



तेजपुर विश्वविद्यालय

(केंद्रीय विश्वविद्यालय)

नपाम, तेजपुर - 784 028, असम, भारत

TEZPUR UNIVERSITY

(A Central University)

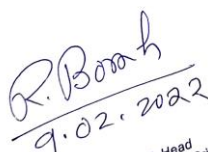
Napam, Tezpur - 784 028, Assam, India

Department of Chemical Sciences

A REPORT ON

Collaboration Prof. Suresh K. Bhargava, RMIT University, Melbourne Australia and Dr. K.K Bania

1. Name of the Collaborative Activity: Collaboration Prof. Suresh K. Bhargava, RMIT University, Melbourne Australia and Dr. K.K Bania under INSA exchange programme
2. Nature of Activity: R&D
3. Name of the Collaborating Agency/ Individual with affiliation, and contact details: Prof. Suresh K. Bhargava, RMIT University, Melbourne Australia
4. Summary of collaboration: 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.
5. List of year-wise activities under the collaboration:
Activity 2017-18: Prepared Pd-Cu based nanocatalyst supported on zeolite-Y for benzyl alcohol oxidation reaction
Activity: 2018-19: Nature of Work: The Pd-Cu-Zeolite-Y supported was found to be active for nitro-arene reduction and methanol oxidation reaction
Activity 2019-20: The work got published in *ACS Appl. Nano Mater.* 2019, 2, 3769-3779. In the same year Pd-Au catalyst was prepared for various other catalytic reactions
Activity 2020-21: Nature of Work: Prepared Cobalt-vanadium based catalyst for photo-oxidation of 2-naphthol

Signature of Faculty	Signature and Seal of Head of Department/ Centre/ Cell
<p>Name: Designation:</p>	<p> 9.02.2022 Prof. & Head Department of Chemical Sciences TEZPUR UNIVERSITY</p> <p>Name: Designation:</p>