

## CURRICULUM VITAE

### Dr. Aftab Hossain Mondal

Assistant Professor (W.B.E.S)  
Department of Microbiology  
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### AREAS OF RESEARCH INTEREST

Environmental and Clinical Microbiology, Antimicrobial Resistance (AMR), Molecular Microbiology, Antimicrobial Agent Discovery and Development, Biosynthesis of Nanoparticles.

### EDUCATIONAL QUALIFICATIONS

**2019-2022**

#### Postdoctoral Research Fellow

**Institution:** School of Environmental Sciences, Jawaharlal Nehru University, India.

**Project title:** “Polymyxin resistance in bacteria: A study on molecular mechanisms of colistin resistance in environmental isolates and their susceptibility towards metal nanoparticles”

**Research supervisor:** Prof. Kasturi Mukhopadhyay

**2012-2017**

#### Ph.D.

**Institution:** Department of Biosciences, Jamia Millia Islamia, New Delhi, India.

**Thesis title:** “Studies on multidrug resistant environmental isolates of *Klebsiella* spp. and their susceptibility towards metal nanoparticles”

**Area of Specialization:** Bacteriology, Molecular biology and Nanobiotechnology.

**Research supervisor:** Prof. Qazi Mohd. Rizwanul Haq.

**2008-2010**

Master of Science (M.Sc.) in **Microbiology**, SOS in Microbiology, Jiwaji University, Gwalior, India.

**2005-2008**

Bachelor of Science (B.Sc.) in **Microbiology**, The University of Burdwan, Purba Bardhaman, West Bengal, India.

### FELLOWSHIP AND AWARDS

- **NESA Young Scientist Award –SASE 2023**, National Environmental Science Academy, New Delhi, India.
- **CSIR Research Associate:** 1<sup>st</sup> April 2019- 31<sup>st</sup> March 2022
- **UGC MANF JRF:** 19<sup>th</sup> September 2012- 18<sup>th</sup> September 2014

- **UGC MANF SRF:** 19<sup>th</sup> September 2014 to 18<sup>th</sup> September 2017.
- **GATE:** held on 12-02-2012, in the subject **LIFE SCIENCES**.

## TEACHING EXPERIENCE (COURSES/ PAPERS TAUGHT):

### Assistant Professor (2022-2024)

Assistant Professor in Microbiology, Department of Microbiology, Faculty of Allied Health Sciences, SGT University, Gurugram-122505, Haryana

#### Subjects taught:

- **Postgraduate Courses:** M. Sc. Microbiology, M. Sc. Biotechnology,  
**Papers:** General Microbiology, Microbial Genetics, Immunology, Bioethics & Biosafety, Critical Research Appraisal.
- **Undergraduate Courses:** B.Sc. Microbiology  
**Papers:** Food Microbiology, Bacteriology, Microbial physiology, Technical writing.

## PROFESSIONAL DEVELOPMENT ACTIVITIES

- **Life Member** Association of Microbiologists of India (5293-2022).
- **Life Member** National Environmental Science Academy (L/M No. 2549).
- **Participate**, Teacher Training Programme (Programme ID - MMC-041-2024-MAR-A-01151) 12/03/2024 to 20/03/2024, Regional Institute of Education, Mysore, India.
- **Participate** in Faculty developed Programme on “Innovation in Health Sciences: Challenge and Future Trends” from 13<sup>th</sup> – 17<sup>th</sup> February, 2023, organized by SGT University, Gurugram-122505, India.
- **Participate**, Workshop on “Outcome based education” organized by IQAC and CEAPS, SGT University, Gurugram-122505, India.
- **Participate**, Conference on Recent Advancement of Radio-Imaging Technology at SGT University, Gurugram-122505, India.
- **Participate**, International Seminar on contemporary Bioethical Issues-“Quintessential Ethics-2022” organized by UNESCO Bioethics unit, SGT University, Gurugram-122505, India.
- **Participate**; Science based evidence on the Benefit of Probiotics for Human Health, organized by the Gut Microbiota and Probiotic Science Foundation (India) from 25 & 26 March, 2023 at New Delhi, India.
- **Resource Person**, Training workshop on Disseminating Antimicrobial Resistance in Food Chain using Blended Learning Approach” on 03 march, 2023 at Shivaji College, University of Delhi, New Delhi, India.
- **Reviewer**, Scientific Reports, ISSN-2045-2322 (online) Sciences 2023.

