Taslima Haque

4022 Biological Science Building
1105 North University Avenue
Ann Arbor, Michigan 48109-1085
tahaque@umich.edu;taslima@utexas.edu
737-781-0680

Postdoctoral Research Fellow
Department of Ecology and Evolutionary Biology
University of Michigan, Ann Arbor

RESEARCH INTERESTS

In a broad sense, I am interested to understand how genotype translates into phenotype leading to adaptation. Specifically, I am interested to study gene expression divergence and how regulatory element evolution can play a key role on adaptation.

EDUCATION

01/09/2016 – 06/05/2023	Ph.D. in Plant Biology Graduate Program Integrative Biology, University of Texas at Austin
2007-2008	MSc degree in Biochemistry and Molecular Biology University of Dhaka
2001-2006	BSc degree in Biochemistry and Molecular Biology University of Dhaka

PROFESSIONAL APPOINTMENTS

08/05/2023 - present	Postdoctoral Research Fellow Department of Ecology and Evolutionary Biology University of Michigan, Ann Arbor
01/09/2016 - 06/05/2023	Graduate Student in Plant Biology Graduate Program Integrative Biology, University of Texas at Austin
01/03/2016 – 31/07/2016	Research Associate, Plant Biotechnology Lab University of Dhaka BAS-PALS project funded by Bangladesh Academy of Science Principle Investigator: Prof. Zeba I. Seraj
01/08/2013 – 29/02/2016	Research Associate, Plant Biotechnology Lab University of Dhaka PEER Science project funded by NSF-USAID Principle Investigator: Prof. Zeba I. Seraj U.S. Partner: Thomas Juenger, University of Texas at Austin
01/07/2011 – 31/07/2013	Research Associate, Plant Biotechnology Lab University of Dhaka

	BAS-PALS project funded by Bangladesh Academy of Science Principle Investigator: Prof. Zeba I. Seraj
01/01/2011 – 30/06/2011	Bioinformatician Basic and Applied Research on Jute Project Bangladesh Jute Research Institute (BJRI) Principle Investigator: Prof. Maqsudul Alam
01/01/2010 – 31/12/2010	Molecular Biologist Jute Genome Sequencing project, SwapnoJaatra Principle Investigator: Prof. Maqsudul Alam
01/07/2009 – 31/12/2009	Middle School Science teacher European Standard School (ESS) , Bangladesh

ACADEMIC AWARDS

2023	Graduate School Dissertation Writing Fellowship
2021	Integrative Biology Research Award
2021	Summer Graduate Fellowship
2019-2020	Integrative Biology Doctoral Dissertation Improvement Grant (DDIG)
2018	CSHL Helmsley Scholarship (Trainee: Frontiers and Techniques In Plant Science, 2018)
2018	Summer Graduate Fellowship
2016-2017	Graduate School Fellowship

EDITORIAL CONTRIBUTION

Review Editor: Frontiers in Genetics: https://loop.frontiersin.org/people/307469/overview

Served as reviewer for various peer-reviewed journals: Applications in Plant Sciences (2), Frontiers in Plant science (1), Journal of Advanced Research (1), Molecular Ecology (1), Plant Breeding (1), Rice (1), and The Plant Cell (1).

SCIENTIFIC SOCIEY MEMBERSHIP

Member of the Society for the Study of Evolution since 2022

SELECTED PUBLICATIONS

1. Bhaskara GB*, **Haque T***, Bonnette JE, Napier JD, Bauer D, Schmutz J, Juenger TE. **Evolutionary Analyses of Gene Expression Divergence in *Panicum hallii*: Exploring Constitutive and Plastic Responses Using Reciprocal Transplants**. Molecular Biology and Evolution, 40 (2023). doi: https://doi.org/10.1093/molbev/msad210

2. Khasanova A, Joseph E, Bonnette J, Singer E, **Haque T**, Juenger TE **Quantitative genetic-by-soil microbiome interactions in a perennial grass affect functional traits.** Proceeding of the Royal Society B, 290:1991 (2023) doi: https://doi.org/10.1098/rspb.2022.1350

3. Weng X, Song H, Sreedasyam A, **Haque T**, Zhang L, Chen C, Yoshinaga Y, Williams M, O'Malley RC, Grimwood J, Schmutz J, Juenger TE **Transcriptome and DNA methylome dynamics reveal differential characteristics of inflorescence development between two ecotypes in *Panicum hallii.*** Plant Physiology, kiad209 (2023) doi: https://doi.org/10.1093/plphys/kiad209

