Impact Factor : 2.314
ISSN : 2393-8358

विषयानुक्रमणिका

→	तत्वमीमांसा विरोधी युक्तियों की समीक्षा **डॉ0 रजनीश कुमार पाण्डेय**	1-2
→	स्याम सुरभि पय विसद अति की व्यावहारिक व्याख्या **डॉ० मिथिलेश कुमार त्रिपाठी**	3-4
→	शिल्प कला में बुनकर कला का विकास (छठीं शती ई०पू० से लेकर तीसरी सती ई० तक) **डॉ0 सन्तोष कुमार सिंह**	5-10
→	शाङ्खायनप्रकृतिकपौर्णमासहौत्रम् **डॉ0 ज्ञानेन्द्र सापकोटा**	11-18
→	भारतीय राष्ट्रीय आन्दोलन में गाँधी जी का उदय **डॉ0 रवीन्द्र कुमार द्विवेदी**	19-22
→	भारतीय महिला श्रमिक : दशा एवं दिशा (वाराणसी शहर की महिला श्रमिकों पर आधारित : एक समाज वैज्ञानिक अध्ययन) **प्रो0 रीता सिंह**	23-26
→	ग्रामीण शिक्षा व्यवस्था एवं ग्राम पंचायतें **डॉ0 पंकज कुमार प्रेम**	27-28
→	'सूरज का सातवां घोड़ा' : भावुक प्रेम का यथार्थवादी आख्यान **डॉ0 जयसिंह मीणा**	29-30
→	डॉ0 रामबिलास शर्मा की आलोचना जमीन..... **धर्मवीर यादव**	31-33
→	सरयूपार क्षेत्र की भौगोलिक अवयव की ऐतिहासिक अध्ययन **विनोद कुमार जायसवाल**	34-36
→	कौटलीय अर्थशास्त्र में त्रिवर्ग : एक विश्लेषण **डॉ0 विजय कुमार मिश्र**	37-40
→	Corruption in Governance and Human Rights **Ramesh Chandra**	41-46
→	1857 के संग्राम में जनपद आजमगढ़ में कुंवर सिंह का योगदान **आमोद कुमार सैनी**	47-48
→	अनर्घराघव एवं प्रसन्नराघव का समीक्षात्मक अध्ययन **मनोज कुमार यादव**	49-50
→	भोजपुरी लोकगीतों में मानव धर्म **डॉ0 सत्यवान**	51-56
→	कुजदोषविचारः **डॉ0 अमर कुमार**	57-60

Scanned by CamScanner

→	Customer Loyalty with Reference to Maruti Suzuki: A Case Study of Gaya City, Bihar **Iftekhar Anwar**	*61-67*
→	Shashi Deshpande as a Novelist **Dr. Ramsurat**	*68-70*
→	भारतीय जनजातीय आन्दोलन में बिरसा मुंडा का योगदान **डॉ0 सच्चिदानन्द चौबे**	*71*
→	भारतीय अस्मिता और कार्यालयी हिन्दी **डॉ0 रवि प्रकाश मिश्र**	*72-74*
→	असंगठित क्षेत्र में कार्यशील वरिष्ठ नागरिकों की सामाजिक सुरक्षा : एक समाजशास्त्रीय विश्लेषणात्मक अध्ययन **श्रीमती कुसुम एवं डॉ0 उमेश कुमार दीक्षित**	*75-78*
→	Astronomical Year **Dr. Sachin Kumar**	*79-82*
→	भारतीय ग्रामीण सामाजिक संरचना में जाति–प्रथा **प्रो. (डॉ.) अमर ज्योति सिंह, प्रो. (डॉ.) अमर बहादुर सिंह एवं डॉ. अमरनाथ सिंह**	*83-84*
→	भदोही जिले के कालीन उद्योग में लगे बाल श्रमिकों की सामाजिक और आर्थिक समस्याओं का विश्लेषण **बनमाली यादव एवं डॉ. क़मर इज़हार**	*85-92*
→	प्रारंभिक बौद्ध भिक्षुणी संघ की प्रमुख भिक्षुणियाँ **विश्व दत्त**	*93-96*
→	उषा प्रियंवदा : प्रेम, स्वतंत्रता और परिवार के बीच फंसी स्त्री की दास्तान **डॉ0 अंजू लता**	*97-101*
→	भूमि अधिग्रहण कानून : कुछ जरूरी सवाल **विभा अय्यर**	*102-104*
→	हिन्दी साहित्य और पुनरुत्थानवाद **मनीष तोमर**	*105-110*
→	मिथकों में स्त्री अस्मिता और भीष्म साहनी **सुप्रिया पाठक**	*111-114*
→	ধর্মীয় সন্ত্রাসের আলোকেরবীন্দ্রনাথের 'বিসর্জন' **ধ্রুপদ চৌধুরী**	*115-118*
→	Trends of Values in the Education : A Discourse (With Special Reference to Indian Society) **Dr. Sandhya Pandey**	*119-122*
→	Microfinance in India **Dr. Pratima Jaiswal**	*123-130*
→	मीरा के काव्य में स्त्री चेतना का स्वर **अरुण कुमार**	*131-133*

Scanned by CamScanner

UGC Approved Journal No. 48416
Interdisciplinary Journal of Contemporary Research, Vol. 5, No. 18, November, 2018
Impact Factor : 2.314
ISSN : 2393-8358

उषा प्रियंवदा : प्रेम, स्वतंत्रता और परिवार के बीच फंसी स्त्री की दास्तान

डॉ. अंजू लता
सहायक प्राध्यापक, तेजपुर विश्विद्यालय

आजादी के बाद हिंदी कथा साहित्य की दिशा और दशा लगातार बदलती दिखाई देती है। इस दौर में कहानी और उपन्यास के मूलभूत ढांचे में परिवर्तन दिखाई देता है। स्त्री लेखन की दृष्टि से यह युग अत्यधिक महत्वपूर्ण युग है। कृष्णा सोबती, मन्नू भंडारी तथा उषा प्रियंवदा इस युग में स्त्री लेखक की प्रणेताओं के रूप में जानी जाती हैं। बदलते सामाजिक परिदृश्य के बीच इनका साहित्यिक लेखन स्त्रियों की संवेदनात्मक अभिव्यक्ति की आधार भूमि तैयार करती हैं। पढ़ी-लिखी तथा आर्थिक रूप से आत्मनिर्भर स्त्री समाज तथा परिवार की सामंती संरचना के बीच अपनी पहचान बनाने की जद्दोजहद करती दिखाई देती है। इस संघर्ष में उनके सामने समाज के दोहरे प्रहार का शिकार होना पड़ता है। इस संघर्ष में उनके सामने विघटित होते सामाजिक तथा पारिवारिक मूल्यों से भी जूझना पड़ा। जिसकी अभिव्यक्ति उस समय के महिला रचनाकारों में दिखाई देती है। इस दौर की स्त्री लेखिकाएं एक तरफ तो अपनी अस्मिता की लड़ाई लड़ती दिखाई देती हैं तथा दूसरी तरफ अपनी अस्मिता से बाहर निकलने का प्रयास भी जिसके कारण इस समय का साहित्य सशक्त रूप से स्त्री प्रश्नों को उभारता दिखाई देता है। स्त्री साहित्य अपने नये- नये प्रयोगों के लिए जाना जाता है। जिसके अंतर्गत अपनी पहचान की लड़ाई लडने वाली अस्मिताएं उभरकर सामने आती हैं। परिवर्तन की तेज रफ्तार के बीच परिवार और व्यक्ति के विचार लगातार बदलते जाती है। शिक्षा का प्रचार प्रसार परिवार के बाहर भी स्त्रियों के लिए स्थान निर्मित करती दिखाई देती हैं। एकतरफ परिवार की सामंती संरचना तथा दूसरे तरफ बाहर के समाज की स्वतंत्रता के बीच फंसी स्त्री के जीवन की विड़बना इस दौर के कथा साहित्य में दिखाई देती है।

हिंदी कथा साहित्य में उषा प्रियंवदा की पहचान वापसी कहानी से मानी जाती है। इस कहानी को नई कहानी आंदोलन की पहली कहानी के रूप में जाना जाता है। अपनी कलात्मक संवेदना में यह कहानी एकदम अलग ढंग के संसार को रचती दिखाई देती है। उषा प्रियंवदा जी की अधिकांश कहानियाँ स्त्री जीवन को केंद्र में रखकर लिखी गयी हैं। खासतौर से पढ़ी – लिखी स्त्री तथा आर्थिक रूप से आत्मनिर्भर औरत इनकी कहानियों के केंद्र में है। प्रमुख रूप से इनके तीन कहानी संग्रह हैं। जिंदगी और गुलाब के फूल, कितना बड़ा झूठ, और एक कोई दूसरा कहानी संग्रह की अधिकांश कहानियाँ आधुनिक स्त्री जीवन की त्रासदी तथा विसंगतियों को विस्तार से व्याख्यायित करती हैं। इन कहानियों में मूल रूप से भारतीय परंपराओं, रूढ़ियों तथा संस्कारों आदि की आलोचना दिखाई देती है। इस दौर की प्रमुख स्त्री लेखिकाओं खासतौर से मन्नू भंडारी और कृष्णा सोबती के समकालीन उषा प्रियंवदा अपनी अलग पहचान बनाती दिखाई देती हैं। यदि देखा जाए तो इन तीनों लेखिकाओं को हिंदी साहित्य में स्त्री विमर्श के प्रवर्तक के रूप में देखा जा सकता है। जाहिर हैं इनकी कहानियाँ पितृसत्तात्मक समाज में स्त्री के निर्धारित स्थान को रेखांकित करती हैं। उस तंत्र की आलोचना करती हैं जिसमें औरत को दोयम दर्जे का स्थान प्राप्त है। इसलिए इनकी कहानियों में विषय – वस्तु के रूप में स्त्रियों की केंद्रीय भूमिका निर्धारित की गयी है। उनके ईर्द- गिर्द किस तरह सामंती परिवेश एक तरह के जाल को बुन रहा है जिसके बीच फंसकर वह अपनी जीवन की प्राथिमकताएं छोड़कर परिवार और जिम्मेदारियों के बीच फंसी रह जाती हैं।जिस दौर में उषा प्रियंवदा साहित्य में आती हैं वह स्त्री विमर्श के आरंभ का दौर है। इस युग में इनके साहित्य की महत्वपूर्ण भूमिका रही है। जिसका विशलेषण इनकी कहानियों के माध्यम से किया जा सकता है। लगातार व्यक्ति और परिवार के विघटित संबंधों के बीच औरत की बदलती पहचान की व्याख्या करने वाली अनेक कहानियाँ इन्होंने लिखी। खासतौर से इन बदलते पारिवारिक मूल्यों ने स्त्री की मूलभूत पहचान को बदलने का कार्य किया।

पुरातन पंथी मूल्यों का टूटना तथा नये जीवन मूल्यों के बीच परिवार की बदलती संरचना को वापसी, कच्चे धागे, दृष्टि दोष , कंटीली छांह तथा झूठा दर्पण आदि कहानियों में देखा जा सकता है। खासतौर से वापसी कहानी का उल्लेख करना आवश्यक हैं जहाँ गजाधरबाबू जैसे निरीह वृद्ध का चित्रण किया गया है। उनके भीतर की निरिहता उस बदलती सामाजिक प्रक्रिया की परिणति है जिसको निर्मित करने वाले वह स्वयं ही है। अपने स्वयं के परिवार के लिए समय ना निकाल पाने के कारण वह केवल धनोपार्जन का साधन मात्र बनकर रह गये हैं। परिवार के किसी भी सदस्य के मन में उनके लिए ना तो प्रेम का भाव है और ना ही किसी प्रकार का सम्मान । यहाँ तक की उनकी पत्नी के मन में भी उनके प्रति किसी प्रकार की जिम्मेदारी का भाव नहीं है । बदलते पारिवारिक मूल्यों की बीच फंसे गजाधर बाबू दया के पात्र बन जाते हैं। अपने तिरस्कार को सहन नहीं करने के कारण वह वापस नौकरी पर जाने के लिए मजबूर हो जाते हैं।

Scanned by CamScanner

वर्ष-6, अंक: 11 जनवरी-जून, 2018

जेएनयू परिसर

इस अंक के कुछ महत्वपूर्ण लेखक :

केदारनाथ सिंह, योगेश भटनागर, गरिमा श्रीवास्तव, दीपक शर्मा, सत्येन्द्र सिंह, पराग पावन, शीतांशु भारती, अंजुलता, सुशांत शर्मा, मोहन पुरी, दर्शिनी प्रिया, अनुराधा पाण्डेय, वेद मित्र शुक्ल, धीरेन्द्र कुमार, सुमित चौधरी, धर्मराज कुमार, अभिषेक सौरभ आदि

Scanned by CamScanner

संरक्षक
डॉ. प्रमोद कुमार
कुलसचिव

संपादक-मंडल

प्रो. सुधीर प्रताप सिंह
प्रो. ओमप्रकाश सिंह
डॉ. शीतल शर्मा
डॉ. मलखान सिंह

संपादकीय सहयोग
सुमेर सिंह
डॉ. शिवम शर्मा

टंकण सहयोग
दीपक कुमार

फोटो
वकील अहमद

संपर्क:
राजभाषा प्रकोष्ठ
प्रशासन भवन
जवाहरलाल नेहरू विश्वविद्यालय
नई दिल्ली-110067
दूरभाष: 91-11-26704023
ईमेल: hindiunit@mail.jnu.ac.in

संपादन/संचालन: अवैतनिक

संपादकीय/2

महिला दिवस पर विशेष/4
गिरिजा देवी की गायकी : सुशांत शर्मा

धरोहर/8
कृष्णा सोबती: एक मुलाकात : गरिमा श्रीवास्तव

लेखक की दुनिया : कथा/11-25
उस मोड पर... : योगेश भटनागर
आखिर क्यों : मोहन पुरी
क्षितिज पार : दर्शिनी प्रिया

लेखक की दुनिया : कविताएं/26-29
पराग पावन, मिथिलेश कुमारी, वेद मित्र शुक्ल, बेक बेकोव

काव्य सृजन/30-31
केदारनाथ सिंह की कविता : जेएनयू में हिंदी

अनुवाद/32
युन्ना मोरित्स की तीन कविताएँ : शीतांशु भारती

जेएनयूपन/33-37
धीरेन्द्र कुमार, अभिषेक सौरभ, सुमित कुमार चौधरी

लेख/38-48
सत्येन्द्र कुमार, अंजुलता, अनुराधा पाण्डेय

पुस्तक समीक्षा/49
अनुवाद का एक परिचयात्मक अध्ययन : धर्मराज कुमार

स्वास्थ्य/51
बढ़ती उम्र के साथ जीवन प्रबंध का महत्व : दीपक शर्मा

गंगा ढाबा/54
'विद्रोही': जेएनयू की वाचिक परंपरा का कवि :
सुमित चौधरी

गतिविधियाँ/57
सुमेर सिंह, प्रियंका कुमारी, प्रदीप कुमार, गंगा सहाय मीणा

जेएनयू की इस गृह पत्रिका में प्रकाशित विचार स्वयं लेखक के हैं। उनसे विश्वविद्यालय अथवा संपादक-मंडल का सहमत होना अनिवार्य नहीं है।

Scanned by CamScanner

मध्यवर्ग के दोहरे मूल्यों तथा मोहभंग की व्याख्या : काशीनाथ सिंह की कहानियाँ

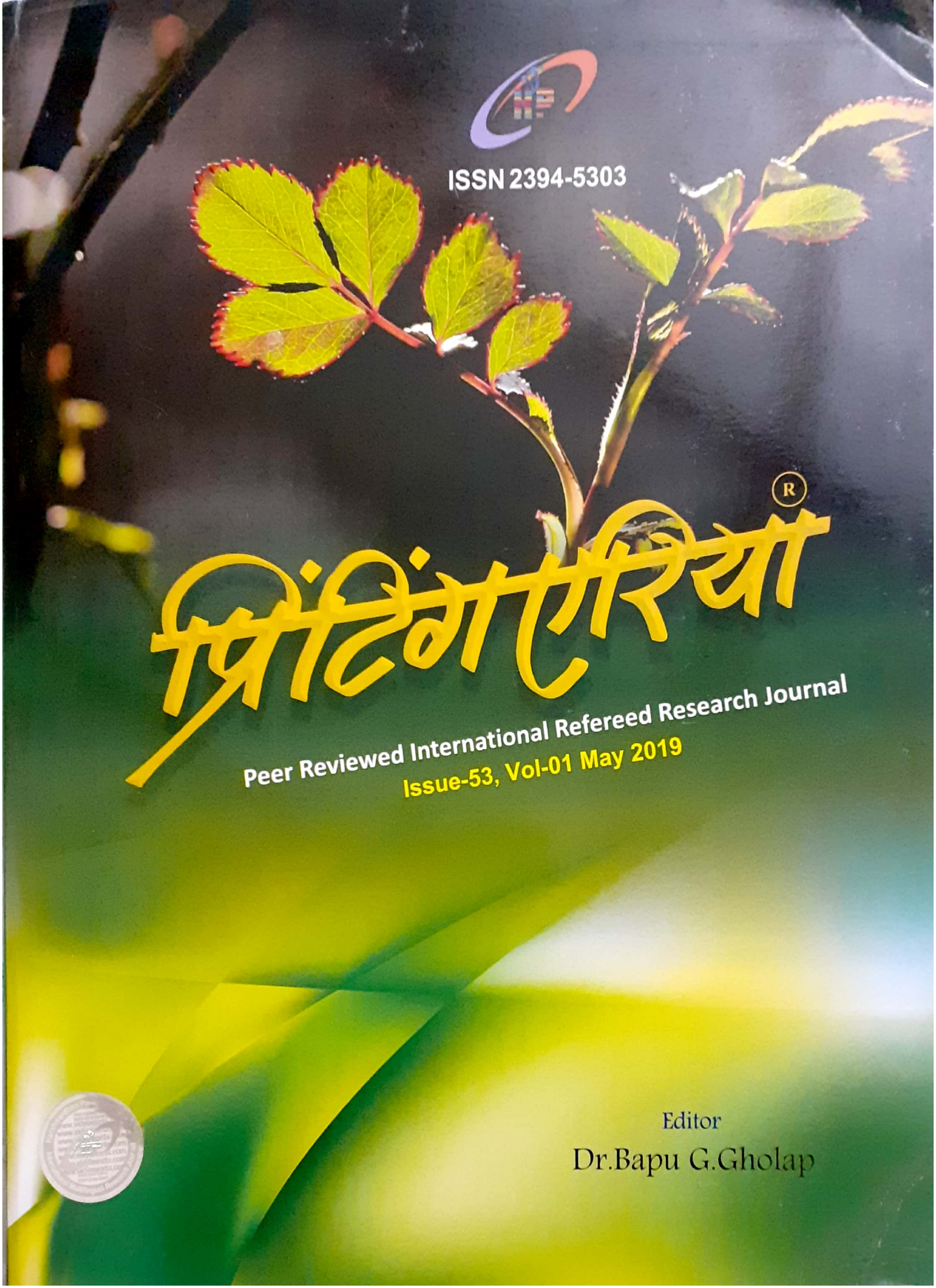
डॉ. अंजुलता

साठोत्तरी कथा साहित्य के दौर में जब शहरी मध्यवर्ग कहानी के केंद्र में आ चुका था, काशीनाथ सिंह की कहानियाँ सबसे पहले गाँव और शहर के निम्न मध्यवर्गीय जीवन का परिचय देती हैं। स्वातंत्र्योत्तर भारतीय जीवन और साठोत्तरी कहानी की अन्य संवेदनाओं को भी उनकी कहानियों में स्पष्ट अभिव्यक्ति मिली है। उनके लेखन ने कहानी की प्रगतिशील परंपरा को लगातार विकसित करने का कार्य किया है। उनकी एक बड़ी विशेषता यह है कि संवेदनात्मक गहराई को हासिल करने के साथ-साथ उन्होंने अपनी राजनैतिक-सामाजिक पक्षधरता को किसी धुँधलके में नहीं रखा। उनकी विचारधारा की पहचान बहुत ही सहज है। काशीनाथ सिंह स्वयं स्वीकार करते हैं कि उनकी राजनैतिक गतिविधियों को वामपंथी और जनवादी विचारों के प्रकाश में पर्याप्त विकसित होने का मौका मिला। यह समय भारतीय जनमानस में बड़े परिवर्तनों के समय के रूप में जाना जाता है। देश में होने वाले राजनैतिक परिवर्तनों का समाज और व्यक्ति के जीवन पर जो प्रभाव पड़ रहा है उसे काशीनाथ सिंह की कहानियाँ सफलतापूर्वक व्यक्त कर रही थीं। ध्यान रखें कि यह मामला एकतरफा नहीं था। वामपंथी राजनीति के बिखराव और दोहरेपन को भी उनकी कहानियाँ बेहतरीन ढंग से उजागर करती हैं।

कहानी, उपन्यास, संस्मरण और आलोचना से इतर काशीनाथ जी ने परिवेश पत्रिका के संपादन के माध्यम से अपने सधी हुई वैचारिकी का भी प्रमाण दिया है। मोहभंग के कारण आदमी की टूटती-बिखरती संवेदना का चित्रण भी काशीनाथ सिंह की कहानियों में बखूबी देखा जा सकता है। विघटित मूल्यों से पैदा होने वाले आक्रोश को भी यह कहानियाँ बखूबी दिखाती हैं। विषम सामाजिक संरचना की कुरूपता, शोषण, अन्याय आदि का अनैतिक स्वरूप इनकी कहानियों में स्पष्ट रूप से देखा जा सकता है। इन सब के बीच एक सामान्य इंसान, जिसे आम आदमी कहा जाता है, उसकी समस्याएँ क्या हैं, वह क्या और कैसे सोचता है– इसकी व्याख्या के लिए काशीनाथ सिंह की कहानियाँ हमेशा याद की जाएंगी। मुसई चा, डाकिया, भोला बाबू, सिद्दीकी, सुधीर घोषाल काशीनाथ सिंह की कहानियों के ऐसे ही पात्र हैं। किसी आदर्श की स्थापना करने के बजाय वे यथार्थ और सजीव पात्रों की रचना करते हैं। इनके पात्र किसी विशिष्ट प्रतिभा के धनी नहीं है। वे दुःख और क्षोभ के क्षणों में किसी दार्शनिक शैली का वरण नहीं करते। इनकी कहानियों के पात्र मोहभंग, आपातकाल तथा बाजारवाद को झेलने वाले, अपनी समस्त सीमाओं के साथ सामान्य से दिखने वाले मनुष्य हैं। इन पात्रों में केवल निराशा और हताशा नहीं है, वरन् प्रतिरोध का साहस भी है। काशीनाथ आपातकाल के युग में गंभीरता से लिख रहे थे। भारतीय लोकतंत्र के लिए यह एक नया मोड़ था, जब देश की सरकार ने ही लोकतांत्रिक स्तंभों को नष्ट करने का कार्य किया था। यह बिल्कुल नया परिदृश्य था। संविधान के प्रावधानों से सुरक्षित लोकतांत्रिक अधिकारों को वही छीन रहे थे जिन्हें इसकी रक्षा करनी थी। ऐसे समय में काशीनाथ सिंह जैसे रचनाकार अपनी कहानियों और दूसरी विधाओं में तद्युगीन सरकार की सीमाओं को मुखरता से रेखांकित करते दिखाई देते हैं। आपातकालीन युग में मनुष्य की हताशा और प्रतिरोध को समझने के लिए सबसे पहले हमें इनकी कहानियों की ओर देखना होगा। राजनैतिक संवेदनाएँ इनकी कहानियों के नेपथ्य में मौजूद रहती ही हैं।

इनकी कहानियों में तीन काल कथा, मुसईचा, आखिरी रात, चोट, लाल किले के बाज, जंगल जातकम्, सुख, दलदल, सूचना, सुधीर घोषाल, तथा कविता की नई तारीख आदि विशेष उल्लेख की माँग करती हैं। इन कहानियों में राजनीति के धूमिल होते चरित्र और हमारे प्रतिनिधियों की वैचारिक अस्थिरताओं, शाश्वत जीवन मूल्यों के बिखराव, स्त्री-पुरुष संबंधों में आने वाले बदलावों को सफलता के साथ चित्रित किया गया है। इस दौर के अन्य रचनाकार राजनैतिक परिवर्तनों और उससे प्रभावित अनुभूतियों के आलोक में समाज को वैसे ही नहीं देख पाते जैसे काशीनाथ जी देखते हैं। इसका संबंध राजनीतिक सचेतनता से है जो काशीनाथ जी को हासिल थी। इसी चेतना ने तीन काल कथा कहानी को जन्म दिया जो साठोत्तरी दौर की एक प्रमुख कहानी बनकर उभरती है। यह कहानी न सिर्फ अंतर्वस्तु की दृष्टि से वरन् रूप की दृष्टि से भी बहुत प्रयोगात्मक है। लेखक ने 'आधुनिक' समाज की विसंगतियों को अलग तकनीक से व्यक्त किया है। केवल गोस्वामी ने इस संदर्भ में लिखा है कि काशीनाथ सिंह की तीन काल कथा आजादी के बाद की नौकरशाही के विद्रूप चेहरे को उजागिर करता है। जन

Scanned by CamScanner



Scanned by CamScanner

Index

01) THE POSITION OF ETHICS IN VENTURE CONTROL, SETTLEMENT ....
Mr. Chavan Ganesh Sakharam, Dr.Manishkumar.N.Varma, Pune ||10

02) Life Skills Integrated Curriculum in Schools
Dr. Geetha, K , Sonapur ||14

03) PANCHAYAT RAJ IN KARNATAKA: A STUDY ON THE ELECTIONS .....
Nagendrappa K.T, Dr. Y. Gangadhara Reddy,Bangalore. ||25

04) Problems faced by spinners and weavers for weaving of khadhi clothes....
Dr. A. Sujatha , G.Gunasri, Bodinayakanur. ||36

05) Parental Encouragement among high school students of Jalgaon District
Mrs. Sunita Arvind Jagtap, Chalisgaon ||40

06) Electronic resources and their application and limitations: a study
Kimi, Sadik Husian,Delhi ||43

07) Public Administration in india
Dr.santosh B.Kurhe, Parbhani. ||48

08) Recent trends in Capital Formation in Agriculture
Prof. Dr. T. P. More,Buldana (MS ||51

09) Incest and Adultery in Select novels of Ian McEwan
Deepati Pant, Nainital ||56

10) Pradhan Mantri Mudra Yojana as a tool of Finance Inclusion .....
Pardeep kumar, Gurana (Hisar) ||58

11) Impact of GST on Service Sectors
Prof. Dr. Sangram R. Raghuwanshi, Amravati ||63

12) GENDER INEQUALITY IN HIGHER EDUCATION
Dr.Manjulata, Km. Sapna, Meerut ||65

13) Intellectual property (IP): An Introduction
Miss. Mahadevi P. Shikare,Solapur ||71

www.vidyawarta.com/03 | http://www.printingarea.blogspot.com

Scanned by CamScanner

14) Concept of Youth Unemployment in India
Dr. Paresh A. Shrimali, Patan ||73

15) Developing Inclusive Practices for Effective Implementation .....
Ms. Sharmishtha Solanki , Gujarat ||76

16) WATER POLLUTION AND ITS TREATMENT: THE ENVIRONMENT CONCERN
Dr. Usha Kumari, AzamgarhR ||80

17) Impact of Demonetization on Indian Economy
Prof. Warghade Janardhan Bhau,Palghar ||85

18) समाज मनाच्या एकवटलेल्या तिखट उद्‌गाराची कविता !
प्राचार्य डॉ.वसंत बिरादार,लातूर ||88

19) स्त्रीगीते : कौटुंबिक भावविश्व
डॉ. गौतम झ. ढवळे, लातूर ||92

20) जागतिकीकरणात मराठी भाषेचे संवर्धन
प्रा.डॉ.जगताप उज्वला शिवराम,परभणी ||94

21) डॉ. राममनोहर लोहिया यांचे जातीसंबंधी विचार
प्रा.डॉ. दम एस.आर. ,बीड || 97

22) उच्च शिक्षणाच्या विकासात राजर्षी छत्रपती शाहू महाराज यांचे योगदान
प्रा.अनंत दादाराव मरकाळे,बीड ||100

23) नागपूर जिल्हयातील आदिवासी शेतक–यांच्या विविध समस्या
शालिनी दुर्गाजी मेन्ढें, डॉ. एम. के. नगरारे ,वर्धा ||103

24) राष्ट्रीय असंसर्गजन्य रोग नियत्रंन कार्यक्रम व त्याअंर्तगत कार्यरत .....
कु. संगीता ब. रोहनकर, डॉ.सुनिल म. ठाकुरवार ||114

25) ग्रामीण युवकांचे शैक्षणिक, राजकीय स्थिती ज्ञान व विकासात्मक दृष्टीकोन
डॉ. संगीता ओमनाथ तिहीले,अकोला. ||120

26) बंजारा जाति और संगीत
डॉ० वन्दना अग्रवाल,मेरठ ||123

www.vidyawarta.com/03 | http://www.printingarea.blogspot.com

Scanned by CamScanner

27) मन्नू भंडारी की कहानियों में आधुनिक स्त्री–जीवन का द्वंद्व
अंजु लता,असम ||127

28) विकास कर्म में नारी का योगदान
डा. नीलम गौड, हनुमानगढ ||131

29) संजीव के उपन्यासों में आदिवासी जन-जीवन की समस्याओं का चित्रण
डॉ. लक्ष्मण तुळशीराम काळे, नांदेड ||133

30) माध्यमिक स्तर के हिन्दी माध्यम तथा अंग्रेजी माध्यम .....
डॉ.देवेन्द्र कौर, सादुलशहर ||135

31) समकालीन कवि अज्ञेय एवं मुक्तिबोध की काव्यभाषा का तुलनात्मक अध्ययन
डॉ. पठाण ए.एम., बीड. ||138

32) तबला वादक की कुशलता और सूझबूझपूर्ण संगत से कथक नृत्य में रसोत्पत्ति
शशिकांत शर्मा, प्रो० वन्दना चौबे, राजस्थान ||141

33) जी०ई०मूरः शुभ की अपरिभाष्यता
डॉ०वीना शर्मा, गोरखपुर ||144

34) यथार्थवाद : केदारनाथ अग्रवाल की कविता
रीना यादव, इलाहाबाद ||146

35) मानव गतिविधियाँ और पर्यावरणीय अवकर्ष
डॉ. सुनील बाघला, डॉ. सुरजीत सिंह कस्वाँ, श्रीगंगानगर (राज.) ||149

36) मानवीय क्रियाऐं एवं पर्यावरण में आकस्मिक परिवर्तन
Dr. Rajesh Kumar, Haryan. ||150

37) गांधी विचार के आलोक में महिला सशक्तिकरण
डॉ०शैलेन्द्र तिवारी,वाराणसी ||152

38) भारत के स्वतंत्रता आंदोलन में महिलाओं की योगदान (१८५७–१९४७)
Vikram S/o Randhir Singh,Kurukshetra ||156

39) कौटिल्य के आर्थिक विचारों की वर्तमान में सार्थकता
डॉ निहारिका श्रीवास्तव, प्रतापगढ़ ||160

www.vidyawarta.com/03 | http://www.printingarea.blogspot.com

Scanned by CamScanner

27

मन्नू भंडारी की कहानियों में आधुनिक स्त्री–जीवन का द्वंद्व

अंजु लता
सहायक प्रोफेसर, हिंदी विभाग,
तेजपुर विश्वविद्यालय, तेजपुर, असम

****

मन्नू भंडारी आजादी के बाद की प्रमुख लेखिकाओं में से एक हैं। यह हिंदी साहित्य का वह दौर था जब आधुनिकता का एक नया रूप हिन्दुस्तान में विकसित हो रहा था। साहित्य में उषा प्रियंवदा और कृष्णा सोबती जैसी लेखिकाएँ अपनी उपस्थिति दर्ज कर चुकी थीं। हिन्दी साहित्य के इतिहास में स्त्री लेखिकाओं को जो जगह अभी तक प्राप्त नहीं हो पाई थी उस कमी को आजादी के बाद की ये लेखिकाएँ सहज ही दूर कर देती हैं। साहित्य पटल पर कई स्त्री लेखिकाओं का आगमन इस युग की प्रमुख विशेषता है। इसका मुख्य कारण इसे माना जा सकता है कि नवजागरण–काल में जिन स्त्री प्रश्नों को लेकर सामाजिक परिवर्तन का जो प्रयास किया गया उसके सीमित दायरे में ही सही लेकिन फायदे जरूर हुए। आजादी के बाद इसके परिणाम और भी प्रत्यक्ष हुए और नब्बे के बाद तो हिन्दी साहित्य में लेखिकाओं ने जबर्दस्त हस्तक्षेप किया है।

मन्नू भंडारी ऐसी संवेदना की लेखिका हैं जिसमें औरत को पूरे सामाजिक परिवेश के आलोक में सहज रूप से समझने और चित्रित करने का प्रयास मिलता है। परंपरा ने हमें औरत के जीवन को दो तरह से देखने की दृष्टि प्रदान की थी। एक नजरिया रीतिकालीन था जहाँ औरत को भोग की वस्तु की तरह देखा गया और दूसरा नजरिया छायावादी था जहाँ स्त्री को मुक्त करने की माँग तो उठायी गई लेकिन उसे देवी, माँ, सहचरी, प्राण की सीमाओं में रखते हुए ही। इन दो तरह की विचारधाराओं और पूँजीवादी परिस्थितियों के बीच फँसी स्त्री समाज में अपना वास्तविक स्थान निर्धारित न कर सकी। इन्हीं परिस्थितियों में विकसित आजादी के बाद का हमारा साहित्य स्त्री को सबसे पहले एक मनुष्य के रूप में देखने पर जोर देता है। अपने समय की विसंगतियों के बावजूद इस दौर का साहित्य स्त्री जीवन के द्वंद्व का दिखाने में काफी हद तक सफल रहा है। परिवार और समाज के बीच फँसी औरत आखिर अपने लिए क्या चुने? परिवार का सामंती चरित्र और बाजार से ग्रस्त समाज दोनों ने औरत की स्वतंत्र छवि को अपने हिसाब से निर्धारित किया। इस दौर का साहित्य किसी प्रकार का आंदोलन भले न करता हो, वह परिवार और समाज के बीच फँसी औरत के जीवन के दर्द को बखूबी रेखांकित करता है।

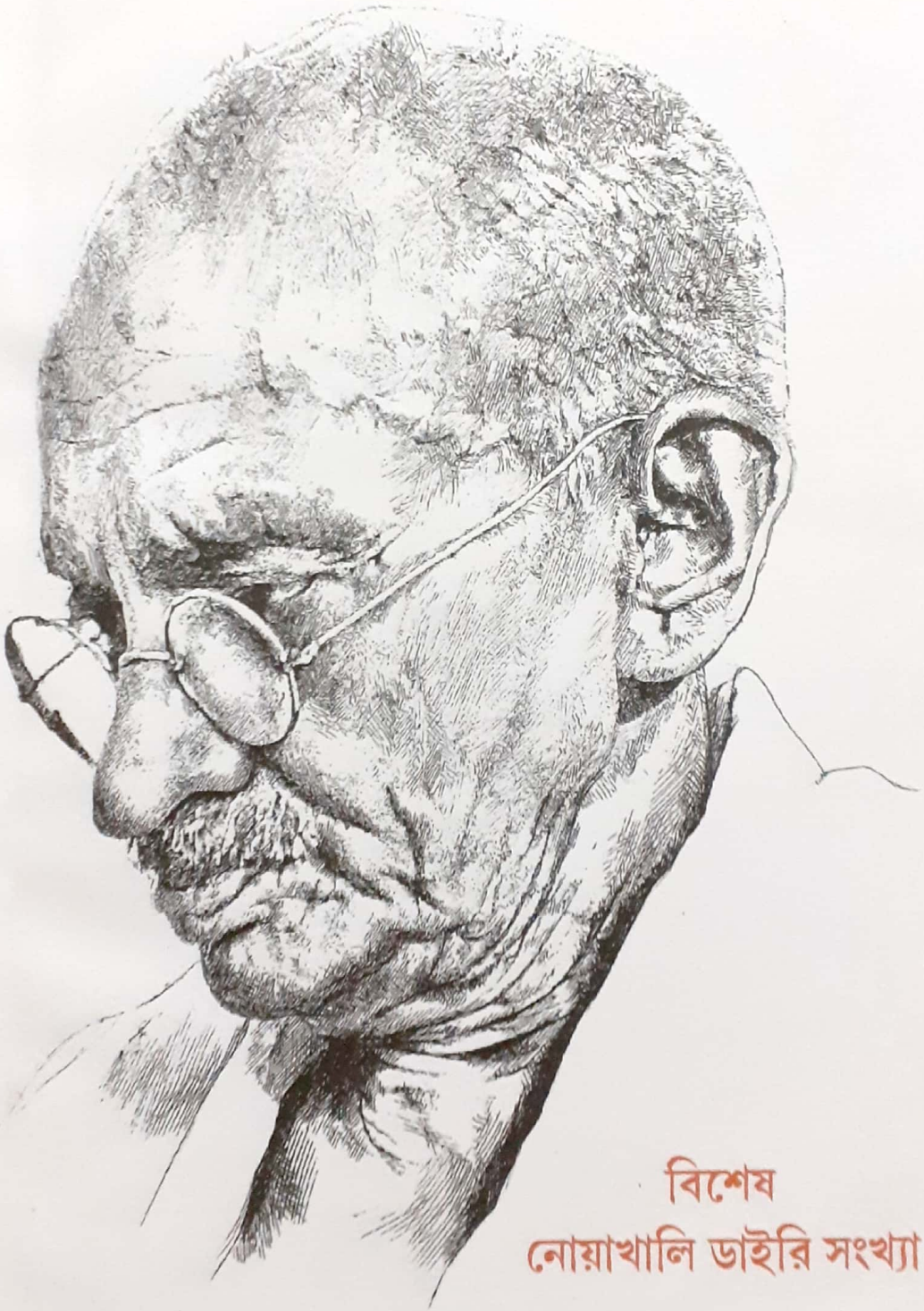
मन्नू भंडारी इसी भाव को लेकर अपनी कहानियाँ रचती हैं। इनकी कहानियों में आजादी के बाद के नए समाज में विकसित 'आधुनिक' मानव की संवेदना आकार लेती है। इस समाज का अपना अलग यथार्थ था जिसे लेखिका सूक्ष्मता के साथ अपनी कहानियों में रेखांकित करती जाती हैं। इनकी कहानियों में इन नई परिस्थितियों से उपजे द्वंद्व से ग्रस्त पात्रों की भरमार है। खास तौर से 'यही सच है' कहानी संग्रह के माध्यम से प्रकाश में आयी लेखिका की कहानियों में अत्यधिक परिपक्वता दिखाई देती है। इस संग्रह की कहानियाँ नई कहानी आंदोलन में महत्वपूर्ण स्थान रखती हैं। नई कहानी आदोंलन आधुनिक मनुष्य के जीवन के द्वंद्व, उसकी विवशता, उसकी निरीहता, सामाजिक–पारिवारिक संबंधों में उसकी मनःस्थिति को प्रकट करने वाला आन्दोलन था। इस चेतना के साहित्य में स्त्री जीवन के विविध पहलू दृष्टिगोचर होते है। इन सब के बीच मन्नू भंडारी स्त्री जीवन में प्रेम का एकदम अलग ही स्वरूप लेकर आती है। यह स्वरूप परंपरा से एकदम इतर है। 'यही सच है' एक विवादास्पद कहानी है जिसकी नायिका अपने जीवन में आने वाले दो व्यक्तियों के मोहपाश में बँधी हुयी है। एक उसका वर्तमान है

Scanned by CamScanner

ISSN: 2581-5903

শব্দবোধন

তৃতীয় বর্ষ, প্রথম সংখ্যা, মে ২০১৯



বিশেষ
নোয়াখালি ডাইরি সংখ্যা

Scanned by CamScanner

সূচি/Content

নোয়াখালি ডাইরি ৯
মোহনদাস করমচাঁদ গান্ধী

বিবিধ প্রবন্ধ ১১৭
ভারতীয় নাটকে হরিশচন্দ্র মিথ
বিপ্লব চক্রবর্তী

নাটক নুরি: অস্থির সময়ের উদ্ভাসন ১২৩
আলাউদ্দিন মণ্ডল

বাংলার মকর সংস্কৃতি ১৩৪
দীপঙ্কর পাড়ুই

অন্তর্গত রক্তের ভিতর খেলা করে... ১৫০
সৌরেন বন্দ্যোপাধ্যায়

ইতিহাসের ক্লাস ১৫৩
অত্রি ভট্টাচার্য্য

Economics at the service of Neo-Liberalism ১৬০
Vibha Iyer

Polysystem Theory and Disability-centric texts:
Case Study of the Odia short story ১৭১
Lakshyaheera
Madhumita Chanda

न पूरब से अभिभूत न पश्चिम से आक्रांत: आचार्य रामचंद्र शुक्ल १८७
शीतांशु

प्रतिकूल हवाओं में जलती मशाल: राजेंद्र बाला घोष 'बंग महिला' २११
अंजूलता

पाणिनीयधातूनां नानार्थविचारविमर्श: २१७
तरुण-चौधुरी

Scanned by CamScanner

प्रतिकूल हवाओं में जलती मशाल: राजेंद्र बाला घोष 'बंग महिला'

अंजूलता
सहायक प्राध्यापक, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, असम

प्रारंभिक हिंदी कहानियों में बंग महिला का नाम एक महत्वपूर्ण कहानीकार के रूप में लिया जाता है। बंग महिला की कहानियों में मध्यवर्गीय संवेदना का स्पष्ट विकास दिखाई देता है। एक ऐसे समय में जब कहानीकार कल्पना तत्व के सहारे अपनी कला को विकसित करने का प्रयास कर रहे थे, बंग महिला की कहानियाँ मध्यवर्गीय संवेदना के यथार्थ से गहरा सरोकार रखते दिखाई देती हैं। इनकी कहानियों और लेखों से इस बात का स्पष्ट बोध होता है कि नवजागरण के युग में आम भारतीयों के लिए कौन से प्रश्न महत्वपूर्ण थे। पाठकों को यह भी पता चलता है कि आधुनिकता के विकास के युग से भारतीय समाज और स्त्रियों की प्रगति के लिए हम किन पहलुओं की तलाश कर सकते हैं। इस दौर में, जहाँ एक तरफ हम आधुनिकता का हवाला देकर जीवन के विविध आयामों को नए सिरे से खंगाल रहे थे वहीं दूसरी ओर हम भारतीय समाज की विसंगतियों को भली भांति समझ भी ना सके थे। भारतीय साहित्य और समाज में आधुनिकता के अलग-अलग मायने विकसित हो रहे थे। भारत के अलग-अलग भौगोलिक और सांस्कृतिक क्षेत्रों में इसके विचारों का स्वरूप अलग-अलग ढंग का था। इसने तरह-तरह की दुविधाओं का विकास किया था। ऐसे परिवेश में ही बंग महिला सृजनरत थीं, जो जन्म से तो बंगाली थीं लेकिन उनका कर्म-क्षेत्र था हिन्दी प्रदेश और हिन्दी साहित्य।

बंग महिला की पहली कृति 'चंद्रदेव से मेरी बातें' आख्यायिका के रूप में सन् 1904 में प्रकाशित हुई। इस कृति में लेखिका चंद्रदेव को संबोधित करते हुए साम्राज्यवादी शक्तियों का स्पष्ट विरोध करते हुए लिखती हैं कि 'देवता भी अपनी जाति के कैसे पक्षपाती होते हैं। देखो न चंद्रदेव को अमृत देकर उन्होंने अमर कर दिया- तब यदि मनुष्य होकर हमारे अंग्रेज अपने जातिवालों का पक्षपात करें तो आश्चर्य ही क्या है? अच्छा यदि आपको अंग्रेज जाति की सेवा करना स्वीकार हो

Scanned by CamScanner

MAH/MUL/03051/2012
ISSN-2319 9318

विद्यावार्ता

Peer Reviewed International Refereed Research Journal

Issue-30, Vol-04 April to June 2019

Editor

Dr.Bapu G.Gholap

Scanned by CamScanner

MAH/MUL/ 03051/2012 ISSN :2319 9318

आंतरविद्याशाखीय बहुभाषिक शोध पत्रिका

विद्यावार्ता™

April To June 2019
Issue-30, Vol-03

Date of Publication
01 May 2019

Editor
Dr. Bapu g. Gholap
(M.A.Mar.& Pol.Sci.,B.Ed.Ph.D.NET.)

विद्येविना मति गेली, मतीविना नीति गेली
नीतिविना गति गेली, गतिविना वित्त गेले
वित्तविना शूद्र खचले, इतके अनर्थ एका अविद्येने केले

-महात्मा ज्योतीराव फुले

❖ विद्यावार्ता या आंतरविद्याशाखीय बहूभाषिक त्रैमासिकात व्यक्त झालेल्या मतांशी मालक, प्रकाशक, मुद्रक, संपादक सहमत असतीलच असे नाही. न्यायक्षेत्र:बीड

"Printed by: **Harshwardhan Publication Pvt.Ltd.** Published by **Ghodke Archana Rajendra** & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor **Dr. Gholap Bapu Ganpat**.

