



BIDISHA GHOSH, Ph.D.

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PROFESSIONAL SUMMARY

Dr. Bidisha Ghosh is an Assistant Professor of Biotechnology with a Ph.D. in Nanotechnology from Jadavpur University and close to five years of combined research and teaching experience. Her research centres on the synthesis and characterisation of functional nanoparticles and nanohybrids for pollutant sensing and remediation, with particular emphasis on heavy-metal (e.g., hexavalent chromium) detection in wastewater, biotechnological approaches to the removal of emerging pollutants, and nano-sensor development. Her academic interests and teaching span Biochemistry, Cell Biology, Molecular Biology, Microbiology and Nanotechnology, and she has contributed extensively to research-led curriculum development through numerous peer-reviewed book chapters and edited-volume contributions. She combines bench-level analytical expertise (FTIR, fluorimetry, UV–Visible spectrophotometry) with a sustained record of mentoring student research and disseminating findings through national and international conferences.

EDUCATION & ACADEMIC QUALIFICATIONS

Degree / Qualification	Year	Institution / Board	Field
Ph.D., Nanotechnology	2018 – 2024	Department of Physics, Jadavpur University	Nanoparticle synthesis, sensing & remediation
M.Sc., Biotechnology	2010 – 2012	Department of Life Science & Biotechnology, Jadavpur University	Biotechnology
B.Sc. (Honours), Microbiology	2007 – 2010	Asutosh College, University of Calcutta	Microbiology
Higher Secondary	2007	Sir Ramesh Mitter Girls' School, Kolkata (WBCHSE)	Science

Degree / Qualification	Year	Institution / Board	Field
Secondary (Madhyamik)	2005	Julien Day School, Kolkata (WBBSE)	—

PROFESSIONAL & ACADEMIC APPOINTMENTS

Assistant Professor, Department of Biotechnology, School of Life Sciences, Swami Vivekananda University, Barrackpore — *Current (approx. 4 years 10 months of total professional experience).*

Ph.D. Research Scholar, Department of Physics, Jadavpur University — 2018–2023. Synthesised nanoparticles and nanohybrids and assessed their sensing properties and application to nano-remediation, under the supervision of Dr. Kaustuv Das and Dr. Sukhen Das.

Research Trainee, Herbicare Healthcare Bioherbal Research Foundation (based at Jadavpur University) — 2013–2017. Investigated the antimicrobial and antioxidant potencies of non-antibiotic and homeopathic preparations, under the guidance of Dr. Sukhen Das and Dr. Sujata G. Dastidar.

RESEARCH & GRANT EXPERIENCE

Research Focus

- Synthesis and characterisation of functional nanoparticles and nanohybrids (e.g., α -FeOOH-based nanohybrids) for fluorometric sensing of heavy-metal pollutants, including Cr(VI), in wastewater and living cells.
- Nanoremediation strategies and biotechnological interventions for the removal of emerging and radioactive pollutants from wastewater systems.
- Piezoelectric sterilisation techniques — from fundamental innovation to applied use.
- Antimicrobial and antioxidant activity screening of non-antibiotic and homeopathic compounds, including studies on the antidepressant drug imipramine and doxepin.
- Early research on anthracene compounds and their anti-cancer activity in breast cancer (MCF-7) and leukemia (U937) cell lines.

Core Instrumentation & Techniques

FTIR Spectroscopy • Fluorimetry • UV–Vis Spectrophotometry

Sponsored Research Project

Sponsoring Agency	Project Title	Duration	Amount	Role
ICSSR — Vision Vrikshit Bharat@2047	Post-Covid Era and the Zero Generation: Vulnerability, Resilience and Adaptive Capacity in Ageing Communities of Select Urban Spaces of North-East India	Sept. 2024 – Sept. 2025	₹10 lakhs	Co-PI

Patent (Filed)

Applicant: Swami Vivekananda University, Telinipara, Barasat–Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India.

Inventors: Bhumi Dewan, Sayan Mondal, Soumili Bakshi, Khadija Nadim, **Bidisha Ghosh**.

Filing Date: 12/03/2025 **Publication Date:** 28/03/2025 **Application No.:** 202531022102A **Status:** Filed (grant pending).

