Sabrina Moriom Elias

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Education

- **Doctor of Philosophy: (2018),** Biochemistry and Molecular Biology
 - University of Dhaka and University of Nebraska Lincoln, In collaboration with University of Texas at Austin, and International Rice Research Institute
- MS 2006 (held in 2008), Biochemistry and Molecular Biology, University of Dhaka, Bangladesh
- BSc (Hons) 2005 (held in 2007) Biochemistry and Molecular Biology, University of Dhaka
- **HSC** (2001), Science, Holy cross College, Bangladesh
- SSC (1999), Science, Holy cross Girls' High School, Bangladesh

Employment Experience

- Assistant Professor (September 2018 onwards)
 - Biochemistry, School of Life Sciences, Independent University, Bangladesh
- Postdoctoral research associate (January 2018 to August 2018)
 - Plant Biotechnology Laboratory, Department of Biochemistry and Molecular Biology, University of Dhaka
- Graduate Research Student (Ph.D.) (June 2013 to January 2018)
 - o International Rice Research Institute (IRRI), Los Banos, The Philippines
 - o University of Nebraska Lincoln, Lincoln, NE, USA
 - o University of Texas at Austin, Austin, TX, USA
 - o University of Dhaka (DU), Dhaka, Bangladesh
- Course designer and lecturer (2015 to present)
 - The Centre for Bioinformatics Learning Advancement and Systematics Training (cBLAST), University of Dhaka.
- Research Associate, (December 2011 to May 2013, September 2009 to December 2009, September 2008 to May 2009)
 - Plant Biotechnology Laboratory, Department of Biochemistry and Molecular Biology, University of Dhaka, Dhaka, Bangladesh
- Occupational Trainee (June, 2011 to November, 2011)
 - John Curtin School of Medical Research, Australian National University, Canberra, Australia
- Bioinformatician (January, 2011 to May, 2011)
 - Bangladesh Jute Research Institute, Dhaka, Bangladesh
- Molecular Biologist and Bioinformatician (January, 2010 to December, 2010)
 - Jute Genome Sequencing project funded by Government of People's Republic of Bangladesh
- Research Fellow (June, 2009 to August, 2009)
 - Bangladesh Council of Scientific and Industrial Research (BCSIR)
 - Institute of Food Science and Technology (IFST).

Academic Appointments

Assistant Professor (September 2018 onwards)

Biochemistry, School of Life Sciences, Independent University, Bangladesh

Publications

- Profiling Bangladeshi rice diversity based on grain size and amylose content using molecular markers. Nilufa Ferdous, Sabrina M. Elias, Zakir Hossain Howlader, Sunil Kumar Biswas, Md Sazzadur Rahman, Kum Kum Habiba, and Zeba I. Seraj. Current Plant Biology (2018).
- In Planta transformation for conferring salt tolerance to a tissue-culture unresponsive indica rice (Oryza sativa L.) cultivar. Tasnim Ahmed, Sudip Biswas, Sabrina M. Elias, M. Sazzadur Rahman, Narendra Tuteja and Zeba I. Seraj, In Vitro Cell.Dev.Biol.-Plant (2017) pp 1-12,
- Reproductive stage physiological and transcriptional responses to salinity stress in reciprocal populations derived from tolerant (Horkuch) and susceptible (IR29) rice. Samsad Razzaque*, Taslima Haque*, Sabrina M Elias*, Md. Sazzadur Rahman, Sudip Biswas, Scott Schwartz, Abdelbagi Ismail, Harkamal Walia, Thomas Juenger And Zeba I Seraj *(shared 1st authorship), (2017), Scientific Reports 7:46138 Nature Publishing Group
- 4 Comparative genomics of two jute species and insight into the fibre biogenesis. Jennifer Saito, EE, BA, MI, AH, QH, MZH, RA, MSH, SK, SK, MMK, RH, NA, UH, RI, MMR, XW, SH,TH, SMA, MM, Sabrina M Elias, AMMH, NM, MS, SS, NS, SJ,SR, AC, AA, GN, KU, TR, SMEH, AS, SM, SAM, MKI, PL, MZ, AY, MKU, MSR, MSH, MMA, HK, Maqsudul Alam and Md. Shahidul Islam, (2017) Nature Plants 3, 16223
- 5 Genetic Analysis of SSR Markers in F2 Reciprocal Populations of the Rice genotypes, Horkuch and IR29 show high segregation distortion. Samsad Razzaque, Sumaiya F. Khan, Nurnabi Azad Jewel, Taslima Haque, Sabrina M. Elias, Sazzadur Rahman and Zeba I. Seraj. (2016) Bioresearch Communication, 2(2):219-229
- 6 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. Amin USM, Biswas S, Elias SM, Razzaque S, Haque T, Malo R and Seraj ZI. (2016) Frontiers of Plant Science, 7(14): 1-14
- 7 Constitutive Overexpression of the Plasma Membrane Na+/H+ Antiporter for Conferring Salinity Tolerance in Rice. Farida Yasmin, Sudip Biswas, GM Nurnabi Azad Jewel, Sabrina M Elias and Zeba I Seraj. (2015) Plant Tissue Cult. & Biotech, 2(2): 257-272
- 8 Salinity and drought tolerance conferred by in planta transformation of SNAC1 transcription factor into a high-yielding rice variety of Bangladesh. Shanaz Parvin, Sudip Biswas, Samsad Razzaque, Taslima Haque, Sabrina M. Elias, Rumana S. Tammi, Zeba I. Seraj. (2015) Acta Physiologiae Plantarum 37(68):1-12
- 9 Cloning of Three Antiporter Genes from Arabidopsis and Rice for Over-Expressing Them in Farmer Popular Tomato Varieties of Bangladesh. Samsad Razzaque, Debashish Chakraborty, Rumana Sultana Tammi, Sabrina M Elias, Zeba I Seraj, Aparna Islam. (2014) American Journal of Plant Sciences 5(5):3957-3963
- 10 Effect of the vacuolar Na+/H+ antiporter transgene in a rice landrace and a commercial rice cultivar after its insertion by crossing. Sudip Biswas, Samsad Razzaque, Sabrina M. Elias, U.S. Mahzabin Amin, Taslima Haque, S.M. Touhidul Islam, Laisa A Lisa, Farhana Naznin, Noorain M. Rasul, Zeba I Seraj. (2014) Acta Physiologiea Plantarum, 37(1730): 1-10