## ACADEMIC ACTIVITIES/POSITIONS

- **Placement Coordinator**, Faculty of Allied Health Sciences, SGT University, (2024).
- **NAAC Incharge:** Criteria 1, Faculty of Allied Health Sciences, SGT University, (2022-23).

- **Member, Board of Studies:** Department of Microbiology, Faculty of Allied Health Sciences, SGT University (2022-till date).
- **Co-advisor:** Microcosm Association, Faculty of Allied Health Sciences, SGT University.
- **Dy. Center Superintendent:** End Term Theory Examination, SGT University, 2024.
- **Incharge Time-Table:** Department of Microbiology, SGT University, Gurugram-122505, Haryana. (2022 -2023).

## Ph.D. SUPERVISION/ M.Sc. DISSERTATIONS PROJECT

- **Ph.D., Co-supervisor:** Mrs. Naveeta Boora, awarded Ph.D. on 25<sup>th</sup> November 2024. Thesis title “Study Antibacterial Activity of *Azadirachta indica* (Neem) Extract and Copper-doped Carbon Quantum Dots (Cu-CQDs) against Multi drug-Resistant Bacteria”.
- **M.Sc. Dissertation, Supervision:**
  1. **Nishita**, M.Sc. in Microbiology (2023), thesis title “Antibacterial activity of Silver Nanoparticles against Gram-positive and Gram-negative bacteria” at Department of Microbiology, SGT University, Gurugram-122505.
  2. **Sahil**, M.Sc. in Microbiology (2023), thesis title “Isolation and Antibiotic Profiling of Methicillin Resistant Staphylococci from Bioaerosols of Hospital Environment” at Department of Microbiology, SGT University, Gurugram-122505.
  3. **Md. Salim Khan**, M.Sc. in Medical Laboratory Technology (2023), thesis title “Analysis of physical and Microbiological quality of drinking water at Chandu-Budhera region, Gurugram, Haryana, SGT University, Gurugram-122505.
  4. **Anshika Jain**, M.Sc. in Medical Laboratory Technology (2023), thesis title “Antibacterial effect of *Azadirachta indica* leaf extract against antibiotic resistant bacteria, SGT University, Gurugram-122505.
  5. **Parbati Debnath**, M.Sc. in Microbiology (2024), thesis title “Prevalence and Molecular Characterization of Azithromycin Resistant Bacteria from Clinical Samples” at Department of Microbiology, SGT University, Gurugram-122505
  6. **Rainalakshmi Rajkumari**, M.Sc. in Microbiology (2024), thesis title “Prevalence and Antibiotic Susceptibility Pattern of ESBL Producing Escherichia coli from Clinical Samples” at Department of Microbiology, SGT University, Gurugram-122505.
  7. **Urvashi Chauhan**, M.Sc in Biotechnology & Bioinformatics (2024), thesis title “Biosynthesis, characterization and antibacterial activity of silver nanoparticles against azithromycin resistant bacteria, at Department of Microbiology, SGT University, Gurugram-122505.

## RESEARCH EXPERIENCES

- Postdoc on the topic entitled “**Polymyxin resistance in bacteria: A study on molecular mechanisms of colistin resistance in environmental isolates and their susceptibility towards metal nanoparticles**” under the supervision of Prof. Kasturi Mukhopadhyay at School of Environmental Sciences, Jawaharlal Nehru University, New Delhi -110067, India. (April, 2019 to march 2022)
- Ph.D. in Microbiology on topic entitled, “**Studies on multidrug resistant environmental isolates of *Klebsiella* spp. and their susceptibility towards metal nanoparticles**” under the supervision of Prof. Qazi Mohd. Rizwanul Haq. at Department of Biosciences, Jamia Millia Islamia, New Delhi, India. (September, 2012 to July, 2017).
- Project on “**Detection of Mixed Infection in the field isolates and Amplification of Lactate Dehydrogenase (LDH) gene in *Plasmodium vivax***” under the guidance of **Dr. Vineeta Singh**, in National Institute of Malaria Research (NIMR), New Delhi, India (March to July 2010).

