Prof. (Dr.) Ayon Pal

M.Sc., Ph.D., MRSB

Professor of Botany, RAIGANJ UNIVERSITY

CONTACT DETAILS

PHONE:
94740 13378

WEBSITE:
www.raiganjuniversity.ac.in
www.ayonpal.net

EMAIL:
ayonpal.ruc@gmail.com
ap@raiganjuniversity.ac.in

INSTAGRAM:
ayonpal_ap

Residence:
"Amar Kutir"
Sudha Sengupta Sarani
Birnagar, Raiganj – 733134
West Bengal, India

ACADEMIC QUALIFICATIONS

Ph. D. (Science) in Biophysics, Molecular Biology and Bioinformatics, 2016
University of Calcutta
Department of Biophysics, Molecular Biology and Bioinformatics

State Level Eligibility Test (SLET), 2004

M. Sc. in Botany, 2003
University of Calcutta
Department of Botany

B. Sc. (Hons.) in Botany, 2001
University of North Bengal
1st Class 1st position holder (Gold Medalist)

WORK EXPERIENCE

Raiganj University [Professor of Botany]
August 2022 – To present

Raiganj University [Associate Professor of Botany]
February 2019 – August 2022

Raiganj University [Assistant Professor of Botany]
February 2015 – February 2019

Raiganj College (University College) [Assistant Professor of Botany]
November 2006 – February 2015

A. C. College, Jalpaiguri [Lecturer in Microbiology, Contractual]
July 2005 – November 2006

RESEARCH AREA

The Microbiology & Computational Biology Laboratory (MCBL) of the Department of Botany investigate plant–microbe–environment interactions with a focus on understanding and mitigating heavy-metal stress in soils and agro-ecosystems. The research program integrates field ecology, microbial physiology, computational biology, and multi-omics approaches to unravel how indigenous soil and rhizosphere microorganisms adapt to metal-contaminated environments and support plant resilience. At the molecular level, the lab examines metal-resistance pathways, operon organization, codon-usage patterns, and evolutionary adaptations using genomic and bioinformatic analyses. A

major thrust area is microbiome-guided bioremediation, where culture-dependent and culture-independent (omics-based) strategies are combined to identify functional microbial consortia for bioaugmented phytoremediation and soil restoration. The laboratory also works toward translating elite indigenous strains into stable bioinoculant formulations for field-level applications. Strong emphasis is placed on computational analysis of genomic and microbiome datasets, enabling predictive insights into ecosystem function and remediation outcomes. Through interdisciplinary research and student-centric training, MCBL aims to bridge fundamental microbial ecology with applied environmental biotechnology, contributing to sustainable agriculture, ecosystem restoration, and regional environmental health. MCBL is also actively engaged in unraveling the microbial biodiversity of different regions and exploring its impact on man and the environment using modern age biology.

MEMBERSHIPS OF SOCIETY/ASSOCIATIONS

- The Royal Society of Biology (RSB), UK – Member (Membership No. P0166298)
- Association of Microbiologists of India (AMI) – Life Member (Life Membership ID 5146-2021)
- Bioinformatics Club for Experimenting Scientists (BIOCLUES) – Life Member (Membership No. Bio_LM_2019_004)
- Microbiology Society, UK – Full Member (Membership No. C029721)
- Academy for Advancement of Agricultural Sciences, India – Life Member (Membership ID: AAAS/LM/2023/169)
- American Society for Microbiology, Washington, DC – Global Outreach, Contributing Member (Member No. 200494717)

EDITORIAL ROLE IN JOURNALS

- BMC Microbiology (Springer Nature) – Editorial Board Member
- Scientific Reports (Nature Portfolio) – Editorial Board Member
- Science Progress (Sage Journals) - Editorial Board Member
- Microbiology Spectrum (American Society for Microbiology Journals) – Member, Board of Reviewing Editors
- PLOS One – Academic Editor
- Springer Nature – Reviewing Editor

PEER REVIEWER FOR JOURNALS

- Microbiome – BMC (Springer Nature), ISSN 2049-2618
- Total Environment Microbiology – Elsevier, ISSN 3050-6417
- Microbiological Research – Elsevier, ISSN 0944-5013
- Chemosphere – Elsevier, ISSN 0045-6535 (print); 1879-1298 (web)

- Environmental Science and Pollution Research – Springer Nature, EISSN 1614-7499
- BMC Genomics – Springer Nature, ISSN 1471-2164
- World Journal of Microbiology and Biotechnology – Springer Nature, ISSN 0959-3993
- Aquatic Ecology – Springer Nature, ISSN 1386-2588
- Letters in Applied Microbiology - Oxford Academic, ISSN 0266-8254 (print)
- Biotechnology and Bioengineering - ISSN 0006-3592 (print); 1097-0290 (web)
- Results in Surfaces and Interfaces – Elsevier, Online ISSN: 2666-8459
- Archives of Microbiology – Springer Nature, ISSN 0302-8933 (print); 1432-072X (web)
- Biodegradation – Springer Nature, ISSN 0923-9820 (print); 1572-9729 (web)
- Scientific Reports – Springer Nature, ISSN 2045-2322 (online)
- Biochemical Genetics – Springer Nature, EISSN 1573-4927, ISSN 0006-2928
- Science Progress – SAGE Publishing, EISSN 2047-7163, ISSN 0036-8504
- Computational and Structural Biotechnology Journal – Elsevier, ISSN 2001-0370
- PeerJ – Corte Madera CA: PeerJ Inc., ISSN 2167-8359
- Human Gene – Elsevier, ISSN 2773-0441
- Meta Gene – Elsevier, ISSN 2214-5400
- Immunogenetics – Springer Nature, EISSN 1432-1211, ISSN 0093-7711
- Frontiers in Agronomy – Frontiers Media SA, ISSN 2673-3218

RESEARCH TEAM MEMBERS

Ms. Samarpita Adhikary, Ph. D. research scholar

Sri Prajesh Dutta, Ph. D. research scholar

Ms. Madhumita G. Chaki, Ph. D. research scholar

RESEARCH GUIDANCE

Ph. D. Supervised:

1. A study of heavy metal resistance in bacteria isolated from Kulik forest and adjacent areas of Raiganj, West Bengal – by Sri Barnan Kumar Saha (2025).

2. A microbiological and comparative genomics based study of heavy metal resistance in bacteria with special emphasis on heavy metal resistant bacteria of Kulik River of Raiganj, West Bengal – by Sri Vivek Roy (2025).

3. Screening, characterization and comparative genomic analysis of heavy metal resistant bacteria from arable land – by Smt. Jayanti Saha (2022).

4. Characterisation of the inhibitors related to quorum sensing by quantum chemical methods and study of their interactions with their receptor proteins – by Sri Hriday Kr. Basak (2021) [Joint Supervision with Prof. Abhik Chatterjee, Department of Chemistry, Raiganj University].

P. G. Dissertations Supervised:

1. Isolation and characterization of bacteria from Kulik River adjacent to Raiganj Wildlife Sanctuary – by Dipankar Halder (2018).
2. Screening and characterization of heavy metal resistant bacteria from soil adjacent to Raiganj Wildlife Sanctuary – by Mallika Mazumder (2018).
3. Isolation and characterization of mercury and antibiotic resistant bacteria from avian excreta – by Alapan Sarkar (2019).
4. Exploring lipolytic activity of different bacterial isolates and their relative quantification – by Madhumita G. Chaki (2019).
5. Exploiting some common and easily available vegetarian sources for the formulation of general bacteriological media – by Sthitadhi Dutta (2019).
6. Determination of resistance to cobalt, copper and iron in bacterial isolates from paddy fields and their physiological characterization – by Sukanya Bhattacharjee (2019).
7. Comparative codon usage bias (CUB) analysis of *cadA* gene with reference to *infB* and *rpoB* gene in selected soil-dwelling bacteria – by Sourav Dey (2021).
8. Comparative codon usage bias analysis of genes *cadB* and *cadC* in soil dwelling bacteria with reference to *rpoB* and *infB* housekeeping genes – by Bishnupriya Chakraborty (2021).
9. Isolation and characterization of biofilm forming and chromate reducing bacteria from polluted water bodies – by Lina Paul (2023).
10. Evaluating the in vitro plant growth promoting potential and antibiotic susceptibility of chromate tolerant bacteria – by Gaurav Chowdhury (2024).
11. Study of arsenic resistance, biochemical characterization, bioaccumulation potentiality and plant growth promoting ability of two bacterial strains isolated from the rhizosphere of Mango tree (*Mangifera indica* L.) – by Hiranmay Das (2025).
12. Deciphering the metal tolerance and biochemical characterization of a marine bacterial isolate – by Hiya Bhoumik (2025).

