

Md. Mehadi Hasan Sohag

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Professional Affiliation:

Assistant Professor, Department of Genetic Engineering and Biotechnology, Jagannath University, Dhaka-1100

Now is Doing PhD in Biology at Baylor University, Texas, USA from Spring 2024.

Research Interest

Molecular Biotechnology, Microbial and Environmental Biotechnology, Biomarker and OMICS (Genomics, Proteomics, Metabolomics and so on), Food and Hygiene, Bio-resource Technology, Application of Biotechnology to the plant and living system.

Education

Erasmus Mundus Joint Masters in Biohealth Computing (Track: Molecular Biotechnology), 2016

University: University of Turin, Italy and University of Grenoble Alpes, France

Thesis Title: *Characterization of Interaction of cancer biomarkers with Lipoprotein*

CGPA: 4.27 out of 5 (where **CGPA 4.00 to 4.99 indicates the marks in a range from 80% to 89%**)

MS in Genetic Engineering and Biotechnology, 2012

University: Shahjalal University of Science & Technology, Sylhet-3114, Bangladesh

Thesis Title: *Production and Characterization of Cellulase Producing Fungal Isolates from Sea sands*

CGPA: 4.00 out of 4.00 with Distinction (**First position among faculty**)

B.Sc in Genetic Engineering and Biotechnology, 2011

University: Shahjalal University of Science & Technology, Sylhet-3114, Bangladesh

Thesis Title: *Production and Characterization of Cellulase Producing Bacterial Isolates from Municipal Solid Wastes (MSW)*

CGPA: 3.82 out of 4.00 (**Second position among faculty**)

Journal Publications

[J12] Amzad Hossain, Zahid Hassan, **Md Mehadi Hasan Sohag**, Mursalin Khan (2023) Impact of the endophytic and rhizospheric bacteria on crop development: prospects for advancing climate-smart agriculture. Journal of Crop Science and Biotechnology. 26, 405–431 (2023). <https://doi.org/10.1007/s12892-023-00195-3>

- [J11] Jahed Ahmed, Jahed Asma-UI-Taslim, Topu Raihan, **Md Mehadi Hasan Sohag**, Mahmudul Hasan, Sabrina Suhani, Firdausi Qadri, Abul Kalam Azad (2022). Characterization of an Endo-Beta-1, 4 glucanase gene from paper-degrading and denim bio-stoning cellulase producing *Aspergillus* isolates. *Biotechnology and Applied Biochemistry*. 70(03):1057-1071. <https://doi.org/10.1002/bab.2420>
- [J10] **Sohag, M. M. H.**, & Chebloune, Y. (2021). Impact of veterinary vaccines on human health and probable challenges. *Acta Veterinaria Eurasia*, 47, 197–200. DOI: 10.5152/actavet.2021.21005
- [J9] Siddique, M.A.B., Asa, T. A., **Sohag, M.M.H.**, Chowdhury, M.S.H., Iqbal, A., & Islam, K. (2021). Molecular Diagnosis and Evolutionary Relationship Analysis of Plant Parasitic Tea Garden Nematodes from Different Tea Estates in Sylhet Region of Bangladesh. *Journal of Bio-Science*, 29, 101–109. <https://doi.org/10.3329/jbs.v29i0.54826>
- [J8] **Sohag, M.M.H.**, Raqib, S.M., & Akhmad, S.A. (2021) OMICS approaches in cardiovascular diseases: a mini review. *Genomics Inform*. 19(2):e13. DOI: 10.5808/gi.21002. PMID: 34261298; PMCID: PMC8261269
- [J7] **Sohag, M.M.H.**, Nicoud, O., Amine, R., Khalil-Mgharbel, A., Alcaraz, J.P., Vilgrain, I., & Martin, D.K. (2020). Improved micro-impedance spectroscopy to determine cell barrier properties. *The Euro Biotech Journal*, vol.4, no.3, pp.150-155. <https://doi.org/10.2478/ebtj-2020-0017>
- [J6] Khalil-Mgharbel, A., Polena, H., Dembele, P.K., **Sohag, M.M.H.**, Alcaraz, J.P., Martin, D.K., Vilgrain, I. (2018). A Biomimetic Lipid Membrane Device Reveals the Interaction of Cancer Biomarkers with Human Serum Lipidic Moieties. *Biotechnology Journal*. (12):e1800463. DOI: 10.1002/biot.201800463. PMID: 30457706
- [J5] Bhuiya, M., Sarkar, M.K.I., **Sohag M.M.H.**, Ali, H., & Roy, C.K. (2018). Enumerating Antibiotic Susceptibility Patterns of *Pseudomonas aeruginosa* Isolated from Different Sources in Dhaka City. *The Open Microbiology Journal*. 12: 172–180 DOI: 10.2174/1874285801812010172 PMID: 29997702
- [J4] Khatiwada, P., Ahmed, J., **Sohag, M.M.H.**, Islam, K., & Azad, A.K. (2016). Isolation, Screening and Characterization of Cellulase Producing Bacterial Isolates from Municipal Solid Wastes and Rice Straw Wastes. *Journal of Bioprocessing & Biotechniques*. 6: 280. DOI:10.4172/2155-9821.1000280
- [J3] Kader, A., Deb, M., Aziz, M.A., **Sohag, M.M.H.**, & Rahman, S.R. (2015). Evaluation of physico-chemical properties and microbiological quality of milk collected from different dairy farms in Sylhet, Bangladesh. *Food Science and Technology*. 3(3): 37-41 DOI: 10.13189/fst.2015.030301
- [J2] **Sohag, M.M.H.**, Hasan, M.M., Ahmed, J., Daud, S.N.A., Alam, M.K., Amin, M.R., Hoq, M.M., & Azad, A.K. (2013). Production and partial characterization of cellulase of *Pseudomonas* isolates obtained from cow dung and municipal solid wastes. *Bangladesh Journal of Microbiology*. 30 (1 & 2):11-16
- [J1] Ullah, S.M.S., Hossain, M.M., Barman, S., **Sohag, M.M.H.**, & Prodhan, S.H.(2013). Genetic diversity analysis of chewing sugarcane (*Saccharum officinarum* L.) varieties by using RAPD markers. *Journal of Biosciences and Biotechnology*. 2(2): 145-150