Reg.No.U74120 MH2013 PTC 251205

Harshwardhan Publication Pvt.Ltd.
At.Post.Limbaganesh,Tq.Dist.Beed
Pin-431126 (Maharashtra) Cell:07588057695,09850203295
harshwardhanpubli@gmail.com, vidyawarta@gmail.com
All Types Educational & Reference Book Publisher & Distributors / www.vidyawarta.com

Scanned by CamScanner

Index

01) The impact of climate change on Business Strategies
Nisha Agrawal, Bhopal MP ||10

02) Menstruation a Social and Traditional Taboo
Dr. Gagan Kumar , Smt. Priyanka Bharti, Sitapur ||12

03) RESERVATION FOR HIGHER CASTES COMMUNITIES IN INDIA .....
Jatavath Hanumu ,Hyderabad ||16

04) Flow of credit to agriculture in India
Prof. Dr. T. P. More,Buldana (MS) ||19

05) ENVIRONMENT AND HEALTH ISSUES OF MARBLE MINING .....
DR. Anju Ojha,DR. M. M.Sheikh, Churu ||23

06) The role of computers in mathematics learning
Anil Kumar Jain , Jaipur ||31

07) Sustainability of Economy and Money laundering
Prof. Dilpreet Kaur,LUDHIANA. ||36

08) Rosie-The Eternal Heroine in R.K. Narayans, The Guide
Asst. Prof.Shikha, Hariana ||43

09) A STATUS OF RURALWOMEN ENTREPRENEURSHIP IN INDIA ....
P. Thangaraj,Dr. P. Loganathan,Namkkaal (Dt) ||45

10) Economic Ideas of Mahadev Govind Ranade
Dr. Manjula Upadhyay, Lucknow ||49

11) An over View of Human Right in the Context of History
Vijay Shankar,Sri.Muktsar Sahib. ||55

12) Macrophytes Biodiversity of Sikam Reservoir from Rajura.....
S.A. Dhoble, Y.B. Gedam & M.B.Wadekar, Chandrapur ||58

13) Problems of Indian Agriculture Marketing
Prof. Dr. Sangram R. Raghuwanshi, Amravati ||61

www.vidyawarta.com/03 — http://www.printingarea.blogspot.com

Scanned by CamScanner

14) ORIGIN OF THE POLICE
Dr. G. Sanjeevayya, Andhra Pradesh ||64

15) डोपिंग विरोधी चळवळ गतीमान करणे काळाची गरज
डॉ.घायाळ बाबुराव लक्ष्मणराव,नांदेड ||68

16) कविता गजाआडच्या : स्त्री जाणिवांचा अविष्कार
प्रा.डॉ. सूर्यकांत हरिश्चंद्र गित्ते,बुलडाणा. ||70

17) डोपिंगमुळे खेळाडूंवर होणारे परिणाम आणि उपाययोजना
डॉ.जाधव धरमसिंग गेमसिंग,नांदेड ||74

18) स्त्री दु:खाचा उत्कट उद्‌गार म्हणजे 'वेदन'
प्रा. सौ. संगीता नारायणराव मुंढे, हिंगोली. ||76

19) पश्चिम महाराष्ट्र आणि मराठवाडा विभागातील आंतरविवाह .....
डॉ.संजय ज्ञानोबा सावंत,कोल्हापूर ||78

20) एकोणिसावे शतक आणि महाराष्ट्रातील दलित चळवळ : एक आकलन
डॉ.एस.डी. सावंत,लातूर ||81

21) संत कवयित्रींच्या अभंगाची सामाजिक उपयुक्तता
डॉ.प्रतिभा सुधीर पेंडके, कु.अर्चना शंकरराव कोहळे ||87

22) भारतातील उच्च शिक्षण स्वरूप : विवेचन – एक अभ्यास
प्रा.डॉ.उन्मेश शेकडे, लातूर ||90

23) विद्यार्थी केंद्रीत महाराष्ट सार्वजनिक विद्यापीठ कायदा – २०१६
श्री.संतोष रंगराव शहापूरकर, कोल्हापूर ||94

24) वडगाव लढाईतील भिवराव पानसे यांची कामगिरी (१७७९)
प्रा.डॉ.भानुसे कारभारी लक्ष्मण,औरंगाबाद ||97

25) अमर्त्य सेन यांचे अर्थिक विचार
प्रा.डॉ.राजेंद्र निंबा बोरसे, लोणार ||99

26) सोळाव्या लोकसभा निवडणूकीतील माध्यमांची सक्रियता व गतीशीलता आणि ...
गजानन सहादेव उपरीकर, नागपूर. ||101

www.vidyawarta.com/03 — http://www.printingarea.blogspot.com

Scanned by CamScanner

27) शरतचंद्र चट्टोपाध्याय कृत देहाती समाज में किसान जीवन
अंजु लता,असम || 105

28) भारतीय समाज में नारी अस्मिता
अजीत कुमार दीक्षित, मुरादाबाद ||110

29) विलास गुप्ते के साहित्य में राजनीतिक क्षेत्र में मूल्य विघटन की समस्या
गुंजाळ बाळासाहेब पढरीनाथ,रत्नागिरी. ||114

30) क्रीडा क्षेत्र में खिलाडी एवंम् प्रतिबन्धीत द्रव्ये (औषधी)
प्रा.डॉ. जुझारसिंघ निर्मलसिंघ सिलेदारा, नांदेड ||118

31) वैदिक साहित्य में उल्लिखित संस्कारों का विश्लेषण
डॉ०उमा सिंह, लखनऊ ||119

32) प्राचीन भारतीय स्रोत में महिला शिक्षा के संदर्भ
डॉ.शैलेन्द्र तिवारी, वाराणसी ||125

33) उषा प्रियम्वदा का उपन्यास नदी भाषा — शिल्प के संदर्भ में
सुनीता देवी, चंडीगढ़ ||131

34) तीर्थराज प्रयाग की महत्ता
डॉ० राजेश कुमार यादव, बाराबंकी, उ०प्र० ||133

35) राष्ट्रीय साँस्कृतिक काव्यकार माखनलाल चतुर्वेदी.....
डॉ.सपना बंसल, Summer Hill Shimla. ||135

36) नक्सलवाद : एक समाजशास्त्रीय विवेचन
डॉ. गीता सामौर, जयपुर (राज.) ||141

37) महिला समस्या एवं मानवाधिकार की आवश्यकता
राजेन्द्र सिसोदिया,इन्दौर, (म.प्र.) ||145

38) साहित्य, समाज और मीडिया के अन्तर्सम्बन्धों में बदलाव
डॉ. गोपीराम शर्मा,श्रीगंगानगर (राज.) ||147

39) ब्रज संस्कृति में संगीत का महत्व
डॉ०वन्दना अग्रवाल, मेरठ ||151

www.vidyawarta.com/03 — http://www.printingarea.blogspot.com

Scanned by CamScanner

27

शरतचंद्र चट्टोपाध्याय कृत देहाती समाज में किसान जीवन

अंजु लता
सहायक प्रोफेसर, हिंदी विभाग,
तेजपुर विश्वविद्यालय, तेजपुर, असम

****

भारत को आजादी के मिलने के लगभग सौ वर्ष पहले से ही समाज में परिवर्तन की ध्वनि परिलक्षित होने लगी थी। इन परिवर्तनों का साहित्य, संस्कृति, कला, राजनीति आदि पर गहरा प्रभाव दिखाई देता है। धीरे–धीरे इन्हीं परिवर्तनों की कोख से साम्राज्यवादी शक्ति से लड़ने का जो सामाजिक और राजनैतिक वातावरण तैयार होता है उसमें साहित्य की भूमिका महत्वपूर्ण दिखाई देती है। बीसवीं सदी के साहित्यकारों में गहरी सामाजिक संवेदनशीलता उभरकर सामने आती है। ये रचनाकार सामाजिक अन्याय और भेदभाव के विरूद्ध लगातार अपने साहित्य के माध्यम से संघर्ष करते हैं। इस संघर्ष के क्रम में रचनाकार सामाजिक विसंगतियों को बहस के केंद्र में लेकर आता है। इस समय का साहित्य केवल मनोरंजन का कार्य नहीं करता है बल्कि अपनी सामाजिक और वर्गीय पक्षधरता को भी निर्धारित करता है। वह समाज के उस वर्ग के यथार्थ को सामने लेकर आता है जिसकी मूलभूत आवश्यकताएं पूरी नहीं हो पाती हैं। जिसके सामने तमाम धार्मिक और सामाजिक प्रतिबंध है और एक खास वर्ग और जाति के होने के कारण उनको भेदभाव का शिकार होना पड़ता है।

हर समय के समाज की अपनी कुछ जरूरतें होती ही और साहित्यकार की जिम्मेदारी होती है कि वह अपने साहित्य के माध्यम से उन जरूरतों को पूरा करे। वह परंपरा का मूल्यांकन करता है और इस क्रम में वह परंपरा को अपनी विचारधारा के अनुसार रिवाइव करता है। समय की आवश्यकता के अनुसार तथ्यों को जोड़ता और निकालता है। जब शरतचंद्र ने लिखना आरंभ किया तो उस समय उनके सामने बांग्ला साहित्य की एक लंबी और समृद्धशाली परंपरा मौजूद थी। अधिकांश साहित्य नवजागरण के प्रकाश में रचा जा रहा था जिसका प्रभाव संपूर्ण भारतीय साहित्य पर पड़ता दिखाई देता है। नवजागरणकालीन साहित्य में विधवा विवाह, जात–पात का विरोध, धार्मिक कट्टरता की भावना का विरोध, बाल विवाह का विरोध साफ दिखाई देता है। शरतचंद्र के लेखन को इसी परंपरा के आलोक में देखने की जरूरत है।

शरतचंद्र का उपन्यास पल्ली समाज मुख्य रूप से जमींदारों की कथा को केंद्र में रखकर लिखा गया है। इस उपन्यास में एक तरह का आत्मसंघर्ष दिखाई देता है– रचनाकार का स्वयं से और समाज से। शरतचंद्र जमींदारों के दोहरे चरित्र को उभार कर सामने लाते हैं। पूरे उपन्यास में उनकी प्रतिबद्धता समाज के शोषित पीड़ित वर्ग के प्रति लगातार परिलक्षित होती है। शरतचंद्र स्वयं जमींदार परिवार से थे लेकिन समाज के शोषित और पीड़ित वर्ग के प्रति उनकी आत्मीयता और संवेदनशीलता के कारण ही वे इस तरह की रचना कर पाते हैं।

शरतचंद्र के साहित्य का अनुवाद लगभग सभी भारतीय भाषाओं में किया गया है। यह अकेले ऐसे कथाकार हैं जिनके अधिकांश साहित्य पर फिल्में बन चुकी हैं। अपने साहित्य में शरतचंद्र ने समाज के सामंती मानदंडों को लगातार ध्वस्त करने का कार्य किया है। धर्म के पाखंड तथा जाति और वंश को मानने वाले समाज की सीमाओं को रेखांकित किया है। वह सारे नियम कानून जिन्हें समाज सहज ही ग्रहण करता है और इस क्रम में एक खास वर्ग को मनुष्य की श्रेणी में नही गिनता, उस समाज की विसंगतियों को इनके साहित्य में बेहतरीन ढंग से दर्शाया गया है। पल्ली समाज इसी तरह की संवेदना को व्यक्त करने वाला उपन्यास है। चूंकि उपन्यास का स्वरूप ऐसा होता है कि उसमें लेखक का जीवन दर्शन व्यक्त होता है, उसका दायरा बहुत बड़ा होता है, एकसाथ वह कई

Scanned by CamScanner

अंक 289 वर्ष 59

भाषा

मार्च–अप्रैल 2020

वैदिक ज्ञान-विज्ञान विशेषांक

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सत्यमेव जयते

केंद्रीय हिंदी निदेशालय
भारत सरकार

Scanned by CamScanner

पंजी संख्या 10646/61
ISSN 0523-1418

भाषा (द्वैमासिक)
BHASHA-BIMONTHLY
वि. सं. 305-2-2020
700

केंद्रीय हिंदी निदेशालय
उच्चतर शिक्षा विभाग
मानव संसाधन विकास मंत्रालय, भारत सरकार
पश्चिमी खंड–7, रामकृष्णपुरम, नई दिल्ली–110066
www.chdpublication.mhrd.gov.in

प्रबंधक, भारत सरकार मुद्रणालय, रिंग रोड, मायापुरी, नई दिल्ली – 110064 द्वारा मुद्रित

Scanned by CamScanner

अनुक्रमणिका

निदेशक की कलम से
आपने लिखा
संपादकीय
आलेख
खंड-I
वेद एवं विज्ञान

1. संस्कृत साहित्य एवं वैदिक भूगर्भविज्ञान	डॉ. नीरज शर्मा	09
2. संस्कृत-हिंदी भाषा-साहित्य में वैदिक-मनोविज्ञान	डॉ. विनोद कुमार	13
3. वैदिक संस्कृत भाषा एवं नीतिविज्ञान	डॉ. विशाल भारद्वाज	18
4. संस्कृत धर्मशास्त्र एवं वैदिक राजधर्म	डॉ. सलोनी	22
5. वैदिक ग्रंथों में न्याय की अवधारणा एवं वर्तमान विधि व्यवस्था	डॉ. प्रशांत मिश्र	28
6. वैदिक संस्कृत : वैज्ञानिक एवं राजनैतिक चिंतन	डॉ. दलबीर सिंह चाहल	33
7. वैदिक साहित्य : भारतीय जिजीविषा का आईना	डॉ. राजहंस कुमार	36
8. योगदर्शन और वेद : एक समग्र विवेचना	अखिलेश आर्येंदु	42
9. वैदिक साहित्य और विविध विषयक नीतियाँ	डॉ. विजेंद्र प्रताप सिंह	50
10. वैदिक ज्योतिष-विज्ञान अथवा आस्था	डॉ. शालिनी राजवंशी	54
11. वैदिक एवं लोकसाहित्य में ज्ञान-विज्ञान	डॉ. अर्चना झा	57
12. वैदिक वाङ्मय एवं पर्यावरण विज्ञान	डॉ. कपिल गौतम	62
13. वर्ण व्यवस्था का वैदिक विज्ञान	डॉ. माधव कृष्ण	70
14. वेदों में कृषि विज्ञान चिंतन	प्रोफेसर (डॉ.) दिनेश चमोला 'शैलेश'	77
15. वैदिक वाङ्मय और तकनीकी : यातायात के प्राचीन वैज्ञानिक साधनों के संदर्भ में	डॉ. (कु.) साधना जनसारी	81
16. वेदों में कृषि विज्ञान	डॉ. किरण शर्मा	85
17. वैदिक काल और वर्तमान ज्यामितियों का अध्ययन	अवनीश कुमार चतुर्वेदी	89
18. वेद-साहित्य और लोकमंगल का भाव	डॉ. नोदनाथ मिश्र	92
19. वैश्विक ज्ञान-विज्ञान की संपूर्ण क्रियाओं का मूल उत्स : वेद	डॉ. पूरन चंद टंडन	96

Scanned by CamScanner

खंड-II

वेद-भारतीय भाषाओं के संदर्भ में

20. भारतीय भाषाओं में वैदिक ज्ञान-विज्ञान	आ. अ. वेणाल	100
21. भारतीय भाषाएँ एवं वैदिक आयुर्वेद (मलयालम भाषा के संदर्भ में)	लक्ष्मी वी.	103
22. भारतीय भाषाएँ एवं वैदिक चिकित्सा विज्ञान	अमित सिंह	105
23. भारतीय भाषाओं में प्राचीन जैन गणित विज्ञान	हरीश जैन	112
24. भारतीय भाषाओं में वैदिक कला विज्ञान : असमिया के विशेष संदर्भ में	डॉ. अंजू लता	115
25. भारतीय भाषाएँ एवं वैदिक ज्ञान विज्ञान : कन्नड भाषा के संदर्भ में	डॉ. शोभा	120
26. भारतीय भाषाएँ और वैदिक व्याकरण	डॉ. रेखा	124
27. भारतीय भाषाओं में वैदिक ज्ञान परंपरा : संस्कृत भाषा के विशेष संदर्भ में	डॉ. विदुषी शर्मा	129
28. कश्मीर की वैदिक परंपरा एवं भाषा	डॉ. प्रियंजन	140
29. मलयालम साहित्य में वैदिक दर्शन और योगशास्त्र	डॉ. के. वनजा	144

खंड-III

वेद एवं भारतीय साहित्य

30. काव्य और छांदोग्योपनिषद् की प्राणमयी संस्कृति	डॉ. राजेश कुमार	151
31. संस्कृत और वैदिक धर्म : श्रीमद्भगवद्गीता के विशेष संदर्भ में	प्रो. रवींद्र कुमार	156
32. स्वामी दयानंद सरस्वती का वेदों के प्रचार में योगदान	डॉ. राजरानी शर्मा	158
33. भारतीय भाषाओं में वेदों की नैतिक शिक्षा (महर्षि दयानंद सरस्वती के 'वेदामृत' एवं आचार्य विनोवा भावे के 'वेदामृत' के संदर्भ में)	सागर चौधरी	165
34. वैदिक सौंदर्यबोध और रामविलास शर्मा का चिंतन	अमन कुमार	167
35. 'कामायनी' में वैदिक ज्ञान-विज्ञान	डॉ. साक्षी जोशी	174
36. 'वैश्वानर' उपन्यास में वैदिक संदर्भ	डॉ. उमेश कुमार शुक्ल	179

हिंदी कविता

37. वेद सभ्यता के आदि ग्रंथ	सतीश श्रोत्रिय	183
संपर्क सूत्र		184
सदस्यता फार्म		

Scanned by CamScanner

भारतीय भाषाओं में वैदिक कला विज्ञान : असमिया के विशेष संदर्भ में

डॉ. अंजू लता

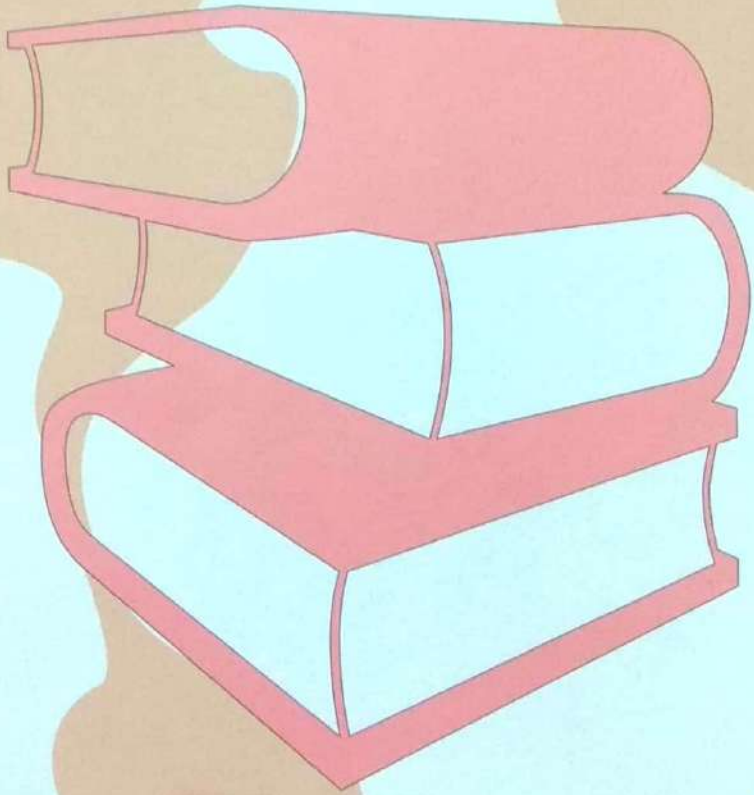
मानव मन एवं मस्तिष्क की उच्चतम एवं प्रखरतम भावों की अभिव्यक्ति व लोगों की संस्कृति में एक सुल्यतम विरासत लाने वाली कला का विकास कोई नवीन बात नहीं है। मानव सभ्यता व संस्कृति के विकास एवं उत्पत्ति के साथ-साथ कलाओं का भी निरंतर विकास हुआ है। मानव सभ्यता का विकास तथा भारतीय संस्कृति जितनी पुरानी है, उतनी ही पुरानी कलाएँ एवं कला पद्धतियाँ हैं। पूरे देश में यदि नजर फैलाएँ तो यह देखने को मिलेगा कि मानव सभ्यता और संस्कृति के साथ कलाओं का आपसी सह-संबंध रहा है। जिस तरह मानव जीवन वैविध्यपूर्ण है, उसी भांति कलाओं का विकास एवं मानव समाज में उसका आगमन विविधता से परिपूर्ण है। सभी कलाएँ मानव जीवन के हर पहलू, इतिहास, सभ्यता-संस्कृति तथा उत्थान-पतन आदि को हमेशा एक दस्तावेज के रूप में परखती हैं। इस संदर्भ में कला एक बाह्य माध्यम या पद्धति द्वारा अपने भावों की अभिव्यक्ति को कहा जा सकता है। कला के संबंध में विद्वानों का अलग-अलग मत रहा है, इस दृष्टि से डॉ. कृष्ण गोपाल का मानना है कि जो लोगों को आनंद प्रदान करता है व कला अपूर्णता को पूर्णता प्रदान करता है तथा कलाकार किसी भी कला को गाता है, उसे बनाता व एक स्वर प्रदान करने वाला होता है। अत: विस्तृत रूप से कला को हम एक मानव मन की अभिव्यक्ति कह सकते हैं जिसके माध्यम से कलाकार किसी भी कला को गति प्रदान करने के साथ ही एक आकार प्रस्तुत करता है। विविधता में एकता व अनेकता में एकता की भूमिका रखने वाले देश भारत में कला का आरंभ प्रागैतिहासिक काल से ही दिखाई पड़ता है। ऐतिहासिक दृष्टि से देखा जाए तो भारतीय कलाओं का विकास वैदिक काल से पूर्व ही मिलता है। इस संदर्भ में कहा जाए तो भारतीय कलाओं का विकास सर्वप्रथम ग्रामीण सभ्यता में हुआ है। उदाहरणस्वरूप सिंधु घाटी सभ्यता में प्राप्त अवशेषों को कलाओं का प्रारंभिक नमूना माना जाता है। क्योंकि इस कला की खोज ईसा पूर्व तीन हजार साल पुरानी मानी जाती है। भारतीयों कलाओं का स्वरूप मुख्य रूप से सिंधु घाटी सभ्यता, अजंता, एलोरा एवं प्राचीन मठ और मंदिरों में दिखाई पड़ता है - (द हिस्ट्री ऑफ इंडियन आर्ट, अनिल राव संध्या केट्कार)। वैदिक काल में विभिन्न नदियों की घाटियों में पुरातत्वविदों की खुदाई में मिले असंख्य पाषाण उपकरण भारत के आदि मनुष्य के कलात्मक प्रवृत्तियों के साक्षात प्रमाण है। भारतीय वैदिक कला मूलत: मूर्तिकला और वास्तुकला के संदर्भ पर आधारित है, जिसका वर्णन साहित्य में 1500 से 800 ईसा पूर्व के बीच मिलता है। इस युग में वास्तुकला न तो गतिशील थी न स्थायी और न ही शहरी विकास में केंद्रित थी। उस समय की वास्तुकला की द्रविड में पिरामिड के आकार के मंदिर शामिल थे, जो कि देवताओं, नर्तक, राजाओं और योद्धाओं की कई प्रतिमाओं से मिलकर पत्थर पर नक्शा तैयार किया जाता था। इसके अलावा कलाओं में गोल और चोकोर आकार की झोपड़ियों को भी देखा जाता है (द हिस्ट्री ऑफ इंडियन आर्ट, अनिल राव संध्या केट्कार)। वास्तुकला निर्माण में इस युग में व्यवहृत सामग्रियाँ हैं - टिन, सीसा, चाँदी, तांबा आदि धातुओं का उल्लेख वैदिकालीन साहित्य में

Scanned by CamScanner

अंक 285 वर्ष 58

भाषा

जुलाई–अगस्त 2019



150 YEARS OF CELEBRATING THE MAHATMA

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सत्यमेव जयते

केंद्रीय हिंदी निदेशालय
भारत सरकार

Skill India

Scanned with CamScanner

अनुक्रमणिका

निदेशक की कलम से
आपने लिखा
संपादकीय

आलेख

1.	नवगीत के सर्जनात्मक आयाम	डॉ. अनिल कुमार	9
2.	21वीं सदी का हिंदी उपन्यास लेखन और महानगरीय बोध	डॉ. संदीप रणभिरकर	18
3.	भारतीय लोकगीतों का नया अवतार : चटनी संगीत	डॉ. चंद्रकांता किनरा	24
4.	गिरिजाकुमार माथुर : चिंतन की एक स्वस्थ परंपरा	सुरेश धींगड़ा	28
5.	हिंदी के काव्य विकास में जुड़ा हाइकु-एक नया आयाम	डॉ. इंद्रदेव भोला इंद्रनाथ	33
6.	राष्ट्रीय आंदोलन और हिंदी पत्रकारिता	डॉ. एम. शेषन्	36
7.	प्रगतिवाद : छायावाद विरोधी तेवर	आचार्य डॉ. केशवराम शर्मा	41
8.	आधी आबादी और अरुण कमल की कविता	सुश्री प्रीति प्रकाश डॉ. अनुशब्द	45

धरोहर

9.	रश्मिरथी (प्रथम सर्ग)	रामधारी सिंह 'दिनकर'	50

कहानी

10.	एक राजनैतिक कहानी (तेलुगु कहानी)	एम. वेंकटेश्वर	54
11.	पांडे सदन (हिंदी कहानी)	इंदिरा दाँगी	61
12.	सर्जा – राजा (हिंदी कहानी)	कृष्णा कदम	72

कविता

13.	स्वतंत्रता दिवस: एक अभिव्यक्ति (नेपाली/हिंदी)	मूल एवं अनुवाद : : इंद्र बहादुर गुरुङ	76
14.	नवकलेवर (ओड़िआ/हिंदी)	मूल : वासुदेव सुनानी अनुवाद : अजय कुमार पटनायक	78
15.	हिम्मत (संथाली/हिंदी)	मूल एवं अनुवाद : किरण कुमारी हाँसदाक	82

Scanned with CamScanner

आधी आबादी और अरुण कमल की कविता

सुश्री प्रीति प्रकाश
डॉ. अनुशब्द

मैं उसे इतना डांटा
गालियाँ दी
दो तीन बार पीटा भी
फिर भी चुपचाप सारा काम करती गई.....
वह कभी बोली क्यों नहीं
एक बार भी बोलती.....

समकालीन हिंदी कविता में अरुण कमल का महत्वपूर्ण हस्तक्षेप है। रचना और आलोचना दोनों ही क्षेत्रों में उनकी गहरी पैठ है। एक से बढ़कर एक उनके कुल पाँच कविता संग्रह हैं- 'सबूत', 'नए इलाके में', 'पुतली में संसार', 'अपनी केवल धार' और 'मैं वो शंख महाशंख'। इनके काव्य संग्रहों का पाट बहुत चौड़ा है और संवेदना की गहराई तो उनमें है ही। 'गोलमेज' और 'कविता और समय' उनकी आलोचनात्मक प्रतिभा के प्रतिमान है। जिनमें समय-समय पर उनके लिखे आलेखों का संकलन है। उनकी कविताओं का स्वर समाज और राजनीति के कई पहलुओं को बड़ी संजीदगी के साथ छूता है। राजनीति का राष्ट्रीय अंतरराष्ट्रीय संदर्भ हो या समाज का पिछड़ा वर्ग हो सब उनकी कविताओं में स्थानीय विशेषताओं के साथ उपस्थित है। उनकी कविताओं में स्त्री पात्र समाजानुकूल अपनी उपस्थिति दर्ज करवाती है।

उपर्युक्त कविता 'एक बार भी बोलती' वह यक्ष प्रश्न खड़ा करती है जिसके उत्तर की प्रतीक्षा शायद आज भी हर स्त्री को है। आखिर वह कौन सा सामाजिक ढांचा है जो महिलाओं को इतना कमजोर, इतना बेबस बना देता है कि वे मजबूर हो जाती है तमाम रंजो सितम के साथ जिंदगी गुजर-बसर करने के लिए। कई बार तो वे अपनी इस मजबूरी को अपनी नियति मान लेती हैं। अरुण कमल हिंदी कविता में शोषितों और पीड़ितों के प्रतिनिधि के रूप में जाने जाते हैं। उनकी कविता में समाज के वंचित वर्ग को वाणी मिलती है। "जिसका कोई प्रतिनिधि नहीं होता है उसका प्रतिनिधि कवि होता है" इस वाक्य से कवि न सिर्फ इत्तेफाक रखते हैं बल्कि इसे अपने लेखन में पूरे तरह आत्मसात करते हैं। 'यदि उनकी कविताओं में स्त्री जीवन की झलक देखने का प्रयास करें तो वहाँ भी पढ़ी लिखी और समाज के संभ्रांत वर्ग से आने वाली महिलाएँ कम मिलती हैं। अरुण कमल की कविताओं में तो ग्राम वधुएँ हैं, रोजी-रोटी की जुगाड़ में लगी निम्नवर्गीय महिला है, घर-घर जाकर काम करने वाली कुबड़ी काकी है और जिजीविषा के साथ रोजमर्रा की जिंदगी से संघर्ष कर रही औरतें हैं। अरुण कमल इन महिलाओं की समस्याओं को अपनी लेखनी से आवाज देते हैं।

प्रसिद्ध वैद्यक चरक ने लिखा था कि समस्या जहाँ उत्पन्न होती है उसका निदान भी वहीं होता है। इसलिए चरक की बात मानते हुए चूँकि महिलाओं की चुप्पी का प्रश्न अरुण कमल की कविता से सामने आया है इसलिए जवाब भी अरुण कमल की कविताओं

ISSN 0523-1418

CS Scanned with CamScanner

अंक 277 वर्ष 57

भाषा

मार्च–अप्रैल 2018

भारतीय आत्मकथा साहित्य विशेषांक

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सत्यमेव जयते

Skill India

केंद्रीय हिंदी निदेशालय
भारत सरकार

ISSN 0523-1418
भाषा (द्वैमासिक)
वर्ष : 57 ☐ अंक : 4 (277)
मार्च–अप्रैल 2018

संपादकीय कार्यालय
केंद्रीय हिंदी निदेशालय,
उच्चतर शिक्षा विभाग,
मानव संसाधन विकास मंत्रालय, भारत सरकार,
पश्चिमी खंड-7, रामकृष्णपुरम्,
नई दिल्ली-110066
वेबसाइट : www.hindinideshalaya.nic.in
ईमेल : bhashaunit@gmail.com

बिक्री केंद्र :

नियंत्रक, प्रकाशन विभाग, सिविल लाइंस, दिल्ली - 110054
सदस्यता हेतु ड्राफ्ट नियंत्रक, प्रकाशन विभाग, दिल्ली के पक्ष में भेजें।

मूल्य :

1.	एक प्रति का मूल्य	=	रु. 25.00	(डाक खर्च सहित)
2.	वार्षिक सदस्यता शुल्क	=	रु. 125.00	
3.	पंचवर्षीय सदस्यता शुल्क	=	रु. 625.00	
4.	दस वर्षीय सदस्यता शुल्क	=	रु. 1250.00	
5.	बीस वर्षीय सदस्यता शुल्क	=	रु. 2500.00	

वेबसाइट : www.deptpub.gov.in
ई–मेल : pub.dep@nic.in
दूरभाष : 011-23817823/ 9689
फैक्स : 011-23817846

पत्रिका में व्यक्त विचार लेखकों के अपने हैं। इनसे भारत सरकार या संपादन मंडल का सहमत होना अनिवार्य नहीं है।

अनुक्रमणिका

निदेशक की कलम से
संपादकीय
आपने लिखा

आलेख

1.	संस्कृत भाषा में आत्मकथा साहित्य	डॉ. अजय कुमार मिश्र	13
2.	हिंदी आत्मकथा का विकास-क्रम	प्रो. सुशील कुमार शर्मा	31
3.	हिंदी साहित्य में स्त्री आत्मकथा	डॉ. वंदना भारती	35
4.	हिंदी की दलित आत्मकथा	डॉ. आलोकरंजन पांडेय	46
5.	हिंदी का समकालीन आत्मकथा साहित्य	डॉ. अनुपम माथुर	57
6.	असमिया आत्मकथा का अतीत	डॉ. अनुशब्द	68
7.	स्वानुभूत सत्य को उजागर करने वाली बंगला महिला आत्मकथाएँ	प्रो. अरुण होता	78
8.	कन्नड का आत्मकथा साहित्य और आलूर वेंकटराव की आत्मकथा "नन्न जीवन स्मृतिगळु"	प्रो. सुनीता मंजनबैल	88
9.	कश्मीरी और डोगरी भाषाओं में आत्मकथा साहित्य	डॉ. महाराज कृष्ण भरत मूसा	95
10.	खासी साहित्य में आत्मकथा: एक अध्ययन	प्रो. स्ट्रीम्लेट ड्खार हिंदी अनुवाद : डॉ. जीन एस. ड्खार	107
11.	हिंदी और तमिल की नारी आत्मकथाकार	प्रो. निर्मला एस. मौर्य	117
12.	तेलुगु में आत्मकथा साहित्य	डॉ. जे. एल. रेड्डी	126

असमिया आत्मकथा का अतीत

डॉ. अनुशब्द

उन्नीसवीं सदी के असमिया साहित्य, भाषा और संस्कृति के विकास में अमरीकी मिशनरियों ने महत्वपूर्ण भूमिका निभाई। इन मिशनरियों ने अपनी गैर धार्मिक पुस्तकों और लेखकों के माध्यम से एक धर्मनिरपेक्ष और वैज्ञानिक दृष्टिकोण फैला दिया। असम के लोग उन उदार अमरीकी मिशनरियों के बहुत ऋणी हैं जिनके निष्ठापूर्ण परिश्रम और बलिदान की वजह से आधुनिक असमिया साहित्य को अपना आकार मिला। इस संबंध में, तीन महान अमरीकी विद्वानों का उल्लेख किया जा सकता है। वे हैं श्रद्धेय ओलिवर टी. कटर, नाथन ब्राउन और माइल्स ब्रनसन। यह कहा जा सकता है कि हमारे आधुनिक भाषा, साहित्य, शिक्षा और संस्कृति का जन्म असमिया पत्रिका व अखबार 'अरुणोदय' के प्रकाशन के साथ सन् 1846 में पहली बार हुआ, जो अमरीकी मिशनरियों का हस्तशिल्प था।

इस पत्र में मौजूद दुनिया के समाचार व विचार, आधुनिक विज्ञान और साहित्य की जानकारी ने लोगों के मन में आशा और आकांक्षा का एक नया क्षितिज खोल दिया। इसने व्यापक रूप में लोगों के मानसिक दृष्टिकोण को सुधारा और तब लोगों ने भौतिकवादी और मानवतावादी घटनाओं की दुनिया में मूल्य को देखा।

एक नए युग की इस भोर में लोगों ने इंसान को इंसान की तरह पहचाना और इस ज्ञान तथा समझ ने उनको समय के साथ अपने विचारों और भावनाओं के बोझ से आत्मकथात्मक लेखन के माध्यम से मुक्त होना सिखा दिया। 'अरुणोदय' पत्रिका के मूल लेखकों के रूप में हम तीन प्रख्यात असमिया

भाषा ISSN 0523-1418

अनुशब्द

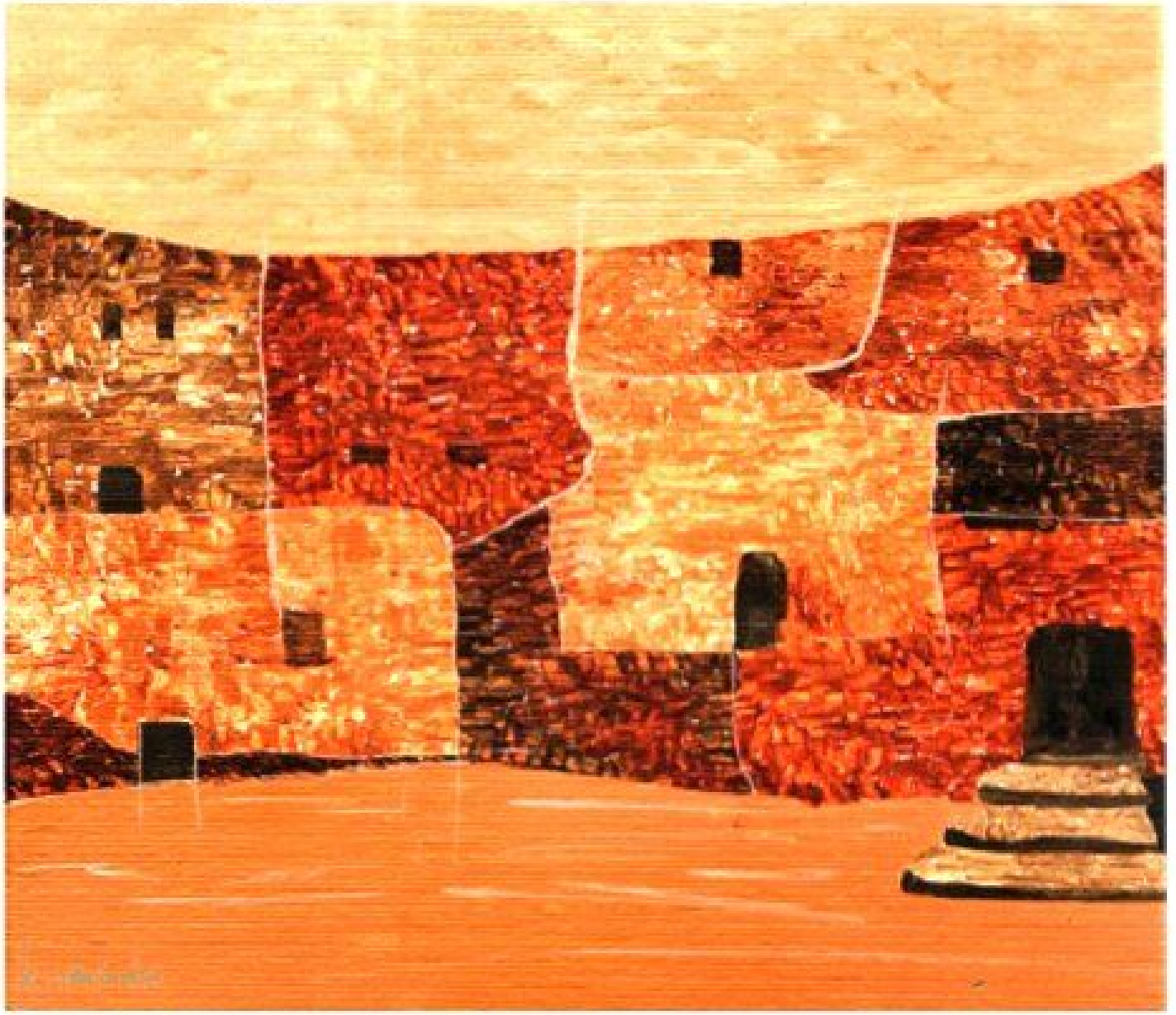
ISSN-2582-6530
पीअर रिव्यूड छमाही हिंदी ई-जर्नल
जनवरी-जून 2020

कंचनजंघा

भाषा, साहित्य एवं संस्कृति का साझा उपक्रम

KANCHANJANGHA

Confluence of languages, literature and culture



संपादक : प्रदीप त्रिपाठी

इस अंक में

संपादकीय

स्मरण

फणीश्वरनाथ रेणु : संभवंति युगे-युगे... शिवमूर्ति

लेख

सिक्किम की लोक संस्कृति पर कंचनजंघा का प्रभाव छुकी लेप्चा
रंगभेद, नस्ल और अश्वेत समस्या गोपाल प्रधान
मणिपुर में हिंदी पत्रकारिता का अभियान देवराज
हिंदी बाल साहित्य का स्वातंत्र्योत्तर स्वरूप: बहस और विमर्श दिविक रमेश
असमिया लोक साहित्य में राम अनुशब्द
हिंदी एवं नागा जनजाति की भाषाओं का अंतर्संबंध थुन्बई
परिस्थिति और निर्मिति : मोहन से महात्मा राजीव रंजन गिरि
त्रिपुरा की लोक कथाओं में नारी: कॉकबरक भाषा के संदर्भ में डॉ. नुकफाँटी जमातिया
लेखकनामा अनिल यादव
अरुणाचल की हिंदी हरीश कुमार शर्मा
भारतीय नेपाली कथा-साहित्य में कोलकाता महानगर का प्रतिनिधित्व डॉ. कविता लामा
थर्ड जेंडर के संघर्ष का प्रतिबिंब : पोस्ट बॉक्स नं. 203 नाला सोपारा बी आकाश राव
'राजा हरिश्चंद्र': भारतीय सिनेमा का मंगलारंभ डॉ. सुरभि विप्लव

कविताएं

श्रीप्रकाश मिश्र की दो कविताएं
बाबुषा कोहली की पाँच कविताएं
सुशीला टाकभौरे की चार कविताएं
निशांत की तीन कविताएं
विहाग वैभव की पाँच कविताएं

अनूदित रचनाएँ (कविता, लेख एवं नाटक)

अमर बानियाँ 'लोहोरो' की चार कविताएं- (नेपाली से हिंदी)	अनुवादक: सुवास दीपक
पंकज गोबिन्द मेधी की तीन कविताएं- (असमिया से हिंदी)	अनुवादक: दिनकर कुमार
खासी लोक कथाओं में नारी शोषण (खासी से हिंदी)	अनुवादक : डॉ. जीन एस. ड्खार
मयाङ देश की भाभी (नाटक: मणिपुरी से हिंदी)	अनुवादक: एलाङ्बम विजयलक्ष्मी

कहानियाँ

मेरा घर कहाँ है?	सोनी पाण्डेय
इच्छा मृत्यु	जमुना बीनी
त्रासदी	महेंद्र भीष्म

पूर्वोत्तर का पौराणिक क्षितिज

तानी (निशी आदिवासी किंवदंती)	जोराम यालाम नाबाम

लोक कथाएँ

नागालैंड की लोक कथाएँ	चंद्रशेखर चौबे
मिज़ोरम की लोक कथाएँ	प्रो. संजय कुमार एवं डेविड के. अजयु

पुस्तक समीक्षा

जितेन्द्र श्रीवास्तव- जीवन का प्रमेय गढ़ते हुए	मनोज पाण्डेय
सामाजिक व्यवस्था पर चोट करती कहानियाँ	ऋचा द्विवेदी
लौटने की चाह में बचे रहने की उम्मीद	राहुल

धरोहर

पूर्वोत्तर भारत के विविध रंग (छाया चित्र)	कुमार गौरव मिश्र

असमिया लोक साहित्य में राम
(लोकगीतों के विशेष संदर्भ में)

डॉ. अनुशब्द
संपर्क: 8876049200

लोक साहित्य लोक द्वारा निर्मित, लोक विषयक और लोक प्रचलित साहित्य है। इसका जुड़ाव विशेष रूप से श्रम और संस्कार से होता है। यह सामूहिकता की भावना को सूचित करता है, इसीलिए इसका पाठ विभिन्न उत्सवों एवं अवसरों पर होता है। लोक साहित्य हमारे पुरखों का साहित्य है। हमारे पुराने समाज का साहित्य है। इसमें जीवन के विभिन्न प्रसंगों से प्राप्त अनुभवों एवं सत्यों की वास्तविक अभिव्यक्ति होती है। इसमें भावों की अभिव्यक्ति में किसी तरह का बनावटीपन नहीं होता बल्कि भावों का भदेसपन लोक साहित्य की अपनी विशेषता होती है। इसलिए इस साहित्य की टेक्नीक और टेक्सचर में लोक की ज्यादा उपस्थिति होती है।

वास्तव में लोक साहित्य मौलिक साहित्य है। वह कच्चे-कोरवर भावों का साहित्य है। यह शास्त्रीय ज्ञान के बोझ से मुक्त तथा छंद एवं अलंकार की चिंता से रहित साहित्य है। यह अपने वाचिक रूप में किसी व्यक्ति विशेष द्वारा सृजित साहित्य नहीं है, इसीलिए इस पर कोई एक व्यक्ति न तो कॉपीराइट का दावा कर सकता है और न ही रॉयल्टी या ए.पी.आई का क्लेम ही कर सकता है। यह जनता का, जनता के लिए और जनता से जन्मा साहित्य है।

यह कहना उचित होगा कि यदि 'साहित्य समाज का दर्पण है' तो लोक साहित्य लोग समाज का, क्योंकि इसमें लोक का चेहरा ही दिखाई देता है और लोक का हृदय ही बोलता है। इसमें लोक जीवन की सभी प्रकार की भावनाएँ बिना किसी कृत्रिमता के समायी रहती हैं। लोक साहित्य की ये विशेषताएँ अविच्छिन्न रूप में लोक साहित्य के विशिष्ट अंग, लोकगीतों में भी स्पष्ट रूप से दिखायी पड़ती हैं। लोकगीत लोक जीवन की अभिव्यक्ति का जीवंत और सशक्त माध्यम है। इसमें लोकहृदय के उद्गार होते हैं। देवेंद्र सत्यार्थी के शब्दों में कहें तो "लोकगीत किसी संस्कृति के मुँह बोलते चित्र होते हैं।" सामान्यतः लोक में पीढ़ियों से वाचिक रूप में प्रचलित गीतों को लोकगीत कहा जाता है। जनसामान्य के जीवन-राग, हर्ष-विषाद, आशा-निराशा, स्वप्न एवं आकांक्षाएँ आदि का निवेश इन गीतों में प्रत्यक्ष रूप से देखा जा सकता है। लोकगीतों में क्षेत्र विशेष की संस्कृति, सभ्यता, परंपरा एवं वहाँ के लोक जीवन की छवि अभिव्यक्त होती है। भारत की अन्य भाषाओं के साहित्य की तरह असमिया साहित्य में भी लोकगीतों की एक प्राचीन

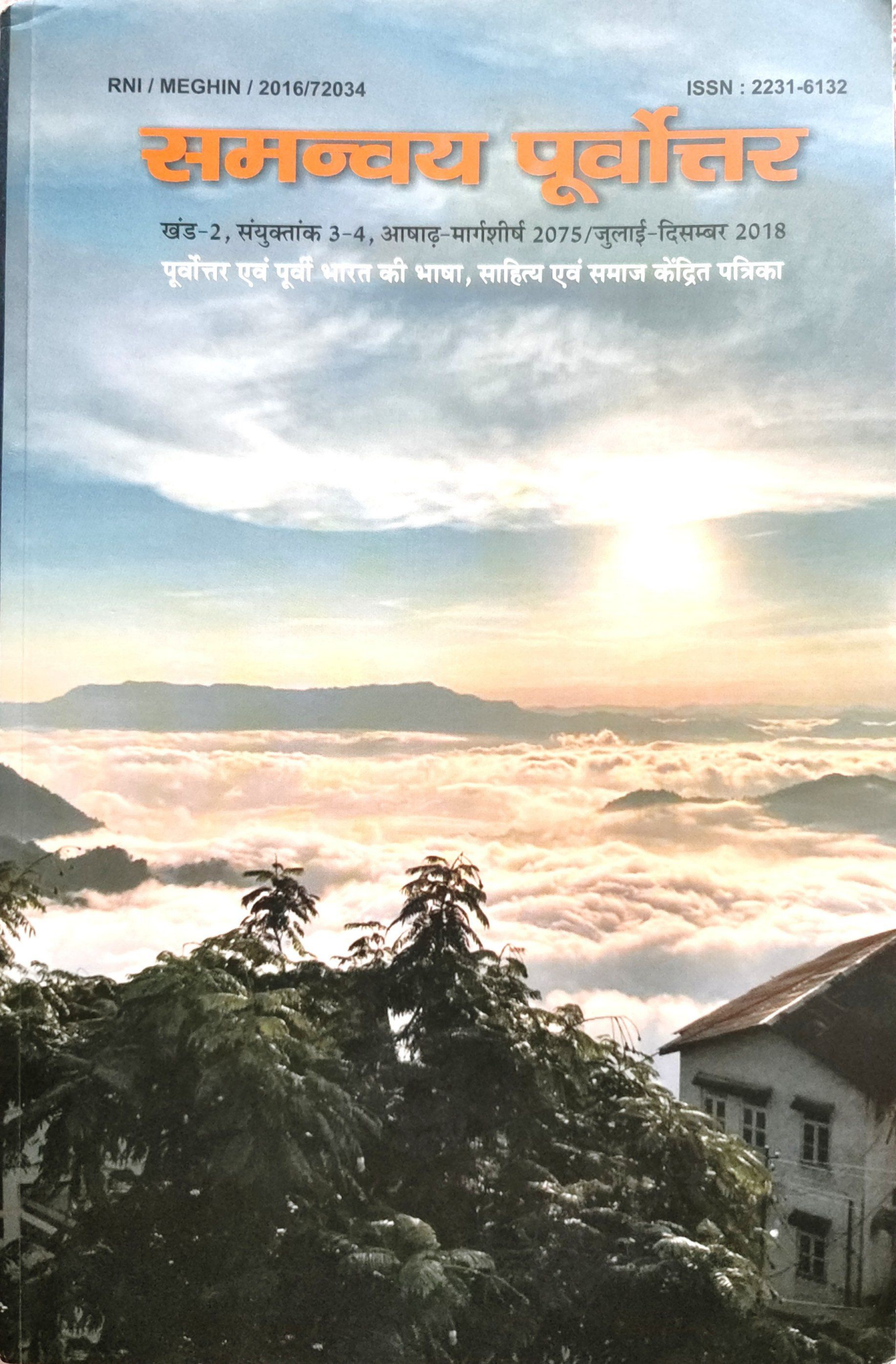
RNI / MEGHIN / 2016/72034

ISSN : 2231-6132

समन्वय पूर्वोत्तर

खंड-2, संयुक्तांक 3-4, आषाढ़-मार्गशीर्ष 2075/जुलाई-दिसम्बर 2018

पूर्वोत्तर एवं पूर्वी भारत की भाषा, साहित्य एवं समाज केंद्रित पत्रिका



RNI/MEGHIN/2016/72034

ISSN : 2231–6132

समन्वय पूर्वोत्तर

पूर्वोत्तर एवं पूर्वी भारत की भाषा, साहित्य, संस्कृति एवं समाज केंद्रित पत्रिका

खंड-2, संयुक्तांक : 3-4, आषाढ़-मार्गशीर्ष, 2075/जुलाई-दिसंबर, 2018

संरक्षक

डॉ. कमल किशोर गोयनका

उपाध्यक्ष, केंद्रीय हिंदी शिक्षण मंडल, आगरा

ईमेल–kkgoyanka@gmail.com

परामर्श मंडल

प्रो. दिनेश कुमार चौबे

प्रोफेसर, हिंदी विभाग,

पूर्वोत्तर पर्वतीय विश्वविद्यालय

(नेहू) शिलांग-22

प्रो. अनंत कुमार नाथ

प्रोफेसर, हिंदी विभाग

तेजपुर विश्वविद्यालय, तेजपुर

प्रो. दिलीप कुमार मेधि

प्रोफेसर एवं विभागाध्यक्ष,

हिंदी विभाग,

गौहाटी विश्वविद्यालय, गुवाहाटी

प्रकाशन सलाहकार

डॉ. स्वर्ण अनिल

केंद्रीय हिंदी संस्थान, क्षेत्रीय केंद्र, दिल्ली

ईमेल–swarananil16@gmail.com

प्रधान संपादक

प्रो. नन्द किशोर पाण्डेय

निदेशक, केंद्रीय हिंदी संस्थान, आगरा

ईमेल–nkpandey65@gmail.com

संपादक

डॉ. राजवीर सिंह

क्षेत्रीय निदेशक, गुवाहाटी केंद्र

सह-संपादक

डॉ. चंद्रशेखर चौबे

क्षेत्रीय निदेशक, दीमापुर केंद्र

डॉ. कृष्ण कुमार पाण्डेय

क्षेत्रीय निदेशक, शिलांग केंद्र

सुश्री रिया सिंह

दीमापुर केंद्र, दीमापुर

सहयोग

डॉ. उमेश चन्द्र

केंद्रीय हिंदी संस्थान, आगरा

ईमेल–umeshchandra448@gmail.com

केंद्रीय हिंदी संस्थान

क्षेत्रीय केंद्र : गुवाहाटी, शिलांग एवं दीमापुर

(उच्चतर शिक्षा विभाग, मानव संसाधन विकास मंत्रालय, भारत सरकार)