- 11 Genetic Diversity Analysis to Predict Unique Identifies among Indigenous Rice Landraces of Bangladesh. Nusrat Yesmin, Sabrina Elias, Md. Sazzadur Rahman, AKM Mahbub Hasan, and Zeba I. Seraj. (2014) International Journal of Genomics, vol 2014 Article ID210328,
- 12 Genotypic and phenotypic relatedness of a farmer-discovered variant with high yielding rice growing in the same field. Sabrina M. Elias, Rokeya Begum, Md. Sazzadur Rahman, Afroza Ferdouse, Habibul B. Shozib, Md. Muntasir Ali and Zeba I. Seraj (Shared 1st Authorship) (2013), Plant systematics and evolution, 301(1):451-465
- 13 Cloning of the Plasma Membrane Sodium/Hydrogen Antiporter SOS1 for its Over expression in Rice. Samsad Razzaque, Sabrina M. Elias, Sudip Biswas, Taslima Haque, Zeba I. Seraj (2013), Plant Tissue Cult. & Biotech, 23(2): 263-273
- 14 Overexpression of a DEAD box helicase, PDH45, confers salinity tolerance to rice, Mahzabin Amin, Sabrina M. Elias, Alamgeer Hossain, Aliya Ferdousi, , Md. Sazzadur Rahman, Narendra Tuteja, Zeba I. Seraj (2012) Molecular Breeding, 30(1):345-354
- 15 Microsatellite marker diversity and sequence polymorphism in the red gene locus of indigenous rice populations of Bangladesh. Sabrina M. Elias, A.K.M. Mahbub Hasan, Zeba I. Seraj (2011)Plant Systematics and Evolution, 296:157-165
- 16 Physiology and Gene Expression of the Rice (Oryza sativa L.) Landrace Horkuch under Salt Stress, Laisa A. Lisa, Sabrina M. Elias, M. Sazzadur Rahman, Saima Shahid, Tetsushi Iwasaki, A. K. M.Mahbub Hasan, Keiko Kosuge, Yasuo Fukami and Zeba I. Seraj. (Shared 1st Authorship) (2011), Functional Plant Biology, 38: page: 282-292
- 17 READS- a resource for plant non-coding regulatory sequence analysis. Saima Shahid, Sabrina M. Elias, Sudip Biswas and Zeba I. Seraj, (Shared 1st Authorship) (2010) Plant Tissue Cult. And Biotec, 20 (2): 211-223.
- 18 Constitutive expression of OsNHX1 under the promoter Actin1D can improve the salt tolerance and yield characteristics of Bangladeshi rice Binnatoa. S. M. Touhidul Islam, Rumana S. Tammi, Richard malo, Mahzabin Amin, M. Sazzadur Rahman, Sabrina M. Elias, Zeba I. Seraj (2009), Australian journal of Crop Science, 3(6):329-335.

Conference papers and presentations:

- 1 From Phenome to gene network: elucidating the salt tolerant mechanism *Sabrina M Elias*, Taslima Haque, Samsad Razzaque, Sazzadur Rahman, Sudip Biswas, Thomas Juenger, Harkamal Walia, Zeba I Seraj, **Abstract Book**: 3rd ICBHA 2017, (Presenting Author: Lightening oral)
- 2 Linking Expression Polymorphism To Genetic Polymorphism: Understanding Salt Tolerance Mechanism In A Reciprocally Crossed Population Derived From Rice Landrace Horkuch. Sabrina M Elias, Taslima Haque, Samsad Razzaque, Sazzadur Rahman, Sudip Biswas, Thomas Juenger, Harkamal Walia, Abdelbagi M Ismail, Zeba I Seraj Abstract Book: Plant genomes & Biotechnology: From Genes to Networks, Cold Spring Harbor Laboratory (CSHL), pg 25 (Presenting Author: Poster)
- 3 Whole genome sequencing of two bangladeshi rice varieties, horkuch and IR29 to reveal salt tolerance mechanism. *Taslima Haque*, <u>Sabrina M. Elias</u>, <u>Samsad Razzaque</u>, <u>Nurnabi Azