

## Dr. Monolina Sarkar

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Scopus ID: [orcid.org/0000-0002-8172-1111](https://orcid.org/0000-0002-8172-1111) Web of Science Researcher ID: [GRY-0666-2022](https://www.researcherid.com/rid/GRY-0666-2022)

### EDUCATION

- **Ph.D. Biochemistry** 2020  
Department of Biochemistry, University of Calcutta  
Specialization: Environmental Microbiology
- **M.Sc. Botany** 2011  
Department of Botany, University of Calcutta  
Specialization: Cell Biology and Ecotoxicology
- **B.Sc. Botany (Honors)** 2009  
Lady Brabourne College, Department of Botany, University of Calcutta  
General Electives: Chemistry, Zoology

### RESEARCH FOCUS

- Learning Experience Development: Develop and implement engaging learning experiences that integrate authentic activities with scientific and andragogical principles.
- Environmental Education: Explore effective strategies for promoting environmental literacy, among diverse audiences, and fostering a sense of responsibility towards the environment.
- Microbial Ecology: Explore the impact of environmental factors on microbial ecology.

### PUBLICATIONS

- Sarkar, Monolina. "Light-responsive biodegradation of wastewater pollutants: New developments and potential perspectives." *Journal of Hazardous Materials Advances* 10 (2023): 100281.
- Das, Debapriya Rajlakshmi, Monolina Sarkar, and Anindita Paul. "Tools and approaches for assessing stress-responsive secondary metabolites to design climate-smart crops." *In Biology and Biotechnology of Environmental Stress Tolerance in Plants*, pp. 305-370. Apple Academic Press, 2023.
- Sarkar, Monolina. "Effect of silver nanoparticles on nitrogen-cycling bacteria in constructed wetlands." *Nanotechnology for Environmental Engineering* 7, no. 2 (2022): 537-559.
- Sarkar, Monolina, Anindita Paul, and Debapriya Rajlakshmi Das. "Availing engineered and biosynthesized metal-based nanoparticles to alleviate abiotic stress." *Response of field crops to abiotic stress* (2022): 15-33.

- Guha, Sohini, Firoz Molla, Monolina Sarkar, Fernando Ibañez, Adriana Fabra, and Maitrayee DasGupta. "Nod factor-independent 'crack-entry' symbiosis in dalbergoid legume *Arachis hypogaea*." *Environmental Microbiology* 24, no. 6 (2022): 2732-2746.
- Guha, Sohini, Monolina Sarkar, Pritha Ganguly, Md Raihan Uddin, Sukhendu Mandal, and Maitrayee DasGupta. "Segregation of nod-containing and nod-deficient bradyrhizobia as endosymbionts of *Arachis hypogaea* and as endophytes of *Oryza sativa* in intercropped fields of Bengal Basin, India." *Environmental Microbiology* 18, no. 8 (2016): 2575-2590.

#### **PEER REVIEWER EXPERIENCE**

- Environmental Science and Pollution Research (Springer Nature)

#### **LEARNING AND DEVELOPMENT EXPERIENCE**

- **State-Aided College Teacher-(Category-I)** 01/2020 – Present  
Sammilani Mahavidyalaya, (University of Calcutta)  
B.Sc. Botany Department  
B.Sc. Environmental Studies

#### **LEARNING COMMUNITY NETWORKING**

- West Bengal State University 04/2022 –  
M.Sc. Biochemistry Department
- Diamond Harbour Women's University 01/2019 –  
M.Sc. Botany Department
- Sammilani Mahavidyalaya (University of Calcutta) 08/2018 – 12/2019  
B.Sc. Botany Department
- Brahmananda Keshab Chandra College (West Bengal State University) 08/2017 –  
M.Sc. Botany Department
- JIS University 01/2017 – 07/2017  
M.Sc., B.Sc. Biotechnology Department

#### **INSTRUCTIONAL DESIGN SKILLS**

- Develop engaging and collaborative learning experiences aligned with learning objectives to enhance learner participation and motivation through facilitated discussions, peer-to-peer activities, and interactive elements.
- Research, design, evaluate, and develop multimedia learning assets and assessment strategies based on learner feedback and performance data.
- Transform content into storyboards and assets using instructional design frameworks, ensuring consistency, accuracy, and diversity in the design process.
- Craft engaging presentations on complex subjects using digital storytelling to diverse audiences to enhance understanding and retention.