अनुक्रम

क्र. सं.	आलेख का शीर्षक	लेखक का नाम	पृ. सं.
•	प्रधान संपादक की कलम से... चैतन्य महाप्रभु और भक्ति आंदोलन	प्रो. नन्द किशोर पाण्डेय	5–16
1.	लोक संगीत और नृत्य के संदर्भ में सिक्किम	चुकी भूटिया	17–38
2.	मुखौटा कला : एक सांस्कृतिक अध्ययन	आदित्य कुमार मिश्र	39–43
3.	भक्ति साहित्य में पूर्वोत्तर भारत की देन (शंकरदेव के विशेष संदर्भ में)	जशोधरा बोरा	44–51
4.	'कार्बी' जनजाति : एक संक्षिप्त परिचय	बिन्द कुमार चौहान	52–56
5.	मिसिङ् जनजाति के लोकगीतों में जनजीवन की अभिव्यक्ति	अभिजित पायेङ्	57–63
6.	कवीन्द्र रवीन्द्र, पंत एवं निराला	अनीता गांगुली	64–69
7.	असम के पल रॉबसॉन : डॉ. भूपेन हजारिका	नूर जामाल	70–74
8.	धनेश्वर इंग्टी द्वारा रचित कहानी पूर्वजों की धरती में व्यक्त सामाजिक समस्याएं	मधुछन्दा चक्रवर्ती	75–79
9.	लोक साहित्य का अभिप्राय और अरुणाचली लोक साहित्य	सत्य प्रकाश पाल	80–86
10.	पूर्वोत्तर भारत में हिंदी की स्थिति	सुश्री मेमा चिरी	87–94
11.	पूर्वोत्तर भारत में हिंदी	सोनम वाङमू	95–103
12.	सूर्योदय के प्रदेश में साहित्य की किरणें	तारो सिन्दक	104–118

13.	सिक्किम में हिंदी की स्थिति	**सुश्री नुनीता राई**	119–121
14.	असम की शिक्षण व्यवस्था में हिंदी	**परिस्मिता बरदलै**	122–124
15.	लोक साहित्य में पर्यावरण : सिक्किम राज्य के संदर्भ में	**छुकी लेप्चा**	125–128
16.	असम की लोक संस्कृति	**प्रणामी दत्त**	129–134
17.	असमिया रामकथा की परंपरा	**अनुशब्द**	135–142
18.	मिसिङ् लोक साहित्य में सामाजिक और सांस्कृतिक जीवन का चित्रण	**देवेनचन्द्र दास 'सुदामा'**	143–181
	लेखकों के नाम व पते/इस अंक के लेखक		182-183
	सदस्यता फार्म		184

असमिया रामकथा की परंपरा

(माधवकंदलि, शंकरदेव और माधवदेव के रामायणी साहित्य के संदर्भ में)

—अनुशब्द

'भक्ति आंदोलन एक विराट जनांदोलन है। एक व्यापक जनतांत्रिक आंदोलन। एक अखिल भारतीय आंदोलन है।''... आदि–आदि। जब ऐसी स्थापनाओं पर गौर करता हूँ, तो मन में बरबस यह सवाल उठता है कि इस भक्ति आंदोलन का स्वरूप कितना और कैसे अखिल एवं विराट है कि उसमें कुछ क्षेत्र विशेष के कवियों एवं उनके काव्यों को ही स्थान दिया जाता है। क्या सामंतवाद के प्रति विरोध एवं मानवतावाद की स्थापना का स्वर केवल कुछ क्षेत्र विशेष के कवियों एवं उनके काव्यों में ही था। यह विचारणीय प्रश्न है। आखिर भक्ति आंदोलन का फ्रेम इतना छोटा कैसे हो सकता है, अखिल और विराट होने का अर्थ मैं तो यही समझता हूँ कि जिसमें कश्मीर से कन्याकुमारी तक तथा द्वारिका से दीमापुर तक सब शामिल हों। लेकिन बिडंबना यह है कि जब कभी हम भक्ति आंदोलन के अखिल भारतीय स्वरूप पर बात करते हैं, तो हमारी चर्चा के केंद्र में बंगाल के चैतन्य महाप्रभु, महाराष्ट्र के नामदेव, ज्ञानेश्वर, एकनाथ, तुकाराम, राजस्थान की मीरा, उत्तर प्रदेश के कबीर, सूर, जायसी, गुजरात के दादूदयाल, पंजाब के गुरुनानक, दक्षिण के आलवारों, नयनारों वसवन्ना, अक्कमहादेवी आदि प्रमुख रूप से होते हैं। उनके साहित्यक, सामाजिक, धार्मिक अवदानों पर खुलकर चर्चा होती है, लेकिन पूर्वोत्तर भारत के रचनाकारों एवं उनके रचनात्मक अवदानों पर उतना फोकस नहीं किया जाता। इस उपेक्षा की वजह क्या है ? इस पर विचार करने की जरूरत है। प्रो. गोपेश्वर सिंह ने इसका कारण भक्तिकाव्य की आलोचना और आलोचकों का 'काशी सेंट्रिक' होना बताया है।

ध्यातव्य है कि समूचे मध्यकालीन भारतीय समाज की सामाजिक, राजनीतिक, धार्मिक परिस्थितियाँ कमोबेश एक जैसी ही थीं और उनसे जनता तथा समाज के लिए चिंतित और समर्पित रचनाकारों–समाज सुधारकों की मनः स्थिति भी लगभग एक जैसी ही थी। फिर चाहे वह पूर्वोत्तर भारत हो, उत्तर, दक्षिण या पश्चिम भारत हो। बावजूद इसके हम देखते हैं कि कबीर, सूर, जायसी, तुलसी, आदि के अवदानों को तो प्रमुखता से रेखांकित किया जाता है, लेकिन पूर्वोत्तर भारत के माधवकंदलि, माधवदेव, शंकरदेव, अनंत कंदलि, दुर्गावर, कायस्थ, रघुनाथ महंत आदि। सरीखे शीर्षस्थ रचनाकारों पर, उनके विचारों पर; जिनका पूर्वोत्तर भारत

UGC Approved, Journal No. 48416 (IJCR), Impact Factor 2.314 ISSN : 2393-8358

Interdisciplinary Journal of Contemporary Research

An International Peer Reviewed Refereed Research Journal

Vol. 6, No. 5.1 Year-6 May, 2019

PEER REVIEWED JOURNAL

Editor

Dr. Indranil Sanyal

Joint Editors

Dr. Shrabanti Maity **Dr. Avijit Debnath**

PUBLISHED BY

S. K.C. School of English and Foreign Languages

Assam

Mob. 9415388337, Email : ijcrjournal971@gmail.com, Website : ijcrjournal.com

CONTENTS

↪	Opportunities and Problems of Handicrafts Sector in Indian Economy **Neha Gupta & Mansoor Ali**	1-4
↪	The Feminism Reconsidered: A Study of Anita Desai's Novel Cry, The Peacock **Rajesh Kumar**	5-10
↪	भारतीय स्वतंत्रता आंदोलन में फतेहपुर जनपद के गरम दल के युवकों का योगदान **अशोक कुमार**	11-14
↪	जल संसाधन का उचित उपयोग **डॉ0 शिव प्रकाश सिंह**	15-18
↪	लेनिन और मार्क्स एन्जेल्स की भूमिका : राजनीतिक प्रणाली **डॉ0 नवीन पाण्डेय**	19-23
↪	मुक्तिबोध के काव्य में शोषित और पीड़ित वर्ग मार्क्सवाद के विशेष आलोक में **प्रेम चन्द**	24-26
↪	महिलाओं के सशक्तिकरण में शिक्षा की भूमिका **विवेक सिंह**	27-32
↪	पर्यावरण एवं बाल–विकास : एक विश्लेषणात्मक अध्ययन **प्रभात किरण**	33-36
↪	Indo- Sri Lanka Agreement 1987 **Dr. H.L. Sharma**	37-39
↪	सारनाथ के बौद्ध मन्दिरों का सांस्कृतिक अध्ययन **डॉ0 अभय कुमार एवं देवेन्द्र कुमार**	40-42
↪	बौद्ध साहित्य में वर्णित सामाजिक आदर्श के मूल तत्व **डॉ0 कलावती**	43-44
↪	ममता कालिया की कहानियों और स्त्री चेतना **डॉ0 पुष्पलता कुमारी**	45-47
↪	पूर्व मध्यकाल में भारत और अरब के बीच व्यापारिक गतिविधियाँ **नीलेश झा**	48-50
↪	Professionalism and Ethics in Teaching **Prashant Kumar Singh**	51-54
↪	Gandhi's *Swaraj*: A New Notion of Self, State and Sovereignty **Sanjay Kumar & Archana Kumar**	55-63
↪	Tradition of Yarn Preparation in Medieval India **Dr. Anand Kumar Singh**	64-68

➥	संस्कृत बाल साहित्य से इतर बाल साहित्य **डॉ0 अमर जीत**	69-72
➥	स्वतंत्रता पूर्व प्रमुख समाचार पत्रों की रूपरेखा **डॉ0 रजनीश उपाध्याय**	73-76
➥	जल संकट : संरक्षण व समाधान **डॉ0 अमिता श्रीवास्तव**	77-78
➥	समकालीन हिन्दी कविता और कुँवर नारायण **डॉ0 विदुषी आमेटा एवं मंजु ढुल**	79-82
➥	स्ववित्तपोषित शिक्षक–शिक्षण संस्थानों का महत्व और सामुदायिक विकास **डॉ0 संजय कुमार राना**	83-86
➥	Marital Rape in India: Problem or Culture **Dr. Neha Chaudhary**	87-92
➥	Foreign Investment in India Since 1991 **Dr. Ravindra Kumar Sharma**	93-98
➥	डॉ0 शिवप्रसाद सिंह के कथा साहित्य में समकालीनता **अशोक कुमार सिंह एवं डॉ0 ललित कुमार सिंह**	99-102
➥	सुरेंद्र वर्मा के नाटक ''आठवां सर्ग'' का वैचारिक विश्लेषण **शैलेश कुमार राय**	103-104
➥	निज़ामाबाद के काले मृण्मय पात्रों पर अंलकरण एवं सांस्कृतिक चेतना **डॉ0 ब्रह्म स्वरूप**	105-107
➥	महाराष्ट्र में अभंग **डॉ0 अपूर्व रंगप्पा**	108-110
➥	सुभाष चन्द्र बोस : दलीय कार्यक्रम और फारवर्ड ब्लाक एवं आजाद हिन्द फौज **डॉ0 जया**	111-115
➥	Communal Harmony and Equity: The Gandhian Way **Dr. Ziyauddin & Dr. Rajeev Kumar Singh**	116-122
➥	Concept of Sustainable Development and Smart Cities **Dr. Kailash Nath Singh**	123-128
➥	मराठी और नेपाली साहित्य में रामभक्ति **अमित थापा**	129-132
➥	भारतीय राजनीति में सुशासन की अवधारणा और उभरती हुई नवीन चुनौतियां **कमलेश कुमार**	133-136
➥	भारत–पाक संबंधों पर आधारित समकालीन हिंदी फिल्में **उन्मेषा कोंवर/डॉ0 अनुशब्द**	137-140

UGC Approved Journal No. 48416 *Impact Factor : 2.314*
Interdisciplinary Journal of Contemporary Research, Vol. 6, No. 5.1, May, 2019 *ISSN : 2393-8358*

भारत-पाक संबंधों पर आधारित समकालीन हिंदी फिल्में

उन्मेषा कोंवर / डॉ. अनुशब्द
हिंदी विभाग, तेजपुर विश्वविद्यालय, असम

सन 1947 में दो अलग-अलग राष्ट्रों के रूप में भारत और पाकिस्तान को ब्रिटिश शासन से आजादी मिली। भारत उपमहाद्वीप में सदियों से मिलजुलकर रह रहे दो प्रमुख संप्रदायों को आधार बनाकर विभाजन की नींव डाली गयी। भारत और पाकिस्तान दोनों ही मुल्कों पर विभाजन के अनेक दुष्प्रभाव पड़े। दोनों देश शरणार्थी समस्या से लेकर सीमा विवाद तक अनेक छोटी-बड़ी समस्याओं से जूझ रहे थे। दोनों देशों के जनता के बीच भावनात्मक स्तर पर एक गहरी खाई खोद दी गयी थी, जो बढ़ते समय के साथ-साथ और भी गहरा होता गया। भारत-पाक विभाजन का सिद्धांत एक तत्कालीन सिद्धांत था। सु-परिकल्पित न होने के कारण इसका असर राजनीति, समाज सभी पर पड़ा। भारत-पाक विभाजन के बाद दोनों देशों में मैत्री लाने के उद्देश्य से काफी आलोचनाएँ की गयी। वर्तमान समय में भी भारत और पाकिस्तान के बीच मैत्री स्थापित करने की अनेक कोशिश जारी है।

सिनेमा समाज का एक ऐसा अंग है जिसे जनजीवन से अलग नहीं किया जा सकता। समाज के अलग-अलग दृश्यबिंब, जाति के रंग रूप सिनेमा के सहारे उभरकर सामने आता है। सिनेमा की विकास यात्रा रंगमंच से, साहित्य से, लोकगीतों तथा लोकपरंपराओं से होते हुए आधुनिक समय में विज्ञान के शिखर तक फैली हुई है। साहित्य में यथार्थवाद जिस प्रकार एक नया विषय नहीं है उसी तरह सिनेमा भी यथार्थ का ही मूर्त रूप है। व्यावसायिक उद्देश्य से कल्पना का रंग लगाने पर भी सिनेमा यथार्थ के अति निकट होता है। भारतवर्ष के इतिहास की सबसे त्रासद घटना भारत-पाक विभाजन को भी हिंदी सिनेमा ने अपना उपजीव्य बनाया है। विभाजन की त्रासदियों का गहन और संवेदनात्मक चित्रण इन फिल्मों में किया गया है।

विभाजन पर आधारित फिल्मों में पहला नाम सन 1993 में निर्मित फिल्म 'सरदार' का लिया जा सकता है। यह एक जीवनीमूलक फिल्म है। फिल्म में भारत-पाकिस्तान के विभाजन से पूर्व और बाद की परिस्थितियों का चित्रण किया गया है। भारत विभाजन के पश्चात देशी रियासतों को भारत में शामिल करने और कश्मीर से लेकर कन्याकुमारी तक जोड़कर आजाद भारत के निर्माण करने में वल्लभभाई पटेल के योगदान की कहानी ही फिल्म की कहानी है। फिल्म में सत्याग्रह आंदोलन, शरणार्थी समस्या, विभाजन के दौरान की गयी आलोचनाओं, अनशन, गांधी हत्या, आदि को भी स्थान दिया गया है।

सन् 1994 में निर्मित फिल्म 'मम्मो' में भारत-पाक विभाजन की त्रासदी को संवेदनात्मक रूप में चित्रित किया गया है। फिल्म की कहानी एक ऐसी स्त्री पर केंद्रित है, जो भारत विभाजन के समय पाकिस्तान चली गयी थी। उसका नाम था 'मम्मो'। पाकिस्तान में पति के मृत्युपरांत मम्मो बिल्कुल अकेली पर जाती है। वह भारत में अपने सगे-संबंधियों के पास आना चाहती है, लेकिन कानून इसमें बाधा बन जाती है। मम्मो को अब अपने ही जन्मस्थान में आकर रहने की इजाजत नहीं मिल पाती। फिल्म के अंत में अपने आपको सरकारी रूप में मृत घोषित कर वह भारत में अपनी बहन के साथ रह जाती है। 'मम्मो' फिल्म में आर्थिक तंगी से जूझते मध्यवर्ग की रोज़मर्रा के छोटे-छोटे प्रसंगों को संजीदगी के साथ दिखाया गया है। साथ में इस बात को उजागर किया गया है कि किस तरह सरकारी व राजनीतिक शर्तें मानवीयता को परास्त कर देती हैं। मम्मो का जीवन देश विभाजन के कारण दुखद बन जाता है।

सन 1998 में खुशवंत सिंह द्वारा लिखित उपन्यास 'ट्रेन टू पाकिस्तान' पर इसी नाम फिल्म का निर्माण किया गया। इस फिल्म में इस बात को उजागर किया गया है कि परिस्थितियाँ किस तरह से मनुष्य को ही एक दूसरे के खिलाफ कर देती है। लेकिन मनुष्य की संवेदनशीलता और धैर्य बुराई का नाश करने में सक्षम है। फिल्म की कहानी के अनुसार मनु माज़रा गाँव के लोगों में विभाजन के उपरांत भी मेल मिलाप पूर्ववत कायम था। लेकिन कुछ आतंकी आकर उन्हें संप्रदाय के नाम पर हिंसा के लिए उकसाते हैं। इस सबके

बावजूद मनु माज़रा के लोग धीरज से काम लेते हैं और मुस्लिमों को वहाँ से पाकिस्तान जाने में मदद भी करते हैं। सन् 1998 में निर्मित '1947: Earth' की कहानी बापसी सिधवास द्वारा लिखित उपन्यास 'Cracking India' पर आधारित है। फिल्म की पटभूमि है लाहौर प्रदेश, जो भारत विभाजन के उपरांत पाकिस्तानी पंजाब की राजधानी घोषित हुआ। इस फिल्म में भारत विभाजन के पहले और विभाजन के दौरान की कहानी को रेखांकित किया गया है। विभाजन की त्रासदी का वर्णन ही इस फिल्म का मुख्य उद्देश्य है। साथ ही स्वतंत्रता के बाद जनता के मोहभंग की स्थिति का सजीव चित्रण भी फिल्म का मुख्य आकर्षण है। इस फिल्म में कुछ ऐसे चरित्रों को दिखाया गया है जो स्वतंत्रता के बाद अपने धर्म परिवर्तन के लिए बाध्य हो जाते हैं ताकि उन्हें अपनी जन्मभूमि का त्याग नहीं करना पड़े। असल में यह भी भारत विभाजन की भीषण त्रासदियों में से एक है।

सन् 2001 में बनी फिल्म 'गदर: एक प्रेम कथा' भारत विभाजन की त्रासदी पर आधारित फिल्म है। इस फिल्म की कहानी प्रेम प्रसंग पर आधारित है। इस फिल्म का उद्देश्य भारत-पाक विभाजन के उपरांत आनेवाली नफरत व हिंसा की भावना को शीतलता प्रदान करना था। साधारण से सिक्ख ड्राइवर और उच्च वर्ग के मुसलमान लड़की के बीच के प्रेम संबंध को इस फिल्म में देश और काल से परे दिखाया गया है। सन् 2003 में अमृता प्रीतम के उपन्यास 'पिंजर' पर उसी नाम से एक फिल्म का निर्माण किया गया। इस फिल्म में दो ऐसी स्त्रियों की कहानी वर्णित है जिनके ज़िंदगियों में भारत-पाक विभाजन ने उथल-पुथल मचा दिया। पिंजर की नायिका अपने अतीत को भुलाकर घर-परिवार का त्याग कर पाकिस्तान चली जाती है जहाँ उसका पति मुसलमान होते हुए भी उसका साथ निभाता है। दूसरी ओर उसके भाभी को भी एक मुसलमान उठाकर ले जाता है, जिसका वह उद्धार करती है। फिल्म में स्त्री पात्रों को मुख्य भूमिका में रखकर स्त्रियों की समस्या व उनके दृष्टिकोण से विभाजन को रेखांकित करने की कोशिश की गयी है।

भारत और पाकिस्तान के बीच हुए युद्ध और घुसपैठी हमलों पर भी फिल्में बनीं। 'रिफ़्यूजी' (2000), 'एल.ओ.सी करगिल' (2003), 'लक्ष्य' (2004), 'अब तुम्हारे हवाले वतन साथियों' (2004), 'क्या दिल्ली क्या लाहौर'(2014) आदि। जे.पी. दत्ता के निर्देशन में बनायीं गयीं फिल्म 'एल-ओ-सी कारगिल' में भारतीय सिपाही को पाकिस्तानी घुसपैठियों को करारा जवाब देते हुए नजर आते हैं। इसके अलावा बाकी फिल्मों की कहानियाँ प्रेम प्रसंग के इर्द-गिर्द घूमती है। 'लक्ष्य' और 'अब तुम्हारे वतन साथियों फिल्मों' में दो ऐसे युवाओं की कहानी वर्णित है जो अपने आपको प्रतिष्ठित करने के उद्देश्य से भारतीय सेना में भर्ती होते हैं किन्तु अंत तक उनमें देशभक्ति जागृत हो ही जाती है। सन् 2014 में निर्मित 'क्या दिल्ली क्या लाहौर' फिल्म की पटभूमि है सन् 1948 में भारत-पाक विभाजन के तुरंत बाद भारत-पाक सरहद पर हुई गोलाबारी की परिस्थिति। कहानी में चित्रित पाकिस्तानी सैनिक विभाजन के समय भारत से पाकिस्तान गया था जबकि भारतीय सैनिक पाकिस्तान से भारत आया था। यद्यपि अपने अपने कर्म के प्रति दोनों ही सिपाही पूर्णतः समर्पित है उनके अधिकारी उनपर विश्वास नहीं रखते। इस फिल्म में मानवीय अनुभूति को सर्वोपरि दिखाया गया है। कभी-कभी मनुष्य बाध्य होकर जीवन और जीविका के लिए अनचाहे काम तो करता है लेकिन अंत में मानवीयता और मूल्यबोध ही श्रेष्ठ साबित होते हैं। इस फिल्म में विभाजन की त्रासदी को दोनों सिपाहियों के जीवन से जोड़कर मर्मस्पर्शी रूप में प्रस्तुत करने में निर्देशक सफल हुआ है। 'रिफ़्यूजी' फिल्म में भारत और पाकिस्तान के बीच चल रहे अवैध प्रवजन को दिखाया गया है।

सन् 2004 में बनी फिल्म 'वीर-जारा' भारत-पाक संबंध पर बनी एक उल्लेखनीय फिल्म है। इस फिल्म में एक प्रेम कहानी के माध्यम से दोनों देशों के बीच जो संदेह और शत्रुता की भावना है उसे रेखांकित किया गया है। जहाँ नायक को केवल संदेह के आधार पर पूरा जीवन पाकिस्तान में गुज़ारना पड़ता है। फिल्म में बंधुत्व और भ्रातृत्व की भावना को प्रबल व प्रभावी ढंग से दिखाया गया है। नायिका पाकिस्तानी होते हुए भी यह सोचकर सारा जीवन भारत में बिताती है कि नायक की मृत्यु हो गयी है। इस फिल्म में अनेक छोटी-छोटी घटनाओं के माध्यम से यह दर्शाने की कोशिश की गयी है कि भारत और पाकिस्तान के लोग गलतफहमियों के शिकार हैं। सभी राजनीतिक या सांप्रदायिक भावनाओं से ऊपर है मानवताबोध की भावना। इसी मानवताबोध के चलते पाकिस्तानी वकील जी-तोड़ मेहनत कर नायक को वापस भारत भेजने में सक्षम

होती है। कुछ इसी तरह की कहानी को अलग ढांचे में सन् 2017 की फिल्म 'टाइगर जिंदा है' में दिखाया गया है। फिल्म में इंडियन रॉ एजेंट और पाकिस्तानी आई एस आई एजेंट के बीच संबंध को लेकर इस मनस्तत्व को उजागर करने की कोशिश की गयी है दोनों देशों की दुश्मनी आपसी गलतफहमी है और कुछ नहीं। सन् 2015 में बनी 'हम तुम दुश्मन दुश्मन' फिल्म का भी यही मूलभाव रहा, जहाँ एक कश्मीरी बच्चे को बचाने के लिए एक पाकिस्तानी और एक भारतीय सिपाही अपने सभी द्वंदों को भूलकर आगे बढ़ता है।

भारत और पाकिस्तान के बीच ऐसे मामलों की कमी नहीं है जहाँ घुसपैठिये समझकर बेकसूर लोगों को कारावास दिया गया अथवा मृत्युदंड। पंजाब के भीखिविंद के निवासी सरबजीत सिंह इस बात का उदाहरण है। सरबजीत सिंह की कहानी को लेकर सन् 2016 में ओमंग कुमार ने 'सरबजीत' फिल्म का निर्माण किया। जिसमें निरपराधी सरबजीत पर अत्याचार के नमूने पेश किए गए। लेकिन फिल्म निर्माण में निर्देशक ने इस बात की ओर भी दर्शकों का ध्यान आकर्षित किया कि दुष्ट चक्रों के अलावा ऐसे भी लोग हैं जो दोनों देशों की शत्रुता का अंत कर भाईचारे के प्रति आग्रही हैं। सन् 2015 में बनी फिल्म 'बजरंगी भाईजान' का उदाहरण इस कथन की पुष्टि करता है। फिल्म की कहानी को इस तरह से बुना गया है जहाँ एक कट्टर हनुमानभक्त हिन्दू एक पाकिस्तानी बच्ची को उसके घर वापस भेजने के लिए यथासंभव कोशिश करता है। अपने उसूलों की कुर्बानी देकर वह अपने उद्देश्य में कामयाब होता है लेकिन पाकिस्तानी पुलिस के हाथों बंदी बन जाता है। तब पाकिस्तानी जनता एकजुट होकर प्रशासन के खिलाफ लड़ते हुए उसे उसके घर वापस भेजते हैं। दोनों देशों के आम जनता की इच्छा को ये फिल्म रेखांकित करती है। इसी तरह के विषय पर आधारित अन्य एक फिल्म है सन् 2016 में बनी फिल्म 'हेप्पी भाग जाएगी'। इस फिल्म की नायिका भी गलती से पाकिस्तान पहुँच जाती है जहाँ उसे पाकिस्तान के एक ऊंचे घराने से सहारा मिलती है और उन्हीं की मदद से वह सकुशल घर वापस आ पाती है। इसी तरह इन फिल्मों में दोनों पड़ोसी देशों के बीच सौहार्द के संपर्क को दिखाया गया है।

भारत-पाक विभाजन की त्रासदी पर बनी फिल्मों में अनेक छोटे-बड़े किरदारों के माध्यम से विभाजन की त्रासदी पर प्रकाश डाला गया है। इनमें ऐसी अनेक छोटी-बड़ी घटनाओं को प्रस्तुत किया गया है जिनसे यह सिद्ध हो जाता है कि विभाजन से सबसे अधिक साधारण जनता को ही क्षति पहुंची है। विभाजन साधारण जनता की इच्छा बिल्कुल नहीं थी। सांप्रदायिक कट्टरता को विभाजन ने अधिक शक्तिशाली बना दिया जिसका दुष्प्रभाव आज भी दोनों देशों को भुगतना पड़ रहा है। गौर से देखा जाय तो इन फिल्मों में मुख्य रूप से धार्मिक कट्टरता या सांप्रदायिकता पर मानवीयता की विजय को दिखाया गया है। लेकिन इसका मूल्य भी लोगों को जान देकर चुकानी पड़ रही है। सन् 2017 में निर्मित फिल्म 'बेगम जान' की कहानी रेडक्लिफ लाइन खींचने के उपरांत दोनों देशों के बँटवारे में आयी समस्याओं को उजागर करती है। सन् 1947 में सर सीरिल रेडक्लिफ द्वारा हिंदुस्तान और पाकिस्तान के विभाजन के उद्देश्य से जो सीमारेखा खींचीं गयी वह व्यावहारिक नहीं थी। फिल्म की कहानी के अनुसार रेद्क्लिफ लाइन बेगम जान के घर के बीच से गुजरती है, जिस कारण बेगम जान का घर जला दिया जाता है। इस फिल्म में संवेदनशील रूप में विभाजन की त्रासदी को दिखाया गया है। फिल्म में इस बात पर प्रकाश डाला गया है कि विभाजन से साधारण लोगों का कोई वास्ता नहीं था। कुछ लोग विभाजन का नाजायज फायदा उठा रहे थे और व्यक्तिगत लाभ के लिए हिंसा कर रहे थे।

भारत और पाकिस्तान के संबंधों को लेकर हास्य धर्मी हिंदी फिल्मों का भी निर्माण किया गया है। सन् 2013 में बनी फिल्म 'वार छोड़ ना यार', 2014 में बनी 'टोटल स्यापा', 2015 में बनी 'बॅगिस्तान' आदि फिल्में इस बात का उदाहरण है। इन फिल्मों में व्यंग्य के माध्यम से दोनों देशों के कटु संबंधों को सामने लाकर उन्हें नकारा गया है। फिल्मों के माध्यम से यह दिखाने की कोशिश की गयी है कि दोनों देश आपसी संबंधों को लेकर गलतफहमियों के शिकार हैं जिसे मिटाना असंभव नहीं है।

भारत-पाक संबंधों को मूलाधार बनाकर निर्मित फिल्मों के अलावा ऐसी भी अनेक फिल्में हैं जहाँ कहीं दोनों देशों के बीच के संबंध का उल्लेख भर मिलता है। उपकार(1967), 'मैं हूँ ना'(2004), 'एक था टाइगर'(2012) आदि फिल्में इस बात का उदाहरण है। सन् 2014 में बनी फिल्म 'पी.के.' में भी भारत

पाकिस्तान के बीच के कटु संबंध को मिथ्या प्रचार के रूप में उपस्थित किया गया है। जिससे यह सिद्ध किया गया है कि दोनों देशों की जनता के मन में बेकार ही संदेह और अविश्वास फ़ैले हुए हैं।

हिंदी सिनेमा में भारत विभाजन और उसके प्रभावों को अलग-अलग दृष्टिकोण से अवश्य प्रस्तुत किया गया है, लेकिन इनकी मूल संवेदना एक ही है। जहाँ रिश्तों की कड़वाहट, अविश्वास, मूल से बिछड़ने का दु:ख, सांप्रदायिक दंगे, आतंकवाद और युद्ध आदि का वर्णन किया गया है। भारत-पाक विभाजन पर बनी फिल्मों की शृंखला में बदलते समय के साथ-साथ फिल्मों की कहानियों और उपस्थापन शैली दोनों में काफी बदलाव देखे जा सकते हैं। इस संबंध में एक आलोचक ने लिखा है- "सन् 1947 के भारत और पाकिस्तान, दोनों जगह बनने वाली ज़्यादातर विभाजनोत्तर फिल्मों में बार-बार दोहराए जानेवाले विषय किसी एकल परिवार के भीतर या प्रेमियों के बीच के अलगाव हैं- इन दोनों को विभाजन के दौरान जमीन और जनता के बँटवारे के रूपक की तरह पढ़ा जा सकता है। इस तरह 'राष्ट्र के रूप में परिवार' का रूपक जो विभाजन फिल्मों में केंद्रीय है दर्शकों के तादात्म्य को उकसाता है। विभाजन के पहले का रूमानी दौर, राजनेताओं पर दोषारोपण व्यक्तियों की वीरता, प्यार की जीत, विभाजन के हिंसक और खूनी दृश्य ये विभाजन-फिल्मों की कुछ कथानक रूढ़ियाँ हैं।"[1] भारत-पाक संबंधों को आधार बनाकर निर्मित पहले की फिल्मों में विभाजन की त्रासदी को जिस रूप में अंकित किया गया, वह बहुत ही मर्मस्पर्शी है। लेकिन कश्मीर मुद्दों को लेकर आतंकवाद और युद्धों ने जब ज़ोर पकड़ा तो फिल्मी कहानियों का रुझान भी उसी तरफ गया। कहानियों में पाकिस्तान से प्रायोजित आतंकवादी हमलों के पीछे भारत में घटित मुंबई हमले, दिल्ली हमले का हाथ रहा। इन फिल्मों में अविश्वास और घृणा की भावना अधिक प्रभावी रही।

भारत-पाक संबंधों पर निर्मित फिल्मों को ऐतिहासिक फिल्मी विधा कहा जा सकता है। इतिहास के साहचर्य में कल्पना के मिश्रण से भारत-पाक संबंधों पर फिल्मों का निर्माण किया गया। इस विधा के फिल्मों में आरंभिक दौर के फिल्मों से ज्यादा समकालीन फिल्मों में व्यावसायिकता अधिक देखने को मिलती है। इसलिए इन फिल्मों में अधिकाधिक 'मेलोड्रामा' का प्रयोग करते हुए पश्चिमी अभिव्यंजना पद्धति को अपनाया गया है। जहां अंत कभी-कभी दुखात्मक और प्रश्नसूचक होता है। सिनेमा का मुख्य उद्देश्य है मनोरंजन। भारत-पाक संबंध पर बनी फिल्मों की यह विशेषता है कि यह आम जनता के मनोभाव को उजागर करती है न कि किसी ठोस तथ्य को। इन फिल्मों में समाज के मानसिक दशा का यथार्थ चित्रण किया गया है। भारत-पाक संबंधों पर बनी प्रायः सभी फिल्में यह संदेश लोगों तक पहुंचाती है कि विभाजन से कभी किसी का भला नहीं हुआ। आतंकवाद और सांप्रदायिक दंगे सभी के लिए हमेशा हानिकारक रहे हैं। अपनी सृजनातमक शक्ति से ये फिल्में मनुष्यता और भ्रातृत्वबोध का प्रचार करने में सक्षम हैं। इन फिल्मों ने भारत और पाकिस्तान के विभाजन के राजनीतिक फैसले पर एक प्रश्नचिह्न भी छोड़ा है।

संदर्भ:

1. विश्वनाथ, गीता एवं मलिक, सलमा (2019). लोकप्रिय सिनेमा के जरिये 1947 का पुनरीक्षण: भारत और पाकिस्तान का एक तुलनात्मक अध्ययन. *आलोचना,* अप्रैल-जून 2019. पृ. सं- 102

सहायक ग्रंथ सूची:

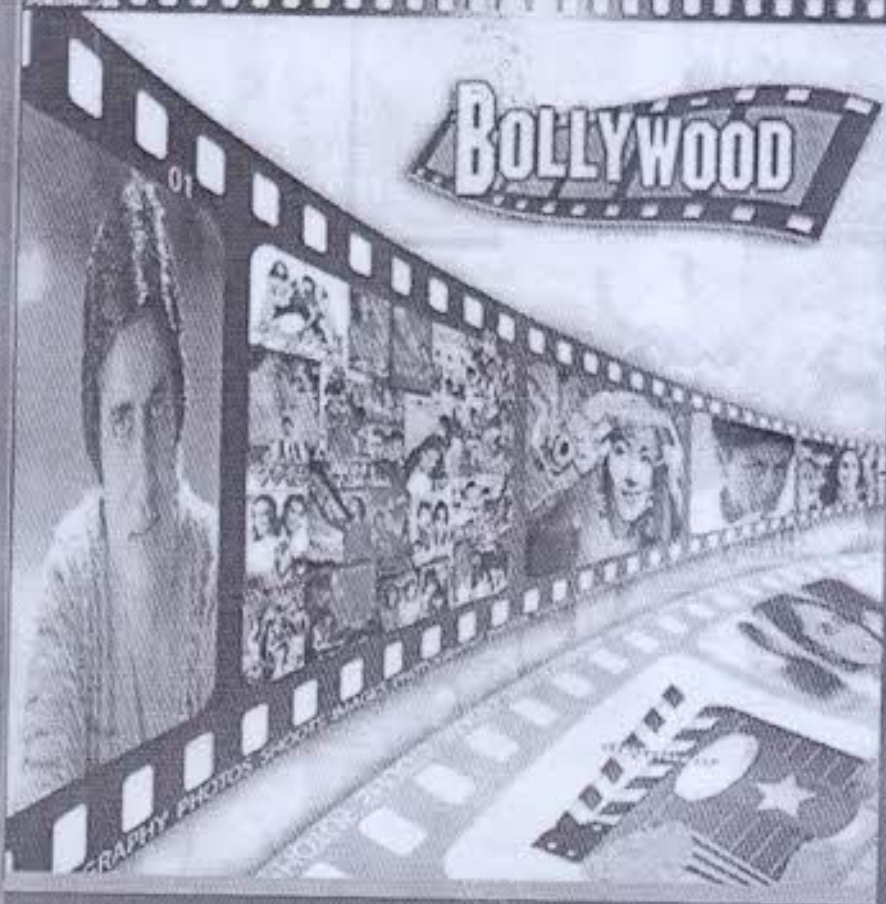
1. गुप्त, डॉ. चन्द्रभूषण (2012). *सिनेमा और इतिहास.* शशि प्रकाशन, गाजियाबाद, प्रथम संस्करण.
2. जोशी, ललित (2012). *बॉलीवुड पाठ.* वाणी प्रकाशन, दरियागंज, नई दिल्ली, प्रथम संस्करण.
3. पारख, जवरीमल्ल (2012). *साझा संस्कृति सांप्रदायिक आतंकवाद और हिंदी सिनेमा.* वाणी प्रकाशन, दरियागंज, नई दिल्ली, प्रथम संस्करण.
4. ब्रह्मात्मज, अजय (2012). *सिनेमा समकालीन सिनेमा.* वाणी प्रकाशन, नई दिल्ली, द्वितीय संस्करण.
5. रे, सत्यजित (2007). *विषय चलचित्र.* रेमाधव पब्लिकेशन्स, नोएडा, प्रथम संस्करण.
6. शुक्ल, प्रयाग (2017). *जीवन को गढ़ती फिल्में.* अनन्य प्रकाशन, दिल्ली, प्रथम संस्करण.

●

ISSN : 2230-8997
वर्ष : 9, अंक 31
जनवरी-मार्च 2017

विशेषांक (भाग-3)

साहित्य, सिनेमा और समाज



(भाषा, साहित्य, संस्कृति, सर्वेक्षण और शोध का त्रैमासिक)

'नव उन्नयन'

नव उन्नयन
विद्याशोधोत्थानम्

विषय–क्रम

हिंदी सिनेमा : समकालीन यथार्थ का परिदृश्य / संपादकीय -- (v)

सिनेमा, साहित्य और समाज के अंतर्संबंध / डॉ. राकेश कुमार शर्मा -- 409

हिंदी सिनेमा : कल, आज और कल / ऋतु फौरे -- 420

हिंदी सिनेमा की कामकाजी एवं सशक्त महिलाएँ / निभा सिन्हा -- 432

वेश्यावृत्ति, हिंदी सिनेमा और साहित्य / आरती रानी प्रजापति -- 437

बाल मनोविज्ञान और सिनेमा / शांभवी -- 444

दलित विमर्श और हिंदी सिनेमा / मनीषा -- 451

खेल, संस्कृति और सिनेमा / जैनेंद्र कुमार -- 455

भोजपुरी सिनेमा और समाज / राजेश कुमार 'मांझी' -- 462

ग्रामीण जीवन पर मीडिया का प्रभाव : 'मुंबई से आया मेरा दोस्त'
फिल्म के संदर्भ में / गोपाल लाल मीणा -- 467

विभाजन की त्रासदी और हिंदी सिनेमा / डॉ. प्रतिभा राणा -- 472

विभाजन की त्रासदी और हिंदी सिनेमा / गुलशन बानो -- 483

हॉरर फिल्मों का कृष्ण-पक्ष / दीपक शर्मा -- 488

सिनेमा और नारी की विभिन्न छवियाँ / डॉ. सुमन कुमारी -- 497

हिंदी फिल्मों के आइने में नक्सलवाद / डॉ. पूनम रानी -- 502

सिनेमा : लोकरंजन बनाम लोकमंगल / डॉ. अनुशब्द -- 505

भारतीय सिनेमा और ऑस्कर / साकेत कुमार भारद्वाज -- 511

सिनेमा की भाषा : कल, आज और कल / डॉ. सतीश शर्मा 'जाफराबादी' -- 515

कला सिनेमा : बाजार और बदलते सरोकार / भावना -- 530

राष्ट्रीय चेतना और हिंदी सिनेमा / मंजुला दास -- 540

फिल्मी स्त्रियों का सच / अर्चना उपाध्याय -- 548

डॉ. अनुशब्द

सिनेमा : लोकरंजन बनाम लोकमंगल

बीसवीं सदी में मानव जाति को मिले कुछ अद्‌भुत वैज्ञानिक उपहारों की अगर बात करें, तो सिनेमा पर चर्चा किए बगैर बात पूरी नहीं की जा सकती। सिनेमा ने न सिर्फ मनोरंजन के क्षेत्र में एक नई क्रांति का आगाज किया बल्कि सामाजिक चेतना को भी एक नया मंच प्रदान किया।

सामान्यतः 1895 में ल्यूमियर बंधुओं द्वारा कंपनी से बाहर निकलते कामगारों को फिल्माने को हम विश्व सिनेमा की शुरुआत मानते हैं। अगस्त और लूईस ल्यूमियर पेशे से रसायनविद थे। उन्होंने सिनेमैटोग्राफ नामक एक यंत्र विकसित किया था जिसकी मदद से 28 दिसंबर 1895 को पेरिस के होटल स्कराईब में कामगारों पर फिल्माई गई अपनी इस लघु फिल्म को एक बड़े पर्दे पर प्रदर्शित किया। लेकिन सिनेमा का बीज Christiaan Huygens ने 1650 में ही 'Magic lantern' नामक एक यंत्र विकसित करके बो दिया था। सिनेमा को वर्तमान स्वरूप प्रदान करने और उसे विकसित करने में Edward J. Muybridge, Thomas Edison, W.K.L. Dickson आदि अनेक विशेषज्ञों के फिल्म-निर्माण संबंधी नवीन और आवश्यक उपकरणों के आविष्कारों का भी महत्त्वपूर्ण हस्तक्षेप है।

अब बात अगर भारतीय सिनेमा की करें, तो यह अपने सौ साल से ज्यादा के सफर में विश्व पटल पर ना सिर्फ अपनी एक अलग पहचान बनाने में कामयाब हुआ है, अपितु जनचेतना के एक सशक्त माध्यम के रूप में भी स्थापित हो चुका है। 1896 में ल्यूमियर बंधुओं ने बॉम्बे में अपने द्वारा निर्मित 6 लघु फिल्मों का प्रदर्शन किया था और कहीं-न-कहीं भारत में सिनेमा की नींव रखी थी। ल्यूमियर बंधुओं द्वारा प्रदर्शित लघु फिल्मों को बॉम्बे की जनता ने खूब पसंद भी किया था। बॉम्बे में इन 6 लघु फिल्मों की सफलता ने दूसरे फिल्मकारों जैसे James B. Stewart and Ted Hughes

31/2/06

जनवरी-मार्च 2019
ISSN: 2321-0443
UGC Journal No. 41285
ई-संस्करण सहित

ज्ञान गरिमा सिंधु

150 YEARS OF CELEBRATING THE MAHATMA

अंक : 61

गांधी मार्ग-150

वैज्ञानिक तथा तकनीकी शब्दावली आयोग
मानव संसाधन विकास मंत्रालय (उच्चतर शिक्षा विभाग) भारत सरकार
Commission for Scientific and Technical Terminology
Ministry of Human Resource Development
(Department of Higher Education)
Government of India

CS Scanned with CamScanner

UGC JOURNAL NO.41285

ISSN: 2321-0443

ज्ञान गरिमा सिंधु

(त्रैमासिक पत्रिका)

गांधी मार्ग-150

अंक-61

जनवरी-मार्च 2019

वैज्ञानिक तथा तकनीकी शब्दावली आयोग

मानव संसाधन विकास मंत्रालय

(उच्चतर शिक्षा विभाग)

भारत सरकार

2019

COMMISSION FOR SCIENTIFIC AND TECHNICAL TERMINOLOGY

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(DEPARTMENT OF HIGHER EDUCATION)

GOVERNMENT OF INDIA

2019

Scanned with CamScanner

परामर्श एवं संपादन मंडल

प्रधान संपादक

प्रोफेसर अवनीश कुमार, अध्यक्ष

संपादक

डॉ. शाहजाद अहमद अधिकारी

सहायक वैज्ञानिक अधिकारी (राजनीति विज्ञान)

प्रकाशन

श्री शिव कुमार चौधरी, सहायक निदेशक

संपादन समिति

1. देवेन्द्र दत्त नौटियाल, पूर्व सचिव, मै. रा. भ. आयोग, नई दिल्ली
2. डॉ. राजेश कुमार शर्मा, निदेशक, गाँधी अध्ययन केन्द्र, राजस्थान विश्वविद्यालय, जयपुर (राजस्थान)
3. डॉ. राजेन्द्र कुमार पाण्डेय, राजनीति विज्ञान विभाग, चौधरी चरण सिंह विश्वविद्यालय, मेरठ (उ. प्र.)
4. श्री राजेश कुमार सिंह, एसोसिएट प्रोफेसर, राजनीति विज्ञान विभाग, राजकीय महाविद्यालय, कुल्लू (हि.प्र.)
5. डॉ. रविन्द्र कुमार वर्मा, एसोसिएट प्रोफेसर, राजनीति विज्ञान विभाग, आर. एल. कॉलेज, हाजीपुर (बिहार)
6. डॉ. संजीव कुमार तिवारी, एसोसिएट प्रोफेसर, राजनीति विज्ञान विभाग, महाराजा अग्रसेन कॉलेज, वसुन्धरा, नई दिल्ली
7. डॉ. राजीव रंजन गिरि, हिंदी विभाग, राजधानी कॉलेज राजा गार्डन, नई दिल्ली
8. डॉ. नाजेद जमाल, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, जामिया मिलिया इस्लामिया, नई दिल्ली
9. डॉ. राधा कुमारी, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, माता सुंदरी कॉलेज, नई दिल्ली
10. डॉ. शांतोष कुमार सिंह, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, शहीद भगत सिंह कॉलेज, नई दिल्ली
11. डॉ. अजय प्रसाद सिंह, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, पी. जी. डी. ए. वी. कॉलेज, नई दिल्ली
12. डॉ. हरिराम परिहार, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, राजकीय कॉलेज, जोधपुर (राजस्थान)
13. डॉ. दिनेश कुमार गहलोत, सहायक प्रोफेसर, राजनीति विज्ञान विभाग, जयनारायण व्यास विश्वविद्यालय, जोधपुर (राजस्थान)
14. श्री. आदिला अंजु, सहायक प्रोफेसर, नोएडा इंटरनेशनल यूनिवर्सिटी, नोएडा (उ. प्र.)
15. डॉ. संजय शर्मा, सहायक प्रोफेसर, भारतीय सैन्य अकादमी, देहरादून (उत्तराखण्ड)
16. डॉ. प्रदीप्तो मुखर्जी, सहायक प्रोफेसर, राजनीति विज्ञान विभाग एच. एम. कॉलेज फॉर वुमेन, कोलकता (प. ब.)
17. डॉ. शिल्पा नंदी, सहायक प्रोफेसर, राजनीति विज्ञान विभाग खुदी राम बोस, सेन्ट्रल कॉलेज, कोलकता (प. ब.)
18. डॉ. रेणु सिंह, सहायक प्रोफेसर, जनसंचार विभाग, महात्मा गांधी अन्तरराष्ट्रीय हिंदी विश्वविद्यालय, वर्धा (महाराष्ट्र)
19. डॉ. मोहम्मद शब्बीर, सहायक प्रोफेसर, हिन्दी विभाग, मोतीलाल नेहरु कॉलेज, दिल्ली
20. डॉ. अनुशक्ति, सहायक प्रोफेसर, हिन्दी विभाग, तेजपुर विश्वविद्यालय, तेजपुर (असम)

CS Scanned with CamScanner

अनुक्रम

आलेख	लेखक	पृष्ठ संख्या
मानव, प्रकृति एवं पर्यावरण		
1. गाँधी का पर्यावरण-विषयक विचार	डॉ. राजेंद्र कुमार पांडेय	1
2. भारत में समसामयिक चुनौतियाँ एवं गांधीवादी निदान	प्रो.अशविंदर कौर पोपली, आनंद सौरभ	9
3. प्रकृति, संस्कृति और महात्मा	प्रेम प्रकाश	16
4. गाँधी-दर्शन में मानवाधिकारों की संकल्पना	डॉ. शशि वर्मा	23
5. गाँधी और पर्यावरण	रमेश कुमार	31
6. गाँधी और मानवाधिकार	डॉ. नरेश कुमार सिंह	35
आर्थिक आयाम		
1. संधारणीय विकास और गांधी –दर्शन	डॉ.शांतोष कुमार सिंह, डॉ.राकेश कुमारमीणा	41
2. गांधी का अर्थशास्त्र और लघु समाजवादकरण	डॉ. नवेद जमाल, संजीव कुमार सिंह	50
3. खादी के पुनर्जन्म की कहानी	डॉ. पंकज कुमार सिंह	57
4. ग्राम स्वराज की सार्थकता	डॉ. राखी चौहान	65
5. ग्रामीण औद्योगीकरण एवं कम्युनिटी रेडियो	डॉ. रेणु सिंह	72
सामाजिक एवं शैक्षणिक सरोकार		
1. 'नयी तालीम': एक सामयिक शिक्षा –दर्शन	डॉ. डी. के. पी चौधरी	79
2. गांधी की नयी तालीम की प्रासंगिकता	डॉ. अनुशब्द	86
3. अस्पृश्यता का प्रश्न	डॉ. राजीव कुमार सिंह	92
4. संधारणीय विकास का शिक्षण प्रतिरूप	डॉ. ऋषभ कुमार मिश्र एवं डा. रवनीत	99

UGC JOURNAL NO:41285 जनवरी-मार्च 2019, अंक-61 ISSN: 2321-0443

CS Scanned with CamScanner

गांधी की नयी तालीम प्रासंगिकता

डॉ. अनुशब्द[10]

21वीं सदी का भारत कई सवालों और विमर्शों से जूझ रहा है। देश की शिक्षा-व्यवस्था, विशेषकर प्राथमिक शिक्षा का स्वरूप कैसा हो? उनमें से एक महत्वपूर्ण सवाल है। यह सोचने का विषय है कि शिक्षा संबंध तमाम संस्तुतियों, प्रस्तावों और अधिनियमों के बावजूद क्या वर्तमान शिक्षा-व्यवस्था, शिक्षा के मूल लक्ष्य तक पहुँचने में सफल हो पायी है? विभिन्न शिक्षाविदों का मत रहा है कि शिक्षा मनुष्य के निर्माण की प्रक्रिया है। ऐसे में आज मनुष्य जिस तेज रफ्तार से यत्र से तब्दील हो रहा है वह कौन-सी प्रक्रिया की वर्तमान उपज या परिणति है? यह विचारणीय है। मूल्य-विहीन, संवेदन-शून्य, हिंसक मनुष्य का निर्माण करने वाली शिक्षा-व्यवस्था हमसे बार-बार अपनी दशा और दिशा पर पुनर्विचार करने की मांग करती है। इन्हीं सवालों के बीच हाल के दिनों में वैकल्पिक शिक्षा-व्यवस्था की बहस ने फिर से जोर पकड़ा है। वैकल्पिक शिक्षा-व्यवस्था से तिदवानी का आशय एक ऐसी शिक्षा व्यवस्था से है जो भौतिक उपलब्धि को मानव विकास की कसौटी मानने वाली शिक्षा-व्यवस्था के बरक्स स्वावलंबन को बल देने वाली तथा सहयोग और सामूहिकता जैसे मानवीय मूल्यों की संवाहिका हो। इसी क्रम में जब हम भारतीय एवं पश्चिमी विचारक के शैक्षिक-चिंतन पर नजर डालते हैं तो महात्मा गांधी का शैक्षिक-दर्शन सहसा हमारा ध्यान अपनी ओर खींचता है। मनुष्य के शरीर, मस्तिष्क तथा आत्मा में उपस्थित गुणों के सर्वांगीण विकास को शिक्षा का लक्ष्य मानने वाले गांधी का शैक्षिक चिंतन भारतीय परिवेश के लिए हर युग में प्रासंगिक प्रतीत होता है।

ध्यातव्य है कि गांधी के शिक्षा संबंधी विचार देश की आवश्यकताओं की उपज हैं, अतः वे व्यावहारिक धरातल पर उतारे जाने योग्य हैं। 'आत्मानुभूति' को शिक्षा का प्रधान उद्देश्य मानने वाले गांधी जिस शिक्षा की वकालत करते हैं वह मनुष्य को एक बेहतर मनुष्य बनाने के लिए है, न कि एक वस्तु, जो बाजार के समक्ष अपनी कीमत लगवाने के लिए समस्त मानवीय-मूल्यों को ताक पर रख दे। इसलिए चरित्र के विकास को भी गांधी ने शिक्षा के प्रधान उद्देश्यों में शामिल किया है। गांधी के शैक्षिक चिंतन का साकार रूप हम 'बुनियादी शिक्षा' या 'नयी तालीम' के रूप में पाते हैं। उनकी इस 'नयी तालीम' की पृष्ठभूमि में अतीत की स्मृति, वर्तमान का बोध और भविष्य की चिंता की जटिल समग्रता शामिल थी। यह केवल विचार के रूप में नहीं, हृदय के विवेक के रूप में उपस्थित थी। इसी हृदय के विवेक की जाग्रत एवं विकसित करने को गाँधी शिक्षा का मूलभूत प्रयोजन मानते थे। इसलिए औपनिवेशिक शिक्षा को खारिज करते हुए नयी तालीम को प्रतिष्ठित करते हैं। 1937ई. में वर्धा शिक्षा सम्मलेन में महात्मा गांधी ने मूल/बुनियादी शिक्षा संबंधी अपनी धारणा को व्यक्त करते हुए कहा था- 'देश की वर्तमान शिक्षा पद्धति किसी भी तरह की आवश्यकताओं को पूरा नहीं कर सकती है। इस शिक्षा

---

[10] सहायक प्रोफेसर, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर (असम)

CS Scanned with CamScanner

ISSN 2321-4945

द्विभाषी राष्ट्रसेवक

वर्ष : 8 ❖ अंक : 10 ❖ जनवरी, 2017

68वें गणतंत्र दिवस की हार्दिक शुभकामनाएं

अनुराग

सारे जहां से अच्छा,
हिंदुस्तां हमारा।

एक हृदय हो भारत जननी

असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी

[केंद्रीय हिंदी निदेशालय, मानव संसाधन विकास मंत्रालय, भारत सरकार के आर्थिक सहयोग से प्रकाशित]

सलाहकार

श्री हरिकांत नाथ
डॉ. अच्युत शर्मा
डॉ. ताराकांत झा
श्री गोलोक चंद्र नाथ
श्री धीरेन चंद्र शर्मा
श्री विष्णु कमल तामुली

संपादक

डॉ. क्षीरदा कुमार शइकीया
(मो. 9435340285)

कार्यकारी संपादक

रामनाथ प्रसाद
(मो. 9435147126)

शब्द-संयोजन व अलंकरण

रति कांत कलिता

वार्षिक शुल्क : दो सौ रुपये
अर्द्धवार्षिक : सौ रुपये
एक प्रति : बीस रुपये

प्रकाशक

डॉ. क्षीरदा कुमार शइकीया
की ओर असम राष्ट्रभाषा प्रचार समिति
गुवाहाटी-781032

'द्विभाषी राष्ट्रसेवक' में प्रकाशित लेखों में व्यक्त विचार एवं दृष्टिकोण लेखक के हैं। संपादक या प्रकाशक का उनसे सहमत होना आवश्यक नहीं है।

लेखादि भेजने का पता :
संपादक, द्विभाषी राष्ट्रसेवक
असम राष्ट्रभाषा प्रचार समिति,
रूपनगर, गुवाहाटी-781 032
फोन : (0361) 2462811, 2463394
फैक्स : 0361 - 2463394

Postal Rgd. No. GH-127/2016-2018

ISSN 2321-4945

असम राष्ट्रभाषा प्रचार समिति का
साहित्य-कला-संस्कृति विषयक मासिक मुख-पत्र

द्विभाषी राष्ट्रसेवक

वर्ष : 8 | जनवरी-2017 | अंक : 10

विषय-सूची

हिंदी विभाग

- सामयिकी — 2
- जमातिया हॉदा बनाम स्त्री — डॉ. मिलन रानी जमातिया — 3
- हिंदी और असमीया का अंत:संबंध भाषा और साहित्य के संदर्भ में — डॉ. अनुशब्द — 9
- हिंदी भाषा : अतीत, वर्तमान और भविष्य — सुनीता राम — 15
- रस के शिकारी कुबेरनाथ राय — मुहम्मद इसराईल अंसारी — 18
- श्रम का महासंगम (कविता) / अव्याख्येय (कविता) — डॉ. हेमराज मीणा 'दिवाकर' — 20
- समिति समाचार — 21

অসমীয়া বিভাগ

- শ্ৰীষ্টমাছৰ মাহাত্ম্য — কামিনী দেৱী — ২৯
- হৈ থাকিব চিৰযুগমীয়াৰে ব'হাগ বিহুৰে বিহুৱান (কবিতা) — ড° জেচিম ৰাজা — ৩২

लेखक/लेखिकाओं से अनुरोध : • 'द्विभाषी राष्ट्रसेवक' के लिए भेजे जाने वाले लेखादि साहित्य, कला, संस्कृति विषयक होने चाहिए। • भेजे गये लेखादि साफ अक्षरों में या टाइप कराकर ही भेजें। • अनूदित लेखों के लिए मूल लेख का उल्लेख करना अनिवार्य है।

हिंदी और असमीया का अंत:संबंध

(भाषा और साहित्य के संदर्भ में)

❖ डॉ. अनुशब्द ❖

भारत एक बहुजातीय देश है। यहां कई सारी भाषाई जातियों एवं संस्कृतियों का एक लंबे अर्से से सहअस्तित्व रहा है। भाषाई विविधता यहां की पहचान है। पूरे भारत में लगभग 1652 भाषाएं बोली जाती हैं। इन सभी भाषाओं को चार भाषा परिवारों - आर्य भाषा परिवार, द्रविड़ भाषा परिवार, कोल या मुंडा भाषा परिवार और नाग भाषा परिवार के अंतर्गत रखा गया है। इन भाषाओं का संबंध विभिन्न भाषा परिवारों से है। हिंदी और असमीया को अनुसूचित भाषाएं होने का गौरव प्राप्त है। हिंदी की गरिमा और महिमा से तो हम सब वाकिफ हैं। संपर्क भाषा और राजभाषा के रूप में तो उसका अखिल भारतीय वर्चस्व है। साथ ही आजकल विदेशों में भी हिंदी व्यापक रूप से स्वीकृत है। अब यदि हम असमीया भाषा की बात करें तो समग्र पूर्वोत्तर भारत में इसकी एक विशिष्ट पहचान है। यह असम की राजकीय भाषा है। सुखद संयोग यह है कि हिंदी और पूर्वोत्तर भारत की एकमात्र भाषा असमीया दोनों ही आर्य भाषा-परिवार के अंतर्गत आती हैं। इस पारिवारिक एकता के कारण ही हिंदी और असमीया में घनिष्ठ अंत:संबंध है। केवल भाषा के स्तर पर ही नहीं, साहित्यिक संवेदना के स्तर पर भी। यही वजह है कि आज पूर्वोत्तर भारत के विभिन्न विश्वविद्यालयों में हिंदी और असमीया के रचनाकारों का तुलनात्मक अध्ययन शोधार्थियों की पहली पसंद बन गयी है। तेजपुर विश्वविद्यालय की ही बात करें तो यहां फिलवक्त 'मैत्रेयी पुष्पा और रीता चौधुरी', 'मोहन राकेश और अब्दुल मलिक', 'कमलेश्वर और भवेंद्र नाथ शइकिया', 'बाबा नागार्जुन और भूपेन हजारिका', 'मन्नू भंडारी और इंदिरा गोस्वामी', 'प्रेमचंद और रजनीकांत बरदलै' आदि रचनाकारों पर पीएचडी स्तर पर तुलनात्मक दृष्टि से शोध कार्य किये जा रहे हैं। कहने का तात्पर्य यह है कि भाषा और साहित्य दोनों ही स्तरों पर हिंदी और असमीया के बीच काफी रागात्मक संबंध है। इस भाषाई समानता और साहित्यिक सौहार्द का एक बड़ा कारण दोनों भाषाओं की परिवारगत एकता तो हैं ही, साथ ही भौगोलिक दृष्टि से इनकी निकटता और श्रीमंत शंकरदेव तथा माधवदेव के जमाने से इनका आपसी सहचर्य भी है।

अब यदि भाषा के स्तर पर हम देखें तो ध्वनि से लेकर वाक्य तक हर स्तर पर इन दोनों भाषाओं में पर्याप्त संबंध एवं समानता है।

भाषा के स्तर पर हिंदी और असमीया में अंत:संबंध

1. ध्वनि-स्तर पर संबंध, 2. शब्द-स्तर परसंबंध
3. वाक्य-स्तर परसंबंध

1. ध्वनि-स्तर पर अंत:संबंध :

(i) सघोष महाप्राण ध्वनियों जैसे - घ्, ध्, भ् आदि का प्रयोग हिंदी और असमीया दोनों ही भाषाओं में समान रूप से होता है।

अनुशब्द

UGC Approved Journal No. 49321 Impact Factor : 2.591 ISSN : 0976-6650

Shodh Drishti

An International Peer Reviewed Refereed Research Journal

Vol. 10, No. 3.1 Year - 10 March, 2019

PEER REVIEWED JOURNAL

Editor in Chief
Prof. Abhijeet Singh

Editor
Prof. Vashistha Anoop
Department of Hindi
Banaras Hindu University
Varanasi

Dr. K.V. Ramana Murthy
Associate Professor of Commerce
and Vice Principal
Vijayanagar College of Commerce
Hyderabad

Published by
SRIJAN SAMITI PUBLICATION
VARANASI
Mob. **9415388337,** E-mail : **shodhdrishtivns@gmail.com,** Website : **shodhdrishtijournal1.com**

विषयानुक्रमणिका

		पृष्ठ संख्या
☛	प्रेमचन्द : व्यक्तिगत चेतना से सामाजिक चेतना **अंकिता कनौजिया**	1-3
☛	महात्मा गाँधी और श्रीमद्भगवद्गीता : प्रेरणा एवं प्रभाव **अंतिमा सिंह**	4-6
☛	सुभाष चन्द्र बोस : जीवन दर्शन एक परिदृश्य **डॉ0 जया**	7-10
☛	समकालीन कला के विकास में आकार कला समूह की भूमिका (राजस्थान के सन्दर्भ में) **राहुल उषाहरा**	11-14
☛	भारतीय पारम्परिक लोक चित्रकला तथा हस्त कला का केन्द्र : वाराणसी **हिमानी पंचपाल**	15-18
☛	Air Pollution and Human Health **Dr. Kailash Nath Singh**	19-24
☛	National System of Education for Rural People in India: A Study **Nitika Jiya Sinha**	25-27
☛	Effect of Psychological Factors on Burnoutness : A Study **Ritika Riya Sinha**	28-30
☛	ओरछा दुर्ग के स्मारकों में नृत्य प्रसाद 'रायप्रवीण एवं रायप्रवीण महल' **डॉ0 बलवन्त सिंह भदौरिया**	31-32
☛	नाथद्वारा की चित्रकला का विकास एवं प्रमुख पिछवई **ओमप्रकाश माहौर**	33-34
☛	मौर्योत्तर युगीन बौद्धकला में अंकित वेशभूषा **डॉ0 सीमा**	35-40
☛	काशीको नेपाली साहित्यिक पत्रकारिता **अमित थापा**	41-44
☛	भारतीय समाज में दलित उत्थान हेतु किए गए संवैधानिक प्रावधान **कमलेश कुमार**	45-48
☛	मध्य एशिया में ऊर्जा सुरक्षा की राजनीति **अविनाश चन्द्र**	49-52
☛	कार्यशील महिलाओं की सामाजिक परिवर्तन में सहभागिता : हस्तशिल्प एवं वस्त्र उद्योग के द्वारा **सन्तेश्वर कुमार मिश्र एवं डॉ0 हरिओम त्रिपाठी**	53-56
☛	हिंदी सिनेमा में चित्रित स्त्री छवि **उन्मेषा कोंवर/डॉ0 अनुशब्द**	57-60

UGC Approved Journal No. 49321 Impact Factor : 2.591
Shodh Drishti (An International Peer Reviewed Refereed Research Journal), Vol. 10, No. 3.1, March, 2019 ISSN : 0976-6650

हिंदी सिनेमा में चित्रित स्त्री छवि

उन्मेषा कोंवर / डॉ. अनुशब्द
हिंदी विभाग तेजपुर विश्वविद्यालय, असम

सिनेमा जनसंचार के लोकप्रिय एवं सबसे प्रभावशाली माध्यमों में से एक है। यह मानव जीवन एवं समाज की कलात्मक अभिव्यक्ति है। इसमें विभिन्न अनुभावों, संवादों, गीतों, आदि के माध्यम से मानवीय संवेदनाओं की सर्जनात्मक अभिव्यक्ति होती है। जैसे साहित्य में अपने समय और समाज की यथार्थ अभिव्यक्ति होती है, उसी तरह सिनेमा भी अपने देश-काल का साक्षी होता है। सिनेमा कला, साहित्य, संस्कृति और समाज का जीवंत दस्ताबेज होता है। इनकी आपसी अंतरंगता को भारतीय सिनेमा एक लंबे अर्से से सर्जनात्मक तरीके से व्यक्त करता रहा है। और, अपने सामाजिक दायित्वों का सफलतापूर्वक निर्वाह करता रहा है। समाज का अच्छा-बुरा, उन्नति-अवनति, उत्थान-पतन सभी कुछ सिनेमा और साहित्य दोनों के माध्यम से उजागर होता है। इनमें हम भारतवर्ष का इतिहास, आजादी का संघर्ष और परिणाम, उत्सव, रीति-रिवाज, खान-पान, खेल-कूद, मनोविज्ञान, टेक्नॉलॉजी, राजनीति, आतंकवाद, दुर्नीति, शोषण, पारिवारिक समस्या, न्याय-अन्याय के स्वरूप, राष्ट्रीय-अंतर्राष्ट्रीय चुनौतियाँ आदि अनगिनत विषयों को देख सकते हैं। अन्य सभी विषयों के साथ-साथ ऐसी अनेक फिल्में बनी हैं जिनमें भारतीय नारी के व्यक्तित्व, उनकी कठिनाइयाँ, सामाजिक मर्यादा, शोषण आदि को रेखांकित किया गया है।

भारतीय हिंदी सिनेमा का मूल आधार है भारतीय समाज। इसलिए फिल्मों में चित्रित स्त्री छवि को देखने से पूर्व भारतीय समाज में नारी की स्थिति पर प्रकाश डालना आवश्यक है। भारतीय समाज में स्त्री छवि का प्रश्न एक जटिल प्रश्न है। क्योंकि इस समाज में अनेक जाति और धर्म मौजूद हैं और इन सभी जातियों और धर्मों में नारी का अलग-अलग स्थान है। किसी भी समाज में भौगोलिक, सामाजिक आर्थिक और सांस्कृतिक स्थिति के अनुरूप नारी के स्थान का निरूपण किया जाता है। भारतीय समाज की ओर दृष्टि डालने से यह ज्ञात होता है कि यहाँ की सामाजिक संरचना में नारी के लिए कुछ निर्धारित कर्तव्यों और दायित्वों को सुनिश्चित किया गया है। आर्य सभ्यता के विकाश के समय 'मातृदेवता' का विशेष महत्व था जिसे सिंधु संस्कृति के अवशेषों ने प्रमाणित किया है। पौराणिक कथाओं में देवताओं के समान देवी को महत्व दिया गया है। नारी जीवन की गुलामी का प्रश्न शायद कृषि सभ्यता के विकास के साथ जुड़ी है। क्योंकि कृषि क्षेत्र में ही कार्यक्षेत्र और दायित्व के बढ़ने के साथ-साथ नारी का सामाजिक डायरा भी संकोचित हो गया। कृषि सभ्यता के विकास ने पुरातन भारतीय समाज में विवाह को अधिक महत्व प्रदान किया और नारी का शोषण वहीं से प्रारम्भ हुआ। वेदकालीन समाज में स्त्री की स्थिति इतनी दुर्बल नहीं थी। उन्हें वेदों के पठन-पाठन और अध्यापन की अनुमति थी। 'लोपामुद्रा', 'विश्वावरा', 'घोषा' आदि नारी इस बात का उदाहरण हैं। लेकिन जाति-प्रथा के आरंभ के साथ नारी की सामाजिक स्थिति में बहुत अधिक बदलाव आया। 800 ई. पूर्व में वैदिक युग की समाप्ति के साथ संहिताओं और धर्मसूत्रों में नारी के लिए कुछ अनिवार्य नियम बनाए गए। इनमें उल्लेखनीय स्थान है 'मनुस्मृति' या मनुसंहिता का। इनमें दी गयी नारी के कुंवारेपन, विवाहित स्त्री की शील की शुद्धता, विवाह का धार्मिक महत्व, विधवाओं का जीवन और सतीप्रथा, स्त्रियों की आचरण संबंधी पाबन्दियाँ, कन्यादान और कन्याशुल्क की परंपरा, स्त्री की अशुद्धता, वेदाध्ययन और धार्मिक अनुष्ठानों का स्त्रियों द्वारा वर्जन आदि पर अनेक नियम लागू किए गए जो स्त्री के हित में नहीं थे। इन नियमों ने स्त्री को सामाजिक रूप में दुर्बल, पुरुषाश्रित और अछूत बना दिया, मनुस्मृति में स्त्री को एक लोभ या लालच के रूप में देखा गया।

स्मृतियों और संहिताओं के बाद का काल 'रामायण', 'महाभारत' का काल रहा। इनमें वर्णित समाज में भी नारी अवज्ञा के पात्र रही। इस समय के समाज में नारी केवल पुरुषों की अनुगामिनी बनकर रह गयी। महाभारत या रामायण काल की जाति प्रथा को बौद्ध काल में सर्वप्रथम चुनौती मिली। इस काल में नारी के

स्थिति में काफी बदलाव आया, बौद्ध धर्म में नारी को अवज्ञा की दृष्टि से नहीं देखा गया। शिक्षा और संपत्ति में नारी के समअधिकार को बौद्ध धर्म ने अपनाया। पुरुषों के समान न होने पर भी स्त्रियों को धर्म का अधिकार दिया गया। लेकिन इसके बाद मुगल काल में भारतीय स्त्री की अवस्था और अधिक हीन हो गया, यह वह समय है जब अशिक्षा, स्त्री भ्रूण हत्या, पर्दा प्रथा, विधवा विवाह पर पाबंदी आदि के साथ-साथ स्त्री शारीरिक शोषण का भी शिकार बनी। लेकिन भक्तिकालीन संतों के आविर्भाव से धार्मिक सुधार और अंधविश्वासों का विरोध हुआ।

ब्रिटिश काल में भारतीय नारी को एक अलग सामाजिक परिवेश मिला। अंग्रेजों ने नारियों में शिक्षा का प्रचार प्रारंभ किया। ईसाई मिशनरीयों ने इसमें महत्वपूर्ण भूमिका निभाई। विदेशों से आयी महिलाओं ने भारतीय नारियों में एक शक्ति का संचार किया। सन 1795 और 1805 में शिशुहत्या पर, 1829 में सती प्रथा पर पाबंदी लगाया गया। सन 1856 में विधवा विवाह पर से पाबन्दियों को हटाकर भारतीय नारी को जैसे पुनर्जीवन दिया। स्वाधीनता आंदोलन में भारतीय स्त्रियों ने भी सशक्त भूमिका का निर्वाह किया। गांधीवादी राजनीति में नारी के लिए उदारवादी दृष्टिकोण को अपनाया गया। स्वतन्त्रता से पूर्व के समाज के विकास के साथ-साथ भारतीय नारियों ने अपनी कमजोर स्थिति को मजबूत करने के लिए कभी विद्रोह किया तो कभी चुप रहकर झेलती गयी। उन्नीसवीं सदी में रमाबाई, आनंदीबाई जोशी, तरु दत्त आदि ने स्त्री शिक्षा का प्रचार-प्रसार और स्त्रियों की सामाजिक स्थिति की उन्नति के लिए नई जंग छेड़ दी। स्त्रियों के हक में नए-नए कानून बनाए गए। स्वतंत्रता के उपरांत भारतीय संविधान में स्त्री के अधिकारों, शोषण आदि के लिए कानून पारित किया गया। धीरे-धीरे स्थितियाँ बदली, समाज में परिवर्तन आया। भूमंडलीकरण और बाजारवाद के इस दौर में आर्थिक आंदोलन के चलते नारी भी सशक्त, स्वतंत्र और आधुनिक बनी। स्त्रियाँ केवल घरेलू कामकाजों में बंदी न रहकर हर क्षेत्र में अपना कदम रखने लगी। नृत्य-गीत, अभिनय से लेकर मीडिया, विज्ञान व तकनीकी क्षेत्र व राजनीति में आधुनिक स्त्री पुरुषों के साथ कदम मिलाकर आगे बढ़ रही हैं।

बदलते हुए भारतीय समाज और परिवार में पुरातन से लेकर आधुनिक स्त्री छवि को प्रामाणिकता और जीवंतता के साथ प्रस्तुत करने का एक सशक्त माध्यम है हिंदी सिनेमा। हिंदी सिनेमा का इतिहास सौ साल से भी अधिक पुराना है। सन 1931 में बनी पहली बोलती फिल्म 'आलमआरा' के बाद हिंदी फिल्मों ने कभी पीछे मूढ़कर नहीं देखा। नायकप्रधान होते हुए भी हिंदी सिनेमा में स्त्री जीवन को भी प्रारम्भ से ही केंद्र में रखा गया है। इन फिल्मों में सामाजिक, राजनीतिक, पारिवारिक आदि अलग-अलग कहानियों के परिप्रेक्ष्य में स्त्री जीवन के प्रायः सभी पहलुओं को देखने की कोशिश की गई है। नायक प्रधान फिल्मों की प्रधानता होने पर भी जैसे-जैसे हिंदी सिनेमा परंपरा आगे बढ़ने लगी वैसे-वैसे नारी जीवन की समस्याओं को भी संजीदगी के साथ उठाया जाने लगा।

सामाजिक हिंदी फिल्मों में भारतीय स्त्री छवि को मूलतः दो रूपों में अंकित किया गया है। पहला रूप है शिक्षित, परिवार के प्रति समर्पित, समर्पण और त्याग की मूरत नारी की। अधिकांश सामाजिक हिंदी फिल्मों में नारी के इस रूप को माता, पत्नी, बहन या प्रेमिका के रूप में चित्रित किया गया है। सामाजिक फिल्मों में चित्रित नारी का दूसरा रूप है गंभीर, अपने आजीविका और सामाजिक स्थान के प्रति सदा सचेत कामकाजी सशक्त महिलाएं। ये अपने आत्मसम्मान और मर्यादा के लिए सबकुछ करने को तैयार रहती हैं। इसके अलावा घरेलू हिंसा या कूटनीति से प्रभावित खलनायिकाओं का चित्रण भी सामाजिक फिल्मों में सहज ही देखी जा सकती है। कभी-कभी फिल्मी कहानियों में स्त्रियों को बेबस और लाचार दिखाया गया है जहाँ उसपर अनेक अत्याचार किए जाते हैं तो कहीं पर उसे ही सबकुछ दिखाया जाता है जहाँ पति के छोड़ जाने पर वह सारे संसार का भार उठाती है। सन 1957 में निर्मित फिल्म 'मदर इंडिया' में इसी तरह के स्त्री चरित्र का अंकन देखने को मिलता है। हर तरह के शोषण और अन्याय से पीड़ित होकर भी एक किसान स्त्री अपने गाँव की उन्नति के लिए अपने बेटे तक को कुर्बान करने से पीछे नहीं हटती। वह अपने ऊपर हो रही हर जुल्म और शोषण का दृढ़ता से सामना करती है। नारी जीवन की संवेदनाओं को 2001 में बनी फिल्म 'लज्जा' में भी संजीदगी से उठाया गया है। इस फिल्म में चार ऐसे नारी चरित्रों को रेखांकित किया गया है जो अलग-

अलग परिवेश में रहकर सामाजिक अन्याय का विरोध करती हैं। कभी नारी दहेज का विरोध करती है तो कभी पुरुषप्रधानता का। कभी शारीरिक शोषण का तो कभी मानसिक शोषण का।

सत्तर के दशक की फिल्मी धारा में दाम्पत्य संबंधों के टूटन को रेखांकित किया गया जिनमें अंत में पुनः मिलन को भी दिखाया गया है। 'कोरा कागज'(1974), 'ये कैसा इंसाफ'(1980), 'दूरियाँ'(1979), 'जुदाई'(1980), 'थोड़ी सी बेवफाई'(1980) आदि फिल्में इस बात का उदाहरण है। इन फिल्मों में परिवार को समर्पित नारियों को चित्रित किया गया है। इन फिल्मों में चित्रित नारियों के लिए त्याग, धैर्य और आदर्श को सर्वोपरि है। लेकिन अस्सी और नब्बे के दशकों में निर्मित फिल्मों में इसकी विपरीत छवि देखने को मिली। इन फिल्मों में दिखाये गए अधिकांश स्त्री घर के चार दीवारी में कैद रहनेवाली स्त्रियाँ नहीं हैं। 'सुबह'(1982), 'अर्थ'(1982), 'बाजार'(1982), 'मृत्युदंड'(1997), 'अस्तित्व'(2000) आदि फिल्मों में विवाह से मुक्त होकर जीवन निर्वाह में सक्षम नारी की कहानी वर्णित है। इन फिल्मों में वर्णित नारी पात्र मजबूत, जागृत और कैरियर के प्रति समर्पित होती हैं। सन 1985 में निर्मित 'राम तेरी गंगा मैली हो गई' फिल्म में एक ऐसे नारी चरित्र को अंकित किया गया जो त्याग और समर्पण के साथ मजबूत खड़ी रहती है। जो अपने और अपने संतान के हक की लड़ाई में हर मुश्किल का सामना करने को तैयार रहती हैं।

सन 1994 में निर्मित फिल्म 'बेंडिट क्वीन' सच्ची घटना पर आधारित फिल्म है। इस फिल्म में डाकू 'फूलन देवी' के जीवन को अंकित किया गया है, जो शैशवावस्था में ही अपने ही परिजनों द्वारा बलात्कार का शिकार होती है। उसके बाद दलित ब्च्ची फुलन का ऊंची जाति के लोगों द्वारा सामूहिक बलात्कार किया जाता है। फूलन अपने ऊपर हुए अत्याचारों का प्रतिकार लेने के लिए डाकू बन जाती है और उन्हें मारकर जेल चली जाती है। अपने अथक परिश्रम के बल पर फूलन दो बार सांसद भी चुनी जाती है, लेकिन अंत में उसकी हत्या कर दी जाती है। इस संबंध में आलोचक रूपेश शुक्ल ने लिखा है- 'बैंडिट क्वीन हिंदी सिनेमा के इतिहास में स्त्री की सबसे यथार्थवादी और मजबूत तस्वीर पेश करती है।" नारी जीवन की सच्ची घटनाओं पर आधारित फिल्म 'मेरी कॉम'(2014) और 'दंगल'(2016) का निर्माण हाल ही में हुआ है। मेरी कॉम भारतीय महिला मुक्केबाज हैं जिनके संघर्ष को फिल्म में दर्शाया गया है। पूर्वोत्तर भारत के छोटे से राज्य मणिपुर की रहनेवाली मेरी कॉम को जीवन में अनेक समस्याओं का सामना करना परा। कभी दंगे फसाद के नाम पर तो कभी पूर्वोत्तर के निवासी होने के नाम पर। पर जीवन की चुनौतियों का साहस के साथ मुक़ाबला करते हुए मेरी कॉम जिंदगी में आगे बढ़ती ही रही। 'दंगल' फिल्म में भारतीय महिला पहलवान गीता फोगाट और बबीता फोगाट के जीवन को आधार बनाया गया है। हरियाणा के निवासी दोनों बहनों के जीवन में उनके पिता का बहुत अधिक प्रभाव रहा। पुरुषप्रधान समाज की पुरुषप्रधान मानसिकता से लड़कर जीवन में अच्छी मुकाम हासिल करने का संघर्ष दर्शकों में उत्साह भर देता है।

हिंदी फिल्मों में वेश्याओं के जीवन पर संजीदगी से प्रकाश डाला गया है। पाकीजा(1972), अदालत(1976), उमराव जान (1981), देवदास(2002) आदि फिल्मों के माध्यम से दर्शकों तक यह संदेश पहुंचाया जा रहा है कि वेश्याएँ भी इंसान होती है। उन्हें भी सामाजिक सम्मान प्राप्त करने का अधिकार है। सन 1993 में निर्मित 'दामिनी' एक उल्लेखनीय फिल्म है जहाँ बलात्कार जैसी समस्या पर प्रकाश डाला गया है। फिल्म की नायिका एक सच्ची स्त्री है जो अपने नौकरानी पर हुए बलात्कार का न्याय दिलाने के लिए अपने पति और परिवार के विरुद्ध खड़ी हो जाती है। 2001में बनी फिल्म 'चाँदनी बार' नारी पर हो रहे अत्याचार का प्रतीक है। सामाजिक शोषण के चलते फिल्म की नायिका मुमताज़ को वेश्यावृत्ति ग्रहण करने पर मजबूर होना परता है। वे जीवन को सार्थक बनाने की खोज में रहती हैं। सांप्रदायिक दंगों के कुप्रभाव से पीढ़ित नारी के संघर्षों का सफल चित्रण इस फिल्म में किया गया है। इस फिल्म में नायिका की मामा ही उसका बलात्कार करता है। नारी का रूप ही कभी-कभी उसकी दुर्बलता बन जाती है। इस बात का प्रमाण इन फिल्मों में मिलती है। हाल ही बनी फिल्म 'नो वन किल्ड जसिका'(2011), 'पिंक'(2016), 'मॉम'(2017) आदि में बलात्कार जैसी संगीन जुल्म को गंभीर समस्या के रूप में दिखाया गया है। इन फिल्मों के नारी पात्र आधुनिक हैं जो अपने ऊपर हुए अत्याचार का प्रतिकार लेती हैं। इन फिल्मों ने प्रभावशाली ढंग से समाज को

यह संदेश पहुंचाया है कि वर्तमान समय में नारी अबला नहीं है। नारी को अपने स्वतंत्र जीवन जीने का अधिकार है और इसमें उसे कोई बाधित नहीं कर सकता।

बीसवीं सदी में भूमंडलीकरण और बाजारबाद का प्रभाव साहित्य, संस्कृति, समाज सभी पर पड़ा। फिल्म भी इनसे अछूता नहीं रहा। भूमंडलीकरण और बाजारवाद के चलते लोगों के सोच-विचार, रहन-सहन, खान-पान सभी में भारी परिवर्तन आया। इसलिए बीसवीं सदी के फिल्मों में नारी चित्रन भी अलग रूप में होने लगा। सन 2010 में निर्मित फिल्म 'राजनीति' में एक ऐसे नारी को चित्रित किया गया जो विधवा होते ही राजनीति में उतर जाती है अपने बिवशता को ही अपना सबसे बड़ा हथियार बना लेती है। जीवनभर अन्यों पर आश्रित स्त्री यह समझ जाती है कि उसके हर समस्या का हल केवल उसीके पास है। केवल धैर्य और साहस से वह अपने आपको अजेय कर सकती है। 'अस्तित्व'(2000), 'इंग्लिश-विंग्लिश'(2012), 'क्वीन'(2014), 'सुपर नानी'(2014) आदि फिल्मों के नारी पात्र भी यही संदेश देती है। कुछ फिल्मों की नारी इतनी अधिक शक्तिशाली हैं कि कोई पुरुष उनपर अत्याचार नहीं कर सकता। उदाहरणस्वरूप 'कहानी'(2012), 'अकिरा'(2016), 'मॉम'(2017) आदि फिल्मों की नायिकाएँ। अपने ऊपर हुए अन्याय का प्रतिशोध लेने के लिए ये नायिकाएँ अकेली निकल परती हैं। आधुनिक जमाने की मुक्त सोच विचार और ग्लेमर के प्रति आकर्षित नारी का चित्रण हमें 'फेशन'(2008), 'हीरोइन'(2012), 'कॉकटेल'(2012), 'डीयर जिंदगी'(2016) आदि फिल्मों में देख सकते हैं। जो जीवन को स्वतन्त्रता से अपने दम पर जीने तो निकल परती हैं लेकिन रास्ते में अनेक बाधाओं से जूझकर थक हार जाती है और फिरसे उठकर आगे बढ़ती है। सन 2016 में बनी 'की एंड का' फिल्म में समाज में नारी और पुरुष के समान अधिकार की बात कही गई है।

इसी तरह हम फिल्मों में वर्णित तमाम ऐसे नारी पात्रों को देख सकते हैं जो वास्तव में भारतीय नारी जीवन के अलग-अलग समस्याओं को प्रतिफलित करती हैं। समय और परिवेश के मांग के अनुसार हिंदी फिल्मों का निर्माण तीब्र गति से हो रहा है। स्वतंत्रता से पूर्व के समय में पौराणिक कथाओं पर आधारित फिल्में बनती थी जहाँ के नारी पात्र त्याग, स्वामीभक्ति की प्रतीक हैं। उस वक्त बने समाज के रूढ़ि और अंधविश्वास विरोधी फिल्मों में नारी का चित्रण मांग में सिंदूर भरी, गले में मंगलसूत्र डाली हुई स्त्रियाँ थी जिनके जीवन में परिवार के आगे कुछ नहीं था। स्वतंत्रता के बाद के फिल्मों में आधुनिकता का बहार आया। विभाजन के दौरान नारी पर हुए अत्याचार से लेकर नारी स्वतन्त्रता, नारी के शारीरिक व मानसिक शोषण, नारी की स्थिति में आए परिवर्तन को दिखाया गया। सिनेमा का उत्तरदायित्व यहीं पर बढ़ गया। दुर्भाग्य की बात यही है कि कुछ सस्ते मनोरंजनवादी फिल्मों में नारी को उपभोग्य वस्तु की तरह दिखाने की परंपरा वर्तमान चल पड़ा है। लेकिन आवश्यकता है कि नारी कि स्थिति में सुधार लाया जाए, अश्लीलता से अलग उनकी पहचान, उनकी उन्नति, उनकी मर्यादा को रेखांकित किया जाये ताकि आने वाली पीढ़ी को स्वस्थ नजरिया और सोच मिल सकें।

संदर्भ:

1. शुक्ल, रूपेश(सं) महेंद्र प्रजापत, भीगी-भीगी लड़की के बूमबाट होने की दास्तान, *समसामयिक सृजन*, अक्तूबर-मार्च 2012-2013, पृ.- 66

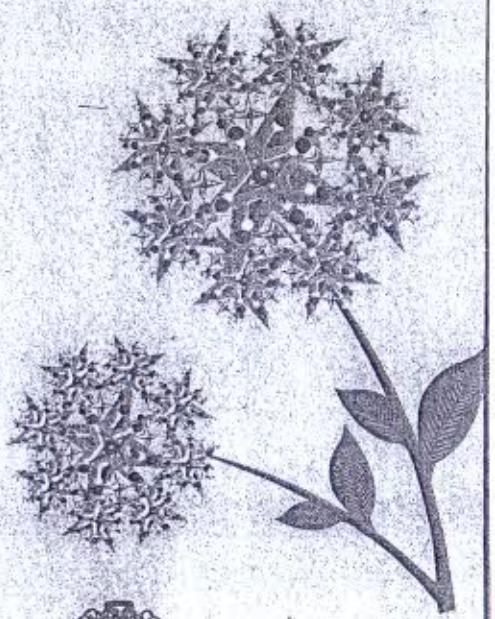
सहायक ग्रंथ सूची:

1. टंडन, डॉ. पुरनचंद एवं तिवारी, डॉ. सुनील कुमार(सं). *साहित्य सिनेमा और समाज*. नव उन्नयन साहित्यिक सोसाइटी, पश्चिम बिहार, नई दिल्ली, 2017.
2. भारद्वाज, विनोद(1985). *नया सिनेमा*. वाणी प्रकाशन, नई दिल्ली.
3. तिवारी, सुरेन्द्र नाथ(1996). *भारतीय नया सिनेमा*. अनामिका पब्लिशर्स, नई दिल्ली.
4. दूबे, मंजूलिका(1993). *भारतीय सिनेमा-1992*. फिल्म महोत्सव निदेशालय, सूचना एवं प्रसारण मंत्रालय, भारत सरकार, नई दिल्ली.
5. जमाल, अनवर एवं चटर्जी, सैबल(2006). *हॉलीवुड बॉलीवुड*. वाणी प्रकाशन, नई दिल्ली.
6. कोरे, सुलभा(2019). *भारतीय समाज हिंदी सिनेमा और स्त्री*. अंतिका प्रकाशन, गाजियाबाद.

अंक 264 वर्ष 55

भाषा

जनवरी–फरवरी 2016



केंद्रीय हिंदी निदेशालय
भारत सरकार

ISSN 0523-1418
भाषा (द्वैमासिक)
वर्ष : 55 □ अंक : 3 (264)
जनवरी–फरवरी, 2016

संपादकीय कार्यालय
केंद्रीय हिंदी निदेशालय,
उच्चतर शिक्षा विभाग,
मानव संसाधन विकास मंत्रालय, भारत सरकार,
पश्चिमी खंड-7, रामकृष्णपुरम्,
नई दिल्ली-110066
वेबसाइट : www.hindinideshalaya.nic.in

बिक्री केंद्र :
नियंत्रक, प्रकाशन विभाग, सिविल लाइन्स, दिल्ली - 110054
सदस्यता हेतु ड्राफ्ट नियंत्रक, प्रकाशन विभाग, दिल्ली के पक्ष में भेजें।

मूल्य :			
स्वदेश में : एक प्रति	:	₹ 25/–	(डाकखर्च अतिरिक्त : ₹ 11/–)
वार्षिक	:	₹ 125/–	(डाकखर्च अतिरिक्त : ₹ 66/–)
विदेश में : एक प्रति	:	£ 1 अथवा $ 2	(डाकखर्च सहित)
वार्षिक	:	£ 1 अथवा $ 2	(डाकखर्च सहित)

वेबसाइट : www.deptpub.gov.in
ई–मेल : pub.dep@nic.in
दूरभाष : 011-23817823/ 9689
फैक्स : 011-23817846

पत्रिका में व्यक्त विचार लेखकों के अपने हैं। इनसे भारत सरकार या संपादन मंडल का सहमत होना अनिवार्य नहीं है।

अनुक्रमणिका

संपादकीय 07
आपने लिखा 08

आलेख

1.	चेतना की सर्व–व्यापकता और संत–संस्कृति	डॉ. बलदेव वंशी	11
2.	संत रविदास की बानियों का भाषावैज्ञानिक अध्ययन	डॉ. विनीता कुमारी	22
3.	निराला–काव्य और कवि की 'शक्ति–साधना'	डॉ. केशरी लाल वर्मा डॉ. जयपाल सिंह प्रजापति	33
4.	भोजपुरी के भारतेंदु भिखारी ठाकुर की लोकनाट्य–भाषा	डॉ. धनंजय सिंह	49
5.	गाथा सप्तशती की मूलभूत काव्य–तकनीक और उसका द्रविड़ स्रोत	डॉ. एम. शेषन	58
6.	हिंदीतर प्रदेशों में हिंदी शिक्षण की रणनीति (असम के विशेष संदर्भ में)	डॉ. अनुशब्द	68
7.	हमको मालूम है जन्नत की हकीकत लेकिन.... ग़ालिब	ब्रजकिशोर झा	75
8.	गाँधीजी का प्रभाव मलयालम साहित्य पर	डॉ. प्रमोद कोवप्रत	82
9.	बेल से बेल–फेस तक की यात्रा	डॉ. एम. आंजनेयुलु	92
10.	संस्कृत और रूसी की शब्दावली	हेमचंद्र पांडे	98

हिंदीतर प्रदेशों में हिंदी शिक्षण की रणनीति

(असम के विशेष संदर्भ में)

डॉ. अनुशब्द

भाषा जातीय और मनोवैज्ञानिक अस्मिता है। यह व्यक्ति, समाज और संस्कृति का रसायन है। भाषा और समाज की संरचनात्मक समानांतरता का उल्लेख करते हुए अजय तिवारी ने लिखा है कि 'व्यक्ति और समाज दोनों से ही मनुष्यता बनती है। जैसे शब्द अकेला कभी भी अर्थवान नहीं होता, व्यक्ति अकेला कभी भी मनुष्य नहीं होता। समाज मनुष्य की व्यवस्था है, वाक्य भाषा की व्यवस्था है। व्यक्ति समाज की इकाई है, शब्द भाषा की इकाई है। व्याकरण व्यवस्था सामाजिक व्यवस्था का प्रतिफलक है। यह आंतरिक प्रतिबिंब नहीं, प्रतिफलक है।'[1] गरज कि भाषा, समाज और संस्कृति एक दूसरे से इस कदर अनुस्यूत हैं कि इनमें से किसी एक में परिवर्तन होता है तो अन्य अप्रभावित हुए बिना नहीं रह सकते। इनमें से कोई भी घटक जड़ता का शिकार होता है तो उनका आपसी समीकरण नकारात्मक हो जाता है। कारण कि भाषा का संबंध–सरोकार हमारी अधिरचना से तो है ही, उसकी गहरी आसक्ति हमारी मनोरचना से भी है। वह मात्र वस्तु नहीं है, वह हमारी चेतना की अंतर्वस्तु भी है। इसलिए भाषा–शिक्षण एक सामाजिक एवं सांस्कृतिक कार्रवाई भी है और सार्थक हस्तक्षेप भी।

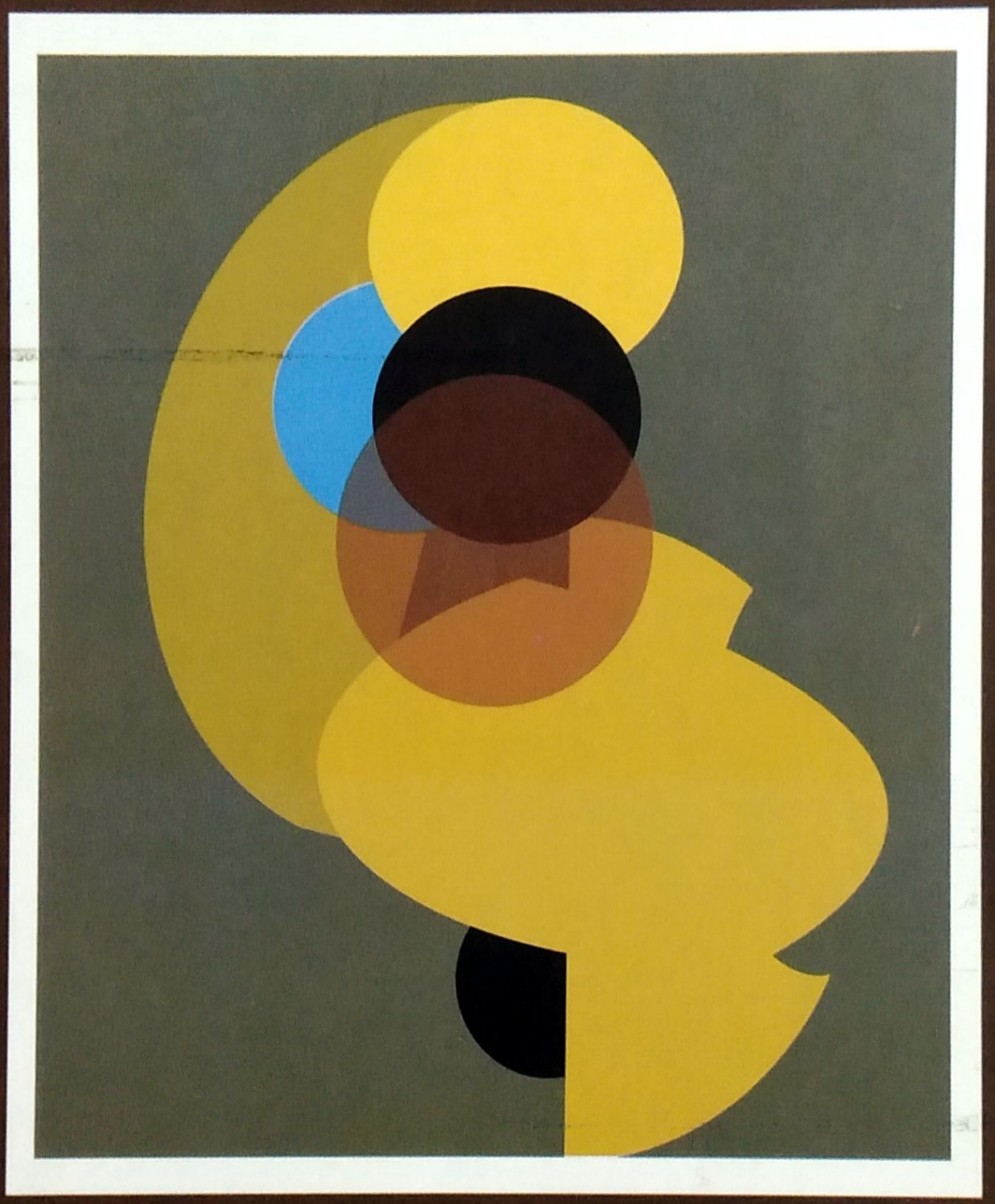
भाषा–शिक्षण मूलतः संवाद है। रंगमंचीय संवाद। जो जाग्रत और जीवंत रिश्ता रंगशाला में अभिनेता और प्रेक्षक के बीच होता है वही जीवंतता पाठशाला में शिक्षक और छात्र के बीच भी होती है। जैसे प्रेक्षक भी अभिनेता होता है, वैसे ही कभी–कभी छात्र भी शिक्षक हो जाते हैं क्योंकि एक दूसरे

से सीखने की प्रक्रिया बराबर जारी रहती है। शिक्षार्थी के सात्विक भावों से शिक्षक प्रभावित होते हैं और शिक्षक की वाचिक एवं आंगिक अभिव्यक्तियों से शिक्षार्थी कृतार्थ होते हैं। इस प्रकार्य में प्रेष्य की ही भूमिका निर्णायक होती है। वही शिक्षक की सफलता और विफलता का मानक होता है। इस प्रकार शिक्षण भाषिक परिचर्या नहीं है, वह मानसिक कार्यव्यापार है, अकादमिक अनुशासन भी है। इसीलिए वेदों में प्रतीकात्मक तरीके से कहा गया है कि 'शिक्षक उपनयन–संस्कार करके शिष्य को गर्भ में धारण करता है और तीन रात्रि तक उदर में रखता है, तब शिष्य का पुनर्जन्म होता है'।[2] आधुनिक संदर्भ में यहाँ तीन रातों को प्राथमिक, माध्यमिक और उच्चतर शिक्षण का ज्ञापक माना जा सकता है एवं छात्र और शिक्षक के आत्मीय रिश्ते को वात्सल्य के द्वारा परिभाषित किया जा सकता है। पहले की तरह अध्यापन अब व्यसन (पैशन) नहीं है। अब वह अकादमिक व्यापार हो गया है। इसलिए अब गुरु–शिष्य परंपरा मृतप्राय हो गई है और विद्यार्थी एवं शिक्षक का संबंध भी व्यक्तिगत लाभ–हानि के पलड़े पर तुलता रहता है। नतीजतन, यह निरंतर दुर्बल होता जा रहा है। यह आधुनिक शिक्षण का ऋणात्मक पक्ष है जिसके लिए न तो छात्र जिम्मेदार हैं और न ही शिक्षक, बल्कि आज का पूंजीवादी परिवेश सर्वाधिक उत्तरदायी है। जहाँ हर चीज बिकाऊ हो और बाजारू हो, वहाँ अक्ल और ईमान की बात करना बेमानी है। इसीलिए गालिब ने कभी कहा था:

'वफादारी, बशर्त–ए–उस्तुवारी अस्ल–ए–इमां है
मरेबुतखाने में तो काबे में गाड़ो ब्रह्मन को।'

असल बात तो ईमान की है उसी से हमारी वफादारी तय होती है और पद–प्रतिष्ठा भी। अगर मूर्तिपूजक ब्राह्मण भी अपने दायित्वों एवं कर्तव्यों के प्रति वाकई ईमानदार है तो उसे भी काबे में जगह दी जानी चाहिए। 'अस्ले –ईमान' की नजर से हम अपना मूल्यांकन करें तो हमें अपनी औकात का पता चल जाएगा और आज के शिक्षण की बदहाली का सबब भी। कोई भी राष्ट्र अपनी जड़ों से कट जाता है और आयातित मूल्यों को अपना आसन–डासन बना लेता है तो उसकी जातीय अस्मिता खतरे में पड़ जाती है। हमारा शिक्षण–संस्कार भी बाजारवादी वायरसों की खुराक बन गया है। मगर उसके

बहुवचन



60

महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय, वर्धा

जनवरी–मार्च 2019

बहुवचन
अंक : 60 (जनवरी-मार्च 2019) ISSN- 2348-4586
प्रकाशक : महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय, वर्धा (महाराष्ट्र)

संपादकीय संपर्क :
संपादक बहुवचन
महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय
गांधी हिल्स, पोस्ट- हिंदी विश्वविद्यालय, वर्धा- 442001 (महाराष्ट्र)
मो. संपादक- 7888048765, 09422386554, ईमेल- bahuvachan.wardha@gmail.com
E-mail : amishrafaiz@gmail.com

प्रकाशन प्रभारी : राजेश कुमार यादव
ईमेल- rajeshkumaryadav97@gmail.com फोन- 07152-232943, मो. 09975467897

© **संबंधित लेखकों एवं रचनाकारों द्वारा सुरक्षित**
प्रकाशित सामग्री के उपयोग के लिए लेखक एवं विश्वविद्यालय की स्वीकृति आवश्यक है। प्रकाशित रचनाओं की रीति-नीति या विचारों से महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय, वर्धा या संपादकों की सहमति अनिवार्य नहीं है।

पत्रिका न मिलने की शिकायत इस पते पर करें :
प्रचार प्रसार : सुरेश कुमार यादव
फोन : 07152-232943, मो. 09730193094, ईमेल- s.ujala80@gmail.com

बिक्री और प्रसार कार्यालय :
प्रकाशन विभाग, **महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय**
गांधी हिल्स, पोस्ट- हिंदी विश्वविद्यालय, वर्धा- 442001 (महाराष्ट्र) भारत
फोन : 07152-232943, फैक्स : 07152-230903

वार्षिक सदस्यता के लिए बैंक ड्राफ्ट **महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय** के नाम से, जो वर्धा में देय हो, ऊपर लिखित बिक्री कार्यालय के पते पर भेजें। मनीऑर्डर स्वीकार्य नहीं।

यह अंक : रु. 200/-
सामान्य अंक : 75/- वार्षिक शुल्क रु. 300/-, द्विवार्षिक शुल्क रु. 600/- व्यक्तिगत संस्थाओं के लिए वार्षिक शुल्क रु. 400/-, द्विवार्षिक रु. 800/- (डाक खर्च सहित)
विदेश में : हवाई डाक : एक प्रति 15 अमेरिकी डॉलर/7 ब्रिटिश पाउंड
समुद्री डाक : एक प्रति 8 डॉलर/5 ब्रिटिश पाउंड
आवरण : वेदप्रकाश भारद्वाज

BAHUVACHAN
A QUARTERLY INTERNATIONAL JOURNAL IN HINDI
PUBLISHED BY: MAHATMA GANDHIANTARRASHTRIYA HINDI VISHWAVIDYALAYA
GANDHI HILLS, POST-HINDI VISHWAVIDYALAYA, WARDHA-442001 (MAHARASHTRA) INDIA.

मुद्रण : क्विक ऑफसेट ई-17, पंचशील गार्डन, नवीन शाहदरा, दिल्ली-110032 (फोन : 011-22824606, मो. 9811388579)

शंकरानंद 108
प्रांजल धर 111

कला

कला की गतिशीलता/प्रयाग शुक्ल 115

संवाद

'दलित-मुक्ति का सवाल आज भी संक्रमण के दौर से गुजर रहा है' 122
(देवेंद्र चौबे से इकरार अहमद-मीनाक्षी की बातचीत)

आलोचना

अँधेरे में छुपी रोशनी की तलाश (संदर्भ : और पसीना बहता रहा)/शंभु गुप्त 127
आत्मप्रकटीकरण की नई दिशाएं संभावनाएं/ कुबेर कुमावत 131
भारतीय मिथक और हिंदी गजल/ज्ञानप्रकाश विवेक 141
'ऐ लड़की' में कृष्णा सोबती की जीवन-दृष्टि/गरिमा श्रीवास्तव 153
असमिया कथा-साहित्य का तीन दशक: कतिपय वैशिष्ट्य/सूर्यकांत त्रिपाठी 164
भूदान की ज्ञान-मीमांसा/मिथिलेश कुमार 168

असमिया कथा-साहित्य का तीन दशक

सूर्यकांत त्रिपाठी

सन् 1940 से 1970 पर्यंत कुल तीन दशक की कथाओं के वैशिष्ट्य को प्रकाशित करने का प्रयास प्रस्तुत आलेख में किया गया है। इस काल को रामधेनु युग के नाम से डॉ. धर्मदेव तिवारी ने अपनी पुस्तक असमिया साहित्य में उद्घृत किया है।1 (तिवारी, डॉ. धर्मदेव, असमिया साहित्य, पृ. सं. 80)। असमिया साहित्य में रामधेनु युग की शुरुआत तकरीबन 1940 से मानी जाती है। द्वितीय महायुद्ध के पश्चात असम के जातीय जीवन में बहुशः बदलाव आया और सन् 1942 के स्वतंत्रता संग्राम के कारण असम का जन-जीवन आंदोलित हो उठा। इस प्रकार युद्ध का जो कुप्रभाव समाज पर पड़ा उससे असम का कथा-साहित्य भी अछूता न रहा और इस काल के कथाकारों ने अपने-अपने ढंग से समाज की विकृतियों पर दृष्टिपात करते हुए अपनी लेखनी चलाई। इस युग के कथाकारों में विशेष रूप से लक्ष्मीनाथ बरा, विनोद शर्मा, चित्रलता फूकन, होमेन बरगोहाई, सैयद अब्दुल मालिक, वीरेंद्र भट्टाचार्य, रिजु हजारिका, जमीरूद्दीन अहमद, रूनु बरूआ, यतीन बरा,चंद्रप्रकाश शइकीया, अनुपमा बरगोहाई, नीलिमा शर्मा, लक्ष्मीनाथ बेजबरूआ, महीचंद्र बरा, लक्ष्मीधर शर्मा, राधिका मोहन गोस्वामी, कृष्ण भुइयां, त्रैलोक्य नाथ गोस्वामी, सौरभ कुमार चालिहा, पद्म बरकटकी, महेंद्र बरठाकुर, राजेंद्रनाथ हजारिका, लक्ष्मीनंदन बरा, रूद्रप्रसाद काकती, रोहिणी कुमार काकती, निरूपमा बरगोहाई, मामनि रायसम गोस्वामी, प्रणीता बेबी, आरतिदास वैरागी, अनिमादत्त भराली, रत्न ओझा, स्नेह देवी प्रभृति उल्लेखनीय है। तद्युगीन कथा-साहित्य विशिष्टताओं को अधोलिखित सांचों में रखकर देखा और परखा जा सकता है-

सामाजिक परिवेश :

सामाजिक परिवेश को ध्यान में रखकर हर युग का साहित्यकार पुरानी रूढ़ियों, अंधविश्वासों को छोड़कर नई परिस्थितियों को अपनाता है। यथार्थवादी सभ्यता के प्रभाव से हमारा समाज किस प्रकार बदला है और उसका प्रतिफल वर्तमान और भविष्य पर क्या हो रहा है और क्या होगा को इंगित कर कथाकार लक्ष्मीनाथ बरा ने 'देवतार व्याधि' एवं 'गुरु पर्व' जैसी कहानियों के द्वारा प्रकट किया है। इसी प्रकार अपनी 'रूपांतर' तथा 'भेकुरीर पुंज' कहानियों के माध्यमों से विनोद शर्मा ने समाज में परिव्याप्त ऊंच-नीच, जाति-पांत जैसी बुराईयों पर प्रहार किया है। इस काल के कथाकारों में शोषितों के प्रति संवेदना, सहानुभूति और शोषकों के प्रति आक्रोश बखूबी देखा जा सकता है। चित्रलता फूकन, होमेन बरगोहाई आदि कथाकारों का नाम इस रूप में विशेष उल्लेखनीय है। इस

व्यंग्य यात्रा

सार्थक व्यंग्य की रचनात्मक त्रैमासिकी

वर्ष : 15 अंक : 58-59 संयुक्तांक जनवरी-जून 2019

इस अंक में

पाथेय में-

नामवर सिंह, शेरजंग गर्ग, हरिपाल त्यागी,
प्रदीप चौबे को संस्मरणात्मक श्रद्धांजलि
गिरिजा कुमार माथुर का व्यंग्य रेडियो नाटक 'बारात चढ़े'

चिंतन में-

हरिशंकर राढ़ी, कीर्ति शर्मा
एवं डॉ. सूर्यकांत त्रिपाठी

त्रिकोणीय में

सुरेश कांत के व्यंग्य उपन्यास
'जॉब बची सो. . .' पर नरेंद्र कोहली, हरि जोशी
प्रेम जनमेजय, तरसेम गुजराल, राजेंद्र सहगल
सुरेश कांत का आत्मकथ्य
और उनसे एम. एम. चंद्रा का संवाद

व्यंग्य रचनाओं में-

रामदरश मिश्र, सूर्यभानु गुप्त, पुष्पा राही, वसंत सकरगाए,
हरि जोशी, संजीव जायसवाल 'संजय', कैलाश मण्डलेकर
सुदर्शन वशिष्ठ, अरुणेन्द्र नाथ वर्मा , सुधा ओम ढींगरा,
लालित्य ललित, संजीव निगम आदि।

मूल्य ₹ 20

व्यंग्य यात्रा

सार्थक व्यंग्य की रचनात्मक त्रैमासिकी

जनवरी-जून 2019 संयुक्तांक

वर्ष-15 अंक-58-59

एक अंक : 20 रुपए
पांच अंक : सौ रुपए
विदेशों में : 5 डॉलर प्रति अंक

सहयोग राशि 'व्यंग्य यात्रा' के नाम से ही भेजने का कष्ट करें। दिल्ली से बाहर के चेक पर बीस रुपए अतिरिक्त जोडें।

'केन्द्रीय हिंदी संस्थान' आगरा से आर्थिक सहयोग प्राप्त।

संपादक

प्रेम जनमेजय

संपर्क
73, साक्षर अपार्टमेंट्स
ए-3 पश्चिम विहार
नई दिल्ली-110063
फोन : 011-470233944, 09811154440
ई-मेल :
vyangya@yahoo.com
premjanmejai@gmail.com

आवरण - मंजीत चात्रिक की कलाकृति पर आधारित
आवरण सज्जा- विपिन कुमार

प्रबंध सहयोग
रामविलास शास्त्री
4, शॉपिंग कॉम्प्लैक्स दयालबाग
सूरजकुंड, फरीदाबाद (हरियाणा)
मोबाइल : +91 9911077754

'व्यंग्य यात्रा' में प्रकाशित लेखकों के विचार उनके अपने हैं। विवादास्पद मामले दिल्ली न्यायालय के अधीन होंगे। संपादन एवं संचालन पूर्णत: अवैतनिक और अव्यावसायिक।

अनुक्रम

आरंभ 1–3

चंदन घिसें 4–8

पाथेय 9–28

. . . नामवर सिंह द्वारा व्यंग्य चर्चा
व्यंग्य आमजन का सबसे बड़ा हथियार 9-11
राकेश अचल-
प्रदीप चौबे: एक कहकहे का अवसान 12
प्रेम जनमेजय-
शेरजंग गर्ग: मरने के प्रतिकूल जीने वाला 13-16
हीरालाल नागर-
व्यंग्य हरिपाल त्यागी के बोलचाल में था 16
गिरिजा कुमार माथुर- बारात चढ़े 17-26
निशा नाग-
माथुर जी के रेडियो नाटकों में निहित व्यंग्य 27-28

त्रिकोणीय 29–51

प्रेम जनमेजय 30
सुरेश कांत सुरेश कांत रचनाएं ही मुझे लिखती हैं 31-35
सुरेश कांत 'जॉब बची सो. . .' का एक अंश 36-38
नरेन्द्र कोहली विचित्र जंतुओं का धाकड़ शिकारी 39
हरि जोशी- लीक से हटकर 40
तरसेम गुजराल- . . .को बेनकाब करता उपन्यास 41-42
राजेन्द्र सहगल- कार्पोरेट जगत का मायाजाल 43-45
सुरेश कांत से एम.एम. चन्द्रा की बातचीत 46-51

चिंतन 52–58

हरिशंकर राढ़ी-
व्यंग्य की विषयवस्तु और मूल्य 52-54
कीर्ति शर्मा-
अभिव्यक्ति के सारे खतरे उठाने ही होंगे! 55-56
डॉ. सूर्यकांत त्रिपाठी पं. विद्यानिवास मिश्र के व्यंग्य-निबंधों में विशेषण-विधान 57-58

पद्य व्यंग्य 59–64

रामदरश मिश्र की प्रखर काव्याभिव्यक्तियां
अंडकोष, सत्यवादी, बल्ला और कलम. . . 59
सूर्यभानु गुप्त की गजलें और दोहे 60-61
पुष्पा राही, सुधेश, गीता पंडित 62
वसंत सकरगाए, दीप्ति मिश्रा 63
दरवेश भारती, आनंद वि आचार्य
दामिनी यादव, अतुल प्रभाकर 64

व्यंग्य रचनाएं 65–96

संजीव जायसवाल 'संजय'- यत्र-तत्र-सर्वत्र 65-69
हरि जोशी- वैश्विक लालू 70-72
सुधा ओम ढींगरा- नाच मेरे जमूरे कि. . . 73
भरतचंद्र शर्मा- मानहानि की कुत्ता फजीती लें 74
कैलाश मण्डलेकर- लोकगीतों पर शोध और. . . 75-76
रामजी प्रसाद 'भैरव'- चुगलखोरों के नाम पत्र 77
अरुणेन्द्र नाथ वर्मा- संस्कृति का बैताल. . . 78
रामविलास जांगिड़- शिक्षा चली अब पशुओं की ओर 79
ललित कुमार- हनुमान की जाति-
नेशनल रजिस्टर ऑफ गॉड्स 80
सुदर्शन वशिष्ठ- बेस्ट सैलर 81-82
दीपा अल्मोड़ा- वो सुख जो हम ले ना सके. . . 83
लालित्य ललित- पांडेय जी और इलेक्शन. . . 84-85
बजरंग सोनी- सोशल मीडिया- एक नया धर्म 86-87
अजय जोशी- मुझसे अच्छा न कोय. . . 88
सजीव निगम- भूखे के आगे कल्पना है 89
घनश्याम अग्रवाल- तेरा नाम क्या है 89
राजेशखर चौबे- फेक राईटर 90
हर्षवर्द्धन वर्मा- चुनाव 91
अलंकार रस्तोगी- 'सब कुछ मिल जाएगा' 92
रश्मि- 'जब नेता न मिले' 93
कमलेश भारतीय- स्मृति चिह्न 93
नीरज नीर- बंसत के बहाने 94
सुदर्शन कुमार सोनी- एक वोटर के हसीन सपने 95-96
रासबिहारी गौड़- पहले दांव, अब दावे 96

इधर जो पढ़ा 97– 104

रमेश तिवारी- प्रामाणिक दस्तावेज है- अर्थागमन 97-98
पारुल सिंह- रोचकता की खूशबू से महकते पन्ने 99
सूर्यबाला- पचरतंत्र की कथाएं 100
उमाशंकर परमार- यह गांव बिकाऊ है. . . 100
सुधीर ओखद- जीभ अनशन पर हे 101
मधु आचार्य आशावादी- पांच कृतियां 101
मलय जैन- पड़ताल करता उपन्यास 'तन्त्र कथा' 102
कुछ महत्वपूर्ण पुस्तकों की सूचना 103
शिवना प्रकाशन की नई पुस्तकें 104

समाचार 105 –112

अब आप
आर.टी.जी.एस.
द्वारा
'व्यंग्य यात्रा'
को अपना
आर्थिक सहयोग दे सकते हैं।

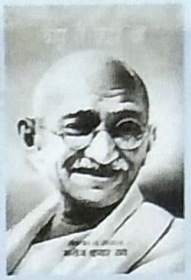
खाताधारक का नाम : व्यंग्य यात्रा
बैंक का नाम : केनेरा बैंक
शाखा- पश्चिम विहार, ए-ब्लाक
खाता संख्या : 3223201000092
IFSC Code : CNRB0003223

वर्ष-15 पंजीयन संख्या : DELHIN/2004/15013 अंक-58-59
ISSN 2348-4209

राष्ट्रीय पुस्तक न्यास, भारत के कुछ महत्वपूर्ण प्रकाशन

नीरजा माधवः
संकलित कहानियां

₹ 280.00 पृ. 250
ISBN 978-81-237-8160-0



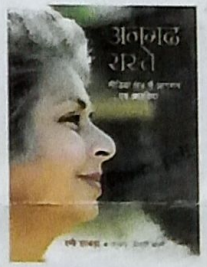
बापू ने कहा था

संकलन व संपादन :
मनोज कुमार राय

₹ 240.00 पृ. 227
ISBN 978-81-237-8183-9

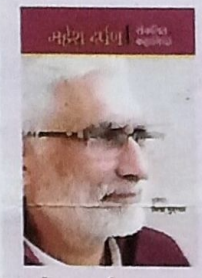
अशांत विश्व में भारत की सुरक्षा
जसजीत सिंह
अनुवाद :
डॉ. परितोष मालवीय

₹ 190.00 पृ. 172
ISBN 978-81-237-8165-5



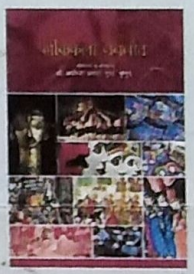
अनगढ़ रास्ते :
मीडिया क्षेत्र में आगमन एवं अलविदा
रमी छाबड़ा
अनुवाद :
दीपाली ब्राह्मी

₹ 705.00 पृ. 468
ISBN 978-81-237-8206-3



महेश दर्पण :
संकलित कहानियां

₹ 255.00 पृ. 224
ISBN 978-81-237-8104-4



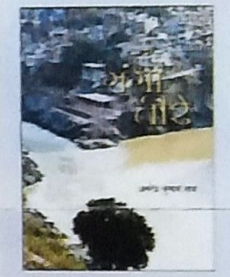
लोककला नवनीत
(लोककला विषयक निबंध-संग्रह)
संकलन व संपादन :
डॉ. अयोध्या प्रसाद गुप्त 'कुमुद'

₹ 240.00 पृ. 212
ISBN 978-81-237-8163-1

फन्नी ढाबा

अनुज त्यागी

₹ 120.00 पृ. 88
ISBN 978-81-237-8206-3



गंगा तीरे

अमरेंद्र कुमार राय

₹ 126.00 पृ. 150
ISBN 978-81-237-8164-8

पुस्तकों पर 10 प्रतिशत की छूट

आज ही खरीदें...

राष्ट्रीय पुस्तक न्यास की पुस्तकें यहाँ उपलब्ध हैं :
मुख्य कार्यालय
राष्ट्रीय पुस्तक न्यास, भारत
मानव संसाधन विकास मंत्रालय, भारत सरकार
नेहरू भवन, 5 इंस्टीट्यूशनल एरिया, फेज-II, वसंत कुंज, नई दिल्ली-110070 (भारत)
दूरभाष : 91-11-26707700 । फैक्स : 91-11-26707846 वेबसाइट : www.nbtindia.gov.in

नई दिल्ली | मुंबई | बेंगलुरु | कोलकाता | चेन्नै | हैदराबाद | गुवाहाटी | अगरतला | पटना | कटक | एर्णाकुलम

स्वत्वाधिकारी, मुद्रक एवं प्रकाशक डॉ॰ प्रेम प्रकाश की ओर से सचदेवा प्रिंट आर्ट्स प्राइवेट लिमिटेड, 44, राजस्थानी उद्योगनगर, जी॰टी॰ करनाल रोड, दिल्ली-110033 द्वारा मुद्रित एवं 73, साक्षर अपार्टमेंट्स, ए-3, पश्चिम विहार, नई दिल्ली-110063 से प्रकाशित
संपादक : प्रेम जनमेजय

डॉ. सूर्यकांत त्रिपाठी

पं. विद्यानिवास मिश्र के व्यंग्य-निबंधों में विशेषण-विधान

श्रेष्ठ व्यंग्य प्रभावकारी तभी हो सकता है, जब उसमें शिष्टता, शालीनता एवं साहित्यिकता हो। 'शुगर कॉटेड पिल' की तरह व्यंग्य मधुवेष्ठित होना चाहिए। व्यंग्य में सपाटपन न होकर वक्रता होनी चाहिए। व्यंग्य जब सपाट होता है तो वह खुली निंदा या गाली-गलौज का रूप ले लेता है। प्रसिद्ध अंग्रेज व्यंग्यकार ड्राइडन ने श्रेष्ठ व्यंग्य को परिभाषित करते हुए लिखा है, 'किसी व्यक्ति के निर्ममता से टुकड़े-टुकड़े कर देने में तथा एक व्यक्ति के सर को सफाई से धड़ से अलग करके अलग लटका देने में बहुत अंतर है। एक सफल व्यंग्यकार अप्रस्तुत एवं प्रच्छन्न विधान की शैली में अपने भावों को व्यक्त कर देता है। वह क्रोध की अभिव्यक्ति आलंकारिक एवं सांकेतिक भाषा में करता है ताकि पाठक अपना स्वतंत्र निष्कर्ष निकाल सके। व्यंग्यकार अपने व्यक्तित्व को व्यंग्य से अलग कर लेता है ताकि व्यंग्य कल्पना के सहारे अपने स्वतंत्र रूप में कला एवं साहित्य के क्षेत्र में प्रवेश कर सके।' संक्षिप्तता के विषय में प्रो. गुडमैन का मत है, 'प्रभावकारी व्यंग्य तीर के समान होना चाहिए जो कि कम से कम समय में लक्ष्य को भेद दे। थोड़े में बहुत कह देना ही व्यंग्य का गुण है। विस्तार इसके प्रभाव को बंद कर देता है।' (प्रो. गुडमैन, क्यूसेंस ऑफ लिटरेरी एसेस, पृ.सं. 72)।

स्वतंत्रता प्राप्ति के पूर्व आक्रोश, विनोद, अंध-विश्वास और रूढ़वादिता की अपेक्षा 1950 के बाद हुए राजनीतिक, सामाजिक तथा साहित्यिक क्रियाकलाप व्यंग्य लेखों में अधिक उग्र हुए है। पहले की अपेक्षा आज का व्यंग्य अधिक चुटीला और मार्मिक है साथ ही साहित्यकारों के पास अपना आक्रोश व्यक्त करने के लिए एक सशक्त और स्वंतत्र माध्यम भी। स्वतंत्रता के पूर्व देश की जनता ने जो सपने देखे थे, साकार नहीं हुए और स्वतंत्रता प्राप्ति के बाद शासन और समाज का एक घिनौना रूप उभरकर सामने आया, जिसकी कल्पना भी जनता को न थी। नतीजतन समाज टूटा, परिवार टूटा और व्यक्ति भी टूटने के कगार पर आ पहुंचा। आर्दश और यर्थाथ की दीवारें टूटी, मानवीय मूल्यों के महल चरमराकर गिर पड़े, अत: व्यक्ति और समाज के बीच एक संघर्ष छिड़ गया, जिसकी प्रतिक्रिया साहित्य के क्षेत्र में व्यंग्य की तीव्रता में प्रकट हुई।

इस वैषम्यपूर्ण आधुनिकता की रिक्तता ने साहित्यकार को समाज के समस्त खोखलेपन को स्वीकारने को विवश कर दिया और वह बर्हिमुखी न रहकर अंर्तमुखी हो गया। इस प्रकार 1950 के बाद जो साहित्यकारों का स्वर मुखर हुआ वह व्यंग्य का संवादी बन गया। परिणामस्वरूप व्यंग्यकारों और व्यंग्य रचनाओं में वृद्धि हुई। अनुभूति की गहनता ने विनोद की बात ही मस्तिष्क में न आने दी और युगीन व्यंग्य सहज ही हास्य से बिछुड़ व्यंग्य की कोटि में आ गया और उत्तरोतर आत्मपरक तथा गहरा होता गया। पं. विद्यानिवास मिश्र के शब्दों में, 'इसीलिए इसे अपना सबसे बड़ा शत्रु अपना मसीहापन ही लगता है। वह अपनी अक्षमता को छिपाना नहीं चाहता, वह संघर्ष करने से नहीं भागता, संघर्ष की तो वह प्रक्रिया है पर संघर्ष की व्यर्थता को वह समझता है। इसीलिए उसका व्यंग्य आत्मपरक है, गहरा है।' (साहित्य की चेतना, पृ.सं.127. 128)। इस युग के व्यंग्य ने जीवन के विभिन्न संदर्भों को स्पर्श करने की कोशिश की है। जीवन-संघर्ष से प्रेरणा प्राप्त कर उत्तरोतर विकसित हुआ है और जीवन की विसंगतियों के थपेड़े से क्रमागत तीक्ष्णतर, तीव्रतर और बौद्धिक हुआ है।

साहित्यिक भाषा में कथन का चयन ऐसा सुगठित होता है कि उस जगह दूसरा प्रयोग करने से यथातथ्य अभिप्रेत अर्थ की अभिव्यंजना संभव नहीं हो पाती। रचनाकार अभिप्रेत अर्थ की अभिव्यक्ति के लिए पूर्ण मनोयोग से विशेषणों का चयन एवं प्रयोग करता है। विशेषणों के अध्ययन से रचनाकार के अभिव्यक्ति-कौशल का परिचय प्राप्त होता है। विशेषण चाहे जिस रूप में हो (विशेष्य-विधेय, सादृश्य या असादृश्य) वर्णन का समर्थ माध्यम विशेषण ही है। भावना की तीव्रता के कारण विशेषण जब अलभ्य हो जाता है तब विशेषण रहित भाषा का प्रयोग प्राप्त होता है। विशेष्य जहां नहीं प्राप्त हो पाता वहां विशेषण का प्रयोग होता है। इसी प्रकार विशेषणों के प्रयोग, न्यूनाधिक प्रयोग, पुनर्वार प्रयोग और प्रयोग के कौशल को ध्यान में रखकर हम रचनाकार के मानसिक चिंतन की भावभूमि को स्पर्श करने में सक्षम होते हैं।

यद्यपि पं. विद्यानिवास मिश्र ने व्यंग्य विधा में कलम कम चलाई है तथापि उनके जो व्यंग्य निबंध उपलब्ध हैं, वे उच्चकोटि के हैं और तद्युगीन व्यंग्य लेखकों में सर्वाधिक तर्कपूर्ण, तीव्रतर एवं अभिनिवेशी हैं। उनके निबंध संग्रह 'आंगन का पंक्षी और बनजारा मन' (1962) के प्रभुत्व-ज्वर अस्पताल, सदा आनंद रहे यही द्वारे, ड्यौढ़े दर्जे का खातिमा, डेरी बनाम खेती, नर

साहित्य कला परिषद्
एवं
'व्यंग्य यात्रा' का आयोजन
2 और 3 जून को
कुल्लू में दूसरा
राष्ट्रीय व्यंग्य महोत्सव
'व्यंग्य का मूल तत्व'
पर विमर्श एवं व्यंग्य रचना पाठ
राजस्थान, महाराष्ट्र, उत्तराखंड, बिहार, मध्यप्रदेश, जम्मू एवं कश्मीर, हरियाणा, पश्चिम बंगाल, दिल्ली, हिमाचल प्रदेश, आदि राज्यों के रचनाकार होंगे सम्मिलित।

हिन्दी अनुशीलन

ISSN 2249-930X

वर्ष - 61 जनवरी - जून 2019 अंक 1-2

13. बाणभट्ट की आत्मकथा : आचार्य हजारी प्रसाद द्विवेदी 106
डॉ0 सरला पण्ड्या

14. उपन्यास सम्राट की कालजयी कृति 'गोदान' 110
डॉ0 विवेक शंकर

15. भारतीय नारीत्व के गौरव के चितेरे : वृंदावनलाल वर्मा 116
डॉ0 महीपाल सिंह

16. कालजयी कहानी कफन 121
डॉ0 सूर्यकांत त्रिपाठी

17. लोकजीवन के रंग में रँगा मैला आँचल 127
डॉ0 कमला चौधरी

18. रागदरबारी के विडंबनाग्रस्त समाज की व्यंग्यात्मक अभिव्यक्ति 133
प्रो0 शैलेन्द्र शर्मा

19. मानस के हंस के तुलसी 144
डॉ0 अमित कुमार भारती

20. हिन्दी काव्य की ऐतिहासिक ऊर्जा एवं रसदीप्ति 151
डॉ0 निर्मला अग्रवाल

21. कालजयी कृति : गांधी पंचशती 158
डॉ0 कृष्णगोपाल मिश्र

कालजयी कहानी 'कफ़न'

डॉ. सूर्यकान्त त्रिपाठी

साहित्यकार वस्तुपरकता के साथ विभिन्न सामाजिक कारकों का बखूबी बारीकी से जाँच–पड़ताल कर बेबाकी से उद्घाटन करता है। इस वस्तुपरकता का मूलाधार सामाजिक उन्नयन होता है, जबकि साहित्य का हितकर या अहितकर बनना साहित्यकार और सामाजिक व्यवस्था पर निर्भर करता है। आत्मा और आत्मानुभूति के साथ कला और कलानुभूति के नाम पर शताब्दियों से इस साहित्य की रचना हुई। उसमें वास्तविक और उपयोगी रचनाधर्मिता की दृष्टि में समय–समय पर अनिश्चितता की स्थिति भी बनी रही है। साहित्यकार में सामाजिक जीवन और व्यक्तिगत जीवन के अनुभव और प्रतिभा के साथ सामाजिक प्रतिबद्धता का होना भी जरूरी है तभी उससे कालजयी रचना की सृष्टि संभव हो पाती है।

हिन्दी में मुख्य रूप से कहानी, उपन्यास, नाटक और काव्य के क्षेत्र में जो कालजयी कृतियाँ उपलब्ध हैं उनमें 'उसने कहा था', 'कफ़न', 'आकाशदीप', 'पर्दा', 'शरणदाता', 'मलबे का मालिक', 'मेहमान', 'सज़ा', 'जार्ज पंचम की नाक' प्रभृति हिंदी की कालजयी कहानियाँ है। 'गोदान', 'चित्रलेखा', 'झूठा–सच', 'बूँद और समुद्र', 'सारा आकाश', 'राग दरबारी', 'मैला आँचल', 'महाभोज', 'आधा गाँव', तथा 'मुझे चाँद चाहिए' हिंदी के कालजयी उपन्यास हैं। 'ध्रुवस्वामिनी', 'सिंदूर की होली', 'मिस्टर अभिमन्यु' 'अंधा युग', 'आषाढ़ का एक दिन', 'आधे–अधूरे, 'एक और द्रोणाचार्य', 'नेफा' की एक शाम', एवं 'सूरज की अंतिम किरण से सूरज की पहली किरण तक' हिंदी के कालजयी नाटक हैं और 'पृथ्वीराज रासो', 'रामचरित मानस', 'सूरसागर', 'पद्मावत', 'शिवराज भूषण', 'कामायनी', 'साकेत', कुरूक्षेत्र', 'यामा', और 'संसद से सड़क तक' हिंदी की कालजयी काव्य–कृतियाँ हैं।

मुशी प्रेमचन्द भारत के शीर्षस्थ एवं कालजयी साहित्यकारों में से एक हैं। समूचे विश्व साहित्य में उनका नाम बड़े ही सम्मानपूर्वक लिया जाता है। उन्होंने गद्य साहित्य की हर विधा में अपनी लेखनी चलायी है किंतु एक सफल कहानीकार और उपन्यास लेखक के रूप में ही उन्हें विशेष ख्याति प्राप्त हो पायी है। प्रेमचंद को अपने जीवनकाल में ही उपन्यास सम्राट की उपाधि मिल गयी थी। उन्होंने अन्य साहित्यकारों के उलट उर्दू–हिंदी की मिली–जुली भाषा का एक नया रूप प्रस्तुत किया। जिसे आगे चलकर हिंदी का मानक रूप मान लिया गया। मात्र भाषा में ही नहीं उन्होंने अपनी रचनात्मकता में भी औरों की तुलना में अपना एक नया पैड़ा पकड़कर चलना शुरू किया। कथा के विषय, पात्र–सृष्टि, उद्देश्य और सरोकार में क्रांतिकारी बदलाव करके एक नये युग (प्रेमचंद युग) का सूत्रपात किया, जिसका कोई

ISSN : 2249–9318
Refereed Research Journal
UGC Approved Journal No: 41389

वर्ष-15 | अंक-14 | जुलाई-दिसम्बर, 2019

अनुसंधान

छायावाद विशेषांक

सम्पादक
डॉ. राजेश कुमार गर्ग

7. **छायावादी युग की 'मतवाली पत्रकारिता' और इलाहाबाद** 61
डॉ. धनंजय चोपड़ा
पाठ्यक्रम समन्वयक, सेन्टर ऑफ मीडिया स्टडीज, इलाहाबाद विश्वविद्यालय
उत्तर प्रदेश

8. **छायावादी कविता में दलित चिंतन** 69
प्रो. संजय एल. मादार
प्रोफेसर, उच्च शिक्षा और शोध संस्थान, दक्षिण भारत हिन्दी प्रचार सभा, धारवाड
कर्नाटक

9. **भारत के सांस्कृतिक सूर्योदय का काव्य : निराला का तुलसीदास** 74
प्रो. नरेंद्र मिश्र
प्रोफेसर एवं अध्यक्ष, हिन्दी विभाग, जयनारायण व्यास विश्वविद्यालय, जोधपुर
राजस्थान

10. **निरुपमेय ''निरुपमा''** 85
प्रो. सूर्यकांत त्रिपाठी
प्रोफेसर, हिन्दी विभाग, तेजपुर विश्वविद्यालय, तेजपुर
असम

11. **कामायनी में अभिव्यक्त समरसता** 90
प्रो. सुनील बाबूराव कुलकर्णी
भाषा अध्ययन प्रशाला, कवित्री बहिनाबाई चौधरी उत्तर महाराष्ट्र विश्वविद्यालय, जलगांव
महाराष्ट्र

12. **छायावाद के आलोक में पन्त, पल्लव और प्रथम रश्मि** 96
प्रो. दीपेन्द्र सिंह जाडेजा
प्रोफेसर, हिन्दी विभाग, महाराजा सयाजीराव विश्वविद्यालय, बडोदरा
गुजरात

13. **महादेवी जी का काव्य और वेदना** 100
प्रो. हरीश कुमार शर्मा
प्रोफेसर, हिन्दी विभाग, राजीव गांधी विश्वविद्यालय, ईटानगर
अरुणाचल प्रदेश

निरुपमेय "निरुपमा"

प्रो. सूर्यकांत त्रिपाठी*

सूर्यकांत त्रिपाठी 'निराला' छायावाद के प्रमुख स्तम्भों में से एक है। उन्होंने हिन्दी साहित्य की प्रायः हर विधा पर सफलतापूर्वक लेखनी चलायी है। कवि तो वे हैं ही साथ ही छायावादी गद्य के अंतर्गत भी उनका विशिष्ट योगदान है। उनकी गद्य कृतियाँ अपेक्षाकृत साफगोई से प्रेरित हैं। आचार्य नलिन विलोचन शर्मा ने उनके संबंध में अपने विश्वास को प्रकट करते हुए लिखा है– "हमारी दृष्टि में यदि निराला जैसा कवि हिंदी में नहीं लिखता होता, तो हिन्दी राष्ट्रभाषा के सम्मानित पद की अधिकारिणी नहीं हो सकती थी। .....छायावाद के अभिमन्यु थे निराला, लेकिन इस अंतर के साथ कि चक्रव्यूह भेदन करने के बाद वे पराजित नहीं हुए। निराला जी जॉनसन की तरह कर्मठ और अध्यवसायी, लार्डवायरन से उद्‌भट प्रत्यालोचक, कीट्स और टैगोर की तरह सुकवि और टॉलस्टाय, ह्यूगो और शॉ की तरह निर्भीक उत्क्रांतिकारी औपन्यासिक हैं।"[1]

'निरुपमा' निराला के आदर्श–प्रधान श्रेष्ठ उपन्यासों में से एक है, किसी भी समाज अथवा राष्ट्र के शैक्षणिक स्तर की कमजोरी उसके भविष्यत् की हीनताओं में बदल कर विरोध और विषमता को बढ़ावा देती है। अंग्रेजों की निजी–स्वार्थ–शिक्षा के अंधानुसरण का क्या दुष्परिणाम हो रहा है। इसका अत्यंत मर्मस्पर्शी प्रत्यक्ष 'निरुपमा' में मिलता है। इसके निवेदन में स्वयं लेखक ने लिखा है– "दूसरे उन्नत समाज लेखक की जो सहायता करते हैं वह हिंदी के समाज से प्राप्त नहीं। इसलिए काल्पनिक सृष्टि करनी पड़ती है जैसे समाज की लेखक आशा करता है और जिसका होना संभव भी है अनभ्यस्त और स्वभाव संचालितों को वहाँ अस्वाभाविकता मिलती है पर वह है स्वाभाविक। साथ ही प्रचलित छोटे–छोटे चित्र सहारे के लिए रहते है, साधारणों की समझ में उतना ही आता है।"[2] इससे यह जाहिर है कि उपन्यासकार समाज का आदर्श प्रस्तुत करना चाहता है। इस निमित्त समाज के घृणित, कुत्सित अस्तित्व की कुरुपता और हीनता को देखना भी जरूरी है। इसीलिए निराला ने कथासूत्र का आरंभ वहाँ से किया है जहाँ से उन्नत समाज के आदर्श का अधिकार–वितरण होता है। यह स्थान है विश्वविद्यालय। जिससे शिक्षा ग्रहण करने के लिए कृष्णकुमार के माता–पिता की भाँति शिक्षाभिलाषी युवकों के माता–पिता बहुशः विपत्तियों को झेलते हुए सुविधा प्रदान करते हैं। किंतु जब हम विश्वविद्यालयों की ओर दृष्टि निक्षेप करते है, तो वहाँ लोक गुरुओं की जगह प्रांतवाद, जातिवाद और भाई–भतीजावाद के आधार पर अथवा चरित्रहीन एवं अयोग्य व्यक्तियों को सिद्धि होती दिखाई देती है। लखनऊ विश्वविद्यालय के राजनीति शास्त्र के लेक्चरर डॉ. भड़कंकड़ इसके उदाहरण हैं जो राजनीति शास्त्र की अपनी शिष्या निरुपमा के पास प्रेम–पत्र लिखते हैं, जिसे वह अपनी सहज सरलता के कारण छिपाती नहीं है और अपने मामा योगेश बाबू को देती है। इस वजह से उसकी शैक्षिक प्रगति अवरूद्ध हो जाती है।

---

* *प्रोफेसर, हिन्दी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, असम*

ISSN 2348-4977 Visvabharati Patrika

विश्वभारती पत्रिका

सम्पादक
मुक्तेश्वर नाथ तिवारी

खण्ड ७६
अंक १

चैत्र २०७७ - ज्येष्ठ २०७७
अप्रैल २०२० - जून २०२०

विश्वभारती पत्रिका

खण्ड ७६ अंक १ चैत्र २०७७ - ज्येष्ठ २०७७, अप्रैल २०२० - जून २०२०

विषय-सूची

इस अंक के लेखक		५
कहानी में पाठक, पाठ और प्रशिक्षु पाठ-प्रक्रिया की युक्तियाँ	*पाण्डेय शशिभूषण 'शीतांशु'*	९
लोक का साहित्य	*सूर्यकांत त्रिपाठी*	२०
इक्कीसवीं शताब्दी की हिंदी कविता में महानगरीय बोध	*भारती गोरे*	३१
सुमित्रानन्दन पन्त का सौन्दर्यबोध	*स्मिता जैन*	४४
पूर्वोत्तर की हिन्दी कविता : एक अंतर्यात्रा	*रीतामणि वैश्य*	५१
मध्ययुगीन कृष्ण काव्य में लोकगीत	*रत्ना शर्मा*	६०
नंदकिशोर आचार्य के नाटकों में कथ्यबोध	*लहरी राम मीणा*	७०
मृदुला गर्ग के उपन्यासों में महिला सशक्तीकरण	*मनीषा पाण्डेय*	८१
रामचन्द्र शुक्ल के निबंधों की भाषा	*कुसुम कुंज मालाकार*	८७
आधुनिक संताली कविता	*दुखिया मुर्मू*	९४
महामति प्राणनाथ : भाषायी एकता की तलाश	*प्रमोद कुमार शर्मा*	९९
धूमिल : अदम्य सर्जनात्मकता	*भैरव सिंह*	१०६
अज्ञेय के काव्य में प्राच्य प्रभाव	*प्रभात कुमार 'प्रभाकर'*	१२०

लोक का साहित्य

सूर्यकांत त्रिपाठी

'लोक' शब्द की निष्पत्ति संस्कृत के 'लोकदर्शने' धातु में 'घञ' के योग से होती है।[१] इस धातु का अर्थ है देखना जिसका लट्लकार के अन्य पुरुष के एकवचन का रूप 'लोकते' है। इसलिए लोक शब्द का अर्थ देखने वाला हुआ। इस प्रकार वह संपूर्ण जनसमुदाय जो इस कार्य करता है, लोक की संज्ञा से अभिहित किया जा सकता है। इसी लोक शब्द से ही हिंदी के लोग शब्द की व्युत्पत्ति भी मानी जाती है और इसका तात्पर्य सर्वसाधारण जनता से लिया जाता है, इस प्रकार लोक शब्द का अभिप्राय उस समग्र जनसमुदाय से है जो किसी देश में निवास करता है।

ऋग्वेद में आए 'देहि लोकम्' के अनुसार 'लोक' का अर्थ है स्थान। अथर्ववेद तथा ऋग्वेद दो प्रकार के लोक की बात स्पष्ट करते हैं।[२] लेकिन ब्राह्मण ग्रंथों, वृहदारण्यक और वाजसनेयि-संहिता में किसी प्रकार की भेदात्मक स्थिति का कोई भी उल्लेख नहीं मिलता है।

अशोक के शिलोलेखों में प्रयुक्त 'लोक' शब्द का अर्थ प्रजाजन के हित में किया गया है।[३] बौद्ध धर्म के प्रचार के साथ 'लोक' शब्द के अर्थ की प्रतीति मानवमात्र के भावों के रूप में हुई। प्राकृत और अपभ्रंश साहित्य में प्रयुक्त 'लोकजत्ता' (लोक-यात्रा) 'लोअप्पवाय' (लोक प्रवाद) प्रभृति शब्द लौकिक नियमों के अर्थ में प्रयुक्त हुए हैं।

'लोक' शब्द के अर्थ के संदर्भ में डॉ. विद्यानिवास मिश्र का विचार भी अत्यंत महत्त्वपूर्ण है जो निम्नवत् द्रष्टव्य है–

'इसके विपरीत लोक शब्द के अर्थ जगत् पर विचारते हैं तो यह मिलता है कि यह शब्द 'लोक' धातु अर्थात् देखने के अर्थ में प्रयुक्त धातु से निष्पन्न है। लोक का वैदिक अर्थ प्रकाश, खुली जगह, दृश्य जगह है और उसके बाद उसका अर्थ मुक्त विचरण भी है, इसी कारण विकसित अर्थ है पूरा विश्व जो तीन या सात या चौदह लोकों में विभक्त है। उत्तर वैदिक काल और महाभारत काल में लोक का अर्थ हुआ पृथ्वीलोक और उसके निवासी, या फिर उसका अर्थ सामान्य जीवन, सामान्य भाषा हुआ। लौकिक का अर्थ इंद्रियगोचर जीवन से संबद्ध हुआ। लोक के योग से अर्थ निष्पन्न हुए जिनमें लोकगीत– लोकगाथा, लोकचारित्र्य, लोकाचार, लोकतंत्र, लोकधर्म, लोक-प्रसिद्धि, लोक-मात्रिका, लोक-मार्ग, लोक-यात्रा, लोक-रंजन,

विश्व हिंदी पत्रिका

2020

प्रधान संपादक
प्रो. विनोद कुमार मिश्र

संपादक
डॉ. माधुरी रामधारी

विश्व हिंदी सचिवालय
इंडिपेंडेंस स्ट्रीट, फ़ेनिक्स 73423,
मॉरीशस

World Hindi Secretariat
Independence Street, Phoenix 73423,
Mauritius

info@vishwahindi.com
वेबसाइट / Website : www.vishwahindi.com
फ़ोन / Phone : +230-6600800

ISSN No. : 1694-2477

सहायक संपादक
श्रीमती श्रद्धांजलि हजगैबी-बिहारी

संपादन सहयोग
डॉ. वेद रमण पांडेय
आई.सी.सी.आर., हिंदी पीठ, महात्मा गांधी संस्थान, मॉरीशस

टंकण टीम
श्रीमती विजया सरजु, श्रीमती त्रिशिला आपेगाडु,
श्रीमती जयश्री सिबालक-रामसर्न, सुश्री निधि रामबर्न

निवेदन

विश्व हिंदी पत्रिका में प्रकाशित लेखों के विचार लेखकों के अपने है।
विश्व हिंदी सचिवालय और संपादक मंडल का उनके विचारों से सहमत होना
आवश्यक नही है।

पृष्ठ सज्जा
आर. एस. प्रिंट्स

**स्टार पब्लिकेशंस प्रा. लि., 4/5 बी, आसफ अली रोड,
नई दिल्ली-110002 (भारत) द्वारा प्रकाशित**

हिंदी : विविध आयाम

22. हिंदी के प्रसार में कनाडा की हिंदू इंस्टीट्यूट का योगदान - डॉ. रत्नाकर नराले 114
23. असम में हिंदी का विस्तार : एक अनुशीलन - श्री जैनेंद्र चौहान 119
24. समय और सच की भाषा हिंदी - अजित्रा आर. एस. 123
25. पूर्वोत्तर भारत के सांस्कृतिक समन्वय में हिंदी - संगीता कुमारी पासी 128
26. भारतीय तथा वैश्विक पटल पर हिंदी में रोज़गार की संभावनाएँ - डॉ. पद्माकर पांडुरंग घोरपड़े 134
27. फ़िजी हिंदी साहित्य सृजन : प्रो. सुब्रमनी के औपन्यासिक कृतियों का अवलोकन - श्रीमती सुभाषिनी एस. लता 139
28. न्यायपालिका और हिंदी : अवरोध और चुनौतियाँ - प्रो. कृष्ण कुमार गोस्वामी 144

हिंदी के पथप्रदर्शक

29. उपनिवेशों में हिंदी भाषा के प्रथम प्रचारक : आर्य समाजी भाई परमानंद - डॉ. राकेश कुमार दूबे 151
30. गांधी : लेखकों के लेखक - डॉ. कमल किशोर गोयनका 155
31. हिंदी, प्रादेशिक भाषाएँ और दीनदयाल उपाध्याय की दृष्टि - श्री उमेश चतुर्वेदी 159
32. पंडित विद्यानिवास मिश्र के निबंधों की भाषिक बनावट-बुनावट - प्रो.(डॉ.) सूर्यकांत त्रिपाठी 163
33. महात्मा गांधी और मॉरिशस : एक अटूट संबंध - डॉ नूतन पाण्डेय 171
34. 'गोदान' की हस्तलिखित पांडुलिपि - आभार : डॉ. कमल किशोर गोयनका 182

हिंदी : आज के प्रश्न

35. अंग्रेज़ी के कारण ही आज हिंदी की उपेक्षा हो रही है - श्री गोवर्धन यादव 184
36. क्या वैश्वीकरण ने सचमुच हिंदी को कुछ दिया है - श्री संजय कुमार 189
37. हिंदी भाषा पर अंग्रेज़ी का वर्चस्व - डॉ. काजल पाण्डेय 195

श्रद्धांजलि

38. आचार्य नंदकिशोर नवल का आलोचना कर्म - डॉ. अभिषेक शर्मा 199
39. प्रवासी लेखन का असमंजस और सुषम बेदी का साहित्य - रेखा सेठी 202
40. गिरिराज किशोर : मानवीय सरोकार के अप्रतिम रचनाकार - प्रो. विनोद कुमार मिश्र 207

पंडित विद्यानिवास मिश्र के निबंधों की भाषिक बनावट-बुनावट

– प्रो. (डॉ.) सूर्यकांत त्रिपाठी
असम, भारत

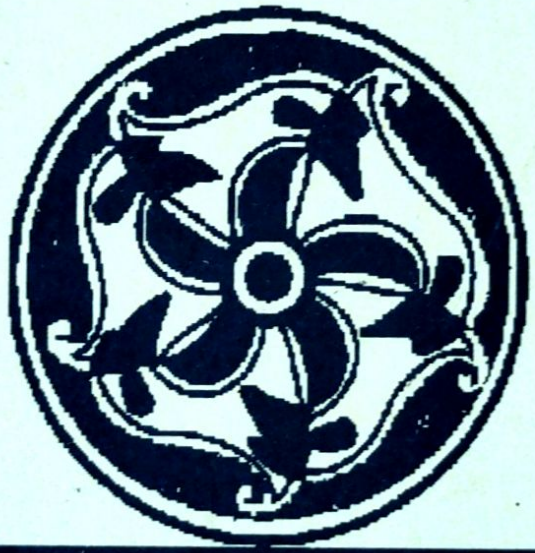
भाव और विचारों के प्रकटन का साधन भाषा है। वह बाहरी दुनिया में मनुष्य की गतिविधियों का माध्यम भी है। इसी हेतु उसका संप्रेषण यथोचित होना चाहिए, जिससे पाठक या श्रोता को भाव ग्रहण करने में सहूलियत हो। यहाँ वक्ता या लेखक का यह दायित्व हो जाता है कि वह सहज, सुबोध और संप्रेषणीय भाषा का इस ढंग से प्रयोग करे कि उसके पाठक या श्रोता उसके भावों या विचारों को उपयुक्त अर्थ में ग्रहण कर सकें। इसी बात को विंसेंट और ब्रुक्स ने इस रूप में प्रकट किया है – "कवि अनिवार्यतः अर्थान्वेषण की प्रक्रिया में भाषा की दर्जीनुमा सिलाई करता है।"[1] यहाँ यह भी स्मरणीय है कि भाषा जीवन के हर क्षेत्र में विभिन्न दायित्वों का निर्वाह करती है और वह सदैव उसके साथ रहती है, न केवल वाणी में, बल्कि उसके विचारों एवं स्वप्नों में भी। मनुष्य का भाषा से इतना निकट का जुड़ाव है कि भाषा उसे स्वयं अलग प्रतीत नहीं होती, तभी तो महान दार्शनिक डेकार्त भी अपना अस्तित्व अपनी चिंतन प्रक्रिया पर ही निर्भर पाता है – "मैं सोचता हूँ, इसीलिए मैं हूँ। भारतीय मनीषा भी इसी बात की इस रूप में पुष्टि करती है – 'मनुते इति मनुष्यः'। (चिंतन करने वाला प्राणी ही मनुष्य है।)"

पं. विद्यानिवास मिश्र के अनुसार, "भाषा स्थिर न होकर सर्जनात्मक मानवीय प्रक्रिया के रूप में आगे बढ़ती रहती है। जहाँ तक सिद्ध वस्तु के रूप में भाषा के विश्लेषण की बात है, वह सामान्य व्याकरण या सामान्य भाषाशास्त्र के अंतर्गत लाई जा सकती है, किंतु जहाँ नियमों की परिधि के विस्तार की बातें आती हैं या पूर्व निश्चित संकेतों के द्वारा द्योतित अर्थों या दूसरे शब्दों में अभिधेय संदेशों की परिधि के बाहर जाकर अभिधेयतर या वाच्येतर नवसर्जित संदर्भ के उन्मीलन का प्रश्न उठता है, वहाँ भाषा का एक अतिरिक्त प्रयोजन जुड़ जाता है।"[2] इसी संदर्भ को लक्ष्य कर पंडित जी ने दूसरी जगह उद्धृत किया है – "साहित्य का उद्देश्य सामाजिक संप्रेषण है। इस विषय में कोई भी मतभेद नहीं हो सकता, क्योंकि साहित्य का माध्यम भाषा है और भाषा समाज की देन है।"[3] इस रूप में साहित्य का माध्यम भाषा है और "भाषा समाज को परिभाषित करने वाला उसका एक मुख्य अभिलक्षण है, भाषा समाज के समस्त व्यवहार का प्रकृष्ट साधन भी है। इससे भी आगे जाकर यह कहा जा सकता है कि समाज और भाषा एक–दूसरे के बिना कोई अस्तित्व नहीं रखते।"[4] और ऐसी स्थिति में ही "भाषा जीवन की संवेदना से घुलमिल भाषा होगी। वह एक कदम आगे ले जाने वाली होगी। उसकी लय ऐसी बरबस मोहक लय होगी, आधी परिचित होगी, आधी अपरिचित और इसीलिए आदमी को अनायास आगे खींच ले जाने में समर्थ होगी।"[5]

भाषा कोई वस्तु नहीं, बल्कि वह एक प्रक्रिया है। किसी की सत्ता उसके बोलने वालों से अलग नहीं रहती। इसे यूँ कहें, तो प्रत्येक भाषा के विषय में कोई कथन वस्तुतः उस भाषा के बोलने वालों पर लागू होता है। यह सच है कि भाषा का आधार कोई–न–कोई बोली ही होती है, किंतु अपने विकास और विस्तार की प्रक्रिया में वह सब बोलियों का महत्तम समापवर्तक होती है। एक की होकर भी वह सबकी हो जाती है। सबके समन्वय–योगदान और सम्मिश्रण से उसमें भाषापन आता है, क्योंकि बोलियों के संघटन से ही भाषा बनती है और भाषा के विघटन से बोलियाँ बनती हैं। इस संदर्भ में डॉ. हरदेव बाहरी का यह कथन द्रष्टव्य है – "सामान्यतया साहित्यकार की अपनी बोली की पुट उसकी साहित्यिक भाषा में अवश्य रहती है। कबीर में भोजपुरी, नानक में पंजाबी, दादू में जयपुरी, मीरा में मारवाड़ी एवं केशव में बुंदेली शब्द और प्रयोग है ही। उस युग में बोलियों का व्यवहार साहित्य में निःसंकोच रूप से होता था। आज भी खड़ी बोली हिंदी साहित्य में साहित्यकार की जनपदीय बोली यत्र–तत्र अवश्य उभर

ISSN 2348-4977 Visvabharati Patrika

विश्वभारती पत्रिका



सम्पादक
मुक्तेश्वर नाथ तिवारी

खण्ड ७७
अंक २

आषाढ़ २०७७ - भाद्र २०७७
जुलाई २०२० - सितंबर २०२०

विश्वभारती पत्रिका

खण्ड ७७ अंक २ आषाढ़ २०७७ - भाद्र २०७७, जुलाई २०२० - सितम्बर २०२०

विषय-सूची

इस अंक के लेखक		५
स्वामी विवेकानंद : दलितोत्थान के प्रथम मसीहा	*कमल किशोर गोयनका*	९
तुलसी के सामाजिक समाधान	*कृष्णगोपाल मिश्र*	२३
सभ्यता विमर्श के संदर्भ में हिन्दी कहानी	*पी. रवि*	३३
अंधेरे में : चिंतन के आयाम	*कृष्ण कुमार सिंह*	४४
कुंभनदास के काव्य में मानवीय चेतना	*मृगेन्द्र राय*	५५
एक थकेहारे हिन्दुस्तानी की बातूनी आत्मा (सन्दर्भ : रमेशचन्द्र शाह और उनकी कहानियाँ)	*छबिल कुमार मेहेर*	६४
शोध-कार्य की प्रक्रिया का महत्त्व	*विजय कुमार भारती*	८७
नाट्यानुवाद का समाजशास्त्र	*बलीराम धापसे*	९४
त्रिनिडाड में व्याप्त भारतीयता	*दीपक पाण्डेय*	१००
हिन्दी-बँगला प्राचीन साहित्य : पारस्परिकता के कतिपय उदग्र प्रकरण	*दामोदर मिश्र*	११४
मानवीय संवेदना के कवि धूमिल	*किरण तिवारी*	१२७
सर्वव्यापी महामारी एवं बौद्धधर्म : एक समीक्षात्मक अध्ययन	*संजीव कुमार दास*	१३४

विषय-सूची

परसाई की व्यंग्य दृष्टि	*प्रतिभा प्रसाद*	१४३
माहेश्वर तिवारी के नवगीतों का समीक्षात्मक अध्ययन	*नितिन सेठी*	१५०
बादल सरकार : मानव जीवन की बेचैन रूपकथा के सिद्धान्तकार	*सुमेध रणवीर*	१५८
कुँवर नारायण का कवि-कर्म	*अभिषेक शर्मा*	१६६
शिवपूजन सहाय का रचनात्मक विवेक	*अनुशब्द*	१७६
सामाजिक प्रतिबद्धता का भोजपुरी उपन्यास	*शशि कुमार शर्मा*	१८२
अपनी बात	*मुक्तेश्वर नाथ तिवारी*	१८९

शिवपूजन सहाय का रचनात्मक विवेक

अनुशब्द

कृति एवं कृतिकार के सरोकार के आधार पर रचनाकारों की तीन श्रेणियाँ निर्मित होती हैं। पहली श्रेणी में रचनाकार ख्यात और महत होता है तथा उसकी रचनाएं सामान्य होती हैं। मसलन, पंत, महादेवी, जैनेन्द्र, अज्ञेय इत्यादि। इनकी रचनाएं रचनाकार के व्यक्तित्व से सम्मानित एवं पठनीय हुई हैं। दूसरी श्रेणी में रचनाकार लघुतम होता है और उसकी रचना या चरित्र महत्तम होते हैं। उदाहरण के लिए गीता, बाइबिल जैसी रचनाएं तथा शरलक होम, जेम्स बॉन्ड जैसे शक्तिशाली चरित्र पर्याप्त हैं। तीसरी श्रेणी बनती है वैसे रचनाकारों की जिनकी गरिमा के समानान्तर ही रचनाओं की भी महिमा होती है। जैसे- तुलसीदास और रामचरितमानस, प्रेमचंद और गोदान, प्रसाद और कामायनी, तोल्स्तोय और वार एण्ड पीस आदि। अर्थात महावीर प्रसाद द्विवेदी के 'उत्तर पुरुष'' एवं उनके एकलव्य आचार्य शिवपूजन सहाय इसी तीसरी श्रेणी के रचनाकार हैं 'देहाती दुनिया' जिसे कि हिन्दी के पहले आंचलिक उपन्यास होने का गौरव प्राप्त है, इनकी लोकप्रियता का आधार है। इसके अलावा 'मतवाला', 'बालक', 'हिमालय', 'माधुरी', 'साहित्य' आदि कई प्रसिद्ध पत्र-पत्रिकाओं के कुशल सम्पादन ने भी आचार्य शिवपूजन सहाय को हिन्दी साहित्य में सर्वोच्च शिखर पर प्रतिष्ठित कर दिया। हिन्दी भाषा एवं साहित्य के उत्थान के लिए अपना धान पुआल करने वाले ऐसे साहित्य सेवियों का समूचे हिन्दी साहित्य ही नहीं बल्कि पूरे भारतीय साहित्य में सर्वथा अभाव है।

सहाय जी के जन्मशती वर्ष में 'साहित्य' के 'शतीपूर्ति श्रद्धांक' में प्रकाशित डॉ. मंगलपूर्ति के निबंध 'आचार्य शिवपूजन सहाय: व्यक्तित्व और कृति' का यदि जायजा लिया जाए तो वे उपसंहार में लिखते हैं : 'उनका सर्वाधिक महत्वपूर्ण योगदान हिन्दी गद्य के विकास में माना जाएगा। साहित्यिक पत्रों के क्षेत्र में भी उनकी सेवा अप्रतिम मानी जाएगी।'

इस उद्धरण की भंगिमा संकेत करती है कि शिवजी की उपलब्धियां आज ऐतिहासिक संदर्भ बन चुकी हैं। सहज ही पृच्छा जन्म लेती है कि क्या सचमुच आचार्य शिव जी व्यतीत हो गए? आज उनकी कोई सत्ता या महत्ता नहीं है? क्या वाकई वे इतिहास के परिवेश मात्र हैं? संग्रहालय के पात्र हैं? अब उनका कोई भी संदर्भ जीवित नहीं है? ये सारे प्रश्न पृच्छा की तीव्रता को जाहिर करते हैं। इनके उत्तर के लिए आचार्य शिवजी की रचनात्मक संदृष्टि (विजन) की पुनर्समीक्षा करनी होगी। नये सिरे से तत्कालीन समय, समाज और साहित्य के प्रति उनके

UGC serial No. 11409

ISSN 2394-2665

अरुणागम

विश्वविद्यालय अनुदान आयोग द्वारा अनुशंसित

मूल्यांकनपरक शोध पत्रिका

संयुक्तांक : 2015-16

प्रकाशक

शोध एवं विकास प्रकोष्ठ

जवाहरलाल नेहरू महाविद्यालय, पासीघाट

अरुणाचल प्रदेश 791103

Scanned with CamScanner

अनुक्रम

संपादक की कलम से	डॉ. शिवानन्द झा	4
राष्ट्रभाषा हिंदी और जनपदीय बोलियां	—प्रो. नन्द किशोर पांडेय	5
हिंदी है हम.... अब नहीं रहेंगे	डॉ. हरीश कुमार शर्मा	13
उपेक्षित प्रश्न : जनजातीय भाषा सर्वेक्षण, संरक्षण	प्रोफेसर हेमराज पौंणा 'दिवाकर'	19
वैश्विक परिप्रेक्ष्य में हिंदी का बदलता स्वरूप	क्षेत्रिमयुम विधारानी देवी	22
भक्ति और पर्यावरण के परिप्रेक्ष्य में 'गंगालहरी'	—प्रो. आरिफ नजीर	31
श्रीमंत शंकरदेव और उनका 'केलि-गोपाल'	—डॉ. अनुशब्द	32
समकालीन हिंदी कहानी	डॉ. अखिलेश कुमार 'शंखधर' / लोइजम रोमी देवी	36
लोइजम रोमी देवी" मैत्रेयी पुष्पा के उपन्यास 'फरिश्ते निकले' के यक्ष-प्रश्न	—डॉ. विश्वजीत कुमार मिश्र	42
पीली छतरी वाली लड़की : स्त्री पीड़ा का आख्यान	आशुतोष	50
नासिरा शर्मा के उपन्यास 'शाल्मली' में वर्णित पुरुष मानसिकता	अपराजिता राय	57
शब्द-कुंज के शीर्षस्थ आलोचक : आचार्य रामचन्द्र शुक्ल	डॉ. रत्नप्रकाश पाल	63
रचनाकार, जब आलोचक होता है....	प्रदीप त्रिपाठी	67
नोक्ते जनजाति के लोरी गीतों की भाव-सत्ता	डॉ. अरुणकुमार पांडेय	74
राजस्थानी और न्योशी लोक-गीतों में स्त्री पक्ष	डॉ. जोराम यालाम नाबाम	79
ब्री-यी-मी मिरुपी ची आँसे	मेडिको मेन्जो	84
भारतीय नारी	—डॉ. हरिनिवास पांडेय	87
हिंदी में दलित प्रश्न : पत्रिकाएं एवं पुस्तकें	—डॉ. इकरार अहमद	90
भूगोल में प्रादेशिक नियोजन की संकल्पना	—डॉ. शिवानंद झा	95

अनुक्रम

Scanned with CamScanner

श्रीमंत शंकरदेव और उनका 'केलि-गोपाल'

—डॉ. अनुशब्द

श्रीमंत शंकरदेव असमिया साहित्य, समाज एवं संस्कृति के पुरोधा हैं। वे असम के सांस्कृतिक लोकनायक हैं। उनके समय से ही असम में नवजागरण का शंखनाद हुआ। भक्ति की गंगा बहने लगी और नववैष्णव धर्म की नींव सुदृढ़ हुई। शंकरदेव अपनी प्रगतिशील एवं युगांतकारी सोच के कारण असम के लिए ही नहीं बल्कि समग्र भारतवर्ष के लिए अपूर्व, बहुआयामी, उज्ज्वल व्यक्तित्व के अधिकारी सिद्ध हुए। उनके महत्त्व पर प्रकाश डालते हुए उनके शिष्य-सखा माधवदेव कहते हैं कि "जग जन तारण देव नारायण शंकर ताकेरि अंश"[1] अर्थात शंकरदेव उस परमात्मा के अंश हैं जो इस संसार के समस्त प्राणियों का कल्याण करते हैं, उद्धार करते हैं। वास्तव में शंकरदेव असमिया समाज और साहित्य के देदीप्यमान आलोकस्तंभ हैं। वे एक साथ कलाकार, समाज सुधारक, नाटककार, दार्शनिक, संगीतज्ञ, कवि, चित्रकार, शिल्पकार, लोकनायक, संत आदि सब कुछ हैं। उनकी रचनाओं में एक तरफ राष्ट्रीय एकता का स्वर मुखर है। तो दूसरी तरफ मानुष प्रेम की भावना सर्वोपरि है। शंकरदेव के रचना-संसार में मुख्य रूप से भक्ति-प्रदीप, गुणमाला, हरिश्चंद्र उपाख्यान, कीर्तनघोषा, बरगीत, लोटय और भटिमा शामिल हैं। इसके अतिरिक्त उन्होंने छह प्रसिद्ध नाटकों की रचना है। रचना-क्रम की दृष्टि से वे इस प्रकार हैं—पत्नी-प्रसाद, काली-दमन, 'केलि-गोपाल', रुक्मिणी-हरण, पारिजात-हरण और राम-विजय।

'केलि-गोपाल' शंकरदेव की तीसरी नाट्य-कृति है। इसकी रचना उन्होंने संभवतः 'पाटबाउसी'[2] नामक स्थान में रहते हुए की थी। नाटक की कथावस्तु भागवत पुराण के रास-क्रीड़ा प्रसंग पर आधारित है। एक तरह से यह नाटक भागवत पुराण के रास पंचाध्याय की विषय-वस्तु का नाट्य रूपांतर है। हालांकि श्रीमंत शंकरदेव ने इसमें कुछ मौलिक उद्भावनाएं भी की हैं। उन्होंने हरि-भक्ति प्रदर्शन हेतु तथा कृष्ण के लोकरक्षक रूप को उद्घाटित करने के लिए इसमें शंखचूड़ वध की कहानी को अलग से जोड़ा है। 'केलि-गोपाल' पर जयदेव के 'गीतागोविंद' का भी प्रभाव परिलक्षित होता है। इस नाटक के अंत में प्रस्तुत विष्णु के दशावतार वर्णन संबंधी भटिमा (स्तुतिमूलक गीत) "मीनरूपे प्रलय पयसि सत्यव्रत जो तारिले"[3] (मीन रूप धारण कर प्रलय काल में सत्यव्रत राजा का उद्धार किया) के साथ जयदेव के प्रथम अष्टपदी 'प्रलयपयोधिजले धृतवानसि वेदम'[4] की सादृश्यता इस संदर्भ में देखने योग्य है। इसके अलावा नाटक के एक-दो श्लोकों में जयदेव के काव्य का प्रभाव लक्षित होता है—

केलि-गोपालः निशम्य गर्वं गोविन्दो गोपिनां प्रेमवृद्धये
राधां विधाय हृदये तत्याज व्रजयोषितः[5]
गीत गोविंदः कन्सारिर्विषे संसार वासनाबंध शृंखलाराधामाधाय हृदये तत्याज व्रजसुंदरीः
गीत गोविंदः पीनपयोधर भर भरेण हरिं परिरभ्य सारगम[6]
केलि-गोपालः गोपिपीन पयोधर धरिषण चंचल करयुगशाली

भागवत पुराण के श्लोकों का भी प्रभाव 'केलि-गोपाल' पर पड़ा है। भागवत पुराण एवं श्रीधर स्वामी की

Scanned with CamScanner

अंक 291 वर्ष 59

भाषा

जुलाई–अगस्त 2020

भारतीय एवं विश्व सिनेमा विशेषांक

सत्यमेव जयते

केंद्रीय हिंदी निदेशालय
भारत सरकार

भाषा

जुलाई–अगस्त 2020
विश्वविद्यालय अनुदान आयोग द्वारा अनुमोदित पत्रिका (क्रमांक–16)

अध्यक्ष, परामर्श एवं संपादन मंडल
प्रोफेसर रमेश कुमार पांडेय

परामर्श मंडल
प्रो. योगेंद्र नाथ शर्मा 'अरुण'
डॉ. पी. ए. राधाकृष्णन
प्रो. ऋषभ देव शर्मा
प्रो. मंजुला राणा
प्रो. दिलीप कुमार मेधी
श्रीमती पद्मा सचदेव
श्री हितेश शंकर

संपादक
डॉ. राकेश कुमार

सह–संपादक
डॉ. किरण झा
श्रीमती सौरभ चौहान

प्रूफ रीडर
श्रीमती इंदु भंडारी

कार्यालयीन व्यवस्था
सेवा सिंह

केंद्रीय हिंदी निदेशालय, उच्चतर शिक्षा विभाग,
शिक्षा मंत्रालय, भारत सरकार

439 CHD/20—1A

अनुक्रमणिका

निवेशक की कलम से
संपादकीय
आलेख

1.	सिनेमा : समाज, साहित्य और संवदेना की सशक्त अभिव्यक्ति	डॉ. पूरनचंद टंडन	9
2.	भारतीय सिनेमा का प्रारंभिक दौर : एक दृश्य चलचित्र क्रांति	हरिराम	14
3.	सिनेमा – भाषा, साहित्य, कला एवं संस्कृति का संवाहक	डॉ. एम. रामचंद्रम	17
4.	कला, हिंदी सिनेमा और भारतीय समाज : एक वैचारिक पहलू	प्रवीण कुमार	20
5.	इक्कीसवीं सदी का हिंदी सिनेमा : बदलते दौर का सच	मनोज पांडेय	27
6.	हिंदी साहित्य और सिनेमा में समाज-हित और राष्ट्रीयता का भाव	डॉ. अमित सिंह	33
7.	साहित्य, सिनेमा और समाज का अंतर्संबंध	कुंतला दत्त	39
8.	सिनेमा और समाज	डॉ. अर्चना झा	44
9.	हिंदी सिनेमा और सामाजिक सरोकार	डॉ. अलका आनंद	49
10.	गुलजार के गीतों में जिंदगी के रंग	डॉ. करन सिंह ऊटवाल	53
11.	शैलेंद्र के गीतों का साहित्यिक महत्व	डॉ. प्रियंका	58
12.	सिनेमा – अभिव्यक्ति का सशक्त माध्यम	डॉ. दीपक दीक्षित	64
13.	साहित्य, सिनेमा और भूमंडलीकरण	डॉ. विपुल कुमार	68
14.	सिनेमा : आज और कल	डॉ. श्रवण कुमार	74
15.	बाल मन पर आधारित हिंदी सिनेमा	डॉ. विनीता कुमारी	82
16.	भारतीय सिनेमा की प्रारंभिक फिल्में व मुंशी प्रेमचंद के साहित्याधारित फिल्मों के परिदृश्य में जातिगत समन्वय	हेतराम	87
17.	हिंदी फिल्मों में जातिप्रथा के विभिन्न आयामों का चित्रण	उमेश कुमार	91
18.	हिंदी सिनेमा एवं जनजातीय संस्कृति : विशेष संदर्भ पूर्वोत्तर भारत	डॉ. मिलन रानी जमातिया	97
19.	बदल रहा है हिंदी सिनेमा	डॉ. सुनील कुमार तिवारी	101
20.	हिंदी सिनेमा का बदलता ट्रेंड	डॉ. आलोक रंजन पांडेय	105

21. भारत में फिल्म निर्माण शिक्षा एवं व्यवसाय के विविध पहलू	डॉ. गोरखनाथ तिवारी	113
22. सिनेमा - समकालीन परिदृष्य (सामाजिक, राजनैतिक, सांस्कृतिक) थर्ड जेंडर (किन्नर विमर्श) के संदर्भ में	डॉ. अनुपमा	117
23. असमिया सिनेमा का इतिहास : एक अवलोकन	डॉ. रीतामणि वैश्य	121
24. असमिया सिनेमा को भूपेन हजारिका की देन	पूजा बरुवा	127
25. पारसी रंगमंच और हिंदी सिनेमा का आगाज	डॉ. कंचन वर्मा	130
26. मलयालम सिनेमा की विकास यात्रा	डॉ. धन्या. एल	136
27. भोजपुरी सिनेमा का समाजशास्त्र	प्रो. आलोक पांडेय	140
28. कॉकबरक सिनेमा का उद्‌भव और विकास	डॉ. बीना देबबर्मा	143
29. वैश्विक पटल पर पहचान बनाता असमिया सिनेमा	डॉ. अनुशब्द	147
30. गुजराती सिनेमा - एक मूल्यांकन	डॉ. वर्षा सोलंकी	152
31. हिंदी सिनेमा और शेक्सपीयर का साहित्य	डॉ. अनुराधा पांडेय	154
स्मृतियाँ		
32. एक महान कलाकार ही नहीं, एक महान इंसान भी थे- इरफान....	अजय मलिक	159
33. हिंदी सिनेमा में प्रेमग्रंथ का रचयिता-ऋषि कपूर	विनोद अनुपम	162
34. सुशांत सिंह राजपूत - एक चमकता सितारा	नीति सुधा	165
संपर्क सूत्र		168
सदस्यता फार्म		

भाषा ISSN 0523-1418

वैश्विक पटल पर पहचान बनाता असमिया सिनेमा

डॉ. अनुशब्द

सिनेमा एक सामुदायिक संचार माध्यम है। यह लोकसंचार की सबसे लोकप्रिय एवं सशक्त विधाओं में से एक है लोकमंगल एवं लोकरंजन के उद्देश्य से निर्मित इस विधा में साहित्य, संगीत एवं कला की त्रिवेणी समाई हुई है। भारत में सिनेमा का इतिहास वर्षों पुराना है। हिंदी सिनेमा के तो अभी हाल ही में सौ वर्ष पूरे हुए हैं। गौरतलब है कि भारत में क्षेत्रीय भाषाओं में निर्मित फिल्मों की भी अपनी एक समृद्ध एवं सुदीर्घ परंपरा रही है। यह दीगर बात है कि इन फिल्मों का दर्शक-वर्ग काफी सीमित है, बाजार छोटा है लेकिन विषय-वस्तु, प्रस्तुति एवं प्रभाव की दृष्टि से ये फिल्में किसी भी मायने में मुख्य धारा की फिल्मों से कमतर नहीं हैं। यह बात पूर्वोतर भारत की एकमात्र आधुनिक भारतीय आर्यभाषा असमिया में बनने वाली फिल्मों के संदर्भ में भी सोलह आने सही है। 1935 में आरंभ हुआ असमिया सिनेमा तब से अब तक कई सारे अहम् मुकामों को प्राप्त कर चुका है। कई सारी असमिया फिल्में सफलता के शिखर को छू चुकी हैं तथा भारतीय सिनेमा ही नहीं बल्कि विश्व सिनेमा के समक्ष नए कीर्तिमान और प्रतिमान स्थापित कर चुकी हैं हालांकि हिंदी फिल्मों के मुकाबले क्षेत्रीय भाषाओं की फिल्मों को लोग कम ही नोटिस करते हैं।

ध्यातव्य है कि वर्ष 2018 में जब एक असमिया फिल्म 'विलेज रॉकस्टार' ने सर्वश्रेष्ठ फिल्म का राष्ट्रीय पुरस्कार अर्जित किया और फिर ऑस्कर के लिए नामांकित हुई तब अचानक से असमिया सिनेमा सुर्खियों में आ गया। इसके पहले तक तमिल, तेलुगु, कन्नड आदि फिल्मों की हिंदी में डबिंग होती रही है और देश के सभी हिस्सों में उनकी खासी लोकप्रियता भी रही है लेकिन राष्ट्रीय और अंतरराष्ट्रीय फलक पर असमिया सिनेमा द्वारा ऐसी उपलब्धि हासिल करना कई लोगों के लिए आश्चर्य की बात थी। इसकी एक प्रमुख वजह यह है कि देश का अधिकांश हिस्सा पूर्वोत्तर में बनने वाली फिल्मों से अनजान रहा है।

असमिया सिनेमा जिसे 'जॉलीवुड' के नाम से भी जाना जाता है, एक समृद्ध विरासत को स्वयं में समेटे हुए है। इसका इतिहास तो गौरवपूर्ण रहा ही है, वर्तमान उज्ज्वल और भविष्य संभावनाओं से भरा हुआ है। असम में सिनेमा की शुरुआत का एक बेहद दिलचस्प किस्सा प्रसिद्ध फिल्म निर्देशक और आलोचक 'अब्दुल मज़ीद' सुनाते हैं-

"असम में सिनेमा का इतिहास बीसवीं शताब्दी के दूसरे दशक से आरंभ हुआ जब गुवाहाटी के निवासियों को एक दक्षिण भारतीय व्यक्ति मेनन द्वारा लाई गई मूक फिल्म को देखने का सुअवसर मिला। गाँव से शहर में व्यापार के सिलसिले में या फिर कचहरी के काम से आने वाले लोग, मेनन की फिल्मों के दर्शक थे सिनेमा के इतिहास में इस पन्ने को जोड़ने वाले सिनेमा हॉल का नाम 'कामरूप सिनेमा' था। इस हॉल में मुख्यत: 'एम सी सेनेट' और 'चैपलीन' की फिल्में दिखाई जाती थीं। समय के साथ बोलती फिल्मों का चलन बढ़ा और कामरूप सिनेमा की चमक फीकी

अंक 268 वर्ष 56

भाषा

सितंबर–अक्तूबर 2016

अभिनवगुप्त और भारतीय साहित्य विशेषांक

सत्यमेव जयते

केंद्रीय हिंदी निदेशालय
भारत सरकार

ISSN 0523-1418
भाषा (द्वैमासिक)
वर्ष : 56 □ अंक : 1 (268)
सितंबर–अक्तूबर, 2016

संपादकीय कार्यालय
केंद्रीय हिंदी निदेशालय,
उच्चतर शिक्षा विभाग,
मानव संसाधन विकास मंत्रालय, भारत सरकार,
पश्चिमी खंड-7, रामकृष्णपुरम्,
नई दिल्ली-110066
वेबसाइट : www.hindinideshalaya.nic.in

बिक्री केंद्र :
नियंत्रक, प्रकाशन विभाग, सिविल लाइंस, दिल्ली - 110054
सदस्यता हेतु ड्राफ्ट नियंत्रक, प्रकाशन विभाग, दिल्ली के पक्ष में भेजें।

मूल्य :			
स्वदेश में : एक प्रति	:	₹ 25/–	(डाकखर्च अतिरिक्त : ₹ 11/–)
वार्षिक	:	₹ 125/–	(डाकखर्च अतिरिक्त : ₹ 66/–)
विदेश में : एक प्रति	:	£ 1 अथवा $ 2	(डाकखर्च सहित)
वार्षिक	:	£ 6 अथवा $ 12	(डाकखर्च सहित)

वेबसाइट : www.deptpub.gov.in
ई–मेल : pub.dep@nic.in
दूरभाष : 011-23817823/ 9689
फैक्स : 011-23817846

पत्रिका में व्यक्त विचार लेखकों के अपने हैं। इनसे भारत सरकार या संपादन मंडल का सहमत होना अनिवार्य नहीं है।

31/2/16

4342 CHD/16— 1B

अनुक्रमणिका

संपादकीय

आपने लिखा

आलेख

1.	अभिनवगुप्त तथा भारतीय वाङ्मय को उनका योगदान	डॉ. दयाल सिंह पवार	9
2.	सहस्राब्दि पर आचार्य अभिनवगुप्त	डॉ. उदय प्रताप सिंह	21
3.	अभिनवगुप्त की साहित्यिक निष्पत्ति	आचार्य मिथिलाप्रसाद त्रिपाठी	31
4.	त्रिकशास्त्र के व्याख्याता आचार्य अभिनवगुप्त	डॉ. मोहन लाल सर	46
5.	अभिनवगुप्त और उनका तत्व-चिंतन	प्रो. त्रिभुवननाथ शुक्ल	51
6.	अभिनवगुप्त का ध्वनि-चिंतन	डॉ. आशा रानी	59
7.	अभिनवगुप्त का रस-विमर्श	डॉ. सुनीता रानी घोष	75
8.	रस-निष्पत्ति और अभिनवगुप्त	डॉ. अनुशब्द	91
9.	अभिनवगुप्त की दृष्टि में रस एवं शिवतत्व	डॉ. दया शंकर तिवारी	101
10.	अभिनवगुप्त का शास्त्र-लालित्य	डॉ. अजय कुमार मिश्र	108
11.	व्याकरणिक कोटियों का अभिनवकृत दार्शनिक उपयोग	डॉ. बलराम शुक्ल	121
12.	अभिनवगुप्त का शब्द-चिंतन	डॉ. आरती दुबे	135
13.	अभिनवगुप्त की लोचनटीका का अवेक्षण	प्रो. रहसबिहारी द्विवेदी	140
14.	आचार्य अभिनवगुप्त : एक अनुशीलन	डॉ. शुभंकर मिश्र	147
15.	आचार्य अभिनवगुप्त का दार्शनिक-चिंतन	डॉ. दीनानाथ शुक्ल	156

31/2/16

रस-निष्पत्ति और अभिनवगुप्त

डॉ. अनुशब्द

अमेरिकी कवि फॉस्ट ने लिखा है कि कोई भी कविता अपने समय से पूर्व लिखी गई सारी कविताओं के प्रकाश में लिखी जाती है। यह बात केवल कविता के संदर्भ में ही सही नहीं है, बल्कि आलोचना के संदर्भ में भी सटीक है। चाहे आधुनिक समीक्षा हो या प्राचीन, दोनों समीक्षाओं के लिए यह बात मायने रखती है। फॉस्ट का यह कथन भारतीय नाट्य-चिंतन की नजर में भी महत्वपूर्ण है। हमारे यहाँ नाट्यालोचन की परंपरा पूर्वपक्ष की उपस्थिति और उत्तरपक्ष के उपस्थापन में अपनी सिद्धि मानती रही है। अभिनवगुप्त की 'अभिनवभारती' और 'ध्वन्यालोकलोचन' इस तथ्य के सबल प्रमाण हैं। ये दोनों कृतियाँ क्रमशः नाट्यशास्त्र का और ध्वन्यालोक का भाष्य होते हुए भी काव्य चिंतन-जगत में स्वतंत्र ग्रंथ का दर्जा प्राप्त कर चुकी हैं और संदर्भ-ग्रंथ के रूप में आज भी समादृत हैं। आज जब शोध ग्रंथ के नाम पर तथ्यों का संकलन और संपादन मात्र हो रहा है, वैसी स्थिति में अभिनवगुप्त के इन दोनों ग्रंथों की महिमा और गरिमा आलोचना-जगत के लिए प्रेरणास्पद है।

रस-निष्पत्ति रस-प्रकरण का महत्वपूर्ण पक्ष है। अधिकांश आचार्यों ने इसे केंद्रीयता प्रदान की है। स्वयं भरत ने अपने रस-प्रसंग का प्रारंभ रस-स्वरूप के विवेचन से नहीं, रस-निष्पत्ति से ही किया है। इसलिए यह आचार्यों के लिए शास्त्रार्थ का विषय रहा है। भरत ने रसनिष्पत्ति का जो सूत्र प्रस्तुत किया है, वह अत्यंत संक्षिप्त और अपरिभाषित है। जिस प्रकार पाश्चात्य आचार्यों के लिये अरस्तु का अनुकरण सिद्धांत चुनौती रहा है, उसी प्रकार रस-निष्पत्ति भारतीयों के लिए वाद-विवाद और संवाद का प्रमुख प्रस्थान-बिंदु रहा

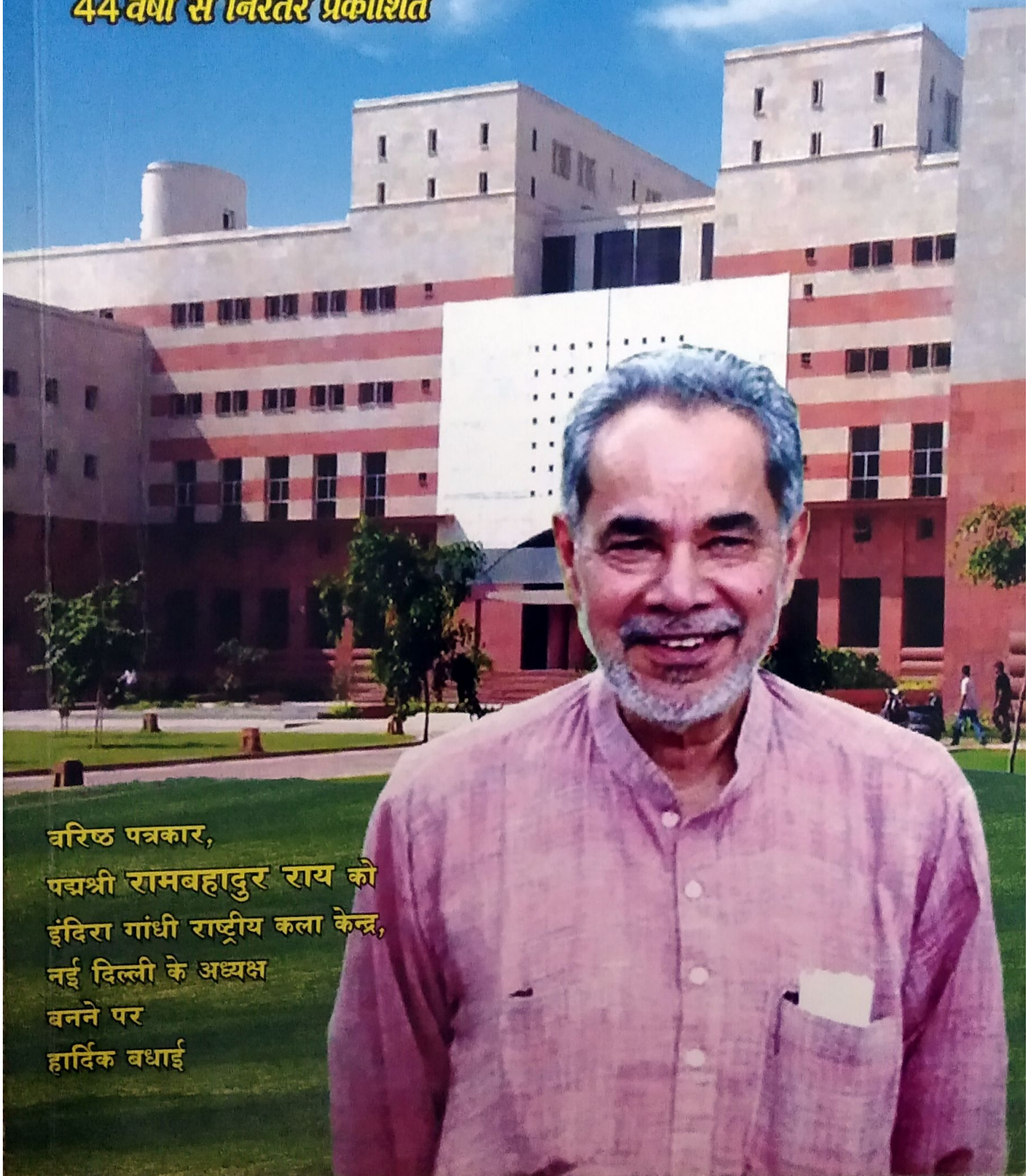
ISSN 2277 - 9264

संकल्य

हिन्दी अकादमी, हैदराबाद

जनवरी-मार्च, 2016

44 वर्षों से निरंतर प्रकाशित



वरिष्ठ पत्रकार,
पद्मश्री रामबहादुर राय को
इंदिरा गांधी राष्ट्रीय कला केन्द्र,
नई दिल्ली के अध्यक्ष
बनने पर
हार्दिक बधाई

विषय-क्रम

संपादकीय

5 प्रो.टी.मोहन सिंह - विश्वविद्यालयों में राजनीतिक हस्तक्षेप : समस्याएँ और समाधान

जन्मदिन स्मरण

15 डॉ.गोरखनाथ तिवारी - दक्षिण हिंदी महासमर के अर्जुन : बदरीविशाल पित्ती जी

विशेष

22 प्रो.दिलीप सिंह - कहाँ-कहाँ से गुजर गया किताबों के बहाने

आलेख

32 डॉ.विवेकी राय - डॉ.वेदप्रकाश अमिताभ : समीक्षक व्यक्तित्व का निखार

39 मांधाता राय - सूर की रामकथा और मानस

47 प्रो.विजय कुलश्रेष्ठ - गत शती के महिला उपन्यास और परिवर्तित मनोवैज्ञानिक संदर्भ

52 डॉ.इसपाक अली - हिंदी कथा साहित्य में वृद्धा विमर्श

55 डॉ.सुनीति आचार्य - श्री कृष्ण-भक्ति में अवतारवाद की चेतना

60 डॉ.माधुरी पाण्डेय गर्ग - प्रेमचंद और शरतचंद्र के उपन्यासों में सामाजिक-संचेतना

64 डॉ.राजेश चंद्र पाण्डेय - निराला के नवगीत और संवेदना के विविध आयाम

67 कृष्ण कुमार यादव - प्रकृति का उल्लास पर्व है वसंत

71 सूर्यकांत त्रिपाठी - विद्यापति के काव्य में स्वरों की संगीतमयता

74 डॉ.किरण बाला अरोड़ा - वर्णभेद एवं श्री नरेश मेहता का काव्य शबरी

78 डॉ.अंजु लता - नासिरा शर्मा का कथा साहित्य : एक आलोचनात्मक अध्ययन

84 डॉ.विजय पाटील - हिंदी कहानी में मूल्य संक्रमण

88 डॉ.के.माधवी - अंतिम दशक के हिंदी नाटक-मानवीय मूल्य

91 डॉ.पार्वती - स्त्रीवाद और ओल्गा का साहित्य

95 लाङ्जम रोमी देवी - साधारण के असाधारण कवि: मत्स्येंद्र शुक्ल

99 मुकेश कुमार - ज्ञानी देवी के काव्य में चित्रित प्रेम-भावना

विद्यापति के काव्य में स्वरों की संगीतमयता

डॉ.सूर्यकांत त्रिपाठी

संगीत स्वयं आत्मा की सहज अभिव्यक्ति है। संगीत में ही वह शक्ति है कि आराधक अपने आराध्य को सहज ही वश में कर लेता है क्योंकि स्वभावतः संगीत की धारा मधुर होती है, वह जीवन की शंकुल परिस्थितियों में दिव्य ज्योति का भी दर्शन कराती है और निष्क्रिय जीवन में सक्रियता का अमित उत्साह भर देती है। हम अपने काव्य का छंद शैलियों का वैविध्य जब देखते हैं तो संगीत-रुचि के नवनवोन्मेषशालिनी शक्ति का ही प्रभाव दृष्टिगोचर होता है। भावों में आकर्षण की सहज रमणीयता संगीत के द्वारा ही संपन्न होती है। यही कारण है कि हिंदी के आदि कवि के काव्य का आरंभ प्रकृति की सजह संगीत माधुरी के स्वर में प्रस्फुटित हुआ है। चंडिदास, विद्यापति, गोविंददास, सूरदास आदि ने काव्य की संगीतमयी साधना से ही अमृततत्व का प्रत्यक्ष किया है। कविवर विद्यापति की गीतमयता काव्य की अपूर्व चमत्कृति से मिलकर चैतन्य महाप्रभु जैसे साधक को भी वशीभूत करने में समर्थ हुई है।

इस प्रकार कवि विद्यापति के काव्य में अनंत चमत्कृतियों के साथ स्वरों की संगीतमयता ही भाषा में सप्राण आकर्षण का आधार बन गई है। विद्यापति में एक ओर युग-जीवन के निसर्ग सौंदर्य-प्रवाह की रसप्लाविनी झंकृति प्राप्त होती है तो दूसरी ओर दृश्यविधायिनी चमत्कृति का अपूर्व दर्शन भी प्राप्त होता है। काव्य और संगीत की सर्वरंजनकारिणी समन्विति का जो प्रकाश-वितरण इस अमर गायक ने किया है। उससे यौवन के चरममाधुर्य और वार्धक्य के चरम गांभीर्य की जीवनव्यापिनी श्रुति प्राप्त होती है। संगीत की तरंगों की तन्मयतापूर्ण समाधि में नारी की रूप माधुरी का अनुपम प्रत्यक्ष है। भावुकता और कल्पना का अद्‌भुत समन्वय निम्नवत् देखा जा सकता है-

"चाँद-सार लए मुख घटना करू,/लोचन चकित चकोरे।
अमिय धोय आँचर धनि पोछलि,/दह दिपि भेल उँजोरे।"[1]

एक ओर पुरुष हृदय की तरल अतृप्ति का चिरंतन भावावेश संगीत की मादक लहरों में अद्‌भुत मोहकता के साथ इस रूप में श्रवणगत होता है-

"सजनि, भल कए पेखल न भेल।/मेघ माल सयँ तड़ितलता जनि,
हृदय सेल दइल गेल।"

दूसरी ओर नारी-सृष्टि की अनन्य आत्मीयता की उपलब्धि का निश्छल अनुराग भी सुनाई देता है-

"की लागि कौतुक देखलौ सखि,/निमिख लोचन आध।
मोर मन-मृग मरम बेघल,/विषम बान बेआध।"

भावना के चरम-दिव्य भावावेश को तरंगायित करने में विद्यापति की कला द्रुत-हृदयस्पर्शिनी है-

ISSN : 2321-6131

वर्ष:3 अंक:5-7 जून, 2016

समवेत

साहित्य, संस्कृति एवं शिक्षा से संबद्ध
अर्द्धवार्षिक शोध पत्रिका

भारतीय भक्ति साहित्य विशेषांक

संपादक
डॉ. नवीन नन्दवाना

अनुक्रम

1. भक्तिकाल : पुनर्विचार की जरूरत 1
   - प्रभात कुमार मिश्र

2. मध्ययुगीन भक्ति आंदोलन और दक्षिण 8
   - सूर्यकांत त्रिपाठी

3. आज का सामाजिक-सांस्कृतिक परिदृश्य और कबीर 12
   - सौरभ कुमार

4. संत दादूदयाल : जीवन, पंथ और भक्ति पद्धति 18
   - नवीन नंदवाना

5. संत कवि सुंदरदास : व्यक्तित्व और जीवन मूल्य 31
   - अखिलेश चास्टा

6. संत रैदास के काव्य में सामाजिक चेतना 40
   - सुभाष चंद्र नंदवाना

7. रामस्नेही संत काव्य : आध्यात्मिक और सामाजिक सरोकार 46
   - महेश चंद्र तिवारी

8. संत जम्भेश्वर के चिंतन की वर्तमान समय में प्रासंगिकता 56
   - रामरती माँजू

9. संत कवियों की सामाजिक समरसता और मलूकदास 69
   - रंजना उपाध्याय

10. संत दुर्बलनाथ के काव्य में सामाजिक चिन्तन 74
    - सुरेश सिंह राठौड़

11. भक्ति आन्दोलन में राजस्थान की संत राणी रूपांदे का योगदान 87
    - भूमिका द्विवेदी एवं मदन सिंह राठौड़

मध्ययुगीन भक्ति आंदोलन और दक्षिण

सूर्यकांत त्रिपाठी*

साहित्य में काल का निर्धारण समय सापेक्ष नहीं होता इस बात को दृष्टि में रखते हुए जब हम अपनी बात को आगे बढ़ाते हैं तो स्वर्गीय विद्यानिवास मिश्र की यह उक्ति बड़ी सार्थक प्रतीत होती है- ''साहित्य में युग का निर्धारण इस आधार पर नहीं होता कि अमुक तारीख से अमुक तारीख तक यह युग माना जाए, क्योंकि साहित्य के इतिहास का संबंध किसी के सिंहासन पर बैठने से या किसी के मरने से नहीं होता। साहित्य का इतिहास बनता है, प्रवृत्तियों से। कुछ अपने युग के आगे जाती है, कुछ प्रवृत्तियाँ अपने युग के पीछे जाती हैं, कुछ प्रवृत्तियाँ युग में सम्पृक्त रहती हुई भी युग को आगे नहीं बढ़ातीं। इसीलिए साहित्य के इतिहास में किसी युग का नाम उस प्रवृत्ति के आधार पर पड़ता है, जो अपने युग में रहती भी है और उसके आगे भी जाती है। भक्ति युग ऐसा ही युग है जो एक खुले वृत्त के रूप में है, उसकी कोई परिधि निश्चित ही नहीं की जा सकती है।''[1] तो भी हिंदी भक्ति आंदोलन को जाँचने और परखने के लिए आठवीं सदी से पन्द्रहवीं सदी का धार्मिक साहित्य विशेष महत्वपूर्ण है।

कमोवेश आठवीं सदी से हिंदी भक्ति आंदोलन की सुगबुगाहट शुरू हो गयी थी। समूचे देश में लोक और शास्त्र का समन्वय होने लगा था। इस प्रकार भाषिक और वैचारिक दोनों ही दृष्टियों से संपूर्ण भक्ति आंदोलन लोक की ओर अभिमुख हो चला था। संस्कृत का स्थान जनभाषाएँ लेने लगी थीं। इस आंदोलन का मात्र धार्मिक ही नहीं बल्कि सामाजिक और सांस्कृतिक महत्व भी था। सामाजिक दृष्टि से यह न्याय और

---

* एसोसियेट प्रोफेसर एवं विभागाध्यक्ष, हिन्दी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, नप्पम-784028 (असम)

ISSN : 0975-3664 RNI : U.P.BIL/2012/43696

Year : 2016 Year : June Vol. : 2

शोध - धारा

SHODH-DHARA

A

Peer Reviewed

Quarterly Research Journal

of Humanities and Social Sciences

Grade 'A' Impact Factor 5-10

शैक्षिक एवम् अनुसंधान संस्थान, उरई-जालौन (उ०प्र०) द्वारा प्रकाशित

Published by Shakshik Avam Anusandhan Sansthan

Orai (Jalaun) U.P.