4. **Haque T***, Elias SM*, Razzaque S*, Biswas S, Khan SF, Jewel GMNA, Rahman MS, Juenger TE, Seraj ZI **Salt tolerance QTLs of an endemic rice landrace, Horkuch at seedling and reproductive stages.** Sci Rep 12, 17306 (2022). doi: https://doi.org/10.1038/s41598-022-21737-9

5. **Haque T**, Bhaskara GB, Yin J, Bonnette J, Juenger TE **Natural variation in growth and leaf ion homeostasis in response to salinity stress in *Panicum hallii*.** Frontiers in Plant Science 13 (2022). doi: 10.3389/fpls.2022.1019169

6. Weng X, **Haque T**, Zhang L, Razzaque S, Lovell JT, Palacio-Mejía JD, Duberney P, Lloyd-Reilley J, Bonnette J, Juenger TE **A pleiotropic flowering time QTL exhibits gene-by-environmental interaction for fitness in a perennial grass.** Molecular Biology and Evolution. 39:10 (2022) doi: https://doi.org/10.1101/2022.02.26.482116

7. Bhaskara GB, Lasky JR, Razzaque S, Zhang L, **Haque T**, Bonnette J, Civelek GZ, Verslues PE, Juenger TE **Natural variation identifies new effectors of water use efficiency in Arabidopsis.** Proceedings of the National Academy of Sciences 119:33 (2022), e2205305119. doi: https://doi.org/10.1073/pnas.2205305119

8. Lovell JT*, MacQueen AH*, Mamidi S*, Bonnette J*, Jenkins J*, Napier JD, Sreedasyam A, Session A, Shu S, Barry K, Auer C, Bonos S, Boston L, Chapman J, Daum C, Deshpande S, Ewing A, Grabowski P, **Haque T**, Harrison M, Healey A, Jiang J, Kudrna D, Lipzen A, Pendergast IV TH, Plott C, Qi P, Shakirov E, Sims D, Stewart A, Singan V, Tang Y, Thibivillier S, Webber J, Weng X, Williams M, Wu A, Yoshinaga Y, Zane M, Zhang L1, Zhang J, Boe AR, Fay PA, Fritschi FB, Lloyd-Reilley J, Mitchell RB, Rouquette Jr FM, Ronald P, Saha M, Tobias C, Udvardi M, Wing R, Wu Y, Bartley LE, Casler M, Devos KM, Lowry DB, Rokhsar D, Grimwood J, Juenger TE, Schmutz J **Genomic mechanisms of climate adaptation in polyploid bioenergy switchgrass.** Nature 590:7846 (2021). doi: https://doi.org/10.1038/s41586-020-03127-1

9. Palacio-Mejía JD, Grabowski PP, Ortiz EM, Silva-Arias GA, **Haque T**, Marais DLD, Bonnette J, Lowry DB, Juenger TE, **Geographic patterns of genomic diversity and structure in the C4 grass *Panicum hallii* across its natural distribution**, AoB PLANTS 13:2 (2021) doi: https://doi.org/10.1093/aobpla/plab002

10. Razzaque S*, Elias SM*, **Haque T***, Biswas S, Jewel GMNA, Rahman S, Weng X, Ismail AM, Walia H, Juenger TE, Seraj ZI (2019) **Gene Expression analysis associated with salt stress in a reciprocally crossed rice population**. Scientific Reports 9: 8249. doi: https://doi.org/10.1038/s41598-019-44757-4

11. Weng X, Lovell JT, Schwartz SL, Cheng C, **Haque T**, Zhang L, Razzaque S, Juenger TE (2019) **Complex interactions between day length and diurnal patterns of gene expression drive**

photoperiodic responses in a perennial C_4 grass. Plant, Cell & Environment 42: 2165-2182. doi: https://doi.org/10.1111/pce.13546

12. Razzaque S*, **Haque T***, Elias SM*, Rahman MS, Biswas S, Schwartz S, Ismail AM, Walia H, Juenger TE, Seraj ZI (2017) **Reproductive stage physiological and transcriptional responses to salinity stress in reciprocal populations derived from tolerant (Horkuch) and susceptible (IR29) rice**. Scientific Reports 7: 46138. doi: https://doi.org/10.1038/srep46138

