



RAJIB MAJUMDER, M.Sc., Ph.D.

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CAREER OBJECTIVE

I AIM TO CONTRIBUTE TO THE ACADEMIC COMMUNITY BY IMPARTING KNOWLEDGE, MENTORING STUDENTS, AND CONDUCTING INNOVATIVE RESEARCH TO ADVANCE THE FRONTIERS OF KNOWLEDGE. AS AN ASSISTANT PROFESSOR, MY OBJECTIVE IS TO INSPIRE AND GUIDE STUDENTS, COLLABORATE WITH COLLEAGUES, PUBLISH IMPACTFUL RESEARCH, AND MAKE SIGNIFICANT CONTRIBUTIONS TO BOTH TEACHING AND RESEARCH. BY FOSTERING A SUPPORTIVE AND INTELLECTUALLY STIMULATING LEARNING ENVIRONMENT, I ASPIRE TO SHAPE THE NEXT GENERATION OF SCHOLARS AND MAKE A LASTING IMPACT ON THE ACADEMIC COMMUNITY.

ACADEMIC DEGREES AND POSITIONS

YEAR

ASSISTANT PROFESSOR (GRADE I) ■ SCHOOL OF LIFE SCIENCE & BIOTECHNOLOGY, ADAMAS UNIVERSITY	AFFILIATION: DEPT. OF BIOTECHNOLOGY	2018 – 2024
ASSISTANT PROFESSOR (GRADE III) ■ SCHOOL OF LIFE SCIENCE & BIOTECHNOLOGY, ADAMAS UNIVERSITY	AFFILIATION: DEPT. OF BIOTECHNOLOGY	2024 - Present
POSTDOC ■ CSIR-INDIAN INSTITUTE OF CHEMICAL BIOLOGY, KOLKATA, INDIA	AREA OF RESEARCH: • MICROBIAL BIOREMEDIATION • BIOPHYSICAL TECHNIQUES • OXFORD NANOPORE SEQUENCING	2015 - 2018
Ph.D. (BIOCHEMISTRY) ■ UNIVERSITY OF CALCUTTA, INDIA	ENZYMOLGY & APPLIED MICROBIOLOGY	2015
M.Sc. ■ UNIVERSITY OF CALCUTTA, INDIA	MICROBIOLOGY	2006 [1 st Div.]
B.Sc. ■ UNIVERSITY OF CALCUTTA, INDIA	MICROBIOLOGY (HONS.)	2004 [1 st Div.]

• Ph.D. research summary

Thesis Title: Regulatory Studies of Proteases from Filamentous Fungus *Termitomyces clypeatus* MTCC-5091.

Ph.D. Supervisor: Dr. Suman Khowala, Ex-Senior Principal Scientist, CSIR-IICB, India.

• Postdoc research summary (PI: Dr. Sucheta Tripathy, Sr. Principal Scientist, CSIR-IICB)

During postdoc tenure, I was engaged in various projects mentioned below.

1. Nextgen Sequencing (Oxford Nanopore MinION technology).
2. Biomineralization mechanisms of toxic metals by metal tolerant fungi.
3. Trehalose induction on structural modulation of proteins.
4. Molecular Cloning of Cyanobacterial genes for biofuel production.

KEY SKILLS & DEPARTMENTAL RESPONSIBILITIES

- Laboratory committee and Purchase-Procurement coordinator of School of Life Science and Biotechnology (SoLB), Adamas University (2019-2023).
- Departmental Timetable (TT) committee coordinator (2020-2021).
- SmartLab (Virtual Lab project) project coordinator of SoLB (2020-2022).
- CANVAS LMS implementation project coordinator (2021-2022).
- QAA core team member of Adamas University (2021-2022).
- NAAC-3 and NAAC-7 criteria coordinator of SoLB and university level (2020-2022).
- Member of Students admission team for Dept. of Biotechnology, SoLB (2021-2022).
- R&D coordinator and Ph.D. program convener of SoLB (2022-present).
- Member of 'Centre for Material Science', AU (2022-present).
- Task force member of NBA from Dept. of Biotechnology (2023-present).