SELECTED PUBLICATIONS

1. Saha BK, Roy V, Chaki MG, Adhikary S, **Pal A*** (2025): Genomic insights into the bioremediation potential and codon usage dynamics of a multi-metal resistant *Bacillus tropicus* strain from forest soil. ***Geomicrobiology Journal***, DOI: 10.1080/01490451.2025.2580965

2. Adhikary S, Saha BK, Roy V, Saha J, **Pal A*** (2025): Deciphering chromate tolerance and reduction ability of an indigenous *Bacillus* strain isolated from polluted pond sludge for chromium bioremediation. ***Scientific Reports,*** DOI: 10.1038/s41598-025-07031-4.

3. Roy V, Sarkar Pal M, **Pal A*** (2025): Analysis of heavy metal tolerance and genomics in an indigenous *Kurthia* strain from Kulik River reveals multi-metal resistance and dominance of selection pressure on codon usage patterns. ***Archives of Microbiology***, DOI: doi.org/10.1007/s00203-025-04255-w.

4. Adhikary S, Saha J, Dutta P, **Pal A*** (2024): Bacterial homeostasis and tolerance to potentially toxic metals and metalloids through diverse transporters: metal-specific insights. ***Geomicrobiology Journal***, DOI: doi.org/10.1080/01490451.2024.2340517.

5. Roy V, Saha BK, Adhikary S, Chaki MG, Sarkar M, **Pal A*** (2024): Isolation, characterization, identification, genomics and analyses of bioaccumulation and biosorption potential of two arsenic-resistant bacteria obtained from natural environments. ***Scientific Reports,*** DOI: doi.org/10.1038/s41598-024-56082-6.

6. Saha BK, Roy V, Saha J, Chatterjee A, **Pal A*** (2023): Study of mercury resistance and Fourier transform infrared spectroscopy-based metabolic profiling of a potent *Bacillus tropicus* strain from forest soil. ***Journal of Basic Microbiology,*** DOI: doi.org/10.1002/jobm.202300351.

7. Saha J, Chaki MG, Karmakar S, Chatterjee A, **Pal A*** (2023): Effect of different heavy metals on lipase production by a multiple heavy metal-resistant *Pseudomonas aeruginosa* strain isolated from arable land. ***Biologia***, DOI: doi.org/10.1007/s11756-023-01465-9.

8. Saha J, **Pal A** (2023): Cadmium biosorption and plant growth promotion efficacy of a metalloresistant *Pseudomonas* sp. unveils augmented growth with reduced metal accumulation in *Brassica napus* L. ***Vegetos***, DOI: doi.org/10.1007/s42535-023-00724-z.

9. Saha J, Dey S, **Pal A*** (2022): Whole genome sequencing and comparative genomic analyses of *Pseudomonas aeruginosa* strain isolated from arable soil reveal novel insights into heavy metal resistance and codon biology. ***Current Genetics***, DOI: doi.org/10.1007/s00294-022-01245-z.

10. Saha J, Adhikary S, **Pal A*** (2022): Analyses of the heavy metal resistance pattern and biosorption potential of an indigenous *Bacillus tropicus* strain isolated from arable soil. ***Geomicrobiology Journal***, DOI: 10.1080/01490451.2022.2089781.

11. Roy V, Saha BK, Saha J, **Pal A*** (2022): Assessment of water quality of Kulik River of Raiganj with reference to physicochemical characteristics and potability. ***Current World Environment*** 17(2): DOI: doi.org/10.12944/CWE.17.2.19

12. Sarkar M, Tiru Z, **Pal A**, Chakraborty AP, Mandal P (2022): Screening of heavy metal stress tolerant fungal isolates for bioremediation and restoration of soil health. ***Vegetos***, DOI: 10.1007/s42535-022-00417-z.

13. Saha J, Sarkar M, Mandal P, **Pal A*** (2021): Comparative study of heavy metal uptake and analysis of plant growth promotion potential of multiple heavy metal-resistant bacteria isolated from arable land. ***Current Microbiology***, 79(01) Article No. 07: DOI: 10.1007/s00284-021-02704-5.

14. **Pal A***, Bhattacharjee S, Saha J, Sarkar M, Mandal P (2021): Bacterial survival strategies and responses under heavy metal stress: a comprehensive overview. ***Critical Reviews in Microbiology***: DOI: 10.1080/1040841X.2021.1970512.

