



Name: Dr. Shilalipi Samantaray

Designation: Assistant Professor

Department: Department of Biotechnology

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Educational Qualification:

<i>Degree</i>	<i>University</i>	<i>Year</i>
Ph.D.	Indian Institute of Technology Kharagpur (IIT)	2012
MSc.	Orissa University of Agriculture and Technology (OUAT)	2005
BSc.	Orissa University of Agriculture and Technology (OUAT)	2003

Experience:

- ☞ Assistant Professor at the Department of Biotechnology, Trident Academic of Creative Technology, Bhubaneswar (2024- Present)
- ☞ Assistant Professor at the Department of Biotechnology, MITS Institute of professional studies, Rayagada (2021-2024)
- ☞ Visiting Faculty at the Department of Energy and Environment, TERI School of Advance Studies, New Delhi, India (2020-2021).
- ☞ Dr. D. S. Kothari Postdoctoral Fellow (UGC) at School of Life Science, Jawaharlal Nehru University, New Delhi (2015-2018)

Research Focus:

- ☞ Assessing the potential of microalgae for renewable biofuel production

- ✧ Study the production of PHA polymers using cyanobacterium and exploring its environmental and medical applications.
- ✧ Evaluating algae's potential for removing heavy metals, excess nutrients, and pollutants
- ✧ Investigating the benefits of algae-derived biofertilizer in improving soil health and crop productivity.
- ✧ Extracting valuable bioactive components such as phycocyanin, carotenoids (e.g., beta-carotene), and omega-3-fatty acids and analysing their applications in food, pharmaceuticals, and cosmetics.
- ✧ Developing innovative methods for synthesizing nanoparticles using algae

Honour & Reward:

- ✧ Fellowship from Ministry of Environment and Forestry, New Delhi, India (2007-2008)
- ✧ Senior Research Fellowship from Department of Biotechnology (DBT), India (2009- 2011)
- ✧ Best Poster Award at APA International Congress on Advances in Human Healthcare Systems, Healthcare India, New Delhi, February 20th -23rd, 2012.
- ✧ Best Poster Award at National conference on Impact of climate change on Indian Agriculture and Plant Productivity, New Delhi, March 23rd-24 th, 2018
- ✧ Secured 1st division with distinction in B.Sc. Botany examination in Orissa University of Agriculture and Technology.

Academic/ Research Related Achievement (Includes FDP, Workshop, Seminar, Conference & Etc.):

- ✧ Attended an International Webinar on “Advance Nanomaterials for renewable energy” TERI-Deakin Nanobiotechnology Centre, TERI, Gurugram, Haryana, India 25th November, 2022
- ✧ Attended a Faculty Development Programme on “Global Technology and Policy Perspective to achieve sustainable goal’ Symbiosis Institute of Geoinformatics (SIG), Pune on February 22 & 23, 2022.
- ✧ Attended a e-workshop cum discussion forum on “High- End Characterization of Microalgae: Overcoming the Technological Barriers” at TERI-Deakin Nanobiotechnology Centre, TERI Gram during 3rd –4th March, 2021

- ☞ Attended a workshop on "Sample preparation for Scanning Electron Microscopy and Transmission Electron Microscopy" at Advanced Instrumentation Research Facility (AIRF), JNU during 24th and 25th January, 2017
- ☞ Attended a course on "Photosynthesis of prokaryotic and eukaryotic organisms" organized by Global Initiative of Academic Networks (GIAN) at Jawaharlal Nehru University during February 9 – March 2, 2016.
- ☞ **Shilalipi Samantaray** and B. C. Tripathy. Microalga *Chlamydomonas reinhardtii* as a potential feedstock for biodiesel production. National conference on Impact of climate change on Indian Agriculture and Plant Productivity, Jawaharlal Nehru University, New Delhi, March 23rd-24th, 2018. **(Best poster awarded)**.
- ☞ **Shilalipi Samantaray** International Conference on Sustainable Biofuels -2018, Mission Innovation-India, India Habitat Centre, New Delhi, February 26 th -27th, 2018
- ☞ **Shilalipi Samantaray** and N. Mallick. Poly- β -hydroxybutyrate and Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) accumulation in *Aulosira fertilissima*: Effects of nitrogen and phosphorus deficiencies. National seminar on Microbial products in diverse sectors: Agriculture Chemicals, Energy, Enzymes, Healthcare and Polymers (MPDS-14), Bannari Amman Institute of Technology, Sathyamangalam, Tamil Nadu, January 6th-7th, 2014 (Oral Presentation).
- ☞ **Shilalipi Samantaray** and N. Mallick. Optimization of nutritional factors for enhanced Poly- β hydroxybutyrate (PHB) polymer production by *Aulosira fertilissima*. APA International Congress on Advances in Human Healthcare Systems, Healthcare India, New Delhi, February 20th-23rd, 2012 (Best poster awarded).
- ☞ **Shilalipi Samantaray** and N. Mallick. Production of Poly- β -hydroxybutyrate (PHB) biopolymer by a diazotrophic cyanobacterium *Aulosira fertilissima*. International Conference on Plants and Environmental Pollution, International Society of Environmental Botanists and National Botanical Research Institute, Lucknow, India, December 8th – 11th, 2010 (Oral Presentation).
- ☞ **Shilalipi Samantaray**, R. Bhati, L. Sharma, J. K. Nayak and N. Mallick. Production of PHB polymer from N₂-fixing cyanobacteria. International Conference on Food Security and Environmental Sustainability, Indian Institute of Technology Kharagpur, India, December 17th -19th, 2009 (Oral Presentation).