13. Islam MS, Saito JA, Emdad EM, Ahmed B, Islam MM, Halim A, Hossen QMM, Hossain MZ, Ahmed R, Hossain MS, Kabir SMT, Khan MSA, Khan MM, Hasan R, Aktar N, Honi U, Islam R, Rashid MM, Wan X, Hou S, **Haque T**, Azam MS, Moosa MM, Elias SM, Hasan AMM, Mahmood N, Shafiuddin M, Shahid S, Shommu NS, Jahan S, Roy S, Chowdhury A, Akhand AI, Nisho GM, Uddin KS, Rabeya T, Hoque SME, Snigdha AR, Mortoza S, Matin SA, Islam MK, Lashkar MZH, Zaman M, Yuryev A, Uddin MK, Rahman MS, Haque MS, Alam MM, Khan H, Alam M (2017) **Comparative genomics of two jute species and insight into fibre biogenesis**. Nature Plants 3: 16223). doi: https://doi.org/10.1038/nplants.2016.223

14. Amin USM, Biswas S, Elias SM, Razzaque S, **Haque T**, Malo R, Seraj ZI (2016) **Enhanced Salt Tolerance Conferred by the Complete 2.3 kb cDNA of the Rice Vacuolar Na+/H+ Antiporter Gene Compared to 1.9 kb Coding Region with 5′ UTR in Transgenic Lines of Rice**. Frontiers in Plant Science 7: 14. doi: https://doi.org/10.3389/fpls.2016.00014

15. Parvin S, Biswas S, Razzaque S, **Haque T**, Elias SM, Tammi RS, Seraj ZI (2015) **Salinity and drought tolerance conferred by in planta transformation of SNAC1 transcription factor into a high-yielding rice variety of Bangladesh**. Acta Physiologiae Plantarum 37: 68. doi: https://doi.org/10.1007/s11738-015-1817-8

16. Biswas S, Razzaque S, Elias SM, Amin USM, **Haque T**, Islam SMT, Lisa LA, Naznin F, Rasul NM, Seraj ZI (2014) **Effect of the vacuolar Na+/H+ antiporter transgene in a rice landrace and a commercial rice cultivar after its insertion by crossing**. Acta Physiologiae Plantarum 37: 1730. doi: https://doi.org/10.1007/s11738-014-1730-6

17. Yesmin N, Elias SM, Rahman MS, **Haque T**, Mahbub Hasan AKM, Seraj ZI (2014) **Unique Genotypic Differences Discovered among Indigenous Bangladeshi Rice Landraces**. International Journal of Genomics 2014: 210328. doi: https://doi.org/10.1155/2014/210328

* Authors contribute equally

SUBMITTED & PREPRINT PUBLICATIONS

1. Cantizano NP, Angelos E, Ruberti C, Jiang T, Weng X, **Haque T**, Juenger TE, Brandizzi F **Population genomics identify the requirement of BAP2 in the sufficiency of IRE1 in the UPR**. Submitted to Nature Communication on 12/12/2023. Current status: Manuscript under consideration

MANUSCRIPTS/PROJECTS UNDER PROGRESS

1. **Haque T**, Bhaskara GB, Schmitz RJ, Juenger TE. **The landscape of regulatory element evolution in a C4 perennial grass**

BOOK CHAPTERS

1. Seraj, ZI, Elias S, Shahid S, Haque T, Malo R, Shohan MUS. Chapter 33 - **Deciphering comparative and structural variation that regulates abiotic stress response**. In: Sharma, P., Yadav, D. and Gaur, R.K., editors, Bioinformatics in Agriculture. Academic Press; 2022. p. 561-586.
2. Seraj, ZI., Elias SM, Haque T, Jewel NA and Sunfi TR. Chapter 1 - **Combination of DNA markers and eQTL information for introgression of multiple salt-tolerance traits in rice**. In: Tuteja N, Tuteja R, Passricha N, Saifi SK, editors. Advancement in Crop Improvement Techniques: Woodhead Publishing. p. 1-22

ORAL PRESENTATION

1. Studying Adaptive Divergence in *Panicum hallii*; Presented to EEB Tuesday Lunch Seminar University of Michigan, Ann Arbor on 09/19/22
2. Detection of adaptive divergence in *Panicum hallii* natural population; Presented to Wittkopp Lab, University of Michigan, Ann Arbor on 07/13/22.
3. Understanding Local Adaptation of *Panicum hallii* in the context of soil salinity; Presented at the15th Annual Integrative Biology Graduate Research Symposium, University of Texas at Austin