15. Saha J, Bhattacharjee S, Pal Sarkar M, Saha BK, Basak HK, Adhikary S, Roy V, Mandal P, Chatterjee A, **Pal A*** (2021): A comparative genomics-based study of positive strand RNA viruses emphasizing on SARS-CoV-2 utilizing dinucleotide signature, codon usage and codon context analyses. ***Gene Reports***, 23 (2021): 101055. doi.org/10.1016/j.genrep.2021.101055.

16. Basak HK, Saha S, Ghosh J, Paswan U, Karmakar U, **Pal A**, Chatterjee A (2021): Sequence analysis, structure prediction of receptor proteins and In silico study of potential inhibitors for management of life threatening COVID-19. ***Letters in Drug Design and Discovery***, (2021): DOI: 10.2174/1570180818666210804141613.

17. Basak HK, Paswan U, Pal A, Chatterjee A (2021): In silico study of some natural quorum sensing inhibitors with AgrA proteins: molecular docking study and normal mode analysis. ***Journal of Scientific Research***, 65(5): 62-71. doi: 10.37398/JSR.2021.650509.

18. Tiru Z, Sarkar M, Chakraborty AP, **Pal A**, Mandal P (2021): In vitro antagonistic study of maize root colonizing fungal isolates against *Fusarium moniliforme* causing ear rot disease of maize. ***Journal of Tropical Life Science***, 11(2): 133-139. doi.org/10.11594/jtls.11.02.02.

19. Tiru Z, Sarkar M, Chakraborty AP, **Pal A**, Mandal P (2021): Effect of different vegetable-grains media on variability in mycelial growth pattern and sclerotia formation of *Rhizoctonia solani*. ***Journal of Advanced Scientific Research***, 12(1) Suppl 1:295-300.

20. Tiru Z, Sarkar M, **Pal A**, Chakraborty AP, Mandal P (2021): Three dimensional plant growth promoting activity of *Trichoderma asperellum* in maize (*Zea mays* L.) against *Fusarium moniliforme*. ***Archives of Phytopathology and Plant Protection***, 54(13-14): 764-781, doi: 10.1080/03235408.2020.1860420.

21. Nandi PS, Roy S, Bhattacharya S, **Pal A**, Chakraborty K (2020): Biochemical factors associated with mango mealy bug (*Drosicha mangiferae* G.) infestation in different mango cultivars at Malda, West Bengal (India). ***Journal of Applied Horticulture***, 22(3): 230-239.

22. Nandi PS, Mandal P, **Pal A**, Chakraborty K (2020): Morphological and molecular characterization of fungi associated with mango mealy bug secreted honey dew in mango tree leaves and twigs. ***International Journal of Scientific & Technology Research***, 9(3): 5887-5891.

23. Basak HK, Chatterjee A, **Pal A*** (2020): Relative Structural Analysis of LytTR Domain of AgrA Protein Involved in Bacterial Quorum Sensing: ***International Journal of Pharmaceutical Sciences and Research***, 11(6): 2828-2839.

24. Saha J, Saha BK, Pal Sarkar M, Roy V, Mandal P, **Pal A*** (2019): Comparative Genomic Analysis of Soil Dwelling Bacteria Utilizing a Combinational Codon Usage and Molecular Phylogenetic Approach Accentuating on Key Housekeeping Genes. ***Frontiers in Microbiology***, 10:2896. doi: 10.3389/fmicb.2019.02896.

25. **Pal A***, Saha BK, Saha J (2019): Comparative *in silico* analysis of *ftsZ* gene from different bacteria reveals the preference for core set of codons in coding sequence structuring and secondary structural elements determination. ***PLOS ONE*** 14(12): e0219231. https://doi.org/10.1371/journal.pone.0219231.

26. **Pal A*** (2016): Capturing the structural variation of 1-phosphofructokinase from different pathogenic bacteria: an in silico approach. ***European Journal of Biomedical and Pharmaceutical Sciences*** 3(11): 381-386.

27. **Pal A,** Bothra AK, Mukhopadhyay S (2016): Glycolysis as a determinant of genome and proteome composition of different extremophilic archaea species. Published in: Bioinformatics and Systems Biology (BSB), International Conference on, held on 4-6 March 2016. ***IEEE Xplore Digital Library***. DOI: 10.1109/BSB.2016.7552130.