AWARDS AND GRANTS RECEIVED

- Awarded Senior Research Fellowship [2012] by CSIR, Govt. of India
- Awarded International Travel Grant by DST-SERB-ITS, Govt. of India to attend 'World Biotechnology Congress 2013' in Boston, MA, USA.
- Awarded postdoctoral Research Associateship [2015] grant by CSIR, Govt. of India.
- Awarded 'Outstanding Paper presentation' in 1st Regional Science and Technology Congress-2016, organized by S&T Division, Govt. of West Bengal and NITTTR, Kolkata.
- Awarded with the Adamas University Seed Grant for research in 2021.
- Recipient of prestigious SERB-TARE research grant in 2022 from Dept. of Science & Technology, Govt. of India.
- Recipient of NASI Science-Society outreach grant in 2022.
- Granted Copyright in 2022 on 'Internal Quality Assurance Framework (IQAF) & Guidelines For Assessing Quality Of Multidisciplinary Higher Education Institute' with registration No. L-118203/2022 in Copyright office, Govt. of India.
- Indian patent published with Application No.202331061492 A on 06.10.2023.
Title of the invention: Formulation of silver nanoparticles from plant based extract for antibacterial and antibiofilm activity.

RESEARCH EXPERTISE

- Protein purification, Size exclusion chromatography, Ion exchange chromatography, FPLC, HPLC, RP-HPLC, 1D & 2D electrophoresis, zymography, Urea-PAGE, MALDI-TOF-MS, LC-ESI-MS, western blotting, protein sequencing, CD spectroscopy, Electron Microscopy and Atomic Force Microscopy.
- DNA & RNA isolation, Molecular cloning, RT-PCR.
- Process optimization by statistical models (Plackett-Burman and RSM using the Box-Behnken, CCD design).

- Data analysis of FTIR, Energy Dispersive X-ray, X-ray Diffraction and X-ray Photoelectron Spectroscopy.

RESEARCH INTERESTS

- Environmental Biotechnology
- CRISPR-Cas9 based genome editing
- Microbial Drug Resistance
- Enzyme & Microbial Technology
- Nanotechnology
- Next-generation Sequencing (NGS)

RESEARCH & PUBLICATIONS

• **Adamas University Affiliation**

1. Chakraborty, S., Mukhopadhyay, R., Dutta, R., Samanta, S., Bagchi, A., Mitra, O., & Majumder, Rajib. **(2024)**. CRISPR driven Cyanobacterial Metabolic Engineering and its role in metabolite production. *Journal of Experimental Biology and Agricultural Sciences*, 12(3), 446–456. [https://doi.org/10.18006/2024.12\(3\).446-456](https://doi.org/10.18006/2024.12(3).446-456). **(as corresponding author)**.
2. Debnath, A., Paul, S., Saha, R. P., Saha, A., Majumder, Rajib & Das, A. **(2024)**. A Comprehensive Review on Beer Industry by-Products: its Types, Constituents, Health Benefits and Application in Food Production. *Letters in Applied NanoBioScience*. 13 (2), 85 <https://doi.org/10.33263/LIANBS132.085>.
3. Sarker Aditi et al., **(2023)**. Gestational Diabetes Mellitus: Risk Factors & Genetic Predispositions. *Journal of Sustainable Science and Transformative Research - Reviews & Letters*, 2 (1), 67-70. DOI: <https://doi.org/10.56703/ADGE2447>.
4. Dutta Souvik et al., **(2023)**. Fundamental methods to eliminate organic nitrogen from sewage water: A comprehensive analysis. *Journal of Sustainable Science and Transformative Research - Reviews & Letters*, 2 (1), 83-89. DOI: <https://doi.org/10.56703/QPES5446>.
5. Majumder Rajib et al., **(2023)**. Revisiting the COVID-19 Pandemic: An Insight into Long-Term Post-COVID Complications and Repurposing of Drugs. *COVID 2023*, 3, 494–519. <https://doi.org/10.3390/covid3040037>
6. Majumder Rajib et al., **(2022)**. Prokaryotic ncRNAs: Master regulators of gene expression. *Current Research in Pharmacology and Drug Discovery*. 100136. <https://doi.org/10.1016/j.crphar.2022.100136>
7. Chowdhury R et al., **(2022)**. Biosorption of Acid dye by Jackfruit Leaf Powder: Isotherm, kinetics and Response surface methodology studies. *Journal of Experimental Biology and Agricultural Sciences*. 10(1). 254-264. **(as corresponding author)**. <https://jebas.org/ojs/index.php/jebas/article/view/286/176>
8. Chandra S et al., **(2022)**. A detailed investigation to study the pattern of the interplay of Cyclic AMP Receptor Protein (CRP) of E. coli with its different classes of promoters. *Journal of Experimental Biology and Agricultural Sciences*. 10(1). 266-277. **(as corresponding author)**. <https://jebas.org/ojs/index.php/jebas/article/view/287/177>
9. Das, Ahana, Basak, P., Pramanik, A., **Majumder, Rajib**, Ghosh, A., Hazra, S., & Banik, S. P. **(2020)**. Ribosylation induced structural changes in Bovine Serum Albumin: understanding

