Anchit Rajiv Prasad

Roll No.:210122003
B.Tech - Chemical Science and Technology
Minor in Biotechnology
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EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. Major	Indian Institute of Technology, Guwahati	8.32 (Current)	2021-Present
B.Tech. Minor	Indian Institute of Technology, Guwahati	9.33 (Current)	2022-Present
Higher Secondary	HSC Board	85.85%	2020
Secondary	ICSE Board	97.6%	2018

PUBLICATIONS

- **Newer Approaches for Viral Vaccine Development** *1st Edition - January 15, 2024*
  in ***Bioreactor Design Concepts for Viral Vaccine Production*** ISBN: 9780443153785
  Anchit Prasad, Vedant Phad, Zakia Farhat, Sachin Kumar*

EXPERIENCE

- **Organic Synthesis Laboratory** *May. 2023 - Jul. 2023*
  Summer Intern Dept. of Chemistry, IIT Bombay
  Supervisor: Dr. Santosh J. Gharpure
  - Setting up and monitoring organic reactions in various lab conditions and setups ranging from **JULABO chiller to oil bath**; subsequent **workup** and purification of the product by **column chromatography.**
  - Preparing **NMR, IR and HRMS** samples and interpreting the respective spectra to characterise compounds.
  - Solvent distillation; preparing TLC stains; cleaning lab equipment.

- **Organic Synthesis Laboratory** *Aug. 2023 - Oct. 2023*
  Project Assistant Dept. of Chemistry, IIT Guwahati
  Supervisor: Dr. Bhisma K. Patel
  - Setting up organic reactions in pressure tubes, subsequent workup and purification by column chromatography.
  - Preparing TLC plates; preparing NMR samples and analysing the generated 1H and 13C spectra.

- **Molecular Endocrinology Laboratory** *Dec. 2022 - Jan. 2023*
  Winter Trainee Dept. of Chemistry, IIT Guwahati
  Supervisor: Dr. Anil M. Limaye
  - Implementing wet lab protocols : **cell culture, DNA, RNA and Protein isolation, Gel Electrophoresis**, **Western Blotting**, **PCR,** utilizing equipment like **Spectrophotometer**, **ChemiDoc Imaging system**, **Centrifuge**, **Autoclave.**
  - Cleaning, manipulating and analysing data by implementing clustering algorithms in **R programming language.**

- **R&D, TATA STEEL** *Sep. 2023 - present*
  Research Intern Burma Mines, Jamshedpur
  Supervisor: Dr. Biswajit Saha
  - DFT calculations for investigating small molecule properties and reaction.

PROJECTS

- **New strategies for the synthesis of heterocycles** *Project Report*
  Dr. Santosh J. Gharpure May. 2023 - Jul. 2023
  - Synthesised and characterised various biologically active substituted derivatives of **Carbazole**.
  - Carried out their **Propargylation** with propargyl bromide; followed by **Sonogashira coupling** with Aryl Halides.

- **Computational studies of Inverted Singlet-Triplet Energy Gap in TADF Materials** *IIT Guwahati*
  Dr. Kalishankar Bhattacharyya Aug. 2023 - present
  - **Designing** novel molecules and evaluating their viability as TADF molecules by visualising their electronic structure in excited states.
  - **Scripting** and running computational calculations on a HPC for the TADF molecules based on advanced **TD-DFT** techniques, to study their electronic properties using **Gaussian** and **ORCA** package.

- **Green synthesis of 3,5-diphenylisoxazoles mediated by potassium chloride in water** *IIT Guwahati*
  Dr. Bhisma K. Patel Aug. 2023 - Oct. 2023
  - Synthesing various **benzaldoximes** by **nucleophilic addition** of hydroxylamine to substituted benzaldehyde in water.
  - Synthesing and characterising various **3,5-diphenylisoxazoles** by **1,3-dipolar cycloaddition** between benzonitrile oxides and phenylacetylenes using environmental-friendly oxidant **Oxone**, mediated by KCl in water.

- **Immunology and Microbiology Virtual Lab** *Website*
  Dr. Sachin Kumar/Virtual Labs/Ministry of Education, Government of India Feb. 2023 - present
  - Performing experiments to create videos demonstrating the protocol for **2D gel electrophoresis** and **Western Blotting**.
  - Creating and curating **theory, procedure and quizzes** for the Immunology and Microbiology laboratory experiments.