## TECHNICAL EXPERTISE

- **Microbiological techniques:** Isolation and enumeration of bacteria from diverse samples, culture preservation, glycerol stocks, microscopy, bacterial staining, biochemical activities, conjugation experiment, different types of antibiotic susceptibility tests.
- **Molecular biology:** Genomic and plasmid DNA extraction, Primer designing, PCR, sequencing, sequences analysis, cloning.
- **Nanotechnology:** Biosynthesis of metal nanoparticles, characterization techniques viz. UV-visible spectroscopy, Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), Dynamic light scattering (DLS), Transmission electron microscopy (TEM), Field emission scanning electron microscopy (FE-SEM) equipped with energy dispersive X-ray (EDX) and Atomic force microscopy (AFM).
- **Computer Proficiencies:** Diploma in Computer Application, under Webel Informatics Limited (a Govt. Of West Bengal, Undertaking-under the department of information Technology).
- **Molecular software:** DNA Genetic analyzer (ABI), GeneMapper, Microsoft Office, Molecular biology and Statistical software like Origin, Prism graphpad, Gene runner, Clustal-W, BioEdit, Mega for phylogenetic analysis.

## PUBLICATIONS

1. **Mondal, A. H., Khare, K., Saxena, P., Debnath, P., Mukhopadhyay, K., & Yadav, D.** (2024). A Review on Colistin Resistance: An Antibiotic of Last Resort. *Microorganisms*, 12(4), 772. **(IF-4.5)**.
2. Rajput, S., Mitra, S., Mondal, A. H., Kumari, H., & Mukhopadhyay, K. (2024). Prevalence and molecular characterization of multidrug-resistant coagulase negative staphylococci from urban wastewater in Delhi-NCR, India. *Archives of microbiology*, 206(10), 399. **(IF-2.3)**.

3. Boora, N., **Mondal, A.H.**, Seth, M.K., Shrimalla, & Khandit, M (2024) Synergistic Antibacterial Activity of Copper-doped Carbon Quantum Dots with *Azadirachta indica* (Neem) Leaf Extract on Multidrug-Resistant Bacteria. *African Journal of Biological Sciences*, 6(5), 1272-1288. **(IF-1)**.
4. Khan, N., **Mondal, A.H.**, Ansari, N.A., & Khanam, N. (2024) Antifungal Effect of Curcumin on Morphogenesis and Secretion of Hydrolytic Enzymes in *Candida* species. *African Journal of Biological Sciences*, 6(5), 3298-3311. **(IF-1)**
5. Bhat, S. A., Zafar, F., Mirza, A. U., Singh, P., **Mondal, A. H.**, & Nishat, N. (2023). Nanovertegergie: Bactericidal polymer nanocomposite beads for carcinogenic dye removal from aqueous solution. *Journal of Molecular Structure*, 135232. **(IF-3.84)**.
6. Tiwari, K., Patel, P., **Mondal, A. H.**, & Mukhopadhyay, K. (2023). Interaction with lipopolysaccharide is key to efficacy of tryptophan- and arginine-rich  $\alpha$ -melanocyte-stimulating hormone analogs against Gram-negative bacteria. *Future microbiology*, 10.2217/fmb-2023-0080. <https://doi.org/10.2217/fmb-2023-0080> **(IF-3.1)**.
7. Mitra, S., **Mondal, A. H.**, & Mukhopadhyay, K. (2022). Mitigating the toxicity of palmitoylated analogue of  $\alpha$ -melanocyte stimulating hormone(11-13) by conjugation with gold nanoparticle: characterisation and antibacterial efficacy against methicillin sensitive and resistant *Staphylococcus aureus*. *World journal of microbiology & biotechnology*, 38(11), 186. <https://doi.org/10.1007/s11274-022-03365-7>. **(IF-4.25)**.
8. Khan, S., Shaily, S., Alam, M., Ghosal, A., **Mondal, A. H.**, Zafar, F., Shahid, M., Haq, Q. M. R., & Nishat, N. (2022). Superhydrophobic Coordination Polyurethane Films based on Methylolated-Cardanol and hexamethylene diisocyanate: Synthesis, Characterization and Antibacterial Evaluation. *Progress in Organic Coatings*, 168 (2022) 106886. <https://doi.org/10.1016/j.porgcoat.2022.106886>. **(IF-6.2)**.
9. Singh, P., Mirza A.U., **Mondal, A.H.**, Mukhopadhyay, K., Nishat, N. (2021) Functionalization of PMMA/TiO<sub>2</sub> nanocomposites: Synthesis, characterization and their antioxidant and antibacterial evaluation. *Journal of Applied Polymer Science*, 139(10), 51749. **(IF-3.0)**.
10. Ali, A., Sultan, I., **Mondal, A. H.**, Siddiqui, M. T., Gogry, F. A., & Haq, Q. (2021). Lentic and effluent water of Delhi-NCR: a reservoir of multidrug-resistant bacteria harbouring blaCTX-M, blaTEM and blaSHV type ESBL genes. *Journal of water and health*, 19(4), 592–603. <https://doi.org/10.2166/wh.2021.085> **(IF-2.26)**
11. **Mondal, A. H.**, Yadav, D., Mitra, S., & Mukhopadhyay, K. (2020). Biosynthesis of Silver Nanoparticles Using Culture Supernatant of *Shewanella* sp. ARY1 and Their Antibacterial Activity. *International journal of nanomedicine*, 15, 8295–8310. <https://doi.org/10.2147/IJN.S274535> **(IF-7.0)**
12. **Mondal, A. H.**, Yadav, D., Ali, A., Khan, N., Jin, J. O., & Haq, Q. M. R. (2020). Anti-Bacterial and Anti-Candidal Activity of Silver Nanoparticles Biosynthesized Using *Citrobacter* spp. MS5 Culture Supernatant. *Biomolecules*, 10(6), 1-15. <https://doi.org/10.3390/biom10060944> **(IF-6)**

