## CAREER OBJECTIVE

As a versatile researcher with expertise in biotechnology, bioinformatics, computational biology, microbiology and phytochemistry, my objective is to leverage my interdisciplinary skills and knowledge to drive scientific discoveries and develop innovative solutions that address emerging global challenges in life sciences.

## EDUCATION

10/2022 – 01/2024 **Master of Science in Genetic Engineering and Biotechnology,** University of Dhaka
**CGPA:** 3.73 (on a scale of 4.00)

01/2018 – 09/2022 **Bachelor of Science (Honors) in Genetic Engineering and Biotechnology,** University of Dhaka
**CGPA:** 3.77 (on a scale of 4.00)

07/2015 – 06/2017 **Higher Secondary School Certificate in Science,** Dhaka Residential Model College
**GPA:** 5.00 (on a scale of 5.00)

01/2013 – 05/2015 **Secondary School Certificate in Science,** Dhaka Residential Model College
**GPA:** 5.00 (on a scale of 5.00)

## RESEARCH INTERESTS

**Functional genomics and bioinformatics**
Gene and gene product identification and annotation
ncRNA analysis and function prediction
Molecular docking and molecular dynamics simulation

**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

**Phytochemical analysis**
Processing of raw plant extracts for phytochemical studies
Detection of phytocompounds
Thin-layer chromatography

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

**Data wrangling, analysis and predictive modeling**
Development of tools to clean and visualize raw biological data
Identifying patterns and insights within large datasets

**Microbiological analysis**
Development, optimization and maintenance of pure cultures in diverse growth mediums
Activity measurement of antimicrobrial compounds (MIC and MBC)

## 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

**Abira Khan, Ahnaf Tajwar (2024). Evaluation of Phytochemical Properties and In Vitro Antimicrobial Activity of Costus woodsonii Extracts,**
(Manuscript under preparation)

## PROJECTS

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, it discussed the remarkable growth of aquaculture production in Bangladesh from 1960 to 2018, 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 separation of the hypothetical proteins, carried out the functional annotation and virulence prediction

2021 – 2022

**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

**Programming and scripting**
Python, R, Bash, Perl, C and SQL

**Bioinformatic and Statistical Skills**
GraphPad Prism, Chromas, DNA Baser, BLAST suite, Primer design, MEGA, RaptorX, STRING, Cytoscape, SEVIS, SPSS

**Prompt engineering**
Proficiency with generative AIs such as Gemini, Playground, GPT, DALL-E and Claude

**Microsoft Word**
Advanced document manipulation, table formatting, image processing and bibliography generation

**Microsoft Excel**
Spreadsheet management and operations

**Teaching experience**
7+ years of tutoring school and college-level students

**Critical thinking and problem solving**
Able to analyze complex situations and find creative solutions

**Laboratory experience**
6+ years of experience with various dry and wet lab procedures

**Linux and UNIX-based operating systems**
Extensive knowledge of the command line interface alongside advanced file and text manipulation

**Writing skills**
Creative writing, translation (English ↔ Bangla) and typesetting

**Microsoft PowerPoint**
Striking presentation slides and animations

**Image manipulation**
Raster graphics and vector graphics design using Adobe Photoshop, Adobe Illustrator, GIMP and Inkscape

**Flexible and dynamic personality**
Adaptable to changing environments and eager to learn new skills

**Teamwork and collaboration**
Adept in connecting with diverse personalities and delivering results

## LANGUAGES

- Bengali
- English
- Arabic

## 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

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,**
Viqarunnisa Noon School and College

2014 **Regional Champion (Math and Computer, Dhaka Region, Bangabandhu Creative Talent Hunt Competition),** Government of Bangladesh

2020 **4th Prize, Essay Writing on Seerah,**
National Siratunnabi (PBUH) Celebration Committee

## EXTRA-CURRICULAR ACTIVITIES

2024 **Community moderator,** Notesnook (Software)

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 Inflamers, Dhaka Residential Model College

2010 – 2011 **National Math Olympiad participant**

## CERTIFICATIONS

- Master of Science in Genetic Engineering and Biotechnology
- Bachelor of Science in Genetic Engineering and Biotechnology
- Introduction to Programming in R for Biologists
- Higher Secondary School Certificate in Science
- Secondary School Certificate in Science

## REFERENCES

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