- high dietary sugar induced protein aggregation and amyloid formation. *Heliyon*, 6(9). <https://doi.org/10.1016/j.heliyon.2020.e05053>.
10. Naskar Animesh, **Majumder Rajib**, Goswami Mitrabrata (2020). Bioaccumulation of Ni (II) on growing cells of *Bacillus* sp.: Response surface modeling and mechanistic insight. *Environmental Technology & Innovation*, 20: 101057. <https://doi.org/10.1016/j.eti.2020.101057>.
 11. Naskar Animesh, **Majumder Rajib**, Goswami Mitrabrata, Mazumder Saikat, Maiti Samik & Ray Lalitagauri (2020). Implication of greener biocomposite bead for decontamination of Nickel (II): Column dynamics study. *J Polymer Environ.* 1-13. <https://doi.org/10.1007/s10924-020-01746-3>.
 12. Das Ahana, Basak Pijush, Pramanick Arnab, **Majumder Rajib**, Pal Debadrita, Ghosh Avishek, Guria Manas, Bhattacharyya Maitree, & Banik SP (2020). Trehalose mediated stabilisation of cellobiase aggregates from the filamentous fungus *Penicillium chrysogenum*. *Int. J Biol. Macromol.* 127: 365-375.

- **CSIR-IICB Affiliation**

13. Das Ahana, Basak Pijush, Pattanayak Rudradip, Kar Turban, **Majumder Rajib**, Pal Debadrita, Bhattacharya Anindita, Bhattacharyya Maitree, & Banik SP (2017). Trehalose induced structural modulation of Bovine Serum Albumin at ambient temperature. *Int. J Biol. Macromol.* 105: 645-655.
14. **Majumder Rajib**, Sheikh Lubna, Naskar Animesh, Vineeta, Mukherjee Manabendra, & Tripathy Sucheta (2017). Depletion of Cr(VI) from aqueous solution by heat dried biomass of a newly isolated fungus *Arthrimum Malaysianum*: A mechanistic approach, *Sci. Rep.* 7(1), 11254.
15. Naskar Animesh & **Majumder Rajib** (2017). Understanding the adsorption behaviour of Acid yellow 99 on *Aspergillus niger* biomass. *J Mol. Liquids.* 242: 892-899.
16. Chowdhury S, Banik SP, **Majumder Rajib**, Ghorai S, Pal S, Basak P & Khowala Suman (2017). Prevention of protein aggregation by extracellular fungal sucrase of *Termitomyces clypeatus*. *Turkish J Biochem.* 42(3): 355-364.
17. **Majumder Rajib**, Banik SP & Khowala Suman (2016). AkP from mushroom *Termitomyces clypeatus* is a proteoglycan specific protease with apoptotic effect on HepG2. *Int. J Biol. Macromol.* 91: 198-207.
18. **Majumder Rajib**, Banik SP & Khowala Suman (2015). Purification and characterization of a novel *k*-casein specific milk-clotting metalloprotease from *Termitomyces clypeatus* MTCC 5091. *Food Chem.* 173: 441-448.
19. **Majumder Rajib**, Banik SP, Ramrakhiani Lata & Khowala Suman (2014). Bioremediation by alkaline protease (AkP) from edible mushroom *Termitomyces clypeatus*: Optimization approach based on statistical design and characterization for diverse applications. *J Chem. Technol. Biotechnol.* 90 (10): 1886-1896.
20. Mondal Arijit, Banerjee Debopam, **Majumder Rajib**, Maity Tapan Kumar & Khowala Suman (2016). Evaluation of in vitro antioxidant, anticancer and in vivo antitumour activity of *Termitomyces clypeatus* MTCC 5091. *Pharm. Biol.* 54 (11): 2536-2546.
21. Karamoko, O., Abou, O., Lacinan, O., **Majumder, Rajib**, Banerjee, D., Das, P., & Khowala, S (2016). In vitro antioxidant activity and antibacterial properties of trunk bark of *Pericopsis laxiflora* Benth. (Leguminosae). *J. Microbiol. Biotech. Res.*, 6 (5):17-23