ISSN : 0975-3664

RNI : U.P.BIL/2012/43696

शोध - धारा
SHODH-DHARA

(मानविकी एवं समाज विज्ञान पर केंद्रित पीयर रिव्यूड त्रैमासिक शोध–जर्नल 'ए' ग्रेड प्राप्त)
(A peer reviewed Quarterly Research Journal of Humanities & Social Sciences with 'A' Grade)

Year 2016 Jun 16 Vol. 2

अनुक्रम Contents

शीर्षक	लेखक	पृ०सं०
शोध आलेख		
✦ हिन्दी		१-७१
१. जनपद मीरजापुर के आदिवासी और करमा	डॉ० सूर्यकांत त्रिपाठी	1-6
२. छायावाद के युग प्रवर्तक–मुकुटधर पांडेय	कु० स्नेहा पाण्डेय डॉ० अंजनी पाठक	7-10
३. विद्यापति एवं जयदेव के गीतिकाव्य में कृष्ण का स्वरूप	डॉ० आनन्द पाण्डेय	11-18
४. जनपदीय कविता में बघेली काव्य वैभव का दस्तक	डॉ० नरेन्द्र मिश्र	19-28
५. संत काव्य धारा में रज्जबदास जी का स्थान	डॉ० शुचि अग्रवाल	29-32
६. मिथक और काव्य–भाषा : अन्तःसम्बन्ध	डॉ० माधुरी गर्ग	33-42
७. अमृतलाल नागर का उपन्यास 'नाच्यौ बहुत गोपाल' : : नारी मन का जीवंत दस्तावेज	डॉ० कामिनी साहिर	43-56
८. महिला सशक्तिकरण:प्रवृत्तियाँ एवं मुद्दे	डॉ० रीतू भटनागर	57-59
९. मालती जोशी के उपन्यासों में स्त्री	डॉ० गोरखनाथ तिवारी	60-68
१०. डॉ. गिरिराज शरण अग्रवाल का व्यंग्य साहित्य	डॉ० संजीव कुमार वर्मा	69-71
✦ अंग्रेजी		७२-७८
११. Sublimation of Love	Dr. Anupam Gond	72-75
१२. Mythical Speculations in the poetry of Sri Aurobindo	Dr. Shipra G.Vashishtha	76-78
✦ संस्कृत		७९-९४
१३. श्रीमद्भागवत और अष्टाङ्ग योग–एक समीक्षात्मक दृष्टि	डॉ० मनीष पाण्डेय	79-83
१४. शब्दशक्ति शब्दबोधश्च	डॉ० कृपाशंकर मिश्र	84-89
१५. अभिज्ञानशाकुन्तलम् में प्रकृति–विन्यास	डॉ० संतोष कुमार पाण्डेय	90-94
✦ इतिहास		९५-१०६
१६. भारत में प्राचीनकाल में विज्ञान एवं उसकी प्रयोगशालाएं	डॉ० अश्विनी यादव	95-99
१७. मसीही धर्म से प्रभावित हिन्दू धर्म	डॉ० रमा गुप्ता	100-106
✦ गृहविज्ञान		१०७-१२३
१८. A study of Nutritional Status of Scheduled Caste	Dr. Arati Pandey	107-112

हिन्दी

ISSN : 0975-3664, RNI : U.PBIL/2012/43696
SHODH-DHARA ; June 2016; Vol. 2; P. 1-6

जनपद मीरजापुर के आदिवासी और करमा

डॉ0 सूर्यकांत त्रिपाठी

एसोसिएट प्रोफेसर व अध्यक्ष, हिन्दी विभाग, तेजपुर विश्वविद्यालय, **तेजपुर (असम)**

(प्राप्त : ११ जनवरी २०१६)

Abstract

मीरजापुर के आदिवासियों की भाषा स्थानीय बोलियों से प्रभावित है। उसमें मध्यप्रदेश, बिहार और उत्तर प्रदेश की बहुत–सी बोलियों का घाल–मेल है। यहाँ लगभग ६२ प्रतिशत बिहारी बोली जाती है जिस पर पश्चिमी भोजपुरी का प्रभाव अधिक है। सोनपार के आदिवासी अधिकांश पश्चिमी हिंदी से प्रभावित बघेली बोलते हैं लेकिन सुदूर दक्षिण में 'कोलवरियन' परिवार के मुण्डाओं की 'कोरवारी' भी बोली जाती है। इनकी कोई लिपि नहीं मिलती। इनका सारा लोक साहित्य कंठगत है जो इनके जीवन को सदैव जीवन्त बनाये है।

इनका जीवन विश्वास–अंधविश्वास, आमोद–प्रमोद, धार्मिक–भावना, भय–निर्भय और सुख–दुःख से ओत–प्रोत है। अपने जीवन के साथ ये प्राकृतिक उपादानों के प्रति अधिक भाव–प्रवण हैं। इन्हीं प्राकृतिक उपादानों से ये जीवन जीते आ रहे हैं। ये प्रकृति की अनुकूलता पर उसे दैवत्व प्रदान कर श्रद्धा–भाव प्रदर्शित करते और प्रतिकूलता पर भयातुर होते रहे हैं, जिनका यथारूप वर्णन इनके गीतों में मिलता हैं।

Figure : 00 **References : 16** **Table : 00**

Key Words : मीरजापुर के आदिवासी, प्राकृतिक संपदा और आदिवासी, कलागीत

प्राकृतिक संपदाओं, ऐतिहासिक, राजनैतिक, आर्य–अनार्य संस्कृति और औद्योगिक प्रतिष्ठानों से समृद्ध उत्तर प्रदेश का विशिष्ट जनपद मीरजापुर तो संप्रति मीरजापुर और सोनभद्र जैसे दो जनपद में विभक्त हो गया है। २४–२५ अक्षांश तथा ८३.४८ देशान्तर के बीच स्थित है। इसके उत्तर में वाराणसी–जौनपुर, पूरब में शाहाबाद (बिहार), पश्चिम में इलाहाबाद और दक्षिण में पलामू (सरगुजा) तथा रीवाँ जनपद है। इसका क्षेत्रफल लगभग ४२८३.४ वर्ग मील है।

यहाँ कर्णावती, औझला, जरगो, रेड़, बिजुल, कनहर, पांगन, किरमा, बेलन, करमनासा, गरई, गंगा, सोन प्रभृति छोटी–बड़ी नदियाँ हैं। जिनका अपना ऐतिहासिक, भौगोलिक एवं सांस्कृतिक महत्व है। इनमें गंगा और सोन प्रमुख हैं। सोन का प्राचीन नाम 'शोण' है। पुराणों में 'शोणभद्र' नाम से इसका उल्लेख है। हर्षचरित में बाणभट्ट ने इसे 'हिरण्यवाह' जैसी संज्ञा दी है–

'अपत्ये हिरण्यवाह नामानां महानदं, यं जनाः शोण इति कथयन्ति।''

आदिवासी लोकगीतों में सोन का वर्णन प्राप्त होता है–

"किला त ऽ बखानउँ अगोरी क ऽ किला, हे किला तरे सोन बहि जाय।''

सोन के दक्षिणी तट से जनपद की दक्षिणी सीमा पर्यन्त का भाग जिसके अंतर्गत चोपन, डाला, ओबरा, पीपरी, म्योरपुर, बभनी, बचरा, दुद्धी, महुली, बिंढमगंज प्राकृतिक संपदाओं से सम्पन्न आदिवासियों के प्रमुख क्षेत्र हैं।

लालगंज और हलिया में कोलों की संख्या अधिक है, राबर्ट्सगंज तथा घोरावल में गोड़, धांगर

ISSN 2231 – 413X

A Multidisciplinary Quarterly International Refereed Research Journal

SHODH PRERAK

A Multidisciplinary Quarterly International Refereed Research Journal
http://shodhprerak.blogspot.com

Vol. - VI, Issue - 3, July, 2016

Chief Editor :
Dr. Shashi Bhushan Poddar

Editors :
Reeta Yadav
Pradeep Kumar

- बिम्ब-विधान की दृष्टि से आधुनिक संस्कृति कवियों की नवचेतना 153-155
  जनेश्वर मिश्र, शोधच्छात्र, संस्कृत-विभाग, इलाहाबाद विश्वविद्यालय, इलाहाबाद
- काशी की सांस्कृतिक भौगोलिक स्थिति एवं कला : एक अध्ययन 156-160
  डॉ. नागेन्द्र कुमार सिंह, विभागाध्यक्ष, पत्रकारिता एवं जनसंचार विभाग, जनसम्पर्क अधिकारी, इ. गॉ. रा. जनजातीय विश्वविद्यालय, अमरकंटक
- उत्तर प्रदेश में लगान बन्दी आन्दोलन एवं कांग्रेस 1930-1934 161-170
  रामू, पाश्चात्य इतिहास विभाग, लखनऊ विश्वविद्यालय, लखनऊ।
- अनुसूचित जाति के विद्यार्थियों की अन्तर्जातीय विवाह के प्रति दृष्टिकोण 171-175
  डॉ. संजय कुमार पाठक, प्रवक्ता, समाजशास्त्र, नागरिक पी.जी. कॉलेज, जंघई, जौनपुर
- अथर्ववेद में प्रतिपादित इन्द्रजाल 176-178
  सुनील कुमार शाह, वरिष्ठ शोध छात्र, संस्कृत विभाग, कला संकाय, काशी हिन्दू विश्वविद्यालय, वाराणसी
- वाचिक कविता में राम 179-182
  डॉ. सूर्यकांत त्रिपाठी, एसोसिएट प्रोफेसर व अध्यक्ष, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर (असम)।
- राष्ट्रीय आन्दोलन में महिलाओं की भूमिका 183-185
  अमरेन्द्र सिंह, शोधछात्र (शिक्षाशास्त्र विभाग), सम्पूर्णानन्द संस्कृत विश्वविद्यालय, वाराणसी
- अज्ञेय के रचनात्मक आयाम 186-188
  राम आशीष तिवारी, शोध छात्र, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी।
- महाकविकालिदासकाव्येषु गुणविषयकाः स्त्रीविषयकाश्च लोकोक्तयः 189-191
  डॉ. पवनकुमारपाण्डेयः, स्नातकोत्तरसाहित्याध्यापकः, श्रीरणवीरसंस्कृतविद्यालयः, काशीहिन्दूविश्वविद्यालयः, वाराणसी
- कालिदास जी के काव्यों में नायक का सौन्दर्य 192-193
  डॉ. संजीत तिवारी, महम्मदपुर, छपरा, बिहार
- संविधान में राजभाषा हिन्दी की स्थिति और व्यावहार्यता 194-196
  कीर्ति त्रिपाठी, एम.फिल., हिन्दी विभाग, महात्मा गांधी काशी विद्यापीठ, वाराणसी
- समानान्तर सिनेमा और समाज 197-201
  अभिषेक मिश्र, शोध छात्र (हिन्दी विभाग), महात्मा गाँधी चित्रकूट ग्रामोदय विश्वविद्यालय, चित्रकूट-सतना (मध्य प्रदेश)
- संस्कृत काव्यों में आपत्प्रबन्धन 202-204
  डॉ. आरुणेय मिश्र, अतिथि प्रवक्ता ई.सी.सी. इलाहाबाद
- भारतीय राजनीति में महिला नेतृत्व : एक समीक्षात्मक अध्ययन 205-207
  डॉ. हरेराम सिंह, एसोसिएट प्रोफेसर, राजनीति विज्ञान, देवेन्द्र पी.जी. कॉलेज, वेल्थरा रोड, बलिया (यू.पी.)
- यमुना बेसिन गढ़वाल हिमालय की समाज व्यवस्था 208-212
  डॉ. कमलेश कुँवर, सहायक अध्यापक, सामाजिक विज्ञान, राजकीय इण्टर कॉलेज, केदारूखाल, जनपद चमोली, उत्तराखण्ड

वाचिक कविता में राम

डॉ. सूर्यकांत त्रिपाठी *

राम भारतीय संस्कृति के साहित्य के प्राण–पुरुष हैं। वे पुराण–पुरुष भी हैं, इतिहास–पुरुष भी हैं पर उनकी यह स्थिति गौण है। लोक में, लोक साहित्य में विशेषकर वाचिक परंपरा से आये लोकगीतों में राम प्रतीक हैं, बिम्ब हैं, मिथ हैं, पर लोक में उनका जो सबसे महत्वपूर्ण रूप है वह है उनकी मूर्तिमान् उपस्थिति। उनकी प्रमुख स्थिति है सदैव उपस्थित रहना, हर साँस में उपस्थित रहना, जांघों में उपस्थित रहना, गीतों में उपस्थित रहना, कानों में उपस्थित रहना, आँखों में उपस्थित रहना और अपनी उपस्थिति के साथ लोक की जीवन–यात्रा का सहयोगी बने रहना।

लोक–मंगल की दृष्टि से देखें, तो भी जो राम के भाव से भावित नहीं हैं वह शुभ नहीं है। मित्र–मित्र, परिजन–परिजन, प्रिय–प्रिय सभी रिश्ते–नाते इसीलिए हैं कि राम वहाँ हैं। राम वहाँ नहीं है तो घर श्मशान है, भूतों का डेरा है, दोस्त दुश्मन है, अपने पराये हैं। मंगल की स्थिति राम की मौजूदगी है। जहाँ राम की मौजूदगी नहीं है, वहाँ सभी सुख और ऐश्वर्य के साधन होने के बावजूद नष्ट हो जाते हैं। राम की गैरमौजूदगी की जानकारी पाप की सही जानकारी है। इसीलिए लोक और लोक की वाचिक कविता एक ऐसे अपनाव की कविता है, गीत है, जिस अपनाव की धुरी राम हैं। वस्तुतः इसीलिए यह अपनाव है, यहाँ परायेपन के लिए कोई जगह नहीं है। दशरथ की चिंता, दशरथ की ग्लानि लोक की चिंता है, लोक की ग्लानि है–

सूतल राजा उठि बइठेले, डोमिनी जगावेले हो।
ए डोमिनी, देइ दऽ नाझाँझर तमरुआ, अहेर खेले जाइबि हो।।
सूतल डोमिनी उठि बइठेली, डोम के जगावेली हो।
ए डोम देखली निरबंसिया केरा मूँह, कुसल नाहीं परेला हो।।
अतना बचन राजा सुनलनि, सुनहू ना पावेले हो।
ए रानी जुठवा के पतरी डोमिनिया, निरबंसिया नउआँ धरेले हो।।

सबेरे–सबेरे उठते ही डोमिन ने निःसंतान राजा का मुँह देख लिया। उसने अपने डोम से कहा कि आज सबेरे मैंने निःसंतान राजा का मुँह देखा है, इसलिए कुशल नहीं है। डोमिन की यह बात सुनकर राजा को बहुत दुःख होता है और वह रानी से कहते हैं कि जूठा पत्तल उठाने वाली डोमिन ने मुझे निरवंशी कहा है। चूँकि लोक में राम मूर्तिमान सहायक हैं। उन्हें सबकी मदद करनी है, सबकी साध पूरी करनी है, सबकी चाह रखनी है और सबको ताना–मेहना से निजात दिलानी है। हर निरवंशी की वंशवृद्धि करनी है तथा हर निपूती की सूनी कोख भरनी है, लोकापवाद से बचाना है और राम, जन्म लेकर वही करते हैं–

रानी, फाँड़े बान्ही लिहलीं तिल चाउर, अदिति मनावेली हो।
ए आदित, हम पर होइँ न देयाल, डोमिनिया बिरही बोलेले हो।।
घरी रात गइले पहर राति, अवरू पहर राति हो।
ए ललना, बाजे लागल अवध बधावा, महलिया उठे सोहर हो।।

डोमिनी की निरवंशी संज्ञा ने रानी को गहरी चोट पहुँचाई। उन्होंने सूर्य से प्रार्थना की, 'हे सूर्यदवे ! मुझ पर कृपा करें, मुझे संतान दें।' सूर्यदेव की कृपा के फलस्वरूप राम जन्म लेते हैं, घर में आनन्द की बधाई बजने लगती है, सोहर की मंगल ध्वनि गूँजने लगती है।

दुअरा जे बाम्हन पोथी बाँचे, अँगना भाँटिन नाचे ले हो।
आरे, लट खोलि नाचेले डोमिनिया, बधइया हम लेबो हो।।
अतना वचन राजा सूनेले, सुनहिं न पावेले हो।

---

* एसोसिएट प्रोफेसर व अध्यक्ष, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर (असम)।

सम्मेलन पत्रिका

(शोध-त्रैमासिक)

भाग	:	१०१ संख्या ३
आषाढ़-भाद्रपद	:	संवत् २०७३
जुलाई-सितम्बर	:	सन् २०१६

प्रधान सम्पादक

विभूति मिश्र

सम्पादक

राम किशोर शर्मा

उप सम्पादक

नन्दल हितैषी

हिन्दी साहित्य सम्मेलन, प्रयाग

१२ सम्मेलन मार्ग, इलाहाबाद-३

ISSN : 2278-1773

प्रकाशक

विभूति मिश्र

प्रधानमंत्री

हिन्दी साहित्य सम्मेलन, प्रयाग

१२ सम्मेलन मार्ग, इलाहाबाद-३

दूरभाष (कार्यालय) — ०५३२-२५६४१९३

सम्मेलन पत्रिका में प्रकाशित लेखों में व्यक्त विचारों तथा प्रस्तुत किये गये तथ्यों से प्रकाशक व सम्पादक की सहमति आवश्यक नहीं। इसका पूर्ण उत्तरदायित्व लेखक का होगा।

एक प्रति का मूल्य : ७० रु०

वार्षिक मूल्य : २५० रु०

विदेश के लिए वार्षिक मूल्य : २० डालर (डाक व्यय अतिरिक्त)

वार्षिक सदस्य बनने के लिए २५०.०० रु० का ड्राफ्ट या पोस्टलआर्डर 'प्रधानमंत्री, हिन्दी साहित्य सम्मेलन, १२ सम्मेलन मार्ग, इलाहाबाद-३' के नाम भेजें। कृपया चेक व मनिआर्डर न भेजें।

मुद्रक

रंजन इण्टरप्राइजेज

जी-२०६, ओझा काम्प्लेक्स (सचान नर्सिंग होम के सामने), इलाहाबाद (उ०प्र०)

१४.	हिन्दी निर्गुणी संत और उनका साहित्य	ब्रजेन्द्र कुमार सिंहल	११३-१२५
१५.	भोजपुरी लोकगीत : बनावट-बुनावट	डॉ० सूर्यकांत त्रिपाठी	१२६-१२८
१६.	भक्ति आन्दोलन का समाजार्थिक परिप्रेक्ष्य और दादूदयाल की काव्य-संवेदना	डॉ० राम विनय शर्मा	१२९-१३७
१७.	''काव्य में शब्द चित्रों की उपस्थिति कवि-चित्रकार जगदीश गुप्त के संदर्भ में''	डॉ० अर्चना द्विवेदी	१३८-१४२
	विविधा		
१८.	भोजपुरी लोकगाथा 'लोरिकायन' की प्रांसगिकता	डॉ० अर्जुनदास केसरी	१४३-१५०
१९.	वैज्ञानिक एवं तकनीकी शब्दावली निर्माण की आवश्यकता	डॉ० दिनेश मणि	१५१-१५५
२०.	भारतीय नाट्यकला और रंगमंच	डॉ० पृथ्वीनाथ पाण्डेय	१५६-१६१
	समीक्षा		
२१.	'लालटेन' की ग्यारह कहानियाँ	डॉ० अखिलेश कुमार	१६२-१७१
२२.	''यथार्थ गंगा''	चन्द्रगुप्त प्रसाद वर्मा 'अंकिचन'	१७२-१७६
२३.	प्रशंसनीय प्रतीक महाकाव्य 'भक्ति निधान'	डॉ० सुशील कुमार पाण्डेय 'साहित्येन्द्र'	१७७-१८०
२४.	व्यवस्था और पूँजी का तिकड़मः समकालीन प्रतिबद्ध साहित्य	डॉ० शिव प्रसाद शुक्ल	१८१-१८४

भोजपुरी लोकगीत : बनावट-बुनावट

डॉ० सूर्यकांत त्रिपाठी

भोजपुरी लोकगीतों की परंपरा मुख्यतः मौखिक है। गाँवों में हजारों गीत मात्र कंठगत ही है। इन गीतों की भाषा शिष्ट और साहित्यिक भाषा न होकर साधारण जन की भाषा है उसकी वर्ण्य-वस्तु भोजपुरी लोकजीवन में गृहीत भावों और प्रभावों तक ही सीमित है और उसकी रचना में व्यक्ति नहीं समूचे समाज का समवेत योगदान है। यही कारण है कि भोजपुरी लोकगीतों पर व्यक्ति की छाप न होकर समग्र व्यक्ति-लोक की छाप है। ये गीत निर्वैयक्तिक हैं। ये समूह द्वारा रचे जाते हैं। यही कारण है कि इनमें व्यक्तित्व का अभाव तथा समूह अथवा जाति विशेषताओं के लक्षण उपलब्ध होते हैं।

भोजपुरी लोकगीतों के बनावट-बुनावट का पहला स्तर है- पुनरावृत्ति और प्रश्नोत्तर क्रम। इन पुनरावृत्तियों के कई स्तर हैं। उदाहरण के तौर पर शब्द या शब्द-समूहों की पुनरावृत्ति। ये शब्द या शब्द-समूह या तो लोक परंपरा से गृहीत मांगलिक विशेषणवाची होते हैं या केन्द्रभूत अर्थ के व्यंजक होते हैं। जब कोई पात्र किसी प्रश्न का उत्तर देता है तो प्रश्न में प्रयुक्त शब्दों का और उसके विशेषणों का ज्यों का त्यों उत्तर में अनुवाद करते हैं। जैसे प्रसंग है-

"कहाँ पइबो सोने केरा छुरवा त कहाँ पइबों धगरिन हो
के मोरा जागी रयनिया त के हो दुख बँटिहन हो।
बन से निकलि बनसपती सितहिं समुझावेली हो
चुप रहु बहिनी त चुप रहु हो, बहिनी।
हम देबो सोने केरा हुरिया, हमहिं होबइ धगरिन हो
सीता, हम तोरा जागब रयनिया, हमहिं दुख बाँटबि हो।'१

यह इसलिए किया जाता है कि अर्थ की स्पष्टता में कोई व्यवधान न हो। इसी प्रकार थाली हो तो सोने की ही हो, चौकी हो तो चंदन की हो, अटारी हो तो ऊँची ही हो, घोड़ा हो तो नीला ही हो, डोरी हो तो रेशम की हो, सेज हो तो बेले की कलियाँ वहाँ बिछी हों। ऐसे जोड़ों की पुनरावृत्ति अर्थ की स्पष्टता और लोक साहित्य की परम्परा की स्मृति के लिए की जाती है। तीसरे प्रकार की पुनरावृत्ति सामाजिक और आध्यात्मिक कारणों से होती है। उदाहरण के लिए सात भाइयों के बीच एक बहन का होना, प्रिय के विदेश जाने पर बारह बरस तक एकतान प्रतीक्षा करना, ननद-भौजाई और सास-बहू के बीच विरसता की कल्पना, भाई-बहन के निश्छल स्नेह की रचना, पुत्र की पुत्री से अधिक महत्व, अधर्म के ऊपर धर्म की विजय, तीन की संख्या का महत्व, अपनी खुशी में सबको सहभागी बनाने का उत्साह और अपने दुःख में प्रकृति को सहानुभूति देखने की शक्ति-ये अभिप्राय ऐसे मर्मभूत सत्य के रूप में गृहीत हुए है कि उनमें एक न एक पर बात छिड़ी ही रहती है।

दूसरा स्तर है अनपेक्षित कथांस का परिहार और मर्मभूत कथांश का मर्म-विन्यास। लोक मानस के कौतूहल की सीमा को परखते हुए इन गीतों में उन अंशों को छोड़ दिया जाता है जो अंश अपने आप गम्य होते है, 'उदाहरण के लिए यह सोहर लिया जा सकता है-

"छापक पेड़ छिउलिया त पतवन गहबर हो
तेहि तर ठाढ़ि हरिनिया त मन अति अनमन हो।

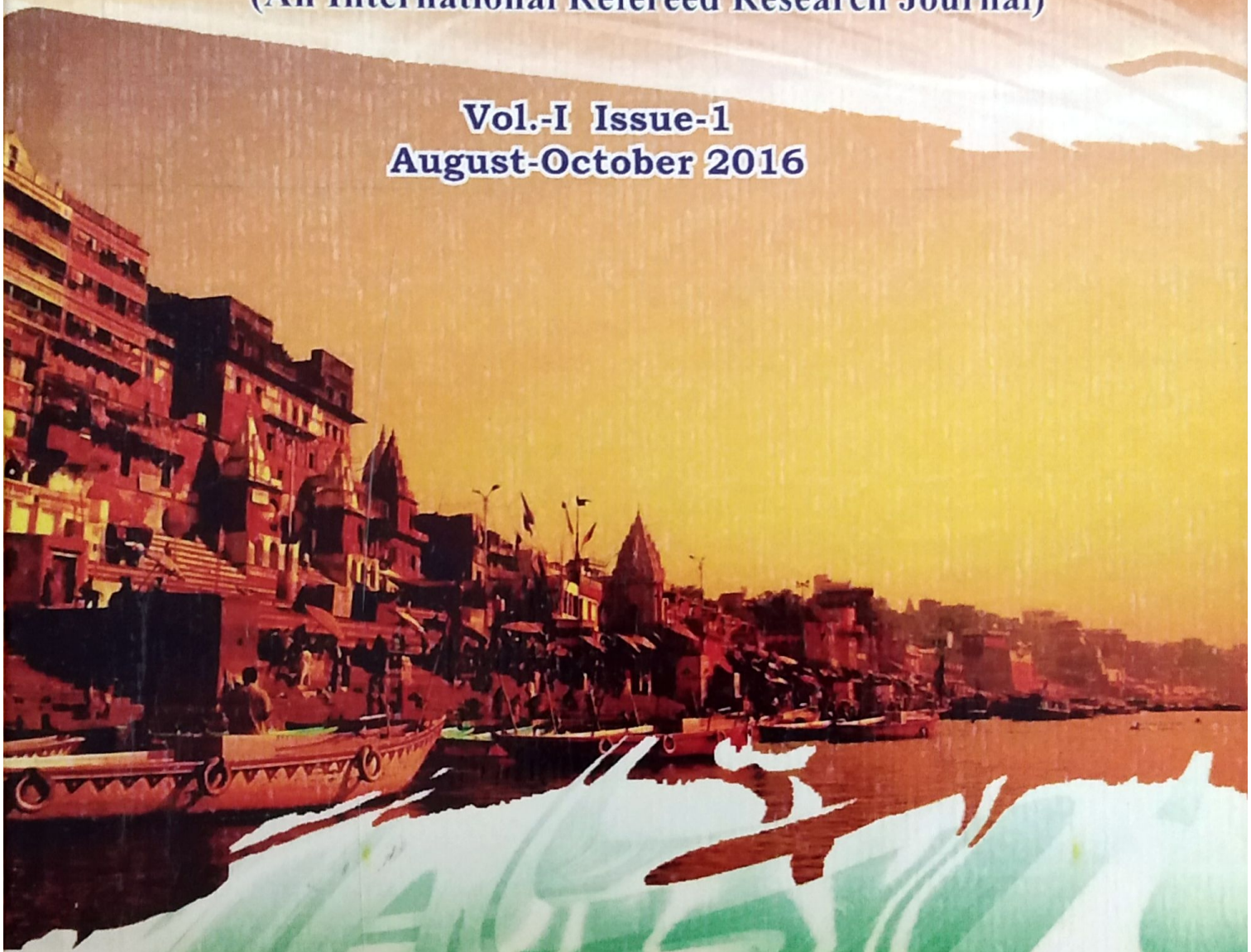
ISSN : 2760-X790

शोध भारती

त्रैमासिक पत्रिका

(An International Refereed Research Journal)

Vol.-I Issue-1
August-October 2016



सम्पादक
डॉ. हरीश कुमार
डॉ. आशुतोष त्रिपाठी

17. गाँधी जी की सर्वोदय आर्थिक नीति एवं उसकी वर्तमान परिस्थितियों में प्रासंगिकता — 92–101
डॉ0 मनीषा सिंह

18. काशीनाथ सिंह के उपन्यास और शैली–संदर्भ — 102–107
डॉ0 सूर्यकांत त्रिपाठी

19. धूमिल की काव्यभाषा : सम्प्रेषण का अद्भुत सामर्थ्य — 108–113
शिव प्रताप सिंह

20. अद्वैत वेदांत में प्रतिपादित प्रत्यक्ष विचार का स्वरूप — 114–117
अमरनाथ सिंह

21. दूधनाथ सिंह की कहानियों में आधुनिकताबोध — 118–123
दीपक सिंह

22. श्रीमद्भगवद्गीतोक्त योगवैशिष्ट्य — 124–129
विष्णु शंकर पाण्डेय

23. निम्बार्क मत में सृष्टि-प्रक्रिया — 130–136
शेफाली प्रियदर्शिनी

24. कृष्णकुतूहलम् नाटक में प्रतिबिम्बितप्रकृति–चारुता — 137–141
मनोज कुमार उपाध्याय

25. वेदों में प्रतिपादित कोश एवं कर स्वरूप — 142–148
धीरज कुमार मिश्र

26. गोपालगंज जिले के उत्खनित एवं पूर्व सर्वेक्षित पुरास्थलों का पुरातात्त्विक अध्ययन — 149–153
अशेष मिश्र

काशीनाथ सिंह के उपन्यास और शैली–संदर्भ

डॉ.सूर्यकांत त्रिपाठी*

काशीनाथ सिंह के उपन्यास प्रायः संस्मरणात्मक है और संस्मरण विधा का आरम्भ द्विवेदी युग से हुआ है। पदुमसिंह शर्मा के लिखे संस्मरणों से इसकी शुरूआत समझी जानी चाहिए। संस्मरण का शाब्दिक अर्थ सम्यक् स्मरण करना होता है। इसमें रचनाकार किसी घटना, वस्तु या व्यक्ति से जुड़े हुए अनुभवों को कलात्मक ढंग से प्रस्तुत करता है। स्मरणीय व्यक्ति कोई पुरुष ही होता है। अतः अतीत की हृदयस्पर्शीय स्मृतियों में अजीब किस्म का जादू है जो भाव विभोर करने की क्षमता रखता है। गद्य की विधा होने पर भी स्मरण लेखन काव्य की रमणीयता से ओतप्रोत और रससिक्त होता है। इस विधा के रचनाकारों में महादेवी वर्मा, रामवृक्ष बेनीपुरी, शांतिप्रिय द्विवेदी, जगदीशचंद्र माथुर, कन्हैयालाल मिश्र प्रभाकर, देवेन्द्र सत्यार्थी, इलाचंद्र जोशी, गुलाबराय, सेठ गोविन्ददास आदि प्रमुख है।

रामचंद्र तिवारी का यह अभिमत है कि "संस्मरण किसी स्मर्यमाण की स्मृति का शब्दांकन है। स्मर्यमाण के जीवन के वे पहलू, वे संदर्भ और वे चारित्रिक वैशिष्ट्य जो स्मरण करता को स्मृत रह जाते हैं, उन्हें वह शब्दांकित करता है। स्मरण वही रह जाता है जो महत्, विशिष्ट, विचित्र और प्रिय हो। स्मर्यमाण को अंकित करते हुए लेखक स्वयं भी अंकित होता चलता है। संस्मरण में विषय और विषयी दोनों ही रूपायित होते है। इसलिए इसमें स्मरणकर्ता पूर्णतः तटस्थ नहीं रह जाता।"[1]और पंडित विद्यानिवास मिश्र का मानना है कि "स्मृति–लेख ऐतिहासिक दस्तावेज नहीं है, पर स्मृति का विशिष्ट सर्जनात्मक उपयोग है, समकालीन साहित्य के इतिहास को एक नया चौखटा इस लेखा से मिलता है और इस दृष्टि से यह इतिहास–रचना को एक नया आयाम देता है। यह इसकी एक गौण उपलब्धि है। इसकी मुख्य उपलब्धि तो यह है कि लेखक,लेखक को कैसे देखता है––बस इस देखने को आप देखते रहे : आपकी आँखे नम हो जायेंगी।"[2]

अपना मोर्चा, काशी का अस्सी, और रेहन पर रग्घू काशीनाथ सिंह के इन तीन संस्मरणात्मक उपन्यासों को शैली की दृष्टि से देखने का प्रयास इस आलेख में किया गया है। चूँकि शैली के विभिन्न रूपों के कारण ही भाषा का सौष्ठव परिलक्षित होता है और शैली वैशिष्ट्य के द्वारा ही इच्छित भावों तथा विचारों का स्पष्टता एंव प्रभावोत्पादकता से प्रकटन संभव है। परिस्थिति–संदर्भ

---

* एसोसिएट प्रोफेसर एवं अध्यक्ष, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, असम।

ISSN 2277 - 9264

संकल्य

हिन्दी अकादमी, हैदराबाद

अक्तूबर-दिसंबर, 2016

44 वर्षों से निरंतर प्रकाशित

'सोनामाटी' के सोना : डॉ. विवेकी राय

ISSN 2277-9264 RNI No. 25388/74

संकल्य त्रैमासिक

वर्ष : 44 * अंक : 4 * अक्तूबर-दिसंबर, 2016 ई.

अनुक्रम Contents

संपादकीय

5 प्रो.टी.मोहन सिंह/ गाँवों के हितैषी रचनाकार डॉ.विवेकी राय अब नहीं रहे...

विवेकी राय पर विशेष

8 डॉ.एम.डी.सिंह/मत रो

9 विनय कुमार शुक्ल 'विद्रोही'/स्वर्गीय विवेकी राय जी को समर्पित

10 डॉ.रामदरश मिश्र /जाना एक धरती पुत्र का

16 अमन कुमार त्यागी/डॉ.विवेकी राय : व्यक्तित्व और कृतित्व

23 पी.एन.सिंह/विवेकी राय की काव्य-यात्रा

28 मान्धाता राय/निश्छल व्यक्तित्व के धनी डॉ.विवेकी राय

32 डॉ.आनंद कुमार सिंह/विवेकी राय : ग्राम-जीवन-दृष्टि के वैश्विक कथा-पुरुष-संस्मृति और मूल्यांकन

43 डॉ.महेंद्रनाथ राय/'बड़ा वह आदमी जो जिंदगी भर काम करता है'

47 डॉ.बुद्धिनाथ मिश्र/साहित्य में गाँव की वह फगुनहट!