PUBLICATIONS & PEER-REVIEWED CONTRIBUTIONS

A. Peer-Reviewed Journal Articles

1. Sarkar, S., Mukherjee, A., Das, S., **Ghosh, B.**, Chaudhuri, S., Bhattacharya, D., Sarbajna, A., & Gachhui, R. (2019). Nitrogen deprivation elicits dimorphism, capsule biosynthesis and autophagy in *Papiliotrema laurentii* strain RY1. *Microbiological Research*, 124 (Suppl.), 102708. ISSN: 1878-4291 (Online); 0968-4328 (Print). DOI: 10.1016/j.micron.2019.102708
2. **Ghosh, B.**, Roy, S., Bardhan, S., Mondal, D., Saha, I., Ghosh, S., Basu, R., Karmakar, P., Das, K., & Das, S. (2022). Biocompatible carbon-dot-decorated α -FeOOH nanohybrid for an effective fluorometric sensing of Cr(VI) in wastewater and living cells. *Journal of Fluorescence*, Volume 32, 1489–1500. ISSN: 1053-0509. DOI: 10.1007/s10895-022-02962-x
3. **Ghosh, B.**, Ullah, Z., Sehar, T., & Sarkar, S. (2025). Piezoelectric sterilization techniques: from innovations to applications. *Frontiers in Chemistry*, Volume 13, 1–10. ISSN: 2296-2646. DOI: 10.3389/fchem.2025.1709575
4. Palchoudhuri, S., Mukhopadhyay, D., Sinha Roy, D., **Ghosh, B.**, Das, S., & Dastidar, S.G. (2017). The antidepressant drug doxepin: a promising antioxidant. *Asian Journal of Pharmaceutical and Clinical Research*, Volume 10, Issue 3, 97–102. ISSN: 0974-2441. DOI: 10.22159/ajpcr.2017.v10i3.15149
5. Sinharoy, D., Mukhopadhyay, D., Palchoudhuri, S., **Ghosh, B.**, Das, S., & Dastidar, S.G. (2016). Distinct antioxidant activity of a common antidepressant drug imipramine. *Free Radicals and Antioxidants*, Volume 6, No. 2, 151–154. ISSN: 2231-2536. DOI: 10.5530/fra.2016.2.4

B. Authored Books

1. **Ghosh, B.** (2025). *BIOBRIDGES: Connecting Technology with the Future of Life*. Integrated Publications, New Delhi. ISBN: 978-93-5834-179-9 (Paperback); 978-93-5834-976-4 (E-reader).
2. **Ghosh, B.** (2026). *Essentials of Microbiology: Unearthing the Unseen*. Swami Vivekananda University. ISBN: 978-93-56635-848-5.

C. Book Chapters & Edited-Volume Contributions

Grouped by volume; co-authored chapter teams are listed under each title. Candidate's name is bolded throughout.

Innovative and Hybrid Technologies for Wastewater Treatment and Recycling — CRC Press, 2025 | ISBN: 978-1-003454199-5 (hbk) / 978-1-003-45419-9 (ebk) | DOI: 10.1201/9781003454199

1. **Bidisha Ghosh**, Suranjana Sarkar, Semanti Ghosh

Radioactive Pollutant: Sources, Issues and Remediation — Springer, 2025 | ISBN: 978-3-031-73795-4 / 978-3-031-73796-1 (eBook) | DOI: 10.1007/978-3-031-73796-1

1. Suranjana Sarkar, **Bidisha Ghosh**, Semanti Ghosh

Biotechnological Interventions in Removal of Emergent Pollutants — Springer, 2025 | ISBN: 978-981-97-9921-3 | DOI: 10.1007/978-981-97-9922-0

1. **Bidisha Ghosh**, Subhasis Sarkar, Santanu Paul

Biotechnological Removal of Emerging Pollutants from Wastewater Systems — Springer, 2025 | ISBN: 978-981-96-3944-1 | DOI: 10.1007/978-981-96-3945-8

1. **Bidisha Ghosh**, Subhasis Sarkar

BIOBRIDGES: Connecting Technology with the Future of Life — Integrated Publications, 2025 | ISBN: 978-93-5834-179-9 (Paperback) / 978-93-5834-976-4 (E-reader) | DOI: 10.62778/int.book.535