22. Banik SP, Mukherjee Soumya, Pal Swagata, **Majumder Rajib** & Khowala Suman (**2014**). Enhancement of extracellular cellobiase activity by reducing agents in the filamentous fungus *Termitomyces clypeatus*. **Biotechnol. Lett.** 37 (1): 175-181.
23. Banik SP, Pal Swagata, Ghorai Shakuntala, Chowdhury Sudeshna, **Majumder Rajib**, Mukherjee Soumya & Khowala Suman (**2012**). *In situ* reversible aggregation of extracellular cellobiase in the filamentous fungus *Termitomyces clypeatus*. **Biotechnol. Bioproc. Eng.** 17: 925-936.
24. Ramrakhiani Lata, **Majumder Rajib** & Khowala Suman (**2011**). Removal of hexavalent chromium by heat inactivated fungal biomass of *Termitomyces clypeatus*: Surface characterization and mechanism of biosorption. **Chem. Eng. J.** 171 (3): 1060-1068.
25. Banik S. P, Pal S, Ghorai S, **Majumder Rajib**, Mukherjee S, Chowdhury S & Khowala Suman. (**2011**). Comparative elucidation of properties of sucrase-cellobiase co-aggregate produced in media containing sucrose by *Termitomyces clypeatus*. **Ind J Biotechnol.** 10(4): 468-479.

