SUVAJIT SAHA, PhD

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PROFESSIONAL SUMMARY & OBJECTIVES

With 12 years of experience in teaching and research in zoology, molecular biology, microbiology, and public health, I aspire to build a fulfilling career in life sciences by leveraging my passion for research, dedication to teaching, and commitment to advancing scientific knowledge. I aim to contribute meaningfully to scientific innovation and translate discoveries into tangible societal benefits. My expertise in microbiology, molecular biology and public health research, combined with mentoring M.Sc. and MTech students in their dissertations and teaching undergraduate students in government colleges, has equipped me with the skill set to make a valuable contribution to a prestigious institution.

ACADEMIC RECORDS

Ph.D in Microbiology

Nov 2016 - May 2024

University of Calcutta; Worked in Indian Council of Medical Research-National Institute of Cholera And Enteric Diseases (ICMR-NICED), Kolkata, India.

- Specialization in enteropathogenic bacteria, its genomics, pathogenesis, drug-resistance and health implications.
- **Thesis Title:** "*Environmental Drivers In Dynamics Of Vibrio alginolyticus, Vibrio parahaemolyticus And Vibrio cholerae Of Gangetic Delta Of Eastern India And Gulf Region Of Western India: Diarrheal Paradigm*".

Exams Qualified	Board/University	Year of Passing	Subjects Studied	Marks Obtained	Division
M.Sc.	University of Calcutta	2011	**ZOOLOGY** ***Special. Paper:*** **Cytogenetics and Molecular Biology;** Dissertation on '*Medicinal application of garlic to mitigate health ailments due to lead toxicity in mice model'.*	74%	1st
B.Sc.	University of Calcutta	2009	**ZOOLOGY (Hons.),** Chemistry, Botany	62.50%	1st
Higher Secondary	W.B.C.H.S.E	2006	Biology, Chemistry, Physics, Mathematics, English, Bengali	68.8%	1st
Madhyamik	W.B.B.S.E	2004	Life sc., Physical sc., Mathematics, Biology, History, Geography, English, Bengali.	82.7%	1st

PROFESSIONAL QUALIFICATIONS

CSIR-UGC NET-LS **June-2015; Dec-2015; June-2016**	Qualified in Life Sciences with All India Ranks 27, 18 and 38 respectively
ICAR NET **2022**	Qualified in Microbiology with All India Rank 105
GATE-Life Science **2013**	Qualified with score 367

COMPUTER KNOWLEDGE

Diploma & Advanced Diploma in Information Technology Application **April 2007 - Sept 2008**

Computer Training Institute, State Youth Centre, Govt. of West Bengal

Secured B+ grade with 70-79% score.

TEACHING EXPERIENCE

Lecturer, Gurudas College, (University of Calcutta), India. **Aug 2015 - Oct 2016**

- Provided theoretical and practical classes to undergraduate students on Cell biology, Molecular Biology, Genetics, Cell Biology, Microbiology, Biochemistry, Bioinformatics, Animal sciences, Ecology & Evolution etc. included in their course curriculum of Zoology major.
- Conducted scientific excursions to biosphere reserve, Odisha, India to enhance their understanding of ecology & biodiversity through real-world experiences.
- Participated in organization of national level seminar on Animal sciences and convocations.

Lecturer, Vidyasagar College, (University of Calcutta), India. **Dec 2013 - May 2014**

- Provided theoretical and practical classes of Zoology course curriculum to undergraduate students.
- Conducted scientific excursions to Zoological Garden and Indian museum, Kolkata, India.

Faculty, The George Telegraph Training Institute, Kolkata, India **Aug 2011 - Dec 2013**

- Provided academic training on biology, zoology and physiology to the aspirants of various public service examinations.

RESEARCH EXPERIENCE

JRF & SRF at ICMR-NICED, Kolkata, India — Nov 2016 - May 2024

- **Completed Ministry of Earth Science, Govt. of India funded inter-sectoral (ICMR-NICED, West Bengal & CSIR-CSMCRI, Gujarat) collaborative project.** Longitudinal field-based pioneer study at two diarrhoea-endemic regions, the Indian Ganges Delta and Gulf region of Gujarat, identified environmental factors influencing the dynamics of diarrheagenic Vibrios, *E. coli* & coliforms along with their genomic plasticity, pathogenic viability, antibiotic susceptibility, bio-film formation ability & plasmid profiling.
- **Contributed to DST-DFG Indo-German project (ICMR-NICED, INDIA & ZMT, BREMEN, GERMANY)**, a pioneer study established influence of system biogeochemistry on seasonal dynamics of free-floating and benthic enteropathogenic bacteria in riverine-estuaries of Indian Sundarbans & Ganges Delta.
- **Worked in a project under National Network Programme on Climate Change and Human Health, funded by SPLICE, Department of Science and Technology, Govt. of India**, we investigated climate and socio-demographic factors affecting diarrheal incidences and developed a composite disease forecasting module. We reported the first global evidence of enterotoxigenic *V. alginolyticus* causing a severe winter diarrheal outbreak through contaminated potable water
- **Experienced in Bio-Safety Level II laboratories** and handling biohazard waste disposal. These projects provided comprehensive expertise in environmental microbiology and public health.

