

# Mangal

( **Prime Minister Research Scholar** at Department of Chemical Engineering, IIT Guwahati )  
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## Education

Degree	Institute	CGPA/%
Ph.D.	Indian Institute of Technology, Guwahati, Assam	9.6 CGPA
M.Tech.	Indian Institute of Technology, Guwahati, Assam	8.06 CGPA
B.Tech.	Deenbandhu Chhotu Ram University of Sci & Tech, Sonipat, Haryana	6.94 CGPA
Intermediate	Sheetla Public school Lakhan Majra, Rohtak, Haryana	81.8 %
High School	Sheetla Public school Lakhan Majra, Rohtak, Haryana	9.8 CGPA

## The project, Internship, and Industrial Training

**M. Tech Project:** Utilization of Rice Husk for Bio-pesticide Production. June 2021-June 2022

**Supervisor:** *Prof. Vaibhav V. Goud, IIT Guwahati*

*(Bio-oil yield from the biomass using slow pyrolysis technique, then further purification & characterization of bio-oil using GC-MS, HPLC, FT-IR techniques to use it as a bio-pesticide)*

**Course Project:** Developing a thermodynamic model using wax phase equilibria Jan 2021-May 2021

**Supervisor:** *Dr. Anki Reddy Katha, IIT Guwahati*

*(A new thermodynamic model for wax is proposed and validated against wax disappeared temperature using MATLAB and MS Excel)*

**B. Tech Project:** Design and Analysis of Heat Exchanger June 2018-June 2029

**Supervisor:** *Dr. Mamta Bhagat, DCRUST Sonipat*

*(Design an optimized shell and tube heat exchanger using the EDR interface inside Aspen Plus)*

**Research Internship** at Indian Institute of Science (IISc), Bangalore June 2023-Nov 2023

**Supervisor:** *Prof. Suryasarathi Bose, Dept. of Material Engineering, IISc Bangalore* (ongoing)

*(Learning the synthesis of polyurethane sheets through non-isocyanate-based routes and other possible routes for production of degradable plastics from vegetable oils)*

**Industrial Training** at Ch. Devi Lal Coop. Sugar Mills Limited, Gohana, Haryana June 2017-July 2017

*(Analyzed selection process units to realize the chemical conversion, overall plant configuration and design parameters)*

### Technical skills

- **Equipment Used:** UV-VIS, FT-IR, HPLC, GC-MS.
- **Software:** MS Word, MS Excel, MS PowerPoint, Aspen Plus, ANSYS.
- **Programming languages:** C, Python, MATLAB.

### Key course

- Composite Materials
- Polymer Sciences and Technology
- Characterization of Materials
- Energy Resources
- Membranes
- Advanced Reaction Engineering

## National & International Conferences/workshops

1. **Mangal**, Chebrolu Venkateshwara Rao, and Tamal Banerjee, Bioplastic: An Eco-friendly Alternative of Non-Biodegradable Plastic; International Chemical Engineering Conference (IChEC) 2022, 12-13<sup>th</sup> Nov 2022 held at IIT Patna, Patna, Bihar, India (**Poster Presentation**)
2. **Mangal**, and Tamal Banerjee Innovations in Applications and prospects of Non-Isocyanate Polyurethane Bioplastics; Research and Industrial Conclave-Integration'2023 (RIC-23), 14-16 May 2023 held at IIT Guwahati, Assam, India (**Poster Presentation**)
3. DAE-BRNS national workshop on “**Atomistic Modeling of Molecules a material (AMMM-2023)**” held at BARC, Mumbai on December 11-14, 2023.

## Key Publications

### Article Published:

1. **Mangal**, Chebrolu Venkateshwara Rao, and Tamal Banerjee, Bioplastic: An Eco-friendly Alternative to Non-Biodegradable Plastic. (DOI: [10.1002/pi.6555](https://doi.org/10.1002/pi.6555))
2. **Mangal**, Supriya H., Suryasarathi Bose and Tamal Banerjee; Innovations in Applications and prospects of Non-Isocyanate Polyurethane Bioplastics. (DOI: 10.1002/bip.23568)

## Technical Achievements

- ▣ **Ambuja's Young Researcher's Award 2022:** for “Doing Post-Graduate studies in India after Gate Examination for the Year 2022 Presented to **Mangal** (IIT Guwahati, Guwahati, Assam, India) by Indian Institute of Chemical Engineering (IChE), Mumbai, India”
- ▣ **Gate 2020:** Scored 92.8 percentile in the respective department.
- ▣ **Golden jubilee Scholarship 2018-2019:** Awarded by IChE, Northern Regional Centre (NRC)

## Extra-curricular

- **Core team member:** Substance abuse and awareness club, Welfare board, IIT Guwahati (2022-24)
- **Coordinator:** One week Training Workshop & Campaign for promoting Digital Economy in the university adopted villages organized by Department of students Welfare (03-03-17 to 07-03-17)
- **Organizer:** Science Conclave-2015 under the aegis of department of Science & Technology, DCRUST, Sonipat (23<sup>rd</sup> & 24<sup>th</sup> Nov. 2015.)
- **Organizer:** One-week karyashala event on ‘**Quantum Chemical Calculations And Molecular Dynamics Simulations**’ from 4<sup>th</sup>-10<sup>th</sup> January 2024 at IIT Guwahati.
- **Organizer:** Cultural event on 1<sup>st</sup> Nov 2023 at Bhupen Hazarika Auditorium, IITG to celebrate the formation day of eight Indian states together.