

# MD. HASANUR RAHMAN

Bangladesh Agricultural University  
Mymensingh-2202, Bangladesh.

Email: [hasanurrahman.bge@gmail.com](mailto:hasanurrahman.bge@gmail.com)

Website: [mhasanur.vercel.app](https://mhasanur.vercel.app)

Cell: (+880)1650158512

[Google Scholar](#) 

[ORCID](#) 

[LinkedIn](#) 

## RESEARCH EXPERIENCES

### Research Assistant

Apr 2023 - Present

*Dr. Hannan's Lab, Bangladesh Agricultural University, Mymensingh, Bangladesh*

Working on phytochemical-based computational analyses (ADMET, Docking, MDS) and pathway analysis using network pharmacology tools (Cytoscape, DAVID, NetworkAnalyst, KEGG) to investigate therapeutic targets for Dementia, Alzheimer's, and Diabetes mellitus type2. My work contributes to the finding of bioactive compounds and their molecular interactions in neurodegenerative diseases.

Key Contributions:

- Conducted ADMET and molecular docking studies on lupeol and its derivatives, exploring their potential in targeted drug delivery and neuroprotective effects.
- Investigated the neuropharmacological mechanisms of *Convolvulus pluricaulis* (CP) using bioinformatics tools, revealed five key phytochemicals with drug-like properties for Alzheimer's and Parkinson's treatments.
- Performed network analysis and docking simulations to reveal critical molecular targets, including PTGS1, NOS3, PPARG, ACHE, and MAOA, that may play a role in neuroprotection and memory enhancement.

Supervised by **Dr. Md. Abdul Hannan** [[hannanbmb@bau.edu.bd](mailto:hannanbmb@bau.edu.bd)]

### Research Assistant

Feb 2022 - Mar 2023

*Bonglee Kim's Lab, Kyung Hee University, College of Korean Medicine, Seoul, Republic of Korea*

Focused on cancer biology, particularly analyzing the therapeutic potential of Korean medicinal plants. My responsibilities included phytochemical extraction, bioinformatics analysis, drug adaptability assessment through molecular dynamics simulation (MDS), and data analysis of western blot, LC-MS, and cell culture assays (cytotoxicity, colony formation, caspase-3 activity, ROS).

Key Contributions:

- Demonstrated the anti-cancer effects of *Caesalpinia sappan* on pancreatic cancer cells by increasing caspase-3 activity and promoting apoptosis.
- Conducted in-silico studies that confirmed strong binding affinities of bioactive compounds from *C. sappan* with caspase-3.
- Explored autophagy's dual role in pancreatic cancer progression and its potential as a therapeutic target, emphasized the complexities of autophagy inhibition in clinical applications.

Supervised by **Dr. Bonglee Kim** [[bongleekim@khu.ac.kr](mailto:bongleekim@khu.ac.kr)]

### Research Assistant & Research Associate

Aug 2019 - Jan 2022

*Biotechnology and Bioinformatics Research Group, ABEx Bio-Research Center, Dhaka, Bangladesh*

Joined as a Research Assistant and later promoted to Research Associate. My key responsibilities included reviewing literature on cancer therapies and autophagy modulation in cancer and Alzheimer's disease. As a Research Associate, I helped establish a Bioinformatics lab and focused on molecular docking, dynamic simulations, and genomic data analysis, explored the therapeutic potential of phytochemicals.

Key Contributions:

- Conducted molecular docking and ADMET studies to identify phytochemicals from *Euphorbia neriifolia* that exhibit potential anti-SARS-CoV-2 activity, including delphin and beta-amyrin.
- Analyzed the tumor suppressor protein p53's dual role in cancer, focusing on its modulation of autophagy for therapeutic interventions.
- Established a Bioinformatics Lab and investigated the pharmacological insights of extracted phytochemicals for therapeutic uses in human diseases.

Supervised by **Dr. Md Jamal Uddin** [[hasan800920@gmail.com](mailto:hasan800920@gmail.com)] & **Dr. Ataur Rahman Modhu** [[rahman23@wayne.edu](mailto:rahman23@wayne.edu)]

## EDUCATION

**Faculty of Life Sciences, Bangabandhu Sheikh Mujibur Rahman Science and Technology University** Jan 2017 - Jan 2022  
**Gopalganj-8100, Bangladesh.**

*Bachelor of Science (Hons.), Biotechnology and Genetic Engineering*

CGPA: 2.86/4.00 (3.08\* in the last 60 credit hours of coursework)

## SKILLS

Linux, Python, R, Matplotlib, Computational Biology (Molecular Docking, Molecular Dynamic Simulations by Gromacs, NAMD, Schrödinger), Genomic Data Analysis (BLAST, Bowtie, BWA, SAMtools, and bioconductor in R), Web Application Development, Scientific Figure Illustrations, PCR, Western Blot Analysis, Cell Culture, Biological Assay's Analysis.