[1] Abul Kalam Azad, Al Hakim, **Md. Mehadi Hasan Sohag**, Mahbuba Rahman, Chapter 3 - Metabolomics in clinical diagnosis, prognosis, and treatment of infectious diseases, Editor(s): Mahbuba Rahman, In Developments in Applied Microbiology and Biotechnology, Metabolomics, Academic Press, 2023, Pages 71-119, ISBN 9780323999243, <https://doi.org/10.1016/B978-0-323-99924-3.00003-0>.

Conference Presentations (Oral and Poster)

[C9] **Md. Mehadi Hasan Sohag**, Annual Conference 2020: Biosafety and Biosecurity Issues in Combating COVID-19 Pandemic organized by Bangladesh Biosafety and Biosecurity Society (BBBS) in August 07-08, 2020. Invited talk on "**Role of Skilled Biotechnologist in COVID-19 Pandemic**"

[C8] Jaman, S., Bose, P.A., Chowhan, S., Sweety, A.K., Bhattacharjee, P., Nasir, F., & **Sohag, M.M.H.**, (10-11 December, 2021), International Conference on 4th Industrial Revolution and Beyond (IC4IR) 100 Idea Competition- Idea ID: 363: "Ecogel: No more heavy metal in waste water- An innovative eco-friendly product from water hyacinth" at Bangabandhu International Conference Center, Agargaon, Sher-E-Bangla Nagar, Dhaka

[C7] **Sohag, M.M.H.**, & Raqib, S.M. (22 March, 2018) "Deciphering the solution of Cardiovascular Diseases through In Silico Studies" on The 2nd International Conference on Cardiovascular Disease: From Genes to Novel Therapy on 21-22 March 2018 at Prime Plaza Hotel, Yogyakarta, Indonesia.

[C6] Ahmed, J., Iqbal, A., **Sohag, M.M.H.**, Rakibuzzaman, S.M., Hakim, A., Hasan, M., Islam, M.K., & Azad, A.K. (2016) Purification and Characterization of Microbial Protease and Cellulase Produced with Organic Municipal Solid Wastes. (February 5-6, 2016) Abstract Page 85-86. 2nd International South Asian Biotechnology Conference 2016 on Biotechnology for Sustainable Development

[C5] Azad, A.K., Islam, K., Ahmed, J., Iqbal, A., **Sohag, M.M.H.**, Rakibuzzaman, S.M., Rana, M.M., Hakim, A., Hasan, M., Hossain, S., & Ferdous, A. (January 30, 2016). Abstract Page 48. 7th International Seminar 2016 on Green Technology and Society, organized by Bangladesh JSPS Alumni Association.