1. Sayan Mondal, Arunava Maity, Subhasis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
2. Soumili Bakshi, Subhasis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
3. Shrishti Dey, **Bidisha Ghosh**, Suranjana Sarkar, Subhasis Sarkar

The Living World: Fundamentals of Life Sciences — AkiNik Publications, 2025 | ISBN: 978-93-61355-85-1 | DOI:

10.22271/ed.book.3190

1. Madiha Perween, Subhasis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
2. Sulogna Mitra, **Bidisha Ghosh**, Suranjana Sarkar, Subhasis Sarkar
3. Anushka Singh, Madiha Perween, Palak Bhardwaj, Priyanka Mandal, Riya Lama, Semanti Ghosh, Subhasis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
4. Prity Singh, Anwesha Das, Tiyaasha Saha, Semanti Ghosh, **Bidisha Ghosh**, Subhasis Sarkar, Suranjana Sarkar

Life at the Molecular Level: An Understanding of Biology — Bright Sky Publications, 2025 | ISBN: 978-93-61355-85-1 | DOI:

10.22271/ed.book.3190

1. Raju Bhunia, Raj Manna, Subhashis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
2. Priyanka Mandal, **Bidisha Ghosh**, Subhasis Sarkar, Suranjana Sarkar
3. Santanu Mishra, **Bidisha Ghosh**, Subhasis Sarkar, Suranjana Sarkar
4. Dipti Das, Tanisha Bhowmick, Tiyaasha Saha, Priyajit Banerjee, **Bidisha Ghosh**, Subhasis Sarkar, Suranjana Sarkar

The Living Laboratory: Biotechnology & Microbial Frontiers — AkiNik Publications, 2025 | ISBN: 978-93-61355-9 | DOI:

10.22271/ed.book.3211

1. Abu Jishan, Subhasis Sarkar, Suranjana Sarkar, **Bidisha Ghosh**
2. Aritra Chatterjee, Sumita Mal, Priyajit Banerjee, **Bidisha Ghosh**, Subhasis Sarkar, Suranjana Sarkar

Microbial Menace and Miracle: The Double-Edged Sword of Infection and Immunity — Penprints, 2025 | ISBN: In press

1. Karobi Dey, **Bidisha Ghosh**, Subhasis Sarkar
2. Pijush Das, **Bidisha Ghosh**, Subhasis Sarkar

Blueprints of Life: Unlocking the Power of Modern Biotechnology — Penprints, 2025 | ISBN: 978-81-9880-4-7-3

1. Priti Nandi, Subhasis Sarkar, **Bidisha Ghosh**
2. Rounak Shaw, Subhasis Sarkar, **Bidisha Ghosh**
3. Soumili Bakshi, Khadija Nadim, Subhasis Sarkar, **Bidisha Ghosh**
4. Sweta Thakur, Subhasis Sarkar, Priyanka Pal, **Bidisha Ghosh**

Biotechnology: Bridging Fundamental Science and Applied Innovation — Swami Vivekananda University, 2026 | ISBN: 978-93-56551-63-3

1. Subarna Haldar, Megha Bag, **Bidisha Ghosh**, Subhasis Sarkar
2. Sweta Thakur, Subhasis Sarkar, **Bidisha Ghosh**

Biotech Horizons: Translational Research in Human Health — Swami Vivekananda University, 2026 | ISBN: 978-93-56551-63-3

1. Soumili Bakshi, Subhasis Sarkar, **Bidisha Ghosh**
2. **Bidisha Ghosh**, Subhasis Sarkar

Biotechnology: Future of Synthetic Biology — Swami Vivekananda University, 2026 | ISBN: 978-93-4178-1-78-33

1. Sayan Mondal, Sneha Mondal, **Bidisha Ghosh**, Subhasis Sarkar

Essentials of Microbiology: Unearthing the Unseen (chapter contributions) — Swami Vivekananda University, 2026 | ISBN: 978-93-56635-848-5

1. **Bidisha Ghosh**, Subhasis Sarkar
2. Sovan Patra, Raj Manna, Subhasis Sarkar, **Bidisha Ghosh**

