

Name: Dr. Sikha Mandal

Designation: Associate Professor

Laboratory/Specialisation: Algal Technology & Bioprocessing

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Research interests:

- Algal Bioenergy & Biofuels
- Phycoremediation & Environmental Biotechnology
- Algal Stress Physiology
- Metabolomics & Metabolic Engineering
- Microbiome of Cultural Heritage Sites
- Terraforming

Teaching experiences: 11 years

Current (May 2026-present)	Associate Professor Department of Botany, Visva-Bharati, Santiniketan.
2014 –2026	Assistant professor Department of Botany, Sree Chaitanya College, Habra.

Research experiences

Current (May 2026-present)	Associate Professor Department of Botany, Visva-Bharati, Santiniketan.
2014 – 2026	Assistant professor Department of Botany, Sree Chaitanya College, Habra.
2013-2014	Post Doctoral Research: The University of Mississippi, MS, USA

2013	Research Associate: Department of Botany, Visva-Bharati, Santiniketan.
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Education:

2013	PhD in Botany: Department of Botany, Visva-Bharati
2007	M.Sc. in Botany: Specialization in Plant Physiology, Biochemistry and molecular biology , Department of Botany, Visva-Bharati
2005	B.Sc. in Botany (Honours), Chemistry, Zoology. University of Burdwan

Position held:

2023-2025	Head of the Department, Department of Botany, Sree Chaitanya College, Habra
2020-2026	Convenor of R&D cell (2021-2025), Admission committee (2025), Examination committee (2020-2021), Biosafety & Ethics committee (2019-2022)

Awards and recognitions:

- FEMS Young Scientist Award (from the Federation of European Microbiological Societies) in 2011
- SWS Women Scientist Award (From the Society of Wetland Scientists, USA) in 2009

Key publications:

Book:

1. Mandal S and Rath J (2015) Extremophilic Cyanobacteria for Novel Drug Development. Springer briefs in Pharmaceutical Science & drug development, Springer, USA pp 92.

Publication in pre-reviewed journals

1. Pramanik, S., Banerjee, S., Mondal, A., Kundu, A., Biswas, R., Dam, B., Mandal S & Rath, J. (2026). Metagenomic insights into microbial biodeterioration of terracotta in the 18th-century-old temple Jor Mandir. *Biofouling*, 1-16. (IF: 2.0)
2. Kundu, A., Sen, A., Alam, S. A., Mandal, S., & Rath, J. (2026). Broad-spectrum antibacterial activity of a bioactive fraction containing laucysteinamide A-like metabolite from the soil crust cyanobacterium Desmonostoc sp. *3 Biotech*, 16(8), 359. (IF: 3.1)

3. Pramanik, S., Mondal, A., Mandal, S., & Rath, J. (2026). Assessment of microalgal diversity and physicochemical characteristics in tropical wetlands of West Bengal, India. *Vegetos*, 1-17.
4. Sen, A., Dey Bhowmik, A., Mandal, S., Mondal, P., Chattopadhyay, A., & Rath, J. (2025). Scytonemin extracted from *Lyngbya aestuarii* exhibits anti-cancer activity: involvement of c-Myc pathway inhibition. *Natural Product Research*, 1-8. **(IF: 1.8)**
5. Mondal, P., Sen, A., Shaw, P., Dey Bhowmik, A., Mandal, S., Chattopadhyay, A., & Rath, J. (2025). UV-absorbing compound asterina-330 mitigates the cytotoxic effect of arsenic and fluoride in zebrafish hepatocytes. *The Nucleus*, 1-16. **(IF: 1.4)**
6. Kumar, A., Manasa, L. S., Kashyap, J., Mishra, G., Mandal, S., Rath, J., ... & Panigrahy, M. (2024). Carbon nanoparticle exposure strengthens water-relation parameters by stimulating abscisic acid pathway and aquaporins genes in rice. *Plant Stress*, 13, 100540. **(IF: 8.1)**
7. Bhakat, S., Mondal, A., Mandal, S., & Rath, J. (2024). Role of exopolysaccharides of *Anabaena* sp. in desiccation tolerance and biodeterioration of ancient terracotta monuments of Bishnupur. *Archives of Microbiology*, 206(3), 105. **(IF: 3.4)**
8. Parvin, N., Mandal, S., & Rath, J. (2024). Microbiome of seventh-century old Parsurameswara stone monument of India and role of desiccation-tolerant cyanobacterium *Lyngbya corticicola* on its biodeterioration. *Biofouling*, 40(1), 40-53. **(IF: 2.5)**
9. Mondal, A., Mandal, S., & Rath, J. (2022). Seasonal diversity of cyanobacteria and new report of *Brasilonema* sp. colonizing the monuments of Santiniketan and Bishnupur (India). *International Biodeterioration & Biodegradation*, 167, 105350. **(IF: 4.4)**
10. Saha, S., Sen, A., Mandal, S., Adhikary, S. P., & Rath, J. (2021). Mycosporine-alanine, an oxo-mycosporine, protect *Hassallia byssoidea* from high UV and solar irradiation on the stone monument of Konark. *Journal of Photochemistry and Photobiology B: Biology*, 224, 112302. **(IF: 4.0)**
11. Bhakat, S., Saha, S., Mandal, S., and Rath, J. (2020) Antibacterial activity of desiccated cyanobacterium *Anabaena* sp. isolated from terracotta monuments of Bishnupur, West Bengal. *Int. J. Pharm. Sci. Drug Res.* 12
12. Mandal S, Mandal T K and Rath J. (2019) Investigation of therapeutically active constituents of homeopathy medicine from *Justicia adhatoda* L. and its clinical verification." *Journal of Pharmacognosy and Phytochemistry* 8.3 : 3790-3796.
13. Mandal S and Rath J (2015) Phytochemical and antioxidant activities of ethno-medicinal plants used by fisher folks of Chilika lagoon for Indigenous phytotherapy *J Pharmacogn Phytochem.* 3: 55-65