BOOK CHAPTERS

Adamas University Affiliation

1. Shaw S, Puthal C, Shil R, Saha R. P., Majumder R, Ghosh S. (**2024**). Geographic distribution of forest fungi and their associated plant taxa. In *Forest Fungi* (pp. 63-81). Academic Press. ISBN 9780443188701. <https://doi.org/10.1016/B978-0-443-18870>
2. Roy, B. S., Nath, P., Ghosh, S., Das, A., & Majumder, Rajib. (**2024**). Biofuel from Algae: The Long Road to Commercial Viability. In *Biofuels* (pp. 361-382). CRC Press. <https://doi.org/10.1201/9781003350606>. (as corresponding author).
3. Susrishta M, Rishita R, Rajib Majumder, & Arpita Das. (**2024**). Green Tea in Weight Management. In *Body Recomposition: A Comprehensive and Metabolic Alternative to Weight Loss* (1st ed.). Chakraborty, S., Bagchi, D., Chakraborty, T., Downs, B., & Blum, K. (Eds.). (2024). CRC Press. <https://doi.org/10.1201/9781003361473>
4. Mondal, A., Banerjee, S., Chakraborty, U., Das, A., Debnath, A., Majumdar, R. (**2023**). Natural Plants in the Treatment of Renal Syndrome Caused by Viruses: Ethnopharmacology, Chemistry, Clinical and Preclinical Studies. In: Pal, D. (eds) *Anti-Viral Metabolites from Medicinal Plants. Reference Series in Phytochemistry*. Springer, Cham. https://doi.org/10.1007/978-3-030-83350-3_23-1.
5. Chiranjeeb Puthal, Rajib Majumder, Sanmitra Ghosh (**2023**). Elucidating the contribution of social, environmental and molecular factors in prognosis of diabetic retinopathy in Indian population published in the book entitled "*Environment and Health - Horizons Ahead*". Springer-Nature. ISBN: 978-81-930691-4-0.
6. Riyanka Shil, Rajib Majumder, Rudra Prasad Saha, Sanmitra Ghosh (**2023**). An overview of microRNA mediated regulation of TAM and EMT pathway in progression of breast cancer published in the book entitled "*Energy Systems, Drives and Automations*". Springer-Nature. ISBN: 978-981-99-3690-8.
7. Majumder Rajib, Debnath Arinrban, Das Arpita (**2022**). Chapter 62: Potential role of healthy microbiome in metabolic syndrome and immune competence in *Viral, Parasitic, Bacterial and Fungal Infections: Antimicrobial, Host defense, and Therapeutic Strategies*. Academic Press, Elsevier. ISBN: 978-0-323-85730-7.
8. Majumder Rajib, Das Arpita (**2021**). Chapter 4: Biopolymers, Chemistry of Food and Packaging in *Biopolymer-Based Food Packaging: Innovations and Technology Applications/UK/pISBN: 9781119702252*. John Wiley & Sons.
9. Ghosh Rituparna, Das Ahana, Bandopadhyay Arnab & Majumder Rajib (**2020**). Chapter 19: vanadium toxicity revisited: striking the right balance between potential new generation

therapeutics and adverse side effects in *Metal Toxicology Handbook*. In Press with CRC Press/Taylor & Francis. ISBN: 0429795734, 9780429795732.
https://books.google.co.in/books?id=Th_DwAAQBAJ

10. Banik S. P., Bhattacharyya M., Ghosh R., & Majumder Rajib (2020). Glycation-induced protein aggregation and cellular toxicity: an insight into the disease realm of high dietary sugar intake. In *Dietary Sugar, Salt and Fat in Human Health* (pp. 251-275). Academic Press. <https://doi.org/10.1016/B978-0-12-816918-6.00011-1>.

CSIR-IICB Affiliation

1. Swarnakar S, Roy A, Ghosh S, **Majumder Rajib**, Paul S, (2017). Gastric Pathology and Metalloproteinases. In: Chakraborti S., Dhalla N. (eds) ***Pathophysiological Aspects of Proteases***. Springer, Singapore. Chapter 19, pp 489-513. https://doi.org/10.1007/978-981-10-6141-7_19.
2. Verma Deepak, **Majumder Rajib**, Mukherjee Soumya & Khowala Suman, (2009). *Termitomyces*: a nutritive alternative for food and food bioproducts, submitted in '**Current Topics on Bioprocesses in Food Industry**', edited by Professor LV Rao, Professor Christian Larroche, Professor Ashok Pandey, Asiatech Publishers, Inc. New Delhi, pp 118-129. ISBN: 81-87680-21-0.

CONFERENCE/SEMINAR/FDP ATTENDED

- Organized BioNext 2024 International Conference from November 12-14, 2024.
- Organized BioMeet 2024 National students' seminar on 5th April 2024.
- Organized BioMeet 2023 National students' seminar on 10th May 2023.
- Organized BioNext 2023 International Conference from October 04-06, 2023.
- Organized BioNext 2022 International Conference from September 21-23, 2022.
- Actively participated in an eight-day Short Term Training Programme on NEP Orientation & Sensitization organized by the UGC-Malaviya Mission Teacher Training Centre (MMTTC), (ISM), Dhanbad from 17-31 January 2024.
- Actively participated in Faculty Development Program (FDP) on "Applications on CRISPR-Cas Gene Editing Tool" organized by ATAL-AICTE from 7-11 February 2022.
- Participated and conducted Faculty Development Program on 'Entrepreneurship Development' from 8-20 February 2021 sponsored by Dept. of Science & Technology, Govt. of India.
- Oral presentation in BioNext 2021 conference (International e-conference on Frontiers in Modern Biology 2021) organized by School of Life Science & Biotechnology, Adamas University from April 22-24, 2021.
- Oral presentation in 4th Regional Science & Technology Congress-2019, Southern Region on 23rd& 24th December, 2019. Organized by Department of Science & Technology and Biotechnology, Government of West Bengal & MAKAUT, West Bengal. [December 2019]
- Poster presentation in the 'International Conference on Current Trends in Higher Education (ICCTHE-2019) organized by Adamas University. [February 2019].
- Participation in the 'International Conference on Biotechnology: A paradigm shift in health and agriculture', organized by Dept. of Biotechnology, SoLSBT, Adamas University. [April 2018].

