

SABUJ BISWAS

Scientific Officer · Fisheries Biotechnology Division · National Institute of Biotechnology, Bangladesh

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PROFILE

Molecular microbiologist studying the bacterial communities of rivers, fish and aquaculture systems in Bangladesh. Combines 16S rRNA amplicon sequencing, bacterial culture and genome analysis to investigate pollution, fish health and antimicrobial resistance, and writes the R, Python and Bash pipelines that keep these analyses reproducible. Also builds production web and mobile software (Flutter, Next.js, Supabase, Kotlin).

Research interests: aquatic and environmental microbiomes; fish pathogens and fish health; antimicrobial resistance in aquaculture; fish genomics; reproducible bioinformatics.

PROFESSIONAL EXPERIENCE

Scientific Officer

Dec 2023 – present

Fisheries Biotechnology Division, National Institute of Biotechnology (NIB), Savar, Dhaka

- Leads 16S rRNA (V3–V4) amplicon studies of river sediment and water microbiomes, from sequence processing and statistics to publication; first author of the Buriganga–Turag study (28 samples from 14 sites along a pollution gradient).
- Contributes to genome-based studies of fish and fish pathogens, including the complete mitochondrial genome of *Pangasius pangasius*.
- Builds scripted, reproducible analysis pipelines (QIIME 2, DADA2, phyloseq, vegan, R/Bash) for the division's sequencing projects.

Research Member

2019 – 2023

Disease Biology & Molecular Epidemiology (DBME) Research Group, University of Chittagong (PIs: Prof. Adnan Mannan; Prof. S. M. Rafiqul Islam)

- Worked on 16S rRNA microbiome studies of hilsa shad, shrimp, fermented food and COVID-19 patients, leading to four peer-reviewed papers (one as first author).

Research Intern (3 weeks)

May 2019

Microbial Biotechnology Division, National Institute of Biotechnology (NIB), Savar, Dhaka

EDUCATION

M.S. (Thesis) in Genetic Engineering and Biotechnology

2020

University of Chittagong, Chattogram · CGPA 3.69 / 4.00 · NST Fellowship; Champion, BABG Thesis Award

B.Sc. (Honours) in Genetic Engineering and Biotechnology

2019

University of Chittagong, Chattogram · CGPA 3.54 / 4.00

HSC (Science), Notre Dame College, Dhaka · SSC (Science), Kadambari High School, Madaripur

2014 · 2012

GPA 5.00 / 5.00 in both examinations

PUBLICATIONS

Google Scholar: 86 citations, h-index 3 (October 2026). [Scholar profile](#) · [ORCID](#) · [ResearchGate](#)

Peer-reviewed articles

- Hasan MM, Mim MA, Ahmed MS, **Biswas S** (2026). Complete mitochondrial genome sequence of yellowtail catfish *Pangasius pangasius*. *Microbiology Resource Announcements* 15(7): e01366-25. [doi:10.1128/mra.01366-25](https://doi.org/10.1128/mra.01366-25)
- Ferdous J, Islam SMR, Chakma K, Hasan MM, Tanni AA, Ahmed R, Sikder U, **Biswas S**, Siddiki AZ, Crandall KA, Rahnavard A, Hussain MH, Sharifuzzaman SM, Chowdhury MSN, Mannan A (2026). Antimicrobial resistance and gut microbiome profiles in wild and cultured shrimp (*Penaeus monodon*) from the coast of the northern Bay of Bengal, Bangladesh. *Environmental Monitoring and Assessment* 198(7): 722. [doi:10.1007/s10661-026-15585-7](https://doi.org/10.1007/s10661-026-15585-7)
- Biswas S**, Foysal MJ, Mannan A, Sharifuzzaman SM, Tanzina AY, Tanni AA, Sharmen F, Hossain MM, Chowdhury MSN, Tay ACY, Islam SMR (2024). Microbiome pattern and diversity of an anadromous fish, hilsa shad (*Tenualosa ilisha*). *Molecular Biology Reports* 51(1): 38. [doi:10.1007/s11033-023-08965-6](https://doi.org/10.1007/s11033-023-08965-6)
- Tanzina AY, Hoque MN, Mannan A, Foysal MJ, Rumi MH, **Biswas S**, Bhuiyan JJ, Siddiki AZ, Islam MS, Tay ACY, Islam SMR (2022). Investigating the nutritional profile and bacteriome diversity in Bangladeshi sour yogurt. *Biocatalysis and Agricultural Biotechnology* 44: 102451. [doi:10.1016/j.bcab.2022.102451](https://doi.org/10.1016/j.bcab.2022.102451)

