Md Shazid Hasan

Graduate Research Assistant
Serb Laboratory, Department of Ecology, Evolution, and Organismal Biology
Bioinformatics and Computational Biology Graduate Program
Iowa State University, Ames, IA 50011, USA

Mailing Address: 2334 Edenburn Drive, Apt # 42D, Ames, IA 50010, USA
Contact: +1 5158154328
E-mail: **shazid@iastate.edu**, shazid_mb@just.edu.bd
Institutional profile:
Md Shazid Hasan | Bioinformatics & Computational Biology Graduate Program (iastate.edu);
Md. Shazid Hasan | JUST | Jashore University of Science & Technology
GoogleScholar profile: MD. SHAZID HASAN - Google Scholar
ORCID-iD: Md. Shazid Hasan (0000-0002-2021-4693) (orcid.org)
Researchgate profile: https://www.researchgate.net/profile/Md-Hasan-270

Education

August 2022 - Onwards	**Ph.D. Student**, Bioinformatics & Computational Biology Graduate Program, Iowa State University, Ames, Iowa, USA.
2016	**Master of Science** in Microbiology from the Department of Microbiology, University of Dhaka, Bangladesh, GPA: 3.80 (out of 4.0) **Title of the M.Sc thesis** (Thesis Submitted, 8 August 2017): Mutation in mgrB gene and Genetic Modification of the Structure of lipid A Exhibit Colistin Resistance in *Citrobacter freundii* strain NR-12 of Poultry Origin. **Supervisor:** Dr. Munawar Sultana, Associate Professor, Department of Microbiology, University of Dhaka.
2012-2015	**Bachelor of Science (Honours)** in Microbiology with Biochemistry and Chemistry as minor subjects from the Department of Microbiology, University of Dhaka, Bangladesh. CGPA: 3.88 (out of 4.0).
2010	**Higher Secondary Certificate** in Science group from the Board of Intermediate and Secondary Education, Dhaka, Bangladesh. Result: GPA 5.0 (out of 5.0).
2008	**Secondary School Certificate** in Science group from the Board of Intermediate and Secondary Education, Dhaka, Bangladesh. Result: GPA 5.0 (out of 5.0).

Research Interests:

- Evolutionary Biology
- Opsin gene evolution
- Big data analysis
- Bioinformatics and computational biology

Peer-reviewed publications:

1. Al-Emran, H. M., Rahman, S., **Hasan, M. S.,** Ul Alam, R., Islam, O. K., Anwar, A., ... & Hossain, A. (2023). Microbiome analysis revealing microbial interactions and secondary bacterial infections in COVID-19 patients comorbidly affected by Type 2 diabetes. Journal of Medical Virology, 95(1), e28234.
2. Rahman, M., Abdullah-Al-Mamun, M., Khatun, M., Khan, A. S., Sarkar, O. S., Islam, O. K.... **Hasan, M. S.**, & Islam, M. (2022). Contamination of Selected Toxic Elements in Integrated Chicken-Fish Farm Settings of Bangladesh and Associated Human Health Risk Assessments. *Biological Trace Element Research*, 1-13.
3. Shah, S. T., Akter, K., **Hasan, M. S.**, Chakrovarty, T., Sakib, N., & Islam, M. T. (2022). Factors determining preventive practices of the healthcare workers regarding COVID-19 in Bangladesh. Health science reports, 5(1), e484.
4. Al-Emran, H. M., **Hasan, M. S**., Setu, M. A. A., Rahman, M. S., Alam, A. R. U., Sarkar, S. L., ... & Hossain, M. A. (2021). Genomic analysis of SARS-CoV-2 variants of concern identified from the ChAdOx1 nCoV-19 immunized patients from Southwest part of Bangladesh. Journal of infection and public health.
5. Rubayet Ul Alam, A. S. M., Islam, O. K., **Hasan, M. S.**, Islam, M. R., Mahmud, S., Al-Emran, H. M., ... & Anwar Hossain, M. Dominant Clade-featured SARS-CoV-2 Co-occurring Mutations Reveals Plausible Epistasis: An in silico based Hypothetical Model. Journal of Medical Virology.
6. **Hasan, M. S.,** Islam, M. T., Alam, A. R. U., Sarkar, S. L., Rahman, M. S., Islam, O. K., ... & Hossain, M. A. (2021). Initial reports of the SARS-CoV-2 Delta variant (B. 1.617. 2 lineage) in Bangladeshi patients: Risks of cross-border transmission from India. Health science reports, 4(3).
7. Islam, M. T., Alam, A. R. U., Sakib, N., **Hasan, M. S.**, Chakrovarty, T., Tawyabur, M., ... & Anwar Hossain, M. (2021). A rapid and cost-effective multiplex ARMS-PCR method for the simultaneous genotyping of the circulating SARS-CoV-2 phylogenetic clades. Journal of medical virology, 93(5), 2962-2970.
8. Biswas, S., Al Saber, M., Tripty, I. A., Karim, M. A., Islam, M. A., **Hasan, M. S**., Ul Alam ASMR,... & Hasan, M. N. (2020). Molecular characterization of cellulolytic (endo-and exoglucanase) bacteria from the largest mangrove forest (Sundarbans), Bangladesh. Annals of Microbiology, 70(1), 1-11.
9. Islam, O. K., Al-Emran, H. M., **Hasan, M. S.,** Anwar, A., Jahid, M. I. K., & Hossain, M. A. (2021). Emergence of European and North American mutant variants of SARS-CoV-2 in South-East Asia. Transboundary and emerging diseases, 68(2), 824-832.
10. **Hasan, M. S.,** Sultana, M., & Hossain, M. A. (2019). Complete genome arrangement revealed the emergence of a poultry origin superbug Citrobacter portucalensis strain NR-12. Journal of global antimicrobial resistance, 18, 126-129.

