


## CAREER OBJECTIVE


Inquisitive life science graduate with expertise in molecular biology, bioinformatics, and wet lab techniques, including microbiology and phytochemistry. Proficient in genomic and proteomic data analysis, and experienced in laboratory operations such as sample processing, microbiological analyses, and molecular diagnostics. Driven by a passion for advancing scientific knowledge and sharing insights, with a commitment to continuous learning and staying up-to-date with emerging computational tools in both academia and industry. Eager to contribute to impactful research and inspire the next generation of scientists.

## EDUCATION


Oct 2022 – Jan 2024  
Dhaka, Bangladesh

**Master of Science in Genetic Engineering and Biotechnology,**  
University of Dhaka   
**CGPA:** 3.73 (on a scale of 4.00)

Jan 2018 – Sep 2022  
Dhaka, Bangladesh

**Bachelor of Science (Honors) in Genetic Engineering and Biotechnology,**  
University of Dhaka   
**CGPA:** 3.77 (on a scale of 4.00)

Jul 2015 – Jun 2017  
Dhaka, Bangladesh

**Higher Secondary School Certificate in Science,**  
Dhaka Residential Model College   
**GPA:** 5.00 (on a scale of 5.00)

Jan 2013 – May 2015  
Dhaka, Bangladesh

**Secondary School Certificate in Science,** Dhaka Residential Model College   
**GPA:** 5.00 (on a scale of 5.00)

## EXPERIENCE

Sep 2024 – Present  
Dhaka, Bangladesh

**IDD Special Activities, icddr,b, Research Assistant** 

- Maintaining laboratory equipment, performing minor troubleshooting, and ensuring optimal operation.
- Processing, labeling, and storing samples in appropriate conditions according to study requirements, while ensuring sample integrity.
- Conducting microbiological analyses to isolate and identify enteric pathogens using rapid diagnostic tests, culturing techniques, and molecular methods like PCR.
- Extracting nucleic acid, identifying bacteriophages through phenotypic and molecular tests, and updating standard operating procedures (SOPs) and project-related documents.
- Collaborating with senior colleagues to ensure adherence to quality assurance processes, assisting with laboratory tests, and creating project presentations and spreadsheets.

### **Department of Genetic Engineering and Biotechnology, University of Dhaka**

Jan 2024 – Sep 2024  
Dhaka, Bangladesh

Research Assistant

- Assistance in various research projects, contributing to experimental design, data collection, and data analysis
- Mentoring junior members in sub-projects

Aug 2021 – Dec 2023  
Dhaka, Bangladesh

Thesis Student and Researcher

- Performing research on the antimicrobial activity of *Costus woodsonii* samples for Master's Thesis
- Participating in bioinformatics projects on the virulence of *Tsukamurella paurometabola* and *Enterobacter cloacae*

Feb 2024 – Present  
Khushab, Pakistan

**Notesnook, Community Moderator** 

- Frontline user support and moderation of online communities
- Bug report handling and testing

Jun 2021 – Apr 2022  
Dhaka, Bangladesh

**Al-Quraner Vasha Institute, Virtual Classroom Assistant** 

- Moderation of virtual classroom for live "Comprehensive Arabic 21" course
- Management of course participants

## RESEARCH INTERESTS

### Microbiological Analyses

- Development, optimization and maintenance of pure cultures in diverse growth mediums
- Activity measurement of antimicrobial compounds (MIC and MBC)

### Population Genomics and Evolutionary Biology

- Analysis of genetic variants within animal populations
- Reconstruction of phylogenetic trees and adaptation patterns
- Evaluation of selective pressure on genetic inheritance

### Data Wrangling, Analysis and Predictive Modeling

- Development of tools to clean raw biological data
- Visualizing cleaned datasets with codes and tools
- Identifying patterns and insights within large datasets

### Metagenomics and Microbiome Analysis

- Analysis of diverse microbial communities
- Characterization of microbiome and its possible roles
- Microbiome-based therapeutics and diagnostics

### Functional Genomics and Bioinformatics

- Gene and gene product identification and annotation
- ncRNA analysis and function prediction
- Molecular docking and molecular dynamics simulation
- Gene/Protein interactome analyses

### Phytochemical Analyses

- Processing of raw plant sample for phytochemical studies
- Extraction and detection of phytochemicals
- Thin-layer chromatography

## PUBLICATIONS

2022

**Supantha Dey, Sazzad Shahrear, Maliha Afroj Zinnia, Ahnaf Tajwar, and Abul Bashar Mir Md. Khademul Islam (2022). Functional Annotation of Hypothetical Proteins From the *Enterobacter cloacae* B13 Strain and Its Association With Pathogenicity,** Bioinformatics and biology insights, 16, 11779322221115535 [🔗](#)

## PROJECTS

2024 – Present

### Non-HCC Biomarker Analysis Study

Spearheaded blood specimen collection, processing, and storage protocols for the study while managing comprehensive documentation systems. Established efficient digital organization of patient test reports, prescription records, and informed consent forms (ICFs). Implemented standardized procedures for both biological sample handling and document management to ensure optimal specimen integrity and regulatory compliance.