Publication:

- ☞ **Shilalipi Samantaray**, Koleyb S., Tripathy C B, Mallick N (2025) Contiguous supplementation of bicarbonate and carbon dioxide to improve carbon utilization efficiency and biodiesel production from a single-cell alga *Chlamydomonas*

reinhardtii. Renewable Energy 245, 122779
<https://doi.org/10.1016/j.renene.2025.122779> (IF:9)

- ✉ K. Kumari^Ψ, **Shilalipi Samantaray** ^Ψ, D. Sahoo and B C Tripathy (2024) Modulation of photosynthesis, biomass and lipid production by sulfur and CO₂ supplementation in *Chlorella vulgaris*. Journal of applied Phycology. 37(1):135-150. ^Ψ Equal contribution <https://doi.org/10.1007/s10811-024-03407-7> (IF: 3.2)
- ✉ **Shilalipi Samantaray**, K. Kumari (2023) Gasotransmitters Signaling in Plant Abiotic Stress. Mehar Fatma et al. (Eds): Hydrogen Sulfide: An Evolving Gasotransmitter Regulating Salinity and Drought Stress Response in Plants" Springer Nature, Switzerland pp 71–91.
- ✉ K. Kumari^Ψ, **Shilalipi Samantaray** ^Ψ, D. Sahoo and B C Tripathy (2021) Nitrogen, phosphorus and high CO₂ modulate photosynthesis, biomass and lipid production in the green alga *Chlorella vulgaris*. Photosynthetic Research, 148, 17–32. ^Ψ Equal contribution.
- ✉ **Shilalipi Samantaray** and N. Mallick (2015) Impact of Various Stress Conditions on Poly-βHydroxybutyrate (PHB) Accumulation in *Aulosira fertilissima* CCC 444. Current Biotechnology, 4, 366- 372.
- ✉ **Shilalipi Samantaray** and N. Mallick (2015) Role of cultural variables in tailoring poly(3- hydroxybutyrate-co-3-hydroxyvalerate) copolymer synthesis in the diazotrophic cyanobacterium *Aulosira fertilissima*. Journal of Applied Phycology, 27, 197–203.
- ✉ **Shilalipi Samantaray** and N. Mallick (2014) Production of Poly (3- hydroxybutyrate-co-3- hydroxyvalerate) copolymer by a diazotrophic cyanobacterium *Aulosira fertilissima*. Journal of Applied Phycology, 26, 237-245.
- ✉ A. K. Singh, R. Bhati[†], **Shilalipi Samantaray**[†] and N. Mallick (2013) *Pseudomonas aeruginosa* MTCC 7925: Producer of a Novel SCL-LCLPHA Co-Polymer. Current Biotechnology, 2013, 2, 81-88. [†] Equal contribution.
- ✉ **Shilalipi Samantaray**, R. Bhati and N. Mallick (2013) Cyanobacteria as a source for Poly-β-hydroxybutyrate (PHB) production. In: N. K.Sharma, A. K. Rai and L. J. Stal (eds.), Cyanobacteria: An Economic Perspective. John Wiley and Sons Limited, UK, 2013, 227-244.
- ✉ **Shilalipi Samantaray** and N. Mallick (2012) Production and characterization of poly-β-hydroxybutyrate (PHB) polymer from *Aulosira fertilissima*. Journal of Applied Phycology, 24, 803-814.
- ✉ **Shilalipi Samantaray**, J. K. Nayak and N. Mallick (2011) Wastewater utilization for poly-βhydroxybutyrate production by the cyanobacterium *Aulosira fertilissima*

in a recirculatory aquaculture system. Applied and Environmental Microbiology, 77, 8735-8744.

- ✎ B. Panda, R. Verma, R. Bhati, **Shilalipi Samantaray** and N. Mallick (2011) Prospective to produce polyhydroxyalkanoic acids from cyanobacteria. In: E. Kowsari (ed.), Polymer Synthesis. Nova Science Publishers, New York, USA, 237-258.
 - ✎ R. Bhati, **Shilalipi Samantaray**, L. Sharma and N. Mallick (2010) Poly- β -hydroxybutyrate accumulation in cyanobacteria under photoautotrophy. Biotechnology Journal, 2010, 5, 1181-1185
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