The Microbial Nexus: Intersections in Modern Science — Swami Vivekananda University, 2026 | ISBN: 978-93-58907-55-1

1. Pijus Das, **Bidisha Ghosh**, Subhasis Sarkar
2. Ipsita Koley, Soumili Bakshi, Subhasis Sarkar, **Bidisha Ghosh**

Biotechnological Palimpsest: From Evolutionary Scratches to the Synthetic Future — Swami Vivekananda University, 2026 | ISBN: 978-93-58904-70-3

1. Shreyasi Howlader, **Bidisha Ghosh**, Subhasis Sarkar
2. Sumana Saha, Pritha Mondal, Poly Das, Subhasis Sarkar, **Bidisha Ghosh**

The Macroworld of the Microbes — Swami Vivekananda University, 2026 | ISBN: 978-93-57790-18-5

1. Megha Bag, Subarna Halder, **Bidisha Ghosh**, Subhasis Sarkar
2. Karan Acharjee, Sweta Thakur, Subhasis Sarkar, **Bidisha Ghosh**

Microbial Cosmos: The Architects of Life — Swami Vivekananda University, 2026 | ISBN: 978-93-4178-34-0

1. Bhumi Dewan, Subhasis Sarkar, **Bidisha Ghosh**
2. Sneha Mondal, Sayan Mondal, **Bidisha Ghosh**, Subhasis Sarkar

D. Conference & Seminar Presentations

- Poster Presentation, 9th Annual Conference of the Indian Association of Medical Microbiologists (2014).
- Poster Presentation, National Conference on Recent Developments in Nanoscience & Nanotechnology, Jadavpur University (2019).
- Poster Presentation, One-Day Seminar on Modern Chemistry and Sustainable Development, Department of Chemistry, Vijaygarh Jyotish Ray College (2020).
- Oral Presentation, 1st Virtual International Conference on Biotechnology and Bioinformatics – Insight BioSolutions (ICBB-2022).
- Oral Presentation, International Conference on "Scope of Microbiology Beyond Academia: Industry, Entrepreneurship and More," Department of Microbiology (2024).
- Oral Presentation, 33rd West Bengal State Science Congress (2026).

HONOURS & AWARDS

- Best All-Rounder Champion, school-level award (2005).
- Best Poster Presentation, National Symposium on Science Behind Homeopathy, jointly organised by CIRE (Centre for Interdisciplinary Research and Education, Jodhpur Park), CCRH (Central Council for Research in Homeopathy, New Delhi) and Jadavpur University (2016).
- Best Presentation, 1st Virtual International Conference on Biotechnology and Bioinformatics – Insight BioSolutions (ICBB-2022).
- Best Poster Presentation, International Conference on "Scope of Microbiology Beyond Academia: Industry, Entrepreneurship and More," Department of Microbiology (2024).

PROFESSIONAL AFFILIATIONS & MEMBERSHIPS

Society for Conservation in Biology (Since 2025).

CONTINUING PROFESSIONAL DEVELOPMENT & CERTIFICATIONS

- NPTEL Certification, Human Physiology, Ministry of Education, Govt. of India — Score: 62% (2025).
- NPTEL Certification, Microbial Biotechnology, Ministry of Education, Govt. of India — Score: 86% (2025).
- NPTEL Certification, Cell Culture Technologies, Ministry of Education, Govt. of India — Score: 71% (2025).
- NPTEL Certification, Cell Biology: Cellular Organization, Division and Processes, Ministry of Education, Govt. of India — Score: 85% (2026).

ADDITIONAL SKILLS

Areas of Interest: Biochemistry, Cell Biology, Molecular Biology, Microbiology, Nanotechnology
Languages: English, Bengali, Hindi

REFERENCES

Dr. Sukhen Das, Professor, Department of Physics, Jadavpur University — sukhendas29@gmail.com

Dr. Kaustuv Das, Associate Professor, Department of Physics, Jadavpur University — kaustuv12@gmail.com

Declaration: I hereby declare that the information provided above is correct to the best of my knowledge, and I bear responsibility for the accuracy of the particulars stated.