## SELECTED PUBLICATIONS

1. M.A. Rahman, **M.H. Rahman**, H. Rhim, B. Kim (2024). Drug Target to Alleviate Mitochondrial Dysfunctions in Alzheimer's Disease: Recent Advances and Therapeutic Implications. *Current Neuropharmacology*, DOI: [10.2174/1570159X22666240426091311](https://doi.org/10.2174/1570159X22666240426091311)
2. T. Akter, M.S. Zahan, N. Nawal, **M.H. Rahman et al.** (2023). Potentials of curcumin against polycystic ovary syndrome: Pharmacological insights and therapeutic promises. *Heliyon*, DOI: [10.1016/j.heliyon.2023.e16957](https://doi.org/10.1016/j.heliyon.2023.e16957)
3. **M.H. Rahman**, P. Biswas, D. Dey, M.A. Hannan *et al.* (2022). An In-Silico Identification of Potential Flavonoids against Kidney Fibrosis Targeting TGF beta R-1. *Life*, DOI: [10.3390/life12111764](https://doi.org/10.3390/life12111764)
4. M.A. Rahman, K.R. Ahmed, **M.H. Rahman**, M.A.K. Parvez *et al.* (2022). Therapeutic Aspects and Molecular Targets of Autophagy to Control Pancreatic Cancer Management. *Biomedicines*, DOI: [10.3390/biomedicines10061459](https://doi.org/10.3390/biomedicines10061459)
5. S. Akter, M.A. Rahman, M.N. Hasan, H. Akhter, **M.H. Rahman et al.** (2022). Recent Advances in Ovarian Cancer: Therapeutic Strategies, Potential Biomarkers, and Technological Improvements. *Cells*, DOI: [10.3390/cells11040650](https://doi.org/10.3390/cells11040650)
6. M.A. Rahman, K.R. Ahmed, **M.H. Rahman**, M.N. Park, *et al.* (2022). Potential Therapeutic Action of Autophagy in Gastric Cancer Managements: Novel Treatment Strategies and Pharmacological Interventions. *Frontiers in Pharmacology*, DOI: [10.3389/fphar.2021.813703](https://doi.org/10.3389/fphar.2021.813703)
7. M.A. Rahman, M.N. Park, **M.H. Rahman**, M.M. Rashid, *et al.* (2022). p53 Modulation of Autophagy Signaling in Cancer Therapies: Perspectives Mechanism and Therapeutic Targets. *Frontiers in Cell and Developmental Biology*, DOI: [10.3389/fcell.2022.761080](https://doi.org/10.3389/fcell.2022.761080)
8. M.A. Saber, P. Biswas, D. Dey, M.A. Kaium, M.A. Islam, M.I.A. Tripty, **M.H. Rahman et al.** (2021). A Comprehensive Review of Recent Advancements in Cancer Immunotherapy and Generation of CAR T Cell by CRISPR-Cas9. *Processes*, DOI: [10.3390/pr10010016](https://doi.org/10.3390/pr10010016)
9. S.Y. Kang, D. Hwang, S. Shin, J. Park, M. Kim, **M.H. Rahman et al.** (2021). Potential of Bioactive Food Components against Gastric Cancer: Insights into Molecular Mechanism and Therapeutic Targets. *Cancers*, DOI: [10.3390/cancers13184502](https://doi.org/10.3390/cancers13184502)
10. P. Biswas, D. Dey, A. Rahman, M.A. Islam, T.F. Susmi, M.A. Kaium, M.N. Hasan, **M.H. Rahman, et al.** (2021). Analysis of SYK Gene as a Prognostic Biomarker and Suggested Potential Bioactive Phytochemicals as an Alternative Therapeutic Option for Colorectal Cancer: An In-Silico Pharmaco-Informatics Investigation. *Journal of Personalized Medicine*. DOI: [10.3390/jpm11090888](https://doi.org/10.3390/jpm11090888)
11. M.A. Rahman, M.A. Hannan, R. Dash, **M.H. Rahman, et al.** (2021). Phytochemicals as a Complement to Cancer Chemotherapy: Pharmacological Modulation of the Autophagy-Apoptosis Pathway. *Frontiers in Pharmacology*, DOI: [10.3389/fphar.2021.639628](https://doi.org/10.3389/fphar.2021.639628)
12. M.A. Rahman, **M.H. Rahman**, M.S. Hossain, P. Biswas *et al.* (2020). Molecular Insights into the Multifunctional Role of Natural Compounds: Autophagy Modulation and Cancer Prevention. *Biomedicines*, DOI: [10.3390/biomedicines8110517](https://doi.org/10.3390/biomedicines8110517)
13. B. Sarkar, M.A. Ullah, S.S. Islam, **M.H. Rahman, et al.** (2020). Analysis of plant-derived phytochemicals as anti-cancer agents targeting cyclin dependent kinase-2, human topoisomerase IIa and vascular endothelial growth factor receptor-2. *Journal of Receptors and Signal Transduction*, DOI: [10.1080/10799893.2020.1805628](https://doi.org/10.1080/10799893.2020.1805628)
14. **M.H. Rahman**, M. Rahman, M.S. Zahan, T. Hasib, *et al.* (2020). Current knowledge on mechanisms involved in SARS-CoV-2 infection and kidney diseases. *Journal of Advanced Biotechnology and Experimental Therapeutics*, DOI: [10.5455/jabet.2020.d153](https://doi.org/10.5455/jabet.2020.d153)
15. M.A. Ullah, F.T. Johora, B. Sarkar, Y. A, **M.H. Rahman** (2020). Curcumin analogs as the inhibitors of TLR4 pathway in inflammation and their drug like potentialities: a computer-based study. *Journal of Receptors and Signal Transduction*, DOI: [10.1080/10799893.2020.1742741](https://doi.org/10.1080/10799893.2020.1742741)