Technical Skills

- **Scientific Software**: ChemDraw, Gaussview, Gaussian, ChemCraft, Avogadro, PyMol
- **Programming**: C++, R (dplyr, ggplot2), Python (NumPy, Pandas, Matplotlib), Fortran
- **Operating Systems**: Windows, Ubuntu
- **Miscellaneous**: SciFinder, PowerPoint, Excel, Word, Origin

Key courses taken

- **Chemistry**: Computational Chemistry, Polymer Chemistry, Nanotechnology, Group Theory, Applied Organic Chemistry, Spectroscopic Techniques, Chemical Kinetics and Electrochemistry, Co-ordination Chemistry, Industrial Chemistry, Quantum Chemistry, Inorganic Chemistry, Environmental Chemistry, Green Chemistry
- **Laboratory courses** :

  - **Organic Laboratory:** Synthesis of Aspirin, Dibenzylideneacetone, Thiokol rubber, Nylon-6,6, $NaBH_4$ reduction; purification of synthesised compounds using column chromatography; characterisation by NMR, IR, melting point.

  - **Inorganic Laboratory:** Standardization of disinfectants ($KMnO_4$, Potash Alum); Synthesising ZnO nanoparticles and calculating band-gap; Separation of toxic metal ions ($Cu2+$, $Ca2+$) from water; Estimating strength of Bleaching Powder; Estimating CaO in Portland Cement; Estimating Phosphate content in cola.

  - **Physical Laboratory:** Determination of CMC of ionic micelles; Spectrophotometric Determination of Iron in Vitamin Supplement Tablets; Determination of the pKa of a indicator by using UV-Vis Spectroscopy; Determination of analyte concentration and calculation of Stern-Volmer constant using steady state Fluorescence; Molecular Dynamics Simulations of Liquid-Solid Phase Transformation; Protein - drug interaction using PyMol; Determination of ionic conductance on the onset of ion crowding effect.

- **Biotechnology**: Introductory Biology, Biochemistry, Molecular Biotechnology, Cellular Biotechnology, Biochemical Process Engineering
- **Chemical Engineering**: Chemical Process Calculations, Fluid Mechanics
- **Online Certified Courses** :

  - Principles of Organic Synthesis - IIT Guwahati (NPTEL)

  - Supervised Machine Learning: Regression and Classification - DeepLearning.AI, Stanford University (Coursera)

  - Summer Analytics 2022 - Consulting and Analytics Club (IIT Guwahati)

  - Getting and Cleaning Data - John Hopkins University (Coursera)

  - R Programming - John Hopkins University (Coursera)

Achievements

- **AIR 5**, among **250+** teams in **Strategy Storm 2023**, the corporate case competition organised by Consulting Club, IITG
- **Rank 1, Zee5's Pitchers Hunt**, the case-study competition based on tackling 'OTT content piracy'
- **Secured AIR 7787 in JEE Advanced 2021**, among **140,000+** total candidates
- **Secured AIR 8093 in JEE Mains 2021**, among **950,000+** total candidates
- **Secured School Rank 7, ICSE Secondary Board Exam, 2018**, with a score of **97.8%**
- **Awarded the maximum grade AA (10)**, in **13** courses till date

Positions of Responsibility

- **Head of Content**, at TEDxIIT Guwahati   *Apr 2023 - Present*

  – Writing blogs and editorials for the website and overseeing the social media posts and captions

- **Director of Content**, at Model United Nations, IIT Guwahati, Alcheringa 2024   *May 2023 - Present*

  – Overseeing the geo-political content on the social media platforms and the IITGMUN website

- **Core Team**, at Consulting and Analytics Club, IIT Guwahati   *May 2022 - Present*

  – Course mentor for Winter Consulting 2022, curating the course content and evaluating the Capstone project

Extracurricular

- **Marketing Executive, Alcheringa 2022**, the largest cultural festival of North-East India   *Jan 2022 - Mar 2022*
- **Student Volunteer, National Service Scheme**, dedicated **60 +** hours to community service   *Jan 2023 - Present*
- **Academic Mentor, CheSTA, IITG**, to 8 sophomores under catering to their holistic needs   *Oct 2022 - Present*
- **Member, Animal Welfare Club**, IIT Guwahati   *Mar 2023 - Present*