28. **Pal A*,** Bothra AK, Mandal UK, Mukhopadhyay S (2016): Evolutionary divergence and comparative homology modeling analysis of LpxC enzyme from human pathogenic bacteria. Published in: Bioinformatics and Systems Biology (BSB), International Conference on, held on 4-6 March 2016. ***IEEE Xplore Digital Library***. DOI: 10.1109/BSB.2016.7552129.

29. **Pal A*** (2016): Comparative in silico genomic analysis of *Myxococcus*— an enigmatic eubacterial genus. ***International Journal of Recent Scientific Research*** 7(3): 9661-9665.

30. **Pal A***, Banerjee R, Mondal UK, Mukhopadhyay S, Bothra AK (2015): Deconstruction of archaeal genome depict strategic consensus in core pathways coding sequence assembly. ***PLoS ONE***, 10(2): e0118245.

31. **Pal A**, Mondal UK, Mukhopadhyay S, Sen A, Bothra AK (2014): The Implication of Codon Usage Design and Expression Level in Determining the Nature of Selection and Functionality amongst the Amino Acid Biosynthetic Pathway coding sequences of *Arthrobacter* sp. FB24. ***Current Bioinformatics***, 9(5): 470-480.

32. **Pal A**, Mukhopadhyay S, Bothra AK (2013): Statistical analysis of pentose phosphate pathway genes from eubacteria and eukarya reveals translational selection as a major force in shaping codon usage pattern. ***Bioinformation***, 9(7): 349–356.

33. Mondal UK, **Pal A**, Sen A, and Bothra AK (2011): Bioinformatic Study of Pathogenicity Related Genes of Three Species of *Helicobacter*. ***International Journal of Applied Biotechnology and Biochemistry***, 1(2): 193-200.

34. **Pal A**, Mondal UK, Mukhopadhyay S, Bothra AK (2011): Genomic heterogeneity within conserved metabolic pathways of *Arthrobacter* species - a bioinformatic approach. ***Bioinformation***, 15;5(10):446-54.

* = ***Corresponding author***

BOOKS/BOOK CHAPTERS PUBLISHED

1. Chaki MG, Adhikary S and **Pal A** (2025): Microbes in Tackling Recalcitrant Xenobiotics In. Plant-Microbe Interaction under Xenobiotic Exposure edited by Roy S and Mandal V. Springer Nature, ISBN: 978-981-96-8259-1.
2. **Pal A**, Chaki MG and Adhikary S (2024): Deciphering the Rhizosphere Microbiome Through Metagenomics In. Plant Microbiome and Biological Control edited by Mathur P and Roy S. Springer Nature, ISBN: 978-3-031-75844-7.
3. **Pal A**, Roy V, Dutta P, Adhikary S, Saha BK and Saha J (2023): Genomic Islands in Bacterial Genome Evolution and Speciation In. Microbial Genomic Islands in Adaptation and Pathogenicity edited by Mani I, Singh V, Alzahrani KJ and Chu D-T. Springer Nature, ISBN: 978-981-19-9341-1.
4. Mushroom Culture Techniques and Applications (2020): by P Mandal, Z Tiru, M Pal Sarkar, AP Chakraborty, and **A Pal.** 1st ed., KD Publications, Pune, ISBN: 978-81-949998-6-7.
5. Mushroom Culture Technology (2020): by P Mandal, Z Tiru, M Pal Sarkar, AP Chakraborty, **A Pal** and S Sadhukhan. 1st ed., HSRA Publications, Bangalore, ISBN: 978-93-90415-03-8.
6. **Pal A** (2016): Rare but precious: Implications of rare codons in prokaryotes In. Advances in Biology: Eastern Himalayan Perspective edited by M. Bhattacharya, ML Acharjee and J Pradhan. NL Publishers, ISBN: 978-93-85375-05-7.
7. Sen A, **Pal A**, and Bose D (2007): Economic uses of Seabuckthorn (*Hippophae* L.) In. Advances in Ethnobotany edited by A. P. Das and A. K. Pandey. 1st ed., Dehra Dun, Bishen Singh Mahendra Pal Singh, ISBN: 8121106139.

SELECTED CONFERENCES/SEMINARS/WEBINARS/WORKSHOPS ATTENDED

- Delivered an invited lecture "Bioremediation: Status, Challenges & Innovations" at International Seminar on Recent Advancements in Chemistry and Biology organized jointly by Department of Chemistry & Botany & IQAC, Darjeeling Government College, in association with Dept. of Higher Education, Govt. of West Bengal, and Royal Society of Chemistry, Local Section East India, Darjeeling, West Bengal, 14 August, 2025.