Conference Presentations/ Workshops

1. Attending a 4-day training program on "Microbial Community Analysis Using 16S Metagenome Approach", conducted by Chaperone, Bangladesh, 11-19 March 2022.

2. Attending an 8 days training program on "Application Training on NGS & CS", conducted by Thermo Fisher Scientific, India, 17-25 March 2019.

3. Attending a 4 days training course on "Real Time PCR, Capillary and Next Generation Sequencing Technology" conducted by Genome Center, Jashore University of Science and Technology, 18-21 November 2018.

4. Attending on the 30th Annual Conference of Bangladesh Society of Microbiologists (BSM) at Nabab Nawab Ali Chowdhury Senate Bhaban, University of Dhaka, April 29, 2017 and I presented a poster on the topic "Screening and Detection of Colistin Resistance in Citrobacter and Proteus spp. of Poultry Origin".

5. Attending on a national conference on "Biochemistry and Molecular Biology for Life Sciences", December 10, 2016, organized by "The Bangladesh Society for Biochemistry and Molecular Biology in association with Department of Biochemistry and Molecular Biology, University of Dhaka" and I presented a poster on the topic "Characterization of Colistin Resistance in Enterobacteriaceae of Poultry Origin".

6. Attending the thirty-five hours training course on "Statistical Data Analysis for Biological Sciences" conducted by Institute of Statistical Research and Training (ISRT), University of Dhaka, under HEQEP project (CP#3236), 2016.

7. Attending Workshop on Bioinformatics and Whole genome analysis by Microbial Genetics and Bioinformatics Laboratory, Department of Microbiology at University of Dhaka, 2016.

8. A poster was presented, titled "Genotypic Diversity of Antibiotic-Resistant Poultry Salmonella spp. in Bangladesh," at the 3rd AFSA Conference on Food Safety and Food Security at KIIT University, Bhubaneswar, India, September 16, 2016.

9. Attending a 15 days internship program as an undergraduate project conducted by GlaxoSmithKline Bangladesh Limited, 2015.

10. Attending Workshop on "Pasteurization and commercial processing of milk" conducted by Milk vita factory Limited, Bangladesh, 2014.

Research Projects and Grants

Role	Project Title	Funded by
Co-PI	Metagenomic analysis of integrated fish pond revealed the involvement of genes conferring co-selection to heavy metal and antibiotic in microbial community.	Jashore University of Science and Technology; 2020-2021
PI	Molecular detection of multidrug-resistant bacteria from pediatric pneumonia patients of Khulna division	Jashore University of Science and Technology; 2019-2020

Co-PI	Impact of Integrated Fish Farming with Livestock on Antimicrobial Resistance in a Pond Environment of Khulna Division	Ministry of Science and technology under special allocation for fiscal year 2019-20.
PI	Molecular Characterization of multidrug resistant bacteria isolated from mobile phones of hospital personnel in Khulna division of Bangladesh	R&D project for the year 2019-2020 under the Ministry of Science and Technology, People's Republic of Bangladesh.
PI	Isolation of multidrug-resistant biofilm-forming bacteria from mobile phones of hospital personnel in Khulna division of Bangladesh	R&D project for the year 2018-2019 under the Ministry of Science and Technology, People's Republic of Bangladesh.