[C4] Ahmed, J., Iqbal, A., **Sohag, M.M.H.**, Rana, M.M., Rakibuzzaman, S.M., Hakim, A., Hasan, M., Islam, M.K., & Azad, A.K. (December 26-28, 2015). Production of Industrially Important Enzymes and Microbial Lipids from Biomass of Municipal Solid Wastes. Abstract Page 47. International Conference 2015 on Microbes for Benefit of the Society, organized by Bangladesh society of Microbiologists.

[C3] Azad, A.K., Islam K., Iqbal, A., **Sohag, M.M.H.**, Ahmed, J., Rana, M.M., & Rakibuzzaman, S.M. (9-10 January, 2015) "Production of microbial lipids for biodiesel synthesis and industrially important enzymes by using biomass of Municipal Solid Wastes". (2nd GNOBB conference, Nabab Nawab Ali Chowdhury Senate Bhaban, University of Dhaka, Bangladesh) Achieved First Prize in Poster Section.

[C2] **Sohag, M.M.H.**, Ahmed, M.J., Islam, M.K., & Azad, A.K. (2014) Production and Partial Characterization of Cellulase from Fungal Isolates Obtained from Sea Sands. Abstract Page 85, 7th International Plant Tissue Culture and Biotechnology Conference, Dhaka, Bangladesh

[C1] **Sohag, M.M.H.**, Daud, S.N.A., Alam, M. K., Hasan, M. M., & Azad, A.K. (2012). Production and partial Characterization of Cellulase from *Pseudomonas* sp. Isolated from Cow-dung and Municipal Solid Wastes. Abstract Page 1, Annual Plant Tissue Culture and Biotechnology Conference at Shahjalal University of Science and technology, Sylhet

Research and Working Experience

- December 2019 to present: **Assistant Professor**, Department of Genetic Engineering and Biotechnology, Jagannath University, Dhaka-1100, Bangladesh.
- July 2017 to December 2019: **Lecturer**, Department of Genetic Engineering and Biotechnology, Jagannath University, Dhaka-1100, Bangladesh.
- March 2017 to July 2017: **Officer**, Government of the People's Republic of the Bangladesh.
- July 2015 to October 2016: **Research Intern**, University of Grenoble Alpes, France and University of Turin, Italy
- March 2015 to July 2015: **Scientific Associate**, Roche Bangladesh Limited, Dhaka, Bangladesh.
- December 2012 to February 2015: **Research Assistant**, Microbiology, Fermentation and Environmental Biotechnology Laboratory, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh.

Research Expertise

❖ Laboratory skills:

Microscopy, Cell culture, General laboratory practices, Common bacteriology techniques, Biochemical characterization, Assay procedures, Purification and characterization of protein and enzymes, Spectrophotometry, Electrophoresis, SDS-PAGE, Isolation of genomic DNA, RNA and quantification of macromolecules, Cloning, Polymerase chain reaction (PCR), Biosafety level containment, Chromatography, Blotting techniques, Genetic analyzer, Recombinant DNA technology, Biosurfactant production and characterization, Emulsification indexing, Tensiometer and so on.

❖ Dry-lab skills:

Various Bioinformatics tools (Homology modeling, multiple sequence alignment, Phylogeny analysis, Protein-protein interaction, Networking, SNP detection, Mutation analysis and Physico-chemical characterization of proteins, public health data processing and analysis.

Digital Literacy

- Programming capabilities for data processing: C++, Python
- Software applications: SPSS, QGIS, Mendeley, MS office package
- Digital marketing: Certificate course on Digital Marketing (Email, YouTube, and Social Media marketing) From BASIS Institute of Technology and Management (BITM), Dhaka, Bangladesh.

Language Proficiency

- Native Language: Bengali
- Medium of Instruction (Bachelor and Master's level): English
- IELTS Score: **7.0** (Listening: **7.0**; Reading: **6.5**; Writing: **6.5**; Speaking: **7.0**)
- Basic Competency: Italian, Hindi and Arabic