5. Rafiqul Islam SM, Foysal MJ, Hoque MN, Mehedi HMH, Rob MA, Salauddin A, Tanzina AY, **Biswas S**, Noyon SH, Siddiki AZ, Tay A, Mannan A (2022). Dysbiosis of oral and gut microbiomes in SARS-CoV-2 infected patients in Bangladesh: elucidating the role of opportunistic gut microbes. *Frontiers in Medicine* 9: 821777. [doi:10.3389/fmed.2022.821777](https://doi.org/10.3389/fmed.2022.821777)

Manuscript under review

Biswas S, Hasan MK, Mim MA, Sultana S, Hasan MM, Bhuiyan MSI, Ahmed MS, Hossain MS. Sediment and water microbiomes of the Buriganga and Turag Rivers along an anthropogenic pollution gradient in Dhaka, Bangladesh. *BMC Microbiology* (second revision submitted, October 2026).

GRANT APPLICATIONS

Principal Investigator (applicant), R&D Project Grant

2026

Ministry of Science and Technology (MoST), Bangladesh · BDT 100,000

“Virulence and genomic profiling of bacterial pathogens in *Pangasianodon hypophthalmus*”: isolation and MALDI-TOF identification of pathogens from diseased farmed pangas, 16S rRNA and *gyrB* sequencing, virulence and antimicrobial-resistance screening, challenge trials and whole-genome sequencing. Submitted August 2026; under evaluation (viva, November 2026).

AWARDS AND FELLOWSHIPS

2023	Champion, BABG Thesis Award (M.S. level)
2021	National Science and Technology (NST) Fellowship for M.S. research, Ministry of Science and Technology, Bangladesh
2006–2012	Government scholarships: Talent Pool (Class 5, 2006; Class 8, 2009) and General (Class 10, 2012)

TRAINING AND PRESENTATIONS

2022	Advanced Bioinformatics and Computational Biology, Chattogram Veterinary and Animal Sciences University
2022	Poster presentation, Institutional Quality Assurance Cell (IQAC), University of Chittagong
2020	COVID-19 Detection by RT-PCR, Network of Young Biotechnologists of Bangladesh (NYBB)

TECHNICAL SKILLS

Laboratory	Bacterial isolation, pure culture and sub-culture; biochemical identification; DNA extraction and quantification; PCR; agarose gel electrophoresis; RT-PCR (trained)
Microbiome & genomics	16S rRNA amplicon analysis (QIIME 2, DADA2, Cutadapt); taxonomy and phylogenetics (BLAST, MEGA); alpha and beta diversity, PERMANOVA, differential abundance (MaAsLin 2)
Statistics & figures	R (tidyverse, ggplot2, phyloseq, vegan, lme4, sf for maps); Python (pandas)
Computing	Linux and Bash; conda/micromamba environments; Git; scripted, reproducible pipelines
Software development	Flutter/Dart; Kotlin with Jetpack Compose; Next.js and TypeScript; Supabase (PostgreSQL); automated testing

SOFTWARE PROJECTS

SmartPrep BD · smartprepb.com

Flutter · Next.js · Supabase · Python

Bengali exam-preparation platform for university admission and job exams: Android app, website and back end, with a Python pipeline that turns PDF question papers into structured data (6,529 admission questions; 1,089 automated tests).

Tohobil (তহবিল)

Kotlin · Jetpack Compose

Bilingual (Bengali/English) personal-finance Android app: works offline, with fingerprint lock and encrypted backups to the user's own Google Drive.

LANGUAGES

Bengali (native); English (fluent)

REFERENCES

Dr. Muhammad Shahdat Hossain
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