- Webinar on Marine Research for Biomanufacturing, organized jointly by Department of Biotechnology, Govt. of India and BIRAC, 21 March, 2025.

- Webinar on How to Easily Perform Effective scRNA-Seq Cell-Type Predictions, organized by BioBam Bioinformatics, Valencia, Spain, 13 Feb, 2025.

- Online workshop on Molecular Docking, Biological Software Packages and Cell Culture Techniques Protocol, organized by Organized by the Centre for Molecular and Nanomedical Sciences, International Research Centre (IRC), Sathyabama Institute of Science and Technology, Chennai, 06-08 February, 2025.

- Practical Laboratory Techniques and Field Research Studies in Applied Biological Sciences, organized by Department of Zoology, Raiganj University, 03-09 December, 2024 (Acted as resource person).

- Hands-on virtual workshop on Data into Insights: Bridging Metabolomics and Systems Biology, organized by NyBerMan Bioinformatics Europe, 08-09 June, 2024.

- Webinar on Fermentation: Interplay of Microbes, Immunity, and Nutrition, organized by Biotechnology Industry Research Assistance Council (BIRAC) [A Govt. of India Enterprise], 03-04 February, 2023.

- NCBI Virtual Workshops: Identifying Clinically Relevant Genes in Bacterial Genomes, organized by NCBI, USA. 19th May 2022.

- Galaxy Training Network (GTN) Smörgåsbord 2022: Tapas Edition, organized by The Gallantries Project, The CINECA Project, Erasmus Medical Center, ELIXIR Europe, The Galaxy Training Network, Seq4AMR. 14-18 March 2022 (Online).

- Two weeks International Workshop on Data Science and Machine Learning in Biology, organized by Dollar Education, Hisar, India, 14 to 24 February, 2022.

- International Webinar Series-Season II on Research and Technological Advancements in Bioinformatics (Webinar 4: Containersation & DevOps Practices for Bioinformaticians) organized by Centre of Excellence in Health Care Technologies and Informatics (CEHTI), Department of Biotechnology and Bioinformatics, JUIT on December 18, 2021.

- Online Skill Development Program on *in silico* Drug Designing and Molecular Dynamics Simulations, organized by CytoGene Research & Development, Lucknow, India, 01 to 07 December, 2021.

- Webinar on Using NCBI Datasets: A one stop service for downloading sequence and annotation for genomes, organized by NCBI, USA. 30-06-2021.

- Three Day Webinar entitled "Plantation Crop Genomics: An Overview of Current Research" organized by Indian Society for Plantation Crops in collaboration with Bionivid Technology Pvt. Ltd. from 18-20 January 2021.

- National Webinar entitled 'Current Scenario and Future Challenges with Emphasis on Awareness about COVID-19 Pandemic', organized by The National Academy of Sciences, India (NASI)-Rajasthan Chapter on 22nd December, 2020.

- 60th Annual Conference of Association of Microbiologists of India (AMI-2019) and International Symposium on "Microbial Technologies in Sustainable Development of Energy, Environment Agriculture and Health", organized by Association of Microbiologists of India and Central University of Haryana, Mahendergarh, 2019.

- DBT, India Sponsored Three Day Workshop cum Seminar on Bioinformatics, organized by Bioinformatics Facility, University of North Bengal, 2018 (Acted as resource person).

- 3rd International Conference on Biotechnology and Bioinformatics, organized by International Center for Stem Cells, Cancer and Biotechnology (ICSCCB), Pune, India, 2016.

- National Symposium on Exploring Biological Systems: Cell to Organisms, organized by Department of Biophysics, Molecular Biology and Bioinformatics, University of Calcutta, 2016.

- International Conference on Bioinformatics and Systems Biology & Workshop on Systems Biology, organized by Department of Applied Sciences, Indian Institute of Information Technology, Allahabad, India, 2016.

- Asia-Pacific Bioinformatics Conference (APBC-2010), Indian Institute of Science, Bangalore, India, 2010.

RESEARCH PROJECTS COMPLETED

- Raiganj University Funded Departmental Research Project entitled "A comparative genomics-based study of heavy metal resistant bacteria from Kulik River of Raiganj, West Bengal" vide sanction order Ref. No. R-1074(V)/2022, dated 26-09-2022.