JRF at Dept. of Zoology, University of Calcutta — June 2016 - October 2016

- **Worked on a State Govt. funded project (WB DST)** investigating aquatic biodiversity loss in Sundarbans due to non-selective fishing and destruction of huge juveniles as by-catch. Introduced DNA-barcoding for rapid identification of faunal species.
- Developed management skills to operate a research project single-handedly and acquired Laboratory Test Standardization skills.

JOURNAL PUBLICATIONS

1. **Saha, S.,** Halder, M., Mookerjee, S. and Palit, A., 2019. Seasonal influence, enteropathogenic microbial load and diarrhoeal enigma in the Gangetic Delta, India: present scenario and health implications. *Journal of infection and public health*, 12(4), pp.540-548. **(IF: 4.7**) https://doi.org/10.1016/j.jiph.2019.01.066

2. **Saha, S.**, Mookerjee, S. and Palit, A., 2024. Existence of Thermotolerant and Salt-Loving Diarrheagenic Vibrio alginolyticus in Non-Saline Potable Water System: A Novel Finding from India. *Current Microbiology*, 81(12), p.443. **(IF: 2.4**) https://doi.org/10.1007/s00284-024-03939-8

3. **Saha, S.**, Halder, M., Mookerjee, S. and Palit, A., 2020. Preponderance of multidrug-resistant, toxigenic, and thermotolerant enteropathogenic bacteria in raw and cooked seafood of indo-gangetic basin and associated health risks. *Journal of Aquatic Food Product Technology*, 29(9), pp.838-849. **(IF: 1.9**) https://doi.org/10.1080/10498850.2020.1813858

4. Halder, M., **Saha, S.**, Mookerjee, S. and Palit, A., 2022. Exploring the dynamics of toxigenic environmental Vibrio mimicus and its comparative analysis with Vibrio cholerae of the southern Gangetic delta. *Archives of Microbiology*, 204(7), p.420. **(IF: 2.6**) https://doi.org/10.1007/s00203-022-03028-z

5. **Saha, S.,** Mookerjee, S. and Palit, A., 2021. Environmental Drivers of the Seasonal Prevalence of Enteropathogenic Bacteria in the Gulf Ecosystem of Gujarat, India: Unravelling Its Diarrheal Enigma. *WSEAS Transactions on Biology and Biomedicine*, 18, pp.72-83. https://doi.org/10.37394/23208.2021.18.9

6. Bhattacharjee, K., **Saha, S**., Banerjee, E. and Ganguly, P., 2020. Strategic lockdown and blessing variation–potential success keys against COVID-19. *Asian Journal of Medical Sciences*, 11(4), pp.9-19. https://ajmsjournal.info/index.php/AJMS/article/view/3954

7. Mookerjee, S., **Saha, S**., Palit, A., Halder, M., & Batabyal, P. (2020). Environmental paradigm of toxic V. cholerae in Gangetic Delta of India. *Journal of Advanced Scientific Education and Research*. 1: 12-21. https://jaser.rkmvccrahara.org/Images/13fd739b-6667-42ef-9e6c-8e7ee69aa727.pdf

INTERNATIONAL CONFERENCE PROCEEDINGS

1. **Saha, S.**, Mookerjee, S., Batabyal P., & Palit, A. (2022). Real-timeprojections of Vibrio alginolyticus concentrations in a tropical Indian Gulfembankment by integrating aquatic bio-geochemical regulators: climatediarrhoea paradigm. 16th Asian Conference on Diarrhoeal Disease andNutrition (ASCODD 2022) conducted by International Centre forDiarrhoeal Disease Research, Bangladesh (icddr,b) and NationalInstitute of Cholera and Enteric Diseases (ICMR-NICED), India. pp-351-352.
2. **Saha, S.**, Halder, M., Mookerjee, S., & Palit, A. (2019). Changingenvironmental and anthropogenic burden: its telling effect on diarrhealdisease. Young scientist Conference at India International ScienceFestival 2019 conducted by Ministry of Science & Technology, Ministry ofEarth Sciences, Ministry of Health Family Welfare, Government of INDIA. pp-99.
3. Mookerjee, S., **Saha, S.**, Halder, M., & Palit, A. (2018) Environmental stipulations in acquisition of toxin genes in *V. cholerae*: unfoldingparadigm off Gangetic delta. International conference (INTZOOCON2018) celebrating 100 years of Zoology, University of Calcutta incollaboration with The Zoological Society, Kolkata, pp-10.
4. **Saha, S.**, Halder, M., Mookerjee, S., & Palit, A. (2020). Environmental & anthropogenic modulators of multi-drug resistant Vibrios in the food chain: Diarrheal disease perspective. Biotech poster presentation competition organized by IISc, KITS, IBAB & Biotecnika.
5. Parui, S., Bangal, R., Shaw, K., & **Saha, S.** (2024) Study In Physiology: Annexing Basic Science and Translational Research From Bench To Bedside. One day national seminar on, Physiology under basic science in India: Its prospects and future in academia, research & industry. Organized by Physiological society of India. pp-59.