13. Siddiqui, M. T., **Mondal, A. H.**, Gogry, F. A., Husain, F. M., Alsalme, A., & Haq, Q. M. R. (2020). Plasmid-Mediated Ampicillin, Quinolone, and Heavy Metal Co-Resistance among ESBL-Producing Isolates from the Yamuna River, New Delhi, India. *Antibiotics* (Basel, Switzerland), 9(11), 826. <https://doi.org/10.3390/antibiotics9110826>. (IF- 5.22)
14. Bhat, S. A, Zafar, F, **Mondal, A. H.**, Mirza, A. U, Haq, Q. M. R, & Nishat, N (2020). Efficient removal of Congo red from aqueous solution by adsorbent films of polyvinyl alcohol/melamine-formaldehyde composite and bactericidal effects. *Journal of Cleaner Production*, 255, 120062. <https://doi.org/10.1016/j.jclepro.2020.120062>. (IF-11.02)
15. Bhat, S. A., Zafar, F., Mirza, A. U., **Mondal, A. H.**, Kareem, A., Haq, Q. M. R., & Nishat, N. (2020). NiO nanoparticle doped-PVA-MF polymer nanocomposites: Preparation, Congo red dye adsorption and antibacterial activity. *Arabian Journal of Chemistry*, 13(6), 5724-5739. <https://doi.org/10.1016/j.arabjc.2020.04.011>. (IF-6)
16. Zafar, F., Khan, S., **Mondal, A. H.**, Sharmin, E., Haq, Q. M. R., & Nishat, N. (2020). Application of FTIR-ATR spectroscopy to confirm the microwave assisted synthesis and curing of Cashew nut shell liquid derived nanostructured materials. *Spectrochimica acta. Part A, Molecular and Biomolecular Spectroscopy*, 228, 117732. <https://doi.org/10.1016/j.saa.2019.117732>. (IF-4.8)
17. Bhat, S. A., Zafar, F., **Mondal, A. H.**, Kareem, A., Mirza, A. U., Khan, S., Mohammad, A., Haq, Q. M. R., & Nishat, N. (2020). Photocatalytic degradation of carcinogenic Congo red dye in aqueous solution, antioxidant activity and bactericidal effect of NiO nanoparticles. *Journal of Iranian Chemical Society*, 17: 215-227. <https://doi.org/10.1007/s13738-019-01767-3>. (IF-2.0)
18. **Mondal, A. H.**, Siddiqui, M. T., Sultan, I., & Haq, Q. M. R. (2019). Prevalence and diversity of *bla*TEM, *bla*SHV and *bla*CTX-M variants among multidrug resistant *Klebsiella* spp. from an urban riverine environment in India. *International journal of environmental health research*, 29(2), 117–129. <https://doi.org/10.1080/09603123.2018.1515425> (IF-4.47).
19. Siddiqui, M.T., **Mondal, A. H.**, Sultan, I, Ali, A., & Haq, Q. M. R. (2019). Co-occurrence of ESBLs and silver resistance determinants among bacterial isolates inhabiting polluted stretch of river Yamuna, India. *International Journal of Environmental Science and Technology*, 16, 5611–5622. <https://doi.org/10.1007/s13762-018-1939-9>. (IF-3.5)
20. Sultan, I., Rahman, S., Jan, A. T., Siddiqui, M. T., **Mondal, A. H.**, & Haq, Q. M. R. (2018). Antibiotics, Resistome and Resistance Mechanisms: A Bacterial Perspective. *Frontiers in microbiology*, 9, 2066. <https://doi.org/10.3389/fmicb.2018.02066>. (IF-6)
21. Azam, M., Jan, A. T., Kumar, A., Siddiqui, K., **Mondal, A. H.**, & Haq, Q. M. R. (2018). Study of pandrug and heavy metal resistance among *E. coli* from anthropogenically influenced Delhi stretch of river Yamuna. *Brazilian journal of microbiology*, 49(3), 471–480. <https://doi.org/10.1016/j.bjm.2017.11.001>. (IF-2.4)
22. Siddiqui, K., **Mondal, A. H.**, Siddiqui, M. T., Azam, M., & Haq, Q. M. R. (2018). Prevalence and molecular characterization of ESBL producing *Enterobacteriaceae* from most polluted stretch of river Yamuna, India. *Microbiology and Biotechnology Letter*, 46(2), 135-144. <http://dx.doi.org/10.4014/mbl.1804.04017> (IF-0.2)