14. Rath J, Mandal S and Adhikary SP (2014) Ecophysiology of *Lyngbya aestuarii* to varying salinity regimes *Acta Physiologiae Plantarum*, 36: 409-419 **(IF: 2.3)**.
15. Mandal S and Rath J (2013) Algal colonization and its ecophysiology on the fine sculptures of terracotta monuments of Bishnupur, West Bengal, India. *International Biodeterioration and Biodegradation* 84: 291-299. **(IF: 4.4)**
16. Rath J, Mandal S and Adhikary SP (2012) Salinity-induced synthesis of UV-screening compound scytonemin in the cyanobacterium *Lyngbya aestuarii*. *Photochem Photobiol B: Biology* 115: 5-8 **(IF: 4.0)**.
17. Mandal S, Rath J and Adhikary SP (2011). Adaptation strategies of the sheathed cyanobacterium *Lyngbya majuscula* to ultraviolet-B. *Photochem Photobiol B. Biology* 102: 115-122 **(IF: 4.0)**.

Book chapters:

1. Kundu, A., Mandal, S., & Rath, J. (2026). Mycosporine-Like Amino Acids in Cyanobacteria: Biosynthesis, Ecology, and Biotechnological Potential. In *Algae and Algal Metabolites: Emerging Applications, Trends and Prospects* (pp. 1-33). Cham: Springer Nature Switzerland.
2. Bhakat S, Mandal S and Rath J (2020) Biofilm of Cyanobacteria: Environmental Applications In: Arumugam M, Kathiresan S, Nagaraj S (ed.) Applied Algal Biotechnology. Nova Scientific Publisher, New York, USA pp 311-330.
3. Rath J, Mandal S and Padhi BK (2010) Prospective in Diatom Nanotechnology In: M.K. Das (ed.) Algal Biotechnology, Daya Publishing House, New Delhi pp. 25-35.
4. Rath J and Mandal S. (2009): Sequestration of Heavy Metals from Waste Water Effluent by Micro-algae In: Environmental Microbiology, B.B. Mishra, D.R. Nanda and S. R. Dave (eds.) APH Publication pp. 55-70.
5. Mondal S, Mandal S, Rath J and Ray S (2009): Photochromatic adaptation of marine Cyanobacteria *Lyngbya aestuarii* (Mertens)Liebman ex Gomont In: Advances in Plant Biology, S Mandal and S Bhattacharya (eds.) 289.

Research funding:

SI No.	Funding agency	Project tenure	Amount
1.	SERB, DST, Govt. of India	2018-2021	Rs. 35,91,086

2.	WBDST, Govt. of West Bengal	2019-2022	Rs. 11,74,000
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Present Lab members:

Sl No.	Name	Designation	Year of Joining	Fellowship if any
1.	Sourav Roy	PhD Student	2023	WBDST & Non-NET Fellowship

Past Lab members:

Sl No.	Name	Year of Passing	Current position
1.	Dr. Anupam Kundu	2025	Teacher

Research collaboration:

- Department of Zoology, Visva-Bharati,
- Siksha o Anusandhan University, Bhubaneswar, Odisha

Professional membership: (scientific society)

- Phycological Society of America
- Society of Wetland Scientists, USA