2023 – Present

### Study of Epigenetic Changes in Blood Samples in Breast Cancer Patients

Coordinated documentation management for an epigenetic breast cancer research study, including systematic organization of informed consent forms (ICFs) and patient prescription records. Implemented efficient digital filing systems to enhance data accessibility while maintaining regulatory compliance in clinical research documentation.

2024

### Analyzing Global Aquaculture Production Trends and Insights

This project explored the top aquaculture-producing countries from 2014 to 2018, visualizing their production data through graphs. Additionally, the remarkable growth of aquaculture production in Bangladesh from 1960 to 2018 was, highlighting the impact of biotechnology in the industry.

2023 – 2024

### Evaluation of Phytochemical Properties and In Vitro Antimicrobial Activity of *Costus woodsonii* Extracts, Masters Thesis Project

Prepared ethyl acetate extracts from powdered leaves, stems and roots of *Costus woodsonii* and analyzed their phytochemical composition and potential antimicrobial activity against *Bacillus subtilis*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae* and *Salmonella paratyphi* through bi-layer diffusion assay and TLC bioautography assay.

2021 – 2022

### Exploring the Virulence of *Tsukamurella paurometabola* Through Functional Annotation of Hypothetical Proteins, Bachelor's Project

Retrieved protein sequences of *Tsukamurella paurometabola* and after curation of the hypothetical proteins, carried out the functional annotation and virulence prediction.

**Functional Annotation of Hypothetical Proteins From the *Enterobacter cloacae* B13 Strain and Its Association With Pathogenicity**, Research Project  
Assisted with data collection and processing of functional annotation and virulence analysis of hypothetical proteins of *Enterobacter cloacae* B13 Strain.

## SKILLS

### Laboratory Skills

- Recombinant DNA technology, PCR, cloning, transgenics
- Microbial assays, plant sample extraction, TLC

### Teaching/Presentation Skills

- Tutoring school and college-level students
- High quality visuals, documents, presentations and spreadsheets (Microsoft Office/OpenOffice)
- Graphic design using computer/mobile tools

### Soft Skills

- Adaptability and critical thinking
- Finding creative solutions to issues
- Effective collaboration with diverse teams

### Bioinformatics and Biostatistics

- BLAST, MEGA, phylogenetics, protein studies
- Bioinformatics pipeline/workflow development
- Genomic and proteomic data analysis

### Programming/Data Analysis

- Python (IDLE, PyCharm), R (RStudio), ggplot2, R Markdown, SQL, Perl, C++.
- Control flow, functions, data query, preprocessing and visualizations.

### Additional Skills

- Linux and UNIX systems, CLI, file I/O, Bash scripts.
- Git, documentation, user support and beta testing
- Website deployment using Hugo/WordPress

## AWARDS AND SCHOLARSHIPS

2023

**National Science and Technology Fellowship**,  
Ministry of Science and Technology, Government of Bangladesh

2020

**6th Prize in Dhaka University Seerat Reading and Competition**,  
Dhaka University Dawah Circle

2020

**4th Prize, Essay Writing on Seerah**,  
National Siratunnabi (PBUH) Celebration Committee

2019

**New India-Bangladesh Friendship Freedom Fighters Descendent Scholarship**,  
Ministry of Liberation War Affairs, Government of Bangladesh

2014

**Second Runners-up in Quiz Competition of Annual Science Fair**, Dhaka College

2014

**Regional Champion (Math and Computer, Dhaka Region, Bangabandhu Creative Talent Hunt Competition)**, Government of Bangladesh

## EXTRA-CURRICULAR ACTIVITIES

2022

**Editor, Typesetter and Designer**,  
BioGen Magazine, Genetic Engineering and Biotechnology Club, University of Dhaka

2014 – 2016

**Academic Volunteer**, DRMC Science Club, Dhaka Residential Model College



2012 – 2016

**Quiz Team Member**, DRMC Inflammers, Dhaka Residential Model College

2010 – 2011

**National Math Olympiad Participant**

## CERTIFICATIONS

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| • Master of Science in Genetic Engineering and Biotechnology   | • Bachelor of Science in Genetic Engineering and Biotechnology   | • Good Clinical Practice (GCP) - NIDA  |
| • Protecting Human Research Participants Online Training  | • Biosafety and Biosecurity Training  | • Introduction to Programming in R for Biologists   |
| • Higher Secondary School Certificate in Science   | • Secondary School Certificate in Science  |   |

## REFERENCES

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**Dr. Abu Ashfaque Sajib**, *Professor and Chairperson*,  
Department of Genetic Engineering and Biotechnology, University of Dhaka  
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**Dr. Mohammed Nazmul Ahsan**, *Professor and Former Chairperson*,  
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