- Participation in the 'International Conference cum Workshop on CRISPR-Cas9 based precise genome editing' organized by CSIR-IGIB. [March 2018].
- Invited talk in the National Conference on 'Impacts of microbes on environment and society' organized by Dept. of Microbiology, School of Life Science & Biotechnology, Adamas University. [April 2018].
- Poster presentation entitled "Exploration of surface chemistry & ultrastructure of *Arthrinium malaysianum* biomass in chromium (VI) removal: Green initiative towards pollution remediation in 'Second International Conference on Material Science (ICMS2017), Tripura University. [February 2017].
- Oral presentation entitled "AkP from mushroom *Termitomyces clypeatus* is proteoglycan specific protease with apoptotic effect on HepG2"; in International conference on cell signaling network (CeSin 2016) held in CSIR-IICB. [December 2016].
- Poster presentation entitled "Purification and characterization of a novel *k*-casein specific milk-clotting metalloprotease from *Termitomyces clypeatus* MTCC-5091; in Recent Advances in Biotechnology, at CSIR-IICB, Kolkata, India organized by Biotech Research Society of India (BRSI). [March 2015].
- Poster presentation entitled "Bioremediation by alkaline protease from edible mushroom *Termitomyces clypeatus*: Optimization approach based on statistical design and characterization for diverse applications" in 10th BRSI Convention and International Conference on Advances in Biotechnology and Bioinformatics, Pune, Maharashtra, India [November 2013].

TEACHING EXPERIENCE (BEFORE *PH.D*)

Institute of Science and Advanced Research (ISAR), a unit of B. P. Poddar Institute of Management and Technology, affiliated to the 'West Bengal State University'.
Lecturer in Microbiology Department SEPT' 2007 – MAR' 2008

JOB EXPERIENCE

MPS food products and Pvt. Ltd., Kolkata, West Bengal
Production Supervisor in Quality Control Laboratory MAR'2007 – SEPT'2007

PROFESSIONAL BODY MEMBERSHIPS

1. LIFE MEMBER OF THE BIOTECH RESEARCH SOCIETY, INDIA (BRSI) – No. LM1217.
2. LIFE MEMBER OF SOCIETY OF BIOLOGICAL CHEMISTS (INDIA) – No. LM2872.

PROFESSIONAL REFERENCES

- **Dr. Hemanta K. Majumder**, Sir J. C. Bose National Fellow, Infectious Diseases & Immunology Division, CSIR-IICB, Tel: 09831926491, E-mail: hemantamajumder@yahoo.co.in
- **Dr. Sucheta Tripathy**, Sr. Principal Scientist, Structural Biology & Bioinformatics Division, CSIR-IICB, Tel: 098309 99740, E-mail: tsucheta@gmail.com
- **Dr. Suman Howala**, Ex-Senior Principal Scientist, Drug Development Diagnostics & Biotechnology Division, CSIR-IICB. Tel: 09831424344, E-mail: sumankhowala@iicb.res.in

- **Dr. Rudra P. Saha**, Professor & Dean, School of Life Science & Biotechnology, Adamas University. Tel: 08100193105. rudraprasad.saha@adamasuniversity.ac.in

DECLARATION

I hereby declare that the above mentioned information is true to the best of my knowledge and belief.

Rajib Majumder