Training, Workshop, Certificate Courses and Seminar

- Seminar on “**Microbiome in Health and Infectious Diseases**” held on 26 December, 2021 at Bangladesh Reference Institute of Chemical Measurements (BRICM), Dhaka, Bangladesh.
- **27th Assessor Training Course on ISO/IEC 17025:2017** held from 07-11 March, 2021 at Bangladesh Accreditation Board, Dhaka, Bangladesh.
- **Training Course on Antimicrobial Resistance in Bangladesh** held from 01-03 February, 2021 at Bangladesh Agricultural Research Council (BARC), Dhaka, Bangladesh.
- **32nd Understanding Training Course on ISO/IEC 17025:2017** held from 05-07 October, 2020 at Bangladesh Accreditation Board, Dhaka, Bangladesh.
- **Advanced Training on Biotechnology** held from 4-13 March, 2019 held at National Institute of Biotechnology, Savar, Dhaka (Bangladesh)
- Training On “**Overview and Safe Use of Laboratory Ventilation Equipment (Laminar Air Flow, Biosafety Cabinets and Fume Hood)**” held on 24 January, 2019 at Department of Genetic Engineering and Biotechnology, Jagannath University, Dhaka, Bangladesh.
- Summer School : **Safer Nano Design** held from 13-18 June, 2016 at European Scientific Institute , Archamps, France
- Training on "**Epidemiology and Bio-Statistics**" under the sub-project "Development of Teaching-Learning System of Statistics through Introducing Modern Technology-Based Programs" CP-2516, HEQEP-UGC, Bangladesh held from 13-19 March, 2014
- Workshop on "**Statistical Inference in Bioinformatics**" under the sub-project "Development of Teaching-Learning System of Statistics through Introducing Modern Technology-Based Programs" CP-2516, HEQEP-UGC, Bangladesh held from 30 May-1 June, 2013
- Training On “**Basic Biotechnology**” held from 28-31 January, 2013 at National Institute of Biotechnology, Savar, Dhaka (Bangladesh)
- International Training Workshop on "**Bioinformatics And Computational Biology In South Asian Perspectives**" held from 25-26 September, 2012 at University of Science and Technology Chittagong in association with TWAS (The World Academy of Sciences)

Training, Workshop, Certificate Courses and Seminar (Online)

- Webinar on “**Metabolomics Gateway for Milestone Discoveries in the Prehistoric and Post Genomic Era**” held on 7 January, 2022 Organized by “OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH)
- COMCEC-COMSTECH Training on “**New Breeding Technologies for Food and Nutritional Security**” Jointly organized by COMSTECH and Middle East Technical University held on November 30- December 2, 2021, Turkey
- ICGBE Course on “**Genetics and model organism in human disease research: workshop on Assisted Reproductive Technology (ART) in laboratory mouse**”-online event- held on 5 October, 2021, Trieste and Rome, Italy
- Seminar on “**Application of Microbial Enzymes for Leather and Textile processing**” held on 22nd June, organized by National Institute of Biotechnology (NIB), Savar, Bangladesh
- ICGBE organized certificate courses entitled “**3rd Belgrade Bioinformatics Conference (BELBi2021)**” held on June 21-June 25, 2021 at Belgrade, Serbia

- Online certificate course on **“Micropropagation of Quality Banana Plant for Commercial Purpose”** held on 25 November, 2021, organized by “OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH)
- Training course on **“Inclusive Science, Technology and Innovation (STI) policy for OIC Member States”** held from 20- 21 September, 2021, organized by “OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH)
- Advanced certificate course on **“Technology Commercialization, Innovation and Entrepreneurship”** held on 30-31 August, 2021 organized by “OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH)
- **“National Young Academy of Bangladesh Leadership Workshop”** held from 23- 30 August, 2021 organized by National Young Academy of Bangladesh (NYAB), Dhaka, Bangladesh
- **“Online Certificate Course On Basic Plant Tissue Culture Techniques”** held On 25 August, 2021 Organized by “OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH)
- **“São Paulo School of Advanced Science on Science Diplomacy and Innovation Diplomacy (InnSciD SP) and the TWAS Latin American and Caribbean Regional Workshop on Science Diplomacy”** held from 4- 13 August, 2021 organized by TWAS and AAAS in São Paulo, Brazil.