GENOME SEQUENCES DEPOSITED IN GLOBAL DATABASES

- WGS of *Corynebacterium* sp. LE4 (NCBI Accession No. – JBLGCS000000000)
- WGS of *Kurthia* sp. M6 (NCBI Accession No. – JBANCH000000000)
- WGS of *Serratia* sp. KG1D (NCBI Accession No. – JBAGIH000000000)
- WGS of *Alcaligenes* sp. PF14 (NCBI Accession No. – JBAGRS000000000)
- WGS of *Bacillus* sp. RWS2 (NCBI Accession No. – JAWNKU000000000)
- WGS of *Pseudomonas* sp. MR41 (NCBI Accession No. – JAJEJW000000000)

MICROORGANISMS DEPOSITED IN TYPE CULTURE COLLECTIONS

- *Corynebacterium glutamicum* LE4 (MTCC; Accession No. – MTCC 13859)

- *Bacillus cereus* DG-2 (MTCC; Accession No. – MTCC 13833)
- *Alcaligenes faecalis* PF14 (NCMR; Accession No. – MCC 5329)
- *Kurthia gibsonii* M6 (NCMR; Accession No. – MCC 5437)
- *Serratia* sp. KG1D (NCMR; Accession No. – MCC 5393)

SEMINARS/CONFERENCES/WORKSHOPS ORGANIZED

- Acted as Chairperson – One day National Seminar on "Current Trends in Plant and Microbial Research for Crop and Crop Health Management (CTPMR) – 2024" jointly organized by Department of Botany, Raiganj University, Raiganj and Indian Phytopathological Society, New Delhi.
- Acted as Internal Technical Expert – 5th Regional Science and Technology Congress, 2022 organized by Department of Science and Technology and Biotechnology, Govt. of West Bengal, held at University of Gour Banga (Region 2), Malda, West Bengal.
- Acted as Joint Convener – "Sir J. C. Bose Memorial Lecture Series – 2021" (03 episodes) organized by Department of Botany, Raiganj University
- Acted as Convener - Two days National Level Seminar entitled "Current Trends in Plant and Microbial Research (CTiPMR) – 2017" organized by Department of Botany, Raiganj University and Department of Higher Education, Govt. of West Bengal.
- Acted as Convener - Two days National Level Seminar entitled "Current Trends in Plant and Microbial Research (CTiPMR) – 2016" organized by Department of Botany, Raiganj University and Department of Higher Education, Govt. of West Bengal.

ADMINISTRATIVE EXPERIENCES

- Member, Internal Quality Assurance Cell (IQAC), Raiganj University, 2025-
- Dy. Director, Central Advanced Instrumentation Centre, Raiganj University, 2025-
- Member, Internal Complaints Committee (ICC), Raiganj University, 2024-
- Director (Addl. Charge), AASM Medicinal Plant Garden of Raiganj University, 2024.
- Member, Raiganj University Task Force on implementation of UGC-CCF for UG Programmes as per NEP 2020.
- Member, UG Board of Studies in Botany, University of Gour Banga (2023- 2024).
- Acted as Member of Screening Committee for recruitment of faculties in Botany of Cooch Behar Panchanan Barma University, 2022.
- Member, Committee for framing of regulations for Ph. D. courses at Raiganj University as per UGC Regulations, 2022.
- Chairman, PG Board of Studies for Environmental Studies (AECC for PG), Raiganj University (2021).
- Member, DAIP, Department of Zoology, Raiganj University (2021- continuing).
- Member, Board of Studies in Botany, Raiganj University (2021- continuing).
- Acted as Head of the Department of Botany, Raiganj University (2016-2018; 2019-2021; 2023-2025).
- Chairman of UG and PG Board of Studies in Botany of Raiganj University.
- Acted as Member of UG Board of Studies in Botany of University of North Bengal.

- Acted as member of Examination Committee of Raiganj University.
- Acted as Secretary of Raiganj University Employees' Cooperative Credit Society Limited (2015-2022).
- Acted as Head of the Department of Botany, Raiganj College (University College) (2012-2014).
- Acted as Secretary of AASM Medicinal Plant Garden of Raiganj College (University College) for more than 08 years.
- Acted as Coordinator of UGC-Network Resource Centre (UGC-NRC) of Raiganj College (University College).

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