- Analyse course completion rates, learner satisfaction scores, engagement, and knowledge retention rates to inform data-driven instructional decisions.

## RESEARCH SKILLS

- Critically evaluate existing studies for knowledge gaps to address key research questions.
- Researched, analysed, summarized, and edited project results by identifying patterns, trends, and implications, demonstrating data-driven decision-making and analytical thinking.
- Effectively communicate research findings and provide concise feedback to authors and editors for publications and presentations.
- Collaborate with cross-functional teams of researchers, academicians, and industry professionals to achieve shared research goals.
- Provide expert scientific review on scientific articles for clarity, precision, and publication standards.

## ADMINISTRATIVE SKILLS

- Coordinate with Subject Matter Experts and project teams to discuss learners' progress, address concerns, and implement solutions for achieving learning goals.
- Organize, prioritize, and schedule multiple work events in collaboration with project teams to allocate resources and achieve the desired project timeline.
- Compile comprehensive documentation for National Assessment and Accreditation, ensuring regulatory compliance.
- Organized symposia and excursions with clear objectives coordinating with relevant authorities

## CONFERENCE PRESENTATIONS

- **Science Talk'23**, Portland 2023  
Organizers: The Association of Science Communicators  
Theme: Giving Science a Voice  
Talk: Promoting science communication in Higher Education
- **Biodiversity - Stewardship for Vital Resources** 2022  
Dresden Nexus Conference 2022, Germany  
Organizers: Institute for the Integrated Management of Material Fluxes and of Resources, Technische Universität Dresden, and Leibniz Institute of Ecological Urban and Regional Development  
Theme: Agriculture practices, climate change, and biodiversity: adaptive management and integrative policy framework  
Poster: Engineering the plant microbiome to combat abiotic stress in plants

## PROFESSIONAL AFFILIATIONS

- Member and Web Writer, American Society of Microbiology  
Scientific Communication: Predatory Bacterium Feasts on Soil Microbiome
- Member, Association for Women in Science

- Member, UNESCO- Inclusive Policy Lab
- Member, MERLOT: Multimedia Educational Resource for Learning and Online Teaching

### PROFESSIONAL DEVELOPMENT

- **Peek into Biodiversity and Beyond - A hands-on training workshop on Next-generation sequencing (NGS)** 2022  
Center for Climate and Environmental Studies  
Indian Institute of Science Education and Research, Kolkata  
International Society for Microbial Ecology (ISME)
- **Biostatistics: A User's Perspective** 2022  
Indian Institute of Science Education and Research, Pune

### RESEARCH SCHOLARSHIPS

- **Visiting Researcher Fellowship** 10/2015-12/2015  
Indo-French Centre for the Promotion of Advanced Research (IFCPAR)  
Campus International de Baillarguet, Montpellier
- **Senior Research Fellowship** 01/2014-12/2016  
Council of Scientific and Industrial Research, Ministry of Science and Technology, India  
Area of Research: Life Science
- **Junior Research Fellowship** 01/2012-12/2013  
Council of Scientific and Industrial Research, Ministry of Science and Technology, India  
Area of Research: Life Science
- **CSIR-National Eligibility Test (NET)** 06/2011  
Eligibility test for Junior Research Fellowship (JRF) and Lectureship/Assistant Professor  
Council of Scientific & Industrial Research and University Grants Commission, India  
Subject: Life Science, All India Rank-42
- **Graduate Aptitude Test in Engineering (GATE)** 03/2011  
Conducted by Indian Institute of Technology, Madras  
On behalf of the National Coordination Board, Graduate Aptitude Test in Engineering  
Department of Higher Education, Ministry of Human Resource Development, India  
Subject: Life Sciences, All India Rank-608