POSTERS AND ABSTRACTS

1. Abstract submitted for Plant and Animal genome Conference (PAG-XXIII) held in San Diego, California, January 10-14, 2015
   Title**: Identification, characterization and validation of salt tolerance determinants in rice (*Oryza sativa* f L indica) landrace Horkuch and its segregating population under salinity stress**
   Taslima Haque[*], Samsad Razzaque*, Sabrina M Elias[*] ,Md. Sazzadur Rahman, Sudip Biswas, Sumaiya Farah Khan, Thomas Juenger, Harkamal Walia, Abdelbagi Ismail and Zeba I. Seraj

2. Poster presented at PEER conference in September, 2013 at Bangkok by PI, Dr. Zeba I. Seraj
   Title: **Validation of salt tolerance determinants in rice (*Oryza sativa* L. indica) landrace Horkuch and its segregating population by 2b-RAD sequencing and RNA-seq analysis under stress**
   Taslima Haque[*], Sabrina M Elias[*], Samsad Razzaque*, Md. Sazzadur Rahman, Sudip Biswas, Sumaiya Farah Khan, Thomas Juenger, Harkamal Walia, Abdelbagi Ismail and Zeba I. Seraj

3. Poster presented at 11th international symposium on rice functional genomics 2013, New Delhi, India
   Title: **SpotTSS: A transcription start site predictor for plant promoters using structural features and core motifs**
   Taslima Haque, Saima Shahid, Sadman Raj, Sabrina M. Elias, Samsad Razzaque, Sudip Biswas, Fakruj Zaman and Zeba I. Seraj

   *Contributed Equally

TEACHING EXPERIENCES

Helping Instructor:	GitHub and Code Management at University of Texas at Austin for Summer 2021
Helping Instructor:	Quality Graphics with ggplot2 at University of Texas at Austin for Summer 2021
Helping Instructor:	Quality Graphics with ggplot2 at University of Texas at Austin for Summer 2020
Helping Instructor:	GitHub and Code Management at University of Texas at Austin for Summer 2020
Teaching Assistant:	Bio 370 Evolution at University of Texas at Austin for Fall 2021
Teaching Assistant:	Bio 370 Evolution at University of Texas at Austin for Spring 2020
Teaching Assistant:	Bio 328D Discovery Lab in Plant Biology at University of Texas at Austin for Spring 2018
Instructor:	Workshop on R for data carpentry for grad level course: SUBJ/SKILLS GRAD STDNTS IN BIO (2018) in Department of Integrative Biology, University of Texas at Austin
Instructor:	Workshop on RNASeq data analysis in R for grad level course: SUBJ/SKILLS GRAD STDNTS IN BIO (2016) in Department of Integrative Biology, University of Texas at Austin
Course Designer & Instructor:	online bioinformatics learning courses (cBLAST) URL: http://bmb.du.ac.bd/cblast/

STUDENT MENTORING EXPERINECES

Work Study Student Fall 2019

Summer Research Student 2019

Freshman Research Initiative (FRI) Student Fall 2018

GOOGLE SCHOLAR PROFILE

https://scholar.google.com/citations?user=52Jb_t4AAAAJ&hl=en

GITHUB REPOSITORY

https://github.com/tahia

OUTREACH ACTIVITIES

Volunteer: University of Michigan Young Science Innovators 2023
Ad-hoc Feature Writer: Science page in Daily Prothom Alo, 2004-2007
Volunteer: Bangladesh Math Olympiad, 2008
Volunteer: Bangladesh Biology Olympiad, 2009

LANGUAGE SKILLS

Bangla, English, French (elementary)

REFEREES

- **Professor Patricia Wittkopp**
  Ecology and Evolutionary Biology
  4010 Biological Sciences Building
  Ann Arbor, Michigan 48109
  Email: wittkopp@umich.edu

- **Professor Thomas E Juenger**
  Department of Integrative Biology, University of Texas at Austin,
  2415 Speedway,
  Austin, Texas 78712
  Email: tjuenger@austin.utexas.edu

- **Professor Zeba I. Seraj**
  Dept. of Biochemistry and Molecular Biology,
  University of Dhaka, Bangladesh
  Email: zebai@du.ac.bd