Research Experiences

05/2023-Onward	**Ph.D.** in **Serb Laboratory**, Department of Ecology, Evolution, and Organismal Biology**,** Iowa State University **Project**: Evolution of phototransduction proteins in bivalves.
08/2022-05/2023	**Lab Rotation** ❖ **Vet Diagnostic & Production Animal Med,** College of Veterinary Medicine, Iowa State University **Project:** Evolutionary Dynamics of Type 2 Porcine Reproductive and Respiratory Syndrome Virus using Nextclade. ❖ **Serb Lab,** Department of Ecology, Evolution & Organismal Biology, Iowa State University **Project**: Evolution of opsin gene in Mytilide. ❖ **Dannis Lab**, Department of Ecology, Evolution & Organismal Biology, Iowa State University **Project**: Evaluation of the Aminoacyl tRNA Synthetases status in Haplosclerid Sponges (Porifera) through Phylogenetic Analysis.
04/2018-08/2022	**PI/Co-PI,** Department of Microbiology at Jashore University of Science and Technology. **Projects:** ❖ Impact of Integrated Fish Farming with Livestock on Antimicrobial Resistance and Heavy Metal Bio-magnification in a Pond Environment. ❖ Multidrug-resistant biofilm-forming bacteria from mobile phones of hospital personnel. **Research investigator**, Genome Center, Jashore University of Science and Technology. **Projects:** ❖ Bacterial 16S rRNA sequencing using Capillary Sequencing (CS) machine.

	❖ Bacterial whole genome and metagenome sequencing using Ion Torrent™ technique by Ion S5™ Sequencer. ❖ Rapid and cost-effective method for the simultaneous genotyping of SARS-CoV-2 phylogenetic clades. ❖ Metagenomic diagnosis and pathogenic network profile of SARS-CoV-2 in patients co-morbidly affected by type 2 diabetes. ❖ Genomic analysis of SARS-CoV-2 variants of concern identified from the ChAdOx1 nCoV-19 immunized patients from the Southwest part of Bangladesh.
08/2017-04/2018	**Research Assistant** in Microbial Genetics and Bioinformatics Laboratory, Department of Microbiology at the University of Dhaka, Bangladesh. (**Project:** Isolation of multidrug-resistant *Salmonella* spp. from the poultry sources such as meat, egg, droppings, and cloacal swab.)
06/2016-08/2017	**Thesis student**, Department of Microbiology, University of Dhaka, Bangladesh. (**Project:** The prevalence of colistin-resistant *Enterobacteriaceae* in poultry)

Teaching Experience

December 2020-Onwards	**Assistant Professor**, Department of Microbiology, Jashore University of Science and Technology ❖ Taught courses like microbial biotechnology, virology, food and dairy microbiology, biosafety, and biorisk management at the undergraduate level. ❖ Created course materials, assignments, exams, and graded works.
April 2018-December 2020	**Lecturer**, Department of Microbiology, Jashore University of Science and Technology ❖ Worked as a member of the department curriculum and syllabus development committee

Relevant Skills

- ❖ Genomic DNA/RNA and Plasmid DNA isolation, PCR/qPCR/Reverse transcriptase PCR, RAPD, ARDRA, Agarose Gel electrophoresis.
- ❖ Microscopy such as Light, Dark Field, Flurescence and Field Emission Scanning Electron Microscopy (FE-SEM)
- ❖ Instrument operations skills such as Sanger Sequencer- SeqStudio, Next Generation Sequencing (NGS)- Ion GeneStudio S5, Field Emission Scanning Electron Microscope- Zeiss Sigma 500VP

- ❖ Raw DNA Sequence cleanup, Molecular Phylogeny analysis, Primer designing, Protein Modeling, Molecular docking, Dendrogram and Cluster analysis, Whole Genome Sequence data analysis and use of various Bioinformatical tools.

Leadership Skills

- ❖ Developed the curriculum of the Department of Microbiology, Jashore University of Science and Technology.
- ❖ Organized the "Microbiology Day" sponsored by the American Society for Microbiology (**ASM**) at Jashore University of Science and Technology.
- ❖ Organized the 32nd Bangladesh Society of Microbiologists (**BSM**) Annual Conference.
- ❖ Member of the American Society for Microbiology (**ASM**), Asian Federation of Biotechnology (**AFOB**), and Bangladesh Society of Microbiologists (**BSM**).
- ❖ Member of Bangladesh Student Association (**BSA**), Iowa State University.

Programming Skills

- ❖ UNIX, Python, Java, and R

Academic Awards and Scholarships

1. National Science and Information & Communication Technology Fellowship, 2016 from the Ministry of Science and ICT, as a recognition of my thesis work.
2. Dean's Award 2015 from Faculty of Biological Sciences, University of Dhaka, as recognition of outstanding results in the BS (Honors) Examination.
3. Received Board scholarship in Higher Secondary Certificate (Science), 2010 from the Ministry of Education, Bangladesh.

Referees:

1. Dr. Jeanne M Serb
   Associate Professor, Department of Ecology, Evolution & Organismal Biology,
   Director, Office of Biotechnology,
   Iowa State University
   E-mail: serb@iastate.edu
   Contact: +1 515 294 7479
2. Prof. Mohammed Anwar Hossain
   Vice-Chancellor
   Jashore University of Science and Technology,
   Jashore-7408, Bangladesh
   E-mail: hossaina@du.ac.bd