INTERNSHIP

Research Trainee at Dept. of Biotechnology, University of Calcutta **June 2014 - December 2014**

- Trained as a biomedical researcher based on Good Laboratory Practice. Developed basic technical skills on molecular biology, cell biology and protein chemistry.

MENTORSHIP EXPERIENCE

Supervised and guided 5 postgraduate (M.Sc. and M.Tech) students who joined our lab as trainees. Provided mentorship in research training, including experimental design, data analysis and scientific writing, to successfully complete their dissertation projects as part of their master's degree curriculum.

ACADEMIC SERVICES

Journal Reviewer

- Reviewed articles for health research and microbiology journals. *Journal of Health, Population and Nutrition* (BMC; IF: 2.7); *Microbial Ecology* (SPRINGER; IF: 3.9).

Examiner & Scrutineer

- Appointed & served as an examiner and scrutineer for undergraduate examination (B.Sc. Part-I) conducted by University of Calcutta in 2016.

Sequence Submission to NCBI GenBank

- Submitted more than 60 novel nucleotide sequences to the NCBI GenBank database. Submitted 16S rDNA sequences associated with diarrheagenic Vibrios under accession numbers (MN210933, OM177224, MT231540 etc.

PUBLIC HEALTH SERVICES

As an active member of a government-accredited (ICMR) water laboratory, I provided essential services for diarrheal outbreak investigations and pathogen diagnosis. This involved analyzing contaminated water samples collected from outbreak-affected districts and microbiology reports were promptly prepared and submitted to the health authorities.

TECHNICAL SKILLS

Laboratory Skills

- **Animal Handling:** Feeding & Maintenance of BALB/c mice. Feeding sample solution through oral gavage. Euthanizing mice by anesthetics and cervical dislocation**.**
- **Physiological study:** Erythrocyte Isolation from mice blood. Hemoglobin Estimation. Total and differential blood cell count. Enzymatic assay of SGOT/SGPT/Urease etc. Heavy metal detection by atomic absorption spectroscopy.
- **Field sampling:** Water sampling (Stationary sampling, Time-series & Transect sampling, Extreme events sampling), Sediment & Seafood sampling, Fish sampling, storage & maintenance of zoological specimens, Epidemiological survey, Disease data collection.
- **Clinical samples handling:** Fecal samples collected by rectal swab (Cary-Blair media; Merck, Germany), Storage and analysis.
- **Water quality monitoring:** Real time analysis of physico-chemical property, Biogeochemistry, Membrane filtration, Water fractionation, Bacterial load detection, Quantification of fecal coliforms.
- **Microbiology**: Bacterial culture methods, Isolation and characterization, Serotyping, Stab cultures, Antimicrobial susceptibility testing (Kirby-Bauer disc diffusion), Minimum Inhibitory Concentrations (MIC), Plasmid isolation & analysis, Bacterial growth curve study, Biofilm production assay, Hemolysis test, Protease activity assay, Gram staining, Bacteriophage isolation.

- **Biochemical test of Microbes:** Utilization of carbohydrates test, Oxidase test, Salt tolerance, TSI (Triple Sugar Iron) test, Lysine Iron Agar (LIA), Simmons Citrate Agar test, Indole production test.
- **Molecular Biology:** Bacterial DNA extraction (Genomic and Plasmid DNA extraction), DNA isolation from animal tissue, Primer designing, PCR (conventional and real-time), RT PCR, MPN-PCR, ERIC-PCR, Agarose gel electrophoresis, Pulsed field gel electrophoresis (PFGE) and molecular cloning. DNA barcoding. Gene sequencing (Sanger), Sequencing data analysis, Novel sequences submission to NCBI GenBank.
- **Protein study:** Protein purification, Spectrophotometry, Polyacrylamide gel electrophoresis (SDS-PAGE, 2D PAGE), Western blotting, Electrometric measurements. Tensiometry.
- **Bioinformatics and Data Analysis:** Genomic data analysis using tools such as BLAST, EMBOSS Needle, BOLD system etc. Study of clonal relationship. Phylogenetic analysis by MEGA & iTOL.

Computer Skills

- **Statistical packages:** XLSTAT, ORIGIN, EXACT, SR plot
- **Tree construction:** MEGA-X, iTOL
- **GIS and Remote Sensing**: NASA SeaDas
- **Bioinformatics tool:** NCBI BLAST, EMBOSS Needle
- **Sequence reader**: FinchTV
- **DNA Barcoding:** BOLD system

Coding Languages

Visual Basic and C++

Python (Proficiency: Beginner)

OTHER ACHIEVEMENTS

- **Awarded Certificate of Merit** from Jatiya Vijnan Parisad & Indian Science Congress Association (2001).
- **Awarded the certificate of Chitra Bhushan part II** (2nd Year) with First division in Painting by the Pracheen Kala Kendra, Chandigarh in 2003.