## CONFERENCE POSTERS

Designing Novel Epitope Based Vaccine Against Human Respiratory Syncytial Virus, Presented in "[4th Latin American Student Council Symposium \(LA-SCS\) 2020](#)"

Computational Exploration of Curcumin Analogs to Identify Natural Anti-inflammatory Drugs, Presented in "[European Student Council Symposium 2020](#)"

## DATABASE PROJECTS

[National Database for Genetic Disease](#), powered by ICTD R&S and Shahjalal University of Science and Technology.

[Global Database for Rice Genome Editing](#), powered by Institute of Biotechnology and Genetic Engineering (IBGE).

## HONORS & AWARDS

1. Top 25 Research Training Fellow, Compbio Bangladesh by University of Montana. Feb 2023
2. 7<sup>th</sup> Position out of Top 10 Researchers List 2022, BSMRSTU, Published by Scopus. Jan 2023
3. 4<sup>th</sup> Position out of Top 15 Researchers List 2021, BSMRSTU, Published by Scopus. Jan 2022
4. Global Community Bio Summit 5.0 Participant, MIT Media Lab Oct 2021
5. Research Fellow, Bangladesh Ministry of Education Research Project on Breast Cancer Mar-Jun 2021
6. Best Performing Research Assistant Award of 2020, ABEx Bio-Research Center, Dhaka Dec 2021

## STANDARDIZED LANGUAGE TEST

International English Language Testing System (IELTS)-

Overall	Listening	Reading	Writing	Speaking
6.5	7.0	6.0	6.0	6.5

## PERSONAL DEVELOPMENT

### Programming for Everybody (Getting Started with Python) (19 hrs)

Instructed by: Charles Russell, University of Michigan

[Credential](#)

Jul 2020

### Python Data Structures (19 hrs)

Instructed by: Charles Russell, University of Michigan

[Credential](#)

Jul 2020

### Genomic Data Science with Galaxy (16 hrs)

Instructed by: James Taylor, PhD, Johns Hopkins University

[Credential](#)

May 2020

### Introduction to Genomic Technologies (6 hrs)

Instructed by: James Taylor, PhD & Jeff Leek, PhD, Johns Hopkins University

[Credential](#)

Apr 2020

## PROFESSIONAL VOLUNTEERING EXPERIENCES

### Chief Operating Officer,

[Community of Biotechnology \(COB\)](#)

Sep 2020 - Present

### Editorial Assistant,

[Journal of Advanced Biotechnology and Experimental Therapeutics](#)

Jun 2020 - Feb 2023

### Founding Licensee & Organizer,

[TEDx BSMRSTU](#), [TEDx BSMRSTU-Women](#)

Nov 2020 - Feb 2022

### Steering Committee Core Member,

[ISCB RSG-Bangladesh](#)

May 2020 - Dec 2021

## REFERENCES

### Md. Abdul Hannan, PhD

Professor

Department of Biochemistry and Molecular Biology  
Bangladesh Agricultural University, Mymensingh, Bangladesh.

Email: hannanbmb@bau.edu.bd

Alt. Email: hannanbau@gmail.com

Phone: (+880)1719538440

Relation: Current Lab Supervisor

### Md. Ataur Rahman, PhD

Post-doctoral Fellow

Departments of Oncology  
Karmanos Cancer Center, School of Medicine  
Wayne State University

Detroit, MI, 48201, United State

Email: rahman23@wayne.edu

Alt. Email: ataur1981rahman@hotmail.com

Phone: +1 734 596 1586

Relation: Research Supervisor

### Md Jamal Uddin, PhD

Chief Executive Officer

ABEx Bio-Research Center  
East Azampur, Dhaka-1230, Bangladesh.

Email: hasan800920@gmail.com

Alt. Email: hasan800920@bsmiab.org

Phone: (+880)1943760028

Relation: Research Advisor

### Md. Sarafat Ali, PhD

Associate Professor

Department of Biotechnology and Genetic Engineering  
Bangabandhu Sheikh Mujibur Rahman Science and Technology  
University, Gopalganj-8100, Bangladesh.

Email: sarafatbiotech@bsmrstu.edu.bd

Alt. Email: sarafatbiotech@ynu.ac.kr

Phone: (+880)1714775662

Relation: Undergrad Faculty & Project Supervisor