23. **Mondal, A. H.**, Azam, M., Siddiqui, M. T., & Haq, Q.M.R. (2016). Biosynthesis and antibacterial activity of silver nanoparticles. *Advanced Materials Letter*, 7(8), 659-665. <https://doi.org/10.5185/amlett.2016.6284>.
24. **Mondal, A. H.**, Siddiqui, M. T., Siddiqui, K., & Haq, Q. M. R. (2016). Biosynthesis, characterization and antibacterial activity of silver nanoparticles against ESBL producing water-borne pathogens. *Advanced Materials proceeding*, 1(1), 46-52. <https://doi.org/10.5185/amp.2016/109>.

## CHAPTERS PUBLISHED IN BOOKS

1. Zahra, A., Ali, A., Mondal, A.H., & Noorani, S. (2024) Signaling in Bacteria, Futuristic Trends in Biotechnology, Volume 3, Book 23, Part 1, Chapter 9.

## SEQUENCES SUBMITTED TO NCBI GENBANK

- More than 100 gene sequences published in NCBI GeneBank with accession number.
- **16S rRNA gene sequences:** KY471701-KY471720, KY471723-KY471733, MF150545, KU985168, KU958496 and KU958497
- **ESBLs gene sequences:** *bla*TEM (KY496556-KY496574), *bla*SHV (KY496575-KY496585, MF150538-MF150544) and *bla*CTX-M (KY496541-KY496555).

## WORKSHOP PARTICIPATION

1. Workshop on “**Outcome based education**” organized by IQAC and CEAPS (2023) at SGT University, Gurugram-122505, India, February, 24.
2. Hands on Workshop on **Handling and Care of Laboratory Animals** (2020) at School of Life Sciences, Jawaharlal Nehru University, New Delhi, February 15-19 (VO/CLAR/44/2020/42).
3. Workshop on **Orientation/Interactive Programme on Turnitin (an originality check and anti-plagiarism webtool)** (2015) at Dr. Zakir Hussain Library, Jamia Millia Islamia, New Delhi, April, 7.
4. A workshop on **Social Entrepreneurship Student Collaboration Foreign Education** (2017) Centre for Interdisciplinary Research in Basic Sciences, New Delhi, India, March, 2.
5. Author Workshop on “**How to Write and Publish Scholarly Articles**” (2017) Springer Nature, Jamia Millia Islamia, New Delhi, India, August 24.
6. Author Workshop on **Scholarly Writing and Intellectual Ethics** (2017) Elsevier, Jamia Millia Islamia, New Delhi, India, September 26.
7. Workshop on “**Flow Cytometry: Single Tool for Versatile Applications**” (2017) ThermoFisher Scientific, department of Biosciences, Jamia Millia Islamia, New Delhi, India, September 25.
8. Workshop on “**Compression Only Life Support and Laboratory Practices**” 29th September, 2024, SGT University, Gurugram-122505, Haryana.
9. Workshop on “**Bioinformatics and Next Generation sequences analysis**” 10th May 2023, SGT University, Gurugram-122505, Haryana.

## DECLARATION

I hereby declare that the above mentioned information is correct to the best of my knowledge.

A handwritten signature in black ink, appearing to read 'Aftab Hossain Mondal', with a horizontal line drawn through it.

Aftab Hossain Mondal