Involved in Different Projects (Research and Capacity Development)

- ❖ **Detection and Isolation of Surfactant Producing Microbes from Polluted Sites of the River Buriganga.** Funding Source: Grants for Advanced Research in Education; Ministry of Education, Government of People’s Republic of Bangladesh
- ❖ **Physico-chemical and Microbiological assessment of drinking water availed from different restaurants in the Dhaka South City Corporation area.** Funding Source: Research Cell of Jagannath University and UGC Joint Fund
- ❖ **Establishment of Bioinformatics Laboratory in Genetic Engineering and Biotechnology Department, Jagannath University.** Funding Source: Information and Communication Technology Division, Ministry of Posts, Telecommunication and Information Technology, Government of People’s Republic of Bangladesh
- ❖ **Raising awareness related to antibiotic use and resistance in Bangladesh: A Cross-sectional study on public and physician’s perception towards the use of antibiotics.** Funding Source: Research Cell of Jagannath University and UGC Joint Fund
- ❖ **Assessing Medical Waste management practices in the Southern area in Dhaka and Future Prospect.** Funding Source: Ministry of Science and Technology, Government of People’s Republic of Bangladesh

Grants, Scholarship and Awards

2021: **TWAS grant** for attending the advanced course on Science Diplomacy and Innovation Diplomacy (InnSciD SP)

2020: **Vice -Chancellor Award** for Highest Results in School of Life Sciences (2020 in Convocation)

2018: **Travel Grant** for attending the 2nd International Conference on Cardiovascular Disease: From

Genes to Novel Therapy on 21-22 March, 2018 at Prime Plaza Hotel, Yogyakarta, Indonesia

2016: **Travel Grant** for attending the Biohealth Summer School in Safer Nano Materials (Safer Nano Design NPHA 5402) organized in European Scientific Institute, Archamps, Greater Geneva Area, France on 13-18 June, 2016

2015: **Travel Grant** for attending Biohealth Summer School in Computational Medicine for COPD (MedComp School NPHA 5307) Organized in European Scientific Institute, Archamps, Greater Geneva Area, France on 22-29 August, 2015

2015: **Erasmus Mundus Scholarship** for EMJMD in Molecular Biotechnology (2015-16)

2012: **SUST Merit Awards** for MS in Genetic Engineering and Biotechnology (2012)

2010: **SUST Merit Awards** for four consecutive years in B.Sc in Genetic Engineering and Biotechnology (2007-10)

2008: **Bangladesh Scholarship Council and the Nippon Foundation Scholarship Awards**, Japan (Special Consultative Status by the United Nations) Scholarship for outstanding academic Achievement in First Year Undergraduate Result

Review Experience

SL	Journal Name	Publisher	Number of Paper
1	Tropical Plant Biology	Springer	01
2	Journal of Microbiology and Infectious Diseases	Association of Health Investigation, Turkey	01

Research Profile

- 📄 Google Scholar (Citations: 138, h-index:6, i-10 index:4)
- 📄 Research Gate (Research Interest Score: 160.2, Citations: 103, h-index:5, Reads: 27K+)
- 📄 ORCID ID: **0000-0001-6058-1626**
- 📄 Researcher ID: **AAE-5027-2020**

Current Research Collaborations/Network

Country	Institute/Department/University	Collaborator
Bangladesh	Department of Genetic Engineering and Biotechnology, Shahjalal University of Science and Technology, Sylhet-3114	Md. Abul Kalam Azad Md. Kamrul Islam Mohammad Jakir Hossain

	Department of Chemical Engineering and Polymer Sciences, Shahjalal University of Science and Technology, Sylhet-3114	Md. Abu Yousuf
<i>Canada</i>	Department of Soil Sciences and Agri-food Engineering, University of Laval, Quebec	Ahsanul Karim
<i>France</i>	Department of Biology, University Grenoble Alpes, France.	Yahia Chebloune
<i>Indonesia</i>	Department of Biochemistry and Bioethics, Universitas Islam Indonesia	Syaefudin Ali Akhmad

Membership in Professional Associations

- ❖ Life Member, Bangladesh Biosafety and Biosecurity Society, Dhaka , Bangladesh
- ❖ Life Member, Bangladesh Association of Biotechnology Graduates, Dhaka , Bangladesh
- ❖ Member, Asian Federation of Biotechnology (AFOB)
- ❖ Member, Federation of Asian Biotechnology Association (FABA)-Bangladesh Chapter
- ❖ Global Outreach Member, American Society of Microbiologists
- ❖ Member, European Scientific Network (ESN- Erasmus)
- ❖ Member, EMA – Bangladesh Chapter (Erasmus Mundus Alumni)
- ❖ Assessor, ISO/ IEC: 17025:2017 Bangladesh Accreditation Board (BAB), Dhaka, Bangladesh

Overseas Professional Visit

Indonesia, France, Italy, Switzerland, and India

Extracurricular Activities

Travelling, Playing Cricket and Football, Reading novels, and Photography

References

Md. Kamrul Islam, PhD

Dean, School of Life Sciences &

Professor, Department of Genetic Engineering and Biotechnology

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