

Sauratej Sengupta

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Education

- Indian Institute of Science Education and Research, Kolkata
Integrated PhD 2020 - present
Master of Science in Biological Sciences (CGPA 9.42) 2022
- Qualified JGEEBILS (GS2020) 2020
Qualified JAM - Biotechnology (AIR 171) 2020
- Scottish Church College, University of Calcutta 2017 - 2020
Bachelor of Science in Zoology (Honours), First Class (75.5 %)
- St. Xavier's Institution, Panihati
Class XII - ISC (Aggregate 92 %) 2017
Class X - ICSE (Aggregate 94 %) 2015

Research Interests

I have always been intrigued by the enormous size of waste piles in the dumping grounds and the ubiquity of plastics in our life mainly the ones that are kind of one time use. Now plastics have become a necessary evil in our daily lives but, the time has come when the negative effects are starting to overwhelm the benefits it provide. My research aims to provide ways to degrade plastics efficiently and tries to return something valuable back from it to the society with the help of modern techniques such as synthetic biology, metabolic engineering, protein engineering etc. Apart from the plastics, there is another point of concern rising rapidly, that is depletion of fossil fuels as energy demands are sky rocketing. An alternative is to produce biofuel from cellulose or lignocellulosic biomass. For that highly efficient and robust cellulases are required. I am interested in understanding the working of different cellulases and engineer them to be better ones that can be used at an industrial scale.

Teaching Experience

- Teaching Assistant, "Biology Laboratory III", Biochemistry Lab, BS-MS 2nd year, IISER Kolkata (Autumn 2022)
- Teaching Assistant, "Introduction to Computer Programming", BS-MS 1st year, IISER Kolkata (Autumn 2021 and 2022)

Internships / Workshops / Presentations / Awards

- Selected for Prime Minister's Research Fellowship awarded by Ministry of Education, Government of India in Cycle 10 (December, 2022)
- Awarded the third prize in oral presentation at Biological Engineering Society Conference (BESCON 2022), held at Bose Institute, Kolkata, organized jointly by IIT-KGP and Bose Institute.
- Attended Karyashala (Workshop) on advanced bio-analytical methods and applications (BAW 2022), organized by Department of Biological Sciences of Indian Institute of Science Education and Research (IISER), Kolkata
- Internship project, "Antimicrobial activity of Phytochemicals on Pathogenic Microbes" at SHRM Biotechnologies Pvt. LTD., Kolkata
- Presented a poster, "Cancer Treatment by Inhibition of Negative Regulation of Immune Checkpoints" at Modern Trends in Microbiology (Chapter XVI) organised by Department of Microbiology, St. Xavier's College, Kolkata
- Stood first in ZOOQUEST, Photography Competition held by The Zoological Society, Kolkata and Department of Zoology, University of Calcutta.

Publications

- Sengupta, S; Datta, M; Datta, S "β-Glucosidase: Structure, Function and Industrial Applications" in "Glycoside Hydrolases: Biochemistry, Biophysics, and Biotechnology" edited by Arun Goyal and Kedar Sharma (2022) Academic Press, Elsevier (ISBN-13:9780323918053)
- Sengupta S, Chanda P, Manna B, Datta S. Rational engineering of a β-glucosidase (H0HC94) from glycosyl family I (GH1) to improve catalytic performance on cellobiose. (bioRxiv. 2022:2022.08.27.505235. doi:10.1101/2022.08.27.505235)


(Prof. Supratim Datta, Supervisor)