50 लाल जी राय/साहित्य के ऋषि डॉ.विवेकी राय

55 ओम प्रकाश चौबे *'ओम धीरज'*/गँवई गंध का गुलाब : डॉ.विवेकी राय

58 डॉ.वेदप्रकाश अमिताभ/विवेकी राय का कविता संसार:गहन अनुभूति और सहज अभिव्यक्ति की संश्लिष्टता

65 डॉ.नर्मदा प्रसाद उपाध्याय/विवेकी राय : साहित्य के 'मंगल भवन'

68 डॉ.चंद्रशेखर तिवारी/अंतिम दिनों में विवेकी राय और 'सोनामाटी'

81 डॉ.अरविंद कुमार सिंह/अनाथ हो गई सोनामाटी

86 डॉ.श्रीपति कुमार यादव/एक किसान कलम का जाना

88 डॉ.आद्याप्रसाद द्विवेदी/मीठी यादों की भीनी सुगंध में डूबे : विवेकी राय जी

91 डॉ.राजेश चंद्र पाण्डेय/विवेकी राय का कथा साहित्य : समग्र विश्लेषण

97 डॉ.सूर्यकांत त्रिपाठी/यादों के आईने में 'विवेकी राय'

यादों के आईने में 'विवेकी राय'

डॉ.सूर्यकांत त्रिपाठी

स्वर्गीय विवेकी राय जनपद गाजीपुर के सोनवानी गाँव में 19 नवंबर सन् 1924 में पैदा हुए। उनकी जिंदगी का सफर बड़ा ही ऊबड़-खाबड़ था। कठिन संघर्ष के बीच उन्होंने अपनी सारस्वत साधना का बखूबी निर्वाह किया। मिडिल पास करके प्राइमरी के मास्टर बन गए। हाईस्कूल, इंटर, बी.ए., एम.ए. सभी प्राइवेट किए और उसी क्रम से अपने अध्यापन का दर्जा भी बढ़ाते गए। 1970 में उन्होंने काशी विद्यापीठ से पी-एच.डी. की उपाधि प्राप्त की और वे हिंदी विभाग, काशी विद्यापीठ के प्रथम शोधार्थी रहे। अध्ययन, अध्यापन और लेखन ही उनका व्यसन था।

शुरुआती दौर में उन्होंने जनता की भावनाओं को जगाने के लिए हस्तलिखित समाचार 'श्वेतपत्र' का संपादन किया। 1942 ई. के आंदोलन में तकरीबन एक साल तक गुप्त रूप से बुलेटिन तैयार करते फिर गाँव-गाँव पहुँचाते हुए आंदोलन की चिनगरी को हवा देते रहे। पूर्वी उत्तरप्रदेश के एक समाचार पत्र में छपनेवाली 'मनबोध मास्टर की डायरी' और 'चतुरी चाचा की चिट्ठी' जैसे स्तंभ के कारण वे भोजपुरी जनमानस पर बहुत समय तक छाए रहे। उन्होंने पच्चीस से अधिक पुस्तकें लिखीं, किंतु प्रचार की कहीं कोई वांछा नहीं।

उन्होंने भोजपुरी के अतिरिक्त हिंदी में कविता, उपन्यास, कहानी, निबंध प्रभृति मात्रा में लिखा। लेकिन भोजपुरी से जो ख्याति उन्हें मिली, उसके वह सदैव एहसानमंद रहे। हिंदी में उनकी प्रतिष्ठा 'सोनामाटी' उपन्यास की वजह से है, जिसे कई सम्मान व पुरस्कार प्राप्त हो चुके हैं। ललित निबंधकारों में आचार्य हजारी प्रसाद द्विवेदी, पं.विद्यानिवास मिश्र, शिवप्रसाद सिंह, कुबेरनाथ राय और ... सभी दिग्गज हैं। पर विवेकी राय कुछ अलग दिखते हैं। उनका अंदाजे-बयां ही कुछ और है जो सभी को भाता है, चाहे वे गंवई या फिर नगरीय पाठक ही क्यों न हों।

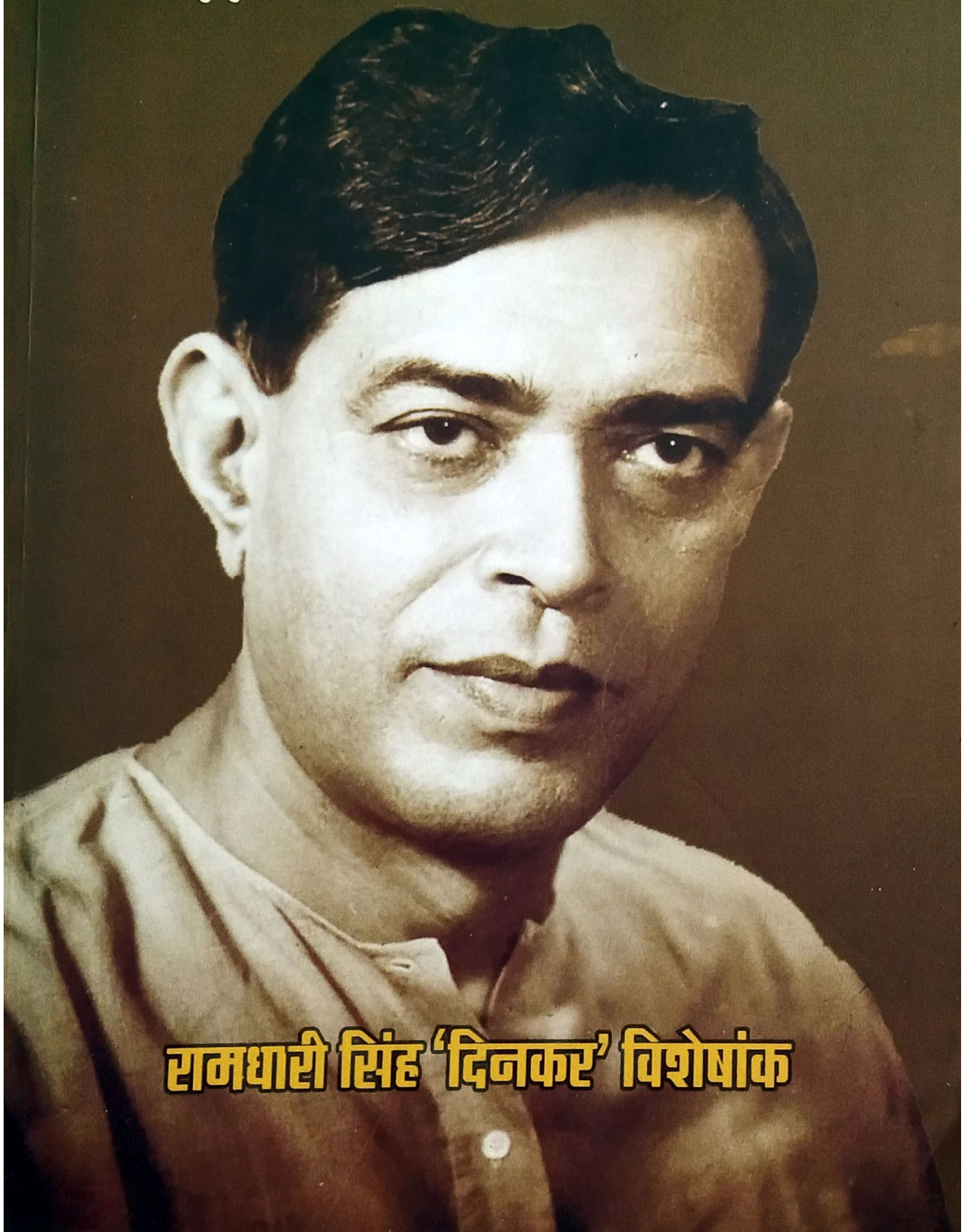
गाँव से उनका बड़ा जुड़ाव था। लगाव था। उन्होंने अपने गाजीपुर के आवास का नाम ही 'गंवई गंध गुलाब' रख लिया था। उनके साहित्य के केंद्र में अथ से इति तक गाँव है जिसमें उन्होंने बड़ी सजीवता के साथ गंवई परिदृश्य का चित्र उकेरा है। जहाँ लोग संस्कृत की उस उक्ति 'मूर्खत्वं यदि वांच्छेत् ग्रामे दिनत्रयं वसेत्' (यदि मूर्खता की इच्छा रखते हो तो गाँव में तीन दिनों तक रहो) का हवाला देते हुए गाँव से बिदकते हैं और 'गंवार' का सीधा अर्थ (गाँव का रहने वाला) न लेकर उसका अर्थादेश 'मूर्ख' ही लेते हैं, वहीं विवेकी राय का गाँव से अटूट रिश्ता था। नाता था। छोह था। मोह था। उनकी रचनाओं में आंचलिकता का पुट है जिसे वह सहर्ष स्वीकारते रहे। डॉ.रामदरश मिश्र उन्हें इसी वजह से 'किसान लेखक' की संज्ञा से अभिहित करते हैं। उनकी कृति 'गंवई गंध गुलाब' के बारे में पं.विद्यानिवास मिश्र का अभिमत है-"उनमें जो 'सद्यः सीरोत्कर्षण सुरभि' (ताजा जुते खेत की महक) है, उसके ऊपर गुलाब हजार बार वारे जाएँ।"

अंक - 109/2017

ISSN : 0435-1460

गवेषणा

अनुप्रयुक्त भाषाविज्ञान, भाषाशिक्षण तथा साहित्य चिंतन की त्रैमासिक शोध - पत्रिका



रामधारी सिंह 'दिनकर' विशेषांक

ISSN 0435-1460

संरक्षक
प्रो. कमल किशोर गोयनका
उपाध्यक्ष
केंद्रीय हिंदी शिक्षण मंडल, आगरा

गवेषणा

अनुप्रयुक्त भाषाविज्ञान, भाषा शिक्षण तथा
साहित्य-चिंतन की शोध-पत्रिका

अंक- 109 (जनवरी-मार्च 2017)

रामधारी सिंह 'दिनकर' विशेषांक

प्रधान संपादक
प्रो. नन्द किशोर पाण्डेय

संपादक
प्रो. महेन्द्र सिंह राणा

केंद्रीय हिंदी संस्थान, आगरा
(मानव संसाधन विकास मंत्रालय, भारत सरकार)
हिंदी संस्थान मार्ग, आगरा–282005

दिनकर के काव्य में राष्ट्रीय चेतना	सभापति मिश्र	173-183
दिनकर के काव्य में राष्ट्रीयता	ज्योति शर्मा	184-192
दिनकर की जनता आती है	अखिलेश कुमार शर्मा	193-200
दिनकर काव्य में सांस्कृतिक तत्व	सूर्यकांत त्रिपाठी	201-208
अंगारे और इंद्रधनुष के महाकवि 'दिनकर'	दान बहादुर सिंह	209-215
कुरुक्षेत्र : विचार, संवेदना, और शिल्प	आकाश भदौरिया	216-225
हिंदी निबंध के सूर्य : रामधारी सिंह दिनकर	दीपक कुमार पाण्डेय	226-235
ओज, क्रांति और मूल्यबोध के कवि 'दिनकर'	दिनेश चमोला	236-243
सामासिक संस्कृति के अनन्यपोषक रामधारी सिंह दिनकर (संस्कृति के चार अध्याय का विशेष संदर्भ)	राकेश कुमार दूबे	244-249
कर्ण के सत्य की असत्य व्याख्या और रश्मिरथी	नृत्य गोपाल शर्मा	250-256
जीवन आनंद का कवि दिनकर	राजाराम यादव	257-262
रामधारी सिंह दिनकर के काव्य में भारतीय संस्कृति	नवीन नंदवाना	263-275
दैनन्दिनीकार 'दिनकर'	राजीव कुमार झा	276-282
इस अंक के लेखक		
सदस्यता फार्म		

दिनकर के काव्य में सांस्कृतिक तत्व

डॉ0 सूर्यकांत त्रिपाठी

रामधारी सिंह दिनकर का काव्य जीवन तथा जगत का काव्य है। उसमें जीवन के प्रति पूरी तरह समर्पण का भाव है, साथ ही जग के प्रति अभिन्न आस्था का भी। मानव जीवन के सतत उत्थान के द्वारा जगत का अलंकरण उनके काव्य का लक्ष्य है। मानव जीवन के उत्थान की धुरी संस्कृति है। वह मानव को एक तरफ स्वार्थपरकता, अतिलोलुपता, कामांधता सरीखी बहुशः कुप्रवृत्तियों से दूर करती है तो दूसरी ओर काम, गुगुप्सा, पुत्रेषणा जैसी उसकी प्रकृति में परिष्कार भी लाती है। काव्य संस्कृति का सशक्त माध्यम है इस हेतु कि काव्य के दो प्रमुख उद्देश्य हैं-

1. 'शिवेतरक्षति अर्थात् आत्म कल्याण तथा विश्व कल्याण का भाव'।
2. 'सद्यः परिनिर्वृत्ति यानी लोकोत्तर आनंद, साधारणीकरण द्वारा चित्तवृत्ति का परिष्कार एवं प्रवृत्ति का उर्ध्वीकरण।'

इन दोनों का ही जुड़ाव संस्कृति से है।दिनकर के काव्य में धरती के प्रति गहरी संवेदना के साथ ही उसके स्वर्गीकरण की भी कामना है, भौतिकवाद से जुड़ाव के साथ भी अध्यात्म का जयघोष है, मातृभूमि के प्रति भक्ति भाव

UGC Sl. No. 46977 Reg. No. 1680/2011-12

ISSN : 2272-1832

शब्दार्थ

त्रैमासिक पत्रिका

साहित्य, कला, संस्कृत और शोध की लोकधर्मी पत्रिका

अंक-17-18, संयुक्तांक, जुलाई 2017-दिसम्बर 2017

सम्पादक

वशिष्ठ अनूप

- **असंगठित क्षेत्र : भारतीय अर्थव्यवस्था का इंजन** 52–65
  विनीत कुमार तिवारी
- **प्राचीन भारतीय समाज में वर्ण–व्यवस्था** 66–70
  सत्य प्रकाश
- **मिर्जापुर जिले से प्राप्त प्रागैतिहासिक चित्रों का अध्ययन** 71–74
  राकेश कुमार यादव
- **राजा की स्थिति वैदिक एवं पौराणिक काल के विशेष सन्दर्भ में** 75–80
  आलोक कुमार सिंह
- **बौद्ध धर्म में पर्यावरणीय संरक्षण के विचार** 81–84
  अखिलेश कुमार
- **गुप्तकालीन नारी : शालभंजिका रूप में** 85–89
  डॉ0 स्मिता सिंह
- **बौद्ध साधना का आध्यात्मिक आदर्श : प्रवज्जा** 90–92
  अजेन्द्र प्रताप राय
- **उत्तर प्रदेश के ग्रामीण क्षेत्रों में महिलाओं की आर्थिक स्थिति पर मनरेगा के प्रभाव का अध्ययन** 93–100
  Nidhi Tripathi
- **संगीत के संवर्द्धन में दरबारी कलाकारों की भूमिका** 101–109
  रिंकी सिंह
- **महाभाष्यस्थश्लोकवार्तिकानां संक्षिप्तः परिचयः** 110–115
  धर्मराजबागः
- **लोक, शास्त्र और आदिवासी जीवन** 116–121
  डॉ. सूर्यकांत त्रिपाठी

लोक, शास्त्र और आदिवासी जीवन

डॉ. सूर्यकांत त्रिपाठी*

'लोक' के संबंध में पं. विद्यानिवास मिश्र की यह अवधारणा अति महत्वपूर्ण है कि ''लोक' शब्द के अर्थ जगत पर जब हम विचार करते है तो यह प्राप्त होता है कि यह शब्द 'लोक' धातु अर्थात देखने के अर्थ में प्रयुक्त धातु से निकला है। लोक का वैदिक अर्थ प्रकाश, खुली जगह, दृश्य–जगत है और उसके बाद उसका मुक्त विचरण, इसी कारण विकसित अर्थ है पूरा विश्व जो तीन अथवा सात अथवा चौदह लोको में बँटा हुआ है। उत्तर वैदिक और महाभारत काल में लोक का अर्थ हुआ–पृथ्वी लोक और उसके निवासी या फिर इसका अर्थ सामान्य जीवन, सामान्य भाषा हुआ। लौकिक का अर्थ इन्द्रियगोचर जीवन से संबद्ध हुआ। लोक के योग से अर्थ निष्पन्न हुए जिनमें लोकगीत, लोकगाथा, लोकचारित्र्य, लोकाचार, लोकतंत्र, लोकधर्म, लोक–प्रसिद्धि, लोक–मातृका, लोक मार्ग, लोक यात्रा, लोक–रंजन, लोक–बिन्द, लोक–विरूद्ध, लोक–वृत्त, लोक–संग्रह, लोक–स्थिति, लोक–हित प्रभृति शब्द है। सभी शब्दों में लोक का अर्थ व्यापक मानव–व्यवहार है या मूल्यबोध से प्रेरित स्वीकृत व्यवहार है अथवा चेतना है। ताड्य ब्राह्मण में लोकबिन्दू का प्रयोग उस व्यक्ति के लिए किया गया है जो लोगों को स्वतंत्रता दे, खुलापन दे, खुली जगह दे और खुलेपन के लिए एक आमंत्रण दे।''(मिश्र,डॉ. विद्यानिवास मिश्र, चंदन चौक, (उ.प्र. हिंदी नाटक अकादमी, लखनऊ) की भूमिका से उद्धृत)

ऐतिहासिक, भौतिकवाद के आलोक में तो हम पाते है कि जनजीवन तथा लोक संस्कृति से ही शिष्ट संस्कार होता आया है। यदि ऋग्वेद शिष्ट संस्कृति का परिचय है तो अथर्ववेद उसका पूरक होकर लोक संस्कृति का परिचायक है। अथर्ववेद के विचारों का धरातल सामान्य जीवन है तो ऋग्वेद के विचारों का धरातल विशिष्ट जीवन है। ऋग्वेद में यज्ञ–यागादि का विधान प्राप्त होता तो अथर्ववेद में जादू ,मंत्र, टोने–टोटके प्रभृति मिलते हैं। यही स्थिति उपनिषदों में भी दिखाई देती है। उनमें यदि अभिजात संस्कृति के चक्र वाले आत्मा–परमात्मा, जीव–जगत, ब्रह्म आदि के सूत्र है तो लोक जीवन, लोक विश्वास तथा लोक परम्पराओं के विवरण भी है। इसी क्रम में गुणाढ्य की 'वड्डकट्टा' (वृहदकथा), सोमदेव का 'कथा सरित्सागर', कृष्णा शर्मा के पंचतंत्र आदि लोकगाथाओं के अगाध समुद्र है।

संस्कृत वाड्मय में 'लोक' आदि बर्बर, असभ्य या अर्धसभ्य, अविकसित, अवैज्ञानिक समुदाय अथवा वर्ग नहीं है और सर्वोच्च मौखिक परम्परा या

---

* एसोसिएट प्रोफेसर एवं अध्यक्ष, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर, असम।

ISSN : 0975-3664 UGC : 41386 RNI : U.P.BIL/2012/43696

Year : 2017 Year : SEPTEMBER Vol. : 3

शोध - धारा

SHODH-DHARA

A UGC Listed Research Journal

Grade 'A' Impact Factor 5

शैक्षिक एवम् अनुसंधान संस्थान, उरई-जालौन (उ०प्र०) द्वारा प्रकाशित

Published by Shakshik Avam Anusandhan Sansthan

Orai (Jalaun) U.P.

२०. उच्च शिक्षा में हिन्दी साहित्य का योगदान (तुलसी के विशेष संदर्भ में)	डॉ० रीतू भटनागर	99-101
२१. भारतेन्दु की पत्रकारिता : लोकप्रियता से उपयोगिता तक	राजीव कुमार दास	102-106
२२. मैत्रेयी पुष्पा की आत्मकथा और शैली–संदर्भ	डॉ० सूर्यकांत त्रिपाठी	107-113
२३. भारतीय परम्परा तथा हरियाणवी लोक साहित्य में श्री हनुमान	दीपक राठी	114-119
२४. हिन्दी आलोचना के शलाका पुरूष आचार्य रामचंद्र शुक्ल	डॉ० इन्दुमती दुबे	120-123
२५. राष्ट्रीयता की गीता 'भारत–भारती'	डॉ० सतीश चतुर्वेदी, ''शाकुन्तल''	124-130
२६. राजभाषा हिन्दी : प्रयोग, प्रसार और चुनौतियाँ	डॉ० जगदम्बाप्रसाद दुबे	131-138
२७. लोकतंत्र और मीडिया की भाषा के रूप में हिन्दी	डॉ० राजनारायण शुक्ल	139-143
२८. थर्ड जेंडर और लैंगिक अस्मिता	डॉ० विजेन्द्र प्रताप सिंह	144-164
२९. दुर्गादास : मातृभूमि के प्रति प्रेम की अभिव्यक्ति	देवेन्द्र कुमार गुप्ता	165-169
३०. 'सात नदियां एवं समन्दर' उपन्यास में पुरुष पात्रों की नैतिक चेतना	डॉ० प्रियंका गुप्ता	170-175
३१. मध्यवर्गीय संकीर्णता को उकेरती : चीफ की दावत	डॉ० अनिल कुमार विश्वकर्मा	176-178
३२. भारतीय हिन्दी साहित्य में समरसता के उत्स	डॉ० नरेन्द्र मिश्र	179-185
३३. स्त्री विमर्श के आइने में : कामायनी	डॉ० नवीन कुमार	186-191
३४. समकालीन हिन्दी कविता में सामजिक परिप्रेक्ष्य	डॉ० सुभाष चन्द्र सिंह कुशवाहा	192-195
३५. महादेवी वर्मा जी के संस्मरणात्मक रेखाचित्र साहित्य में परिलक्षित उनकी मान्यताओं का एक सूक्ष्म अवलोकन	डॉ० कामिनी मट्टू	196-199
✦ विशेष		**२००-२१०**
३६. हाशिये पर टंगी जारवा जनजाति : एक विश्लेषण	श्रीमती जयाप्रभा भट्टाचार्य	200-203
३७. हिन्दी कविता में राष्ट्रीय अस्मिता के तत्व	डॉ० सतीश चतुर्वेदी 'शाकुन्तल'	204-210
✦ पुस्तक समीक्षा		**२११-२१४**
३८. कहानियों में संवेदना का वैविध्य	रविकान्त	211-212
३९. व्यतिरेकी भाषा विज्ञान की अन्य भाषा शिक्षण में उपादेयता	डॉ० माधुरी पाण्डेय ''गर्ग''	213-214

हिन्दी

ISSN : 0975-3664, RNI : U.P.BIL/2012/43696, UGC No. : 41386
SHODH-DHARA ; SEP 2017; Vol. 3; P. 107-113

मैत्रेयी पुष्पा की आत्मकथा और शैली-संदर्भ

डॉ० सूर्यकांत त्रिपाठी

एसोसिएट प्रोफेसर, हिन्दी विभाग, तेजपुर विश्वविद्यालय, **तेजपुर, असम**

(प्राप्त : ६ जून २०१७)

Abstract

समग्र रूप से हिंदी का आत्मकथा–लेखन बहुत ही बहुरंगी है। साहित्यकारों, राजनीतिज्ञों, पत्रकारों, शिक्षकों, वकीलों, समाजसेवकों, फिल्मी कलाकारों प्रभृति ने अपनी–अपनी आत्मकथाएँ लिखकर सामज में बहुरूपी बड़ा ही जीवन्त चित्र उरेहा है। प्रायः सभी आत्मकथाकारों ने पारिवारिक जीवन की अपेक्षा अपने कार्यक्षेत्र से जुड़े प्रकरणों को ही विशेष महत्व दिया है। परंतु पारिवारिक प्रकरणों का सर्वथा अभाव भी नहीं है। समूचे आत्मकथा साहित्य के पारिवारिक परिदृश्य को समवेत रूप में देखने पर यह ज्ञात होता है कि ये बहुरंगी हैं–इनमें परिवार के व्रत, उत्सव, अंधविश्वास, परंपराएँ जीवन मूल्य सभी का समावेश है। शिल्प की दृष्टि से इनमें पत्र, डायरी, संस्मरण आदि सबका सम्मिलित रूप भी प्राप्त होता है। मैत्रेयी पुष्पा की दो आत्मकथाएँ है–(१) कस्तूरी कुण्डल बसै (२) गुड़िया भीतर गुड़िया। शिल्प की दृष्टि से जब हम इन दोनों पर विचार करते हैं तो पाते हैं कि इनमें वर्णनात्मक शैली की प्रधानता है। अपने अनुभूत क्षणों के आधार पर ही इन्होंने इनमें यथार्थ का अंकन किया है। कथानकों में प्रकृति चित्रण, गांव, परिवार का परिवेश–परिस्थितियाँ, पारस्परिक संबंधों, सामाजिक विकृतियों का वर्णन बड़ा ही सहज, स्वाभाविक और प्रभावोत्पादक है। भाषा सरल, सहज, प्रवाहयुक्त, लोकोक्ति एवं मुहावरों से भरपूर बोधगम्य है।

Figure : 00 References : 26 Table : 00

Key Words : आत्माकथा,मैत्रेयीपुष्पा का लेखन और संवेदना

निज का जीवन–लेखन 'आत्मकथा' है, लेकिन अपने चरित्र का विश्लेषण करना आसान नहीं अपितु दोधारी तलवार है। क्योंकि यदि लेखक अपने गुणों का वर्णन करता है तो आत्म प्रशंसक कहा जाता है, यदि दोषों का उल्लेख करता है तो लोगों की श्रद्धा से वंचित होता है और यदि अपने दोषों को नज़र–अंदाज कर जाता है तो सच्चा आत्मकथाकार होने का हकदार नहीं रह जाता है।''अतः आत्मकथाएँ प्रायः बेईमानी की अभ्यास पुस्तिकाएँ प्रतीत होती हैं, क्योंकि कभी सच कहने का साहस नहीं होता है तो कभी सच सुनने का। प्रायः सच व लिहाज़ में कुछ बातें छोड़ दी जाती है तो कभी उन्हें बचा–बचाकर प्रस्तुत किया जाता है।''[१]

यह विधा जीवनी से अलग है। इसमें व्यक्ति स्वयं के बारे में लिखता है। इसका आरंभ भारतेन्दु काल से हुआ है। स्वयं भारतेन्दु ने 'कुछ जग बीती' शीर्षक से अपनी आत्मकथा लिखी। आत्मकथा में लेखक अपने जीवन के अतीत का सिंहावलोकन करता है और उसमें ऐसे जीवन–संदर्भो का चयन करता है। जो उसके वर्तमान जीवन के निर्माण में योग दे चुके हैं। यदि वह लेखक है तो वह अपनी सृजन प्रेरणाओं को लिपिबद्ध करता है, यदि वह राजनेता है तो वह उन परिस्थितियों, घटनाओं पर नजर डालता है जो उसके नेतृत्व की स्थापना में सहायक बनी है। सारांशतः यह होता है कि आत्मकथाकार अपने मन में यह विचार अवश्य करता है कि 'मेरी कृति को पढ़कर पाठक को मेरी उपलब्धियों का बोध हो और

UGC Sl. No. 48625 Impact Factor : 2.41

ISSN : 2760-X790

शोध भारती

त्रैमासिक पत्रिका

(An International Refereed Research Journal)

Vol. VII, Part-II, Issue. 2, February 2018- April 2018

सम्पादक
हरीश कुमार
आशुतोष त्रिपाठी

सम्पादकीय पता
खोजवाँ बाजार, वाराणसी

समिति
हेल्पिंग हैण्ड यूथ, उत्तर प्रदेश

- **Role of Rural Infrastructure and Agriculture Growth in Bihar** 236–243
  Dr. Ramprawesh Kumar Nirala
- **भारत में ग्रामीण स्वास्थ्य व्यवस्था : एक समीक्षा** 244–251
  अमरजीत सिंह
- **ग़ज़ल का स्वरूप** 252–262
  डॉ0 लक्ष्मण प्रसाद गुप्ता
- **बच्चन : निश्च्छल प्रेम की अभिव्यक्ति** 263–269
  डॉ0 नम्रता गुप्ता
- **साहित्य का प्रगतिशील रूप : परम्परा का मूल्यांकन** 270–282
  शत्रुघ्न कुमार मिश्र
- **आधुनिक 'हिन्दी साहित्य' पर पाश्चात्य ज्ञान–विज्ञान का प्रभाव** 283–287
  चन्दन लाल सोनकर
- **फर्रूखाबाद घराने की बंदिशों (गतों) का स्वरूप एवं महत्व** 288–291
  आशीष कुमार मिश्रा
- **भारतीय नैतिकमूल्यों का आधार वेद** 292–297
  डॉ. अजय कुमार मिश्र
- **आदिवासियों का मिथकीय विवेचन** 298–294
  डॉ. सूर्यकांत त्रिपाठी

✷

आदिवासियों का मिथकीय विवेचन

डॉ. सूर्यकांत त्रिपाठी*

मिथक आदिम मानव की प्रकृति और उसके उपादानों के साहचर्य से उत्पन्न प्रतिक्रियाओं का बिम्बात्मक रूपायन (Form) है। इसमें उसकी श्रद्धा, प्रेम, भय, कौतुहल प्रभृति भावनाएँ कथा रूप में अभिव्यक्त होती है। यही कारण है कि लोकमन की समष्टिगत उदात्त रागात्मक संवेदनाओं और चेष्टाओं का प्रतिफलन है। मिथक को बुलफिंच (Bulfinch) का आदिम मानव की भावनाओं का देवी–देवताओं के रूप में विवरण स्वीकारते हुए मत है कि तत्वतः मिथ आदिम मानव का दृश्यमान जगत के संबध से उत्पन्न रागात्मक प्रतिक्रियाओं की बिम्बात्मक रंगीन व्यंजना के लिए अपनाया गया व्याख्यात्मक प्रयास है। इसमें व्यक्ति के गुणों की अपेक्षा सामूहिक अंतश्चेतना व्यंजित है। जब व्यक्ति का चिंतन और समाज का जीवन दोनों का किसी ऐतिहासिक धरातल पर तादात्म्य होता है तब मिथ का जन्म होता है। बुलफिंच (Bulfinch) के मूल कथन को निम्नवत् देखा जा सकता है– "An account of the deeds of a god or divine being usually expressed in terms of primitive thought. In essence it is an attempt to explain be relation of man to the physical world, and has, for those who recount it, a predominantly religious value; or it may pretend to explain the existence of some social organization, or a custom or peculiarities of an environment."[1] बुलफिंच ने देवी–देवताओं के कार्यों और धार्मिक मूल्यों (Religious value) का उल्लेख व्यक्ति की धार्मिक दृष्टि के लिए किया है। धार्मिक दृष्टि का अनुभव केन्द्रबिंदु पर समग्र होना मिथ का हेतु है। यही कारण है कि मिथ का धर्म, यज्ञ तथा आराधना से गहरा संबंध है। मिथ में जो कथा द्वारा व्यक्त है वही रिचुअल्स (Rituals) में क्रियाओं द्वारा किया गया है।

मिथ का जन्म आदिम समाज में है। यह आदिम भाषा तथा साहित्य है। इसका रचयिता अज्ञात है। इसके रचयिता के बारे में कोई जानकारी नहीं है क्योंकि यह समूह मानस के साक्षात्कृत व्यक्त सत्य का कथा बिम्ब है। प्रकृति के मंगलमय, मनोज्ञ ललित रूप उसे आनंदित करते है। इसलिए वह श्रद्धा, प्रेम, आह्लादवश उनको देवी–देवताओं के रूप में पूजता है तथा उसकी कल्पना में अमंगल, भयावह विद्रुप, प्राकृतिक शक्तियाँ दानवाकार बनती है। इससे देव–दानव के शाश्वत संघर्ष का मिथ उमड़ता है। व्यक्ति मानस का सामूहिक अचेतन है। इसे ही आद्य–कथा बिम्बों से प्रकट करता है।

---

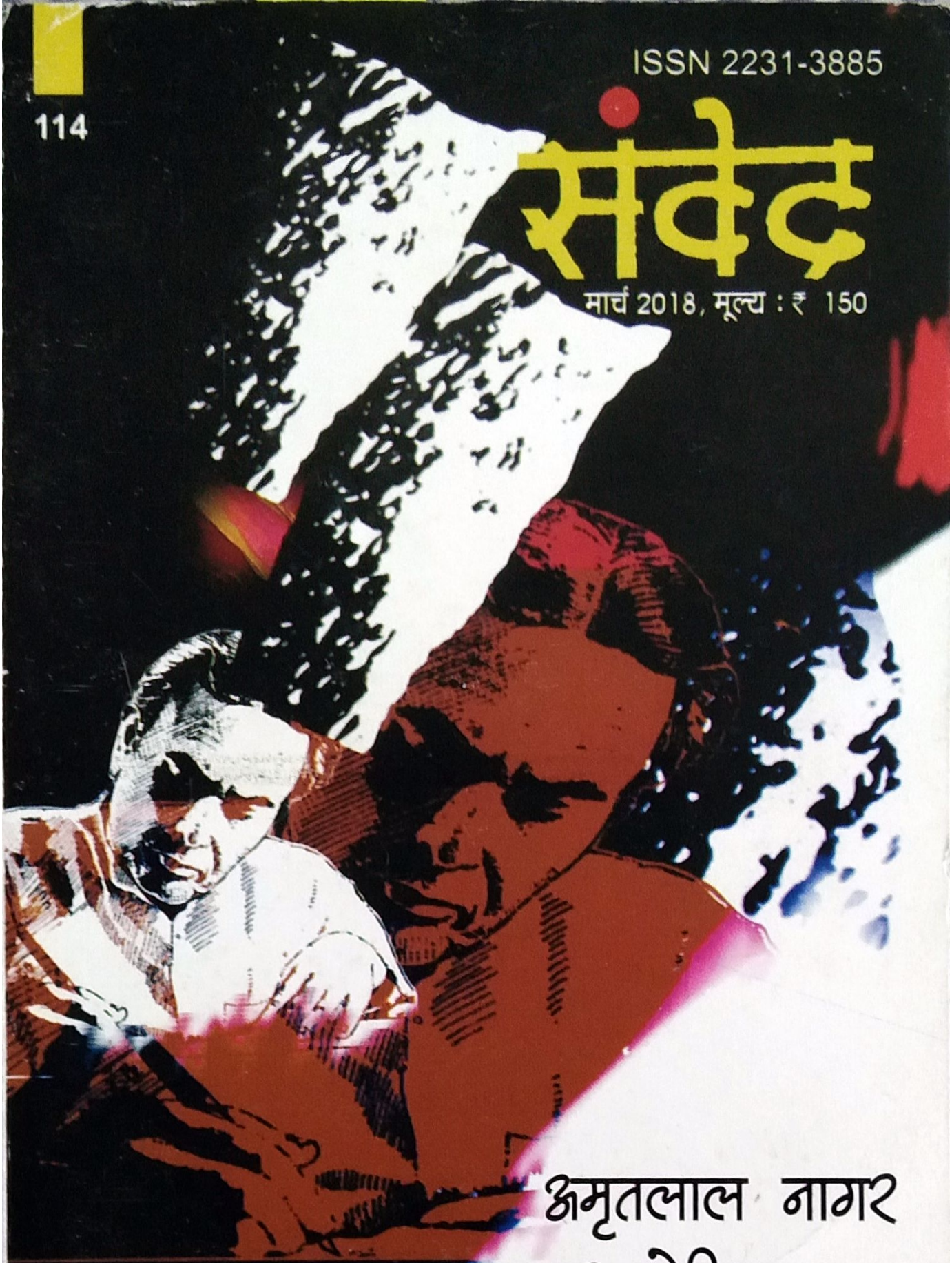
* एसोसिएट प्रोफेसर, हिंदी विभाग, तेजपुर विश्वविद्यालय, तेजपुर (असम)।

ISSN 2231-3885

114

संवेद

मार्च 2018, मूल्य : ₹ 150



अमृतलाल नागर पर केन्द्रित

ISSN-2231-3885 SAMVED

संवेद-114

वर्ष 10, अंक 3, मार्च, 2018

चित्र : मनोज कुलकर्णी

सम्पादक : **किशन कालजयी**
सहायक सम्पादक : **राहुल सिंह**
अतिथि सम्पादक : **बिपिन तिवारी**
प्रबन्ध सम्पादक : **अतुल माहेश्वरी**

सम्पादकीय सम्पर्क
बी-3/44, सेक्टर-16,
रोहिणी, दिल्ली-110089
मो. : +918340436365
samvedmonthly@gmail.com

आवरण : **प्रिडा क्रिएशन्स**
रेखांकन : **लाल रत्नाकर, श्रद्धा**

एकमात्र वितरक
नयी किताब प्रकाशन
1/11829, प्रथम मंजिल, पंचशील गार्डन,
नवीन शाहदरा, दिल्ली-110032
फोन : 011-22825606, 9811388579
nayeekitab@gmail.com

स्वामी, प्रकाशक व मुद्रक कुमकुम कुमारी द्वारा
बी-3/44, सेक्टर-16, रोहिणी, दिल्ली-110089
से प्रकाशित और लक्ष्मी प्रिंटर्स, 556, जीटी रोड,
शाहदरा, दिल्ली-110032 से मुद्रित।

इस अंक का मूल्य : एक सौ पचास रुपये
वार्षिक सदस्यता : सात सौ रुपये
रजिस्टर्ड डाक से-एक हजार रुपये
आजीवन : दस हजार रुपये

सम्पादन : अवैतनिक

लेखकों के व्यक्त विचारों से सम्पादक या प्रकाशक का सहमत होना अनिवार्य नहीं।
पत्रिका से सम्बन्धित समस्त विवाद दिल्ली न्यायालय के अन्तर्गत विचाराधीन।

संवेद-114

इस बार

सम्पादकीय

मानवता ही धर्म है... / 7

यादें

काशीनाथ सिंह : महीन किस्म के लखनउवा आदमी / 19

गिरिराज किशोर : छोटों को ज्ञान, बड़ों को सम्मान, साहित्य में निर्माण / 22

चंचल बीएचयू : पहले बताइए, हम कहाँ खड़े हैं / 27

नवनीत मिश्र : याद करोगे तो याद किये जाओगे / 28

शकील सिद्दीकी : बेमिसाल थे नागरजी / 32

शारिब रुदौलवी : प्रेमचन्द के जानशीन / 35

नूर जहीर : स्याही के रंग / 36

राकेश तिवारी : याकै रहे नागरजी / 44

दीक्षा नागर : मेरे बचपन की कुछ झलकियाँ / 78

पत्र

अशोक त्रिपाठी : पाती लिखी केदार को / 85

बातचीत

नागरजी ने इतिहासकार का भी काम किया : **विश्वनाथ त्रिपाठी** / 90

कम्युनिस्ट नहीं बल्कि विचारों से प्रगतिशील थे : **अब्दुल बिस्मिल्लाह** / 102

संस्मरण

किरन सिंह : तीन चौथाई अमृतलाल नागर / 118

पल्लव : किस्सागो के संस्मरण / 124

कपिल कुमार : यादों के आईने में / 130

उपन्यास कला

अजय तिवारी : सामाजिक जीवन के सामासिक चित्र / 135

महेश कटारे : आम पाठक का खास लेखक / 142

अवधेश प्रधान : तुलसीदास : खोज और पुनःसृष्टि / 146

सूर्यकांत त्रिपाठी : 'नाच्यौ बहुत गोपाल' का यौनिक यथार्थ / 155

अमरेन्द्र नाथ त्रिपाठी : ग्रन्थ-द्वय की समान्तरता में गंगा-जमनी तहजीब / 161

शुभनीत कौशिक : 1857 का विद्रोह, 'गदर के फूल' और अमृतलाल नागर / 167

सूरज कुमार : 'बूंद और समुद्र' : एक चारित्रिक मूल्यांकन / 177

संजीव 'मजदूर' झा : हजारों की मौत के जाम का दस्तावेज / 186

सूर्यकांत त्रिपाठी

'नाच्यौ बहुत गोपाल' का यौनिक यथार्थ

यथार्थ के धरातल पर निर्मित 'नाच्यौ बहुत गोपाल' अमृतलाल नागर कृत उपन्यास दलित और नारी जीवन की यथार्थ स्थिति का नितान्त सजीव दृश्य-दर्शन कराता है। उपन्यास में आद्यंत कथा-प्रवाह जिस अप्रतिहत गति के साथ निसर्ग स्वाभाविकता को लिए हुए प्रवाहित है, नारी मनोविज्ञान की मर्मस्पर्शिता के साथ दलित समाज की चरम चमत्कृति भी वैसी ही सर्वत्र प्राप्त होती है। दीनता, लोलुपता, निरक्षरता, कामान्धता और पारिवारिक कलुषांधकार में कुंठित सामाजिक संस्कृति का युगांतर प्रतिनिधि इतने सहज एवं सरल रूप में 'नाच्यौ बहुत गोपाल' को प्राप्त हो गया है कि कोई भी मर्म परिचय पाकर विस्मय विमुग्ध हुए बिना नहीं रह सकता है।

वस्तुतः यथार्थ का सम्बन्ध अथवा यथार्थ का स्रोत भौतिकवादी-दर्शन से है और भौतिकवादी दर्शन जुड़ता है किसान से, मजदूर से, दलित से तथा नारी से। जहाँ कुछ भी अज्ञेय नही है, सब कुछ को जाना जा सकता है। यथार्थ का विषय-क्षेत्र ज्ञाता के मन उसकी अनिच्छा से परे और उसके बाहर का जो संसार है, वहीं तक सीमित है। जिसे बाहरी संसार अथवा पदार्थ जगत कहा जाता है, जो हमसे बाहर है, यथार्थ अपने को वहीं तक समोए हुए है। जो कुछ ज्ञात है या ज्ञात होने के दायरे में है वही संसार है, वही पदार्थ-जगत है। जो अज्ञेय है इस पदार्थ-जगत का हिस्सा नहीं है उसे जानने की रंच भी स्पृहा यथार्थ की नहीं है। यह पदार्थ-जगत अथवा बाहरी संसार, हमारी इच्छा, अनिच्छा से परे, हमसे बाहर, अपने अधिकार से अस्तित्वान है तथा यथार्थ से या यथार्थ में रुचि रखनेवालों का सरोकार इसी से है।

यथार्थ के सन्दर्भ में मुंशी प्रेमचन्द उपन्यास में पात्रों के चरित्र-निर्माण के पहलू पर बात करते हुए लिखते हैं-''यथार्थवादी चरित्र को पाठक के सामने उनके यथार्थ नग्न रूप में रख देता है। उसे इससे कुछ मतलब नहीं कि सच्चरित्रता का परिणाम बुरा होता है या कुच्चरित्रता का अच्छा। उसके चरित्र अपनी कमजोरियाँ या खूबियाँ दिखाते हुए अपनी जीवन-लीला समाप्त

		Dr UK Pegu Journals

The Asian Man
Vol. 14, Issue 1, January - June 2020 : 1-8
DOI:

IndianJournals.com
A product of Diva Enterprises Pvt. Ltd.

RESEARCH ARTICLE

Implication of Social Work and Women's Livelihood in India

Prerana Banik

Received: 17-02-2020; Accepted: 05-06-2020

ABSTRACT

The creation of employment and livelihoods has been recognized in national policies and programs as an important tool to promote gender equality. The right to life enshrined in the Indian constitution also encourages the promotion of livelihood. Innumerable efforts have been made to strengthen the participation of women in the economy which has focused on ensuring equal wages for women, creating livelihoods through employment programs, ensuring favourable working conditions, and promotion of entrepreneurship. Women in India, who make up about half of the total population, have only about a quarter of economic participation. Most of them work as agricultural and disorganized workers with full social security and low wages. This phenomenon of feminization of work in agriculture leads to the feminization of poverty in the country in general and in rural areas in particular. This vicious cycle has an intrinsic root in its societal structure which has put women in apathy. To empower them and free them from poverty, microfinance has proven to be an important tool of livelihood generation. Social work plays a crucial role in the facilitation of the proper functioning of micro finance. It operates from the individual level in the field to planning level with inclusive practices of community development. The social worker not only influences the policies of the authorities through his intervention to achieve human and social development but also through the various roles it plays from dealing with marginalised people to policy-making bodies, resources mobilisation, capacity building, advocacy, organising community and doing research.

Keywords: Community development, Constitution, Entrepreneurship, Policies, Unorganised

INTRODUCTION

The central role of gender equality, strengthening the role of women, and realising women's rights in achieving sustainable development has been increasingly recognised in recent decades including the Beijing Declaration of 1995 and the Sustainable Development Goals (SDGs), adopted in 2015. The status of women in India is today raising a debate on the urgent need for equality of women in all its aspects. The ranking of gender differences in the country is one of the lowest in the world. The country's economic growth potential lies in the participation of women. According to a report by the McKinsey Global Institute (2018) the country could grow by more than 18% of its GDP to $ 770 billion by 2025 simply by giving women equal opportunities. It is estimated that higher participation of women in the labour market, an increase in the number of working hours, and their inclusion in sectors with higher productivity will contribute to this economic growth. With women currently contributing only 18% of the country's GDP, it is one of the lowest in the world. Only 25 percent of the Indian workforce is female. The report also indicates that 97% of all workers in India work in the informal sector do low-paid work and do household chores (World Economic Forum, 2018).

Prevalence of son preference in the society puts women at the bottom. Parents may choose to keep having children until they get the desired number of sons. This is called son "meta" preference. A son "meta" preference – even though it does not lead to sex-selective abortion – may nevertheless be detrimental to female children because it may lead to fewer resources devoted to them. Such metapreference gives rise to "unwanted" girls–girls whose parents wanted a boy, but instead had a girl. Son preference giving rise to sex selective abortion and

Assistant Professor, Tezpur University, Napaam, Tezpur-784028, Assam, India
Email id: banikpb@tezu.ernet.in

Contents

Editorial v

Re-presenting Otherness: Contemporary Perspectives 1
- Sukalpa Bhattacharjee

Gendered Implications of Customary Laws on the Women of Northeast India: The Case of Nagaland 17
- S- Obja Borah Hazarika and Sarmistha Das

China, India & Pakistan Geo Strategic Triangle – The Pakistan Factor in Sino-Indian Relations 48
- C. Joshua Thomas & Haans J. Freddy

Situating 'the Ruling Class' and 'the Social Masses' in Contemporary Naga Society: A Nuanced Perspective 75
- Kedilezo Kikhi

Without Railway, Is Manipur as the Gateway to Southeast Asia meaningful? 88
- I. Yaipharemba

The Economy of Human Trafficking: A Study on Trafficking of Women and Children from Manipur 107
- Gaithoilu Gangmei

The Militarisation in the Frontier Spaces: A post-script of the Armed Forces (Special Powers) Act, 1958 in Assam 131
- Juri Baruah

Taking its Toll: Burden of Work on Working Women and its Impact on Health: A Study in Tripura 160
- Paramita Saha

THE NORTH EASTERN
RESEARCH BULLETIN

Some Aspects of Social Construction of Identity in Plural Societies

Partha Pratim Borah
Rabin Deka

This paper attempts to understand the concept of identity in plural societies. The character of the plural society necessitates the understanding of nature of collective identity and how they are formed and perpetuated over time. The sociological understanding of identity helps us to see identity both as category of practice as well as category of analysis. In this context, the critical understanding of the concept of identity helps us to go beyond the essentialisation of the concept which assumes that everyone has identity. Hence, this paper argues that we need to take identity as category of analysis along with the fact that we may possess identity which is framed and re framed over time. In this context, this paper attempts to understand the multiple patterns of identity formation in plural societies by critically looking into socio political dimensions of identity formation.

[Key concepts: Identity, Plural Society, Essentialisation, Social construction.]

Introduction:

The study of identity especially collective identity is of immense significance for the Sociology. While there are some micro sociological perspectives like symbolic interactionism, social psychology etc that give importance on the identity of the individual and how individual identify the self in the process of interaction; the idea of collective identity concern with formation of 'we-ness' of the group on the basis of the shared attributes (Cerulo, 1997, 385-386). Collective Identity constitutes an important area of study for the classical sociologist in different forms like 'collective conscience' of Durkheim, 'class consciousness' of Marx and Gemeinschaft of Tonnies (Cerulo, 1997, Ibid., 386). The nature of collective identity

The Journal of Northeast Indian Cultures
©ADBU reserves the copyright to all articles and book reviews published and no article/review or a part thereof may be reprinted without written permission from the ADBU

ISSN 2322-0988

Frequency of Publication
One volume with two issues per year

Subscription price for 2018
US $250/- Libraries and US $200/- Individual (Outside India). Rs. 1000/- Libraries and Rs. 600/- Individuals within India.

The Views and interpretations expressed in the journal are those of the individual author(s) and do not necessarily represent the views of Assam Don Bosco University.

Manuscript, editorial, correspondence and books for review should be sent to: The Editor, **The Journal of Northeast Indian Cultures,** Assam Don Bosco University, Tapesia Gardens, Sonapur – 782402 / Azara, Guwahati, ASSAM - 781 017.
jneic@dbuniversity.ac.in

VOLUME -25

ISSN 0975-8305
DECEMBER, 2017

THE NORTH EASTERN RESEARCH BULLETIN

DEPARTMENT OF SOCIOLOGY
DIBRUGARH UNIVERSITY
DIBRUGARH, ASSAM (INDIA)

THE EASTERN ANTHROPOLOGIST

Editors : Sukant K. Chaudhury, P. Venkata Rao

Associate Editors : Keya Pandey, Vibha Agnihotri

Volume 72 **Numbers 3 & 4** **July-December 2019**

CONTENTS

Anthropology of Hunger: People's Perception and Survival Strategies in Kalahandi	*Biswajit Das* *Ajaz Ahmad Gilani* *Archana Singh*	245
Knowledge in Context: Production and Practices of Indigenous Mode of Knowledge	*Subhasis Sahoo* *Sital Mohanty*	271
The Developmental Process in the Northeast India : A Critical Interrogation	*D. V. Kumar*	289
Ecology, Climate Change and Global Warming: Some Issues	*Sukant K. Chaudhury* *Pavitranand Ramhota*	301
Clocking the Satra: Meanings and Movements	*Sarmistha Das*	313
Youth and Dissent: Towards A New Sociological Perspective	*Ajit Kumar Pandey*	329
Globalization and Education: Challenges and Opportunities to Implement Inclusive Education in India	*Afaq Ahmad Mir*	353
Ritual Effect, Migration and Impoverishment of Tribes: A Socio-cultural Mapping of Livelihood Options in a Tribal Village of Odisha	*Sukanta Kumar Mahapatra*	371
The Forest Villages and the Challenges of Rehabilitation: A Study with Reference to 'Taungia' and 'Van Gujjar' Settlements of Saharanpur	*Shailja Singh*	387
Eidos and Ethos Among Baiga, Bharia and Saharia Tribes: Implications For Development	*Sunil Kumar Yadav*	401
Prehistoric Sites from the Upper Reaches of Narmada, Central India: Stone Tool Recycling and Historical Continuity	*Babul Roy*	419

ISSN: 0012-8686

THE EASTERN ANTHROPOLOGIST

FOUNDED IN 1947 BY D.N. MAJUMDAR

Volume 72 Numbers 3-4 July-December 2019

Anthropology of Hunger: People's Perception and Survival Strategies in Kalahandi	Biswajit Das
Knowledge in Context: Production and Practices of Indigenous Mode of Knowledge	Ajaz Ahmad Gilani & Archana Singh
The Developmental Process in the Northeast India : A Critical Interrogation	Subhasis Sahoo Sital Mohantyj
Ecology, Climate Change and Global Warming: Some Issues	D. V. Kumar
Clocking the Satra: Meanings and Movements	Sukant K. Chaudhury Pavitranand Ramhota
Youth and Dissent: Towards A New Sociological Perspective	Sarmistha Das
Globalization and Education: Challenges and Opportunities to Implement Inclusive Education in India	Ajit Kumar Pandey
Ritual Effect, Migration and Impoverishment of Tribes: A Socio-cultural Mapping of Livelihood Options in a Tribal Village of Odisha	Afaq Ahmad Mir
The Forest Villages and the Challenges of Rehabilitation: A Study with Reference to 'Taungia' and 'Van Gujjar' Settlements of Saharanpur	Sukanta Kumar Mahapatra
Eidos and Ethos Among Baiga, Bharia and Saharia Tribes: Implications For Development	Shailja Singh
Prehistoric Sites from the Upper Reaches of Narmada, Central India: Stone Tool Recycling and Historical Continuity	Sunil Kumar Yadav
Bommala Koluvu: Enculturation of Children Through Toys in South India	Babul Roy
Indigenous Health Practice of the Mankidia Tribe of Odisha	Divya Teja P Purnajyoti Brahma

Man and Society
A Journal of North-East Studies

@ ICSSR-NERC reserves the copyright to all articles and book reviews published and no article/review or a part thereof may be reprinted without written permission from the ICSSR-NERC.

Editor
R.K.Satapathy

Editorial Advisory Board
S. K. Srivastava
Vice-Chancellor, NEHU and
Chairman ICSSR-NERC

D. R. Syiemlieh
Former Chairman
UPSC, New Delhi

K. S. Rao
Vice-Chancellor
Mizoram University, Aizawl, Mizoram

Gopa Kumar
Former Vice-Chancellor,
Kerala Central University

Chintamani Mahapatra
Rector, Jawaharlal Nehru University
New Delhi

Copy Editor
K. I. Lyngdoh

The views and interpretation expressed in the journal are those of the individual author(s) and do not necessarily represent the views of the ICSSR-NERC.

Subscription: Rs.150 / US $10

Manuscript, editorial, correspondence and books for review should be sent to the Editor, ***Man and Society,*** ICSSR-NERC, NEHU Campus, Shillong-793022, Meghalaya.
For information concerning the preparation of paper, see Style Sheet at www.icssrnerc.org
ICSSR-NERC acknowledges financial support from ICSSR, New Delhi

Printed at : Modern Offset, Shillong

Madrassa and Girls' Education: Reflections from a Muslim Village of Assam

*Sofica Ahmed**
*Rabin Deka***

Abstract

Education is believed to be the best means through which gender discrimination can be eradicated from the society. Historically, Muslims in India have had a lower participation in school education because of social-structural reasons. In their limited choice, a key role is also played by the Madrassa form of education which, in its various forms, includes both secular as well as religious components. The present paper is an attempt to understand the causes behind the differential preference of Muslim parents regarding their children's education. It tries to deal with the issue of why poor working class Muslim parents prefer Madrassa education for their girl child over the secular one. It tries to explore Muslim girl's experiences with education at household and school levels. At the household level, why do they prefer Madrassa kind of education rather than secular? How do different families make gendered choices in terms of educating their child? It is observed that the selection of school depends not just on economy but also on cultural ideas about the good conduct of young men and women. It will also explore a particular madrassa and examine if similar cultural logic functions in Madrassa Schools.

Introduction

Education is believed to be the best means through which gender discrimination can be eradicated from the society. It is the first step towards establishing equality in a stratified society like India. However, the inherent structural inequalities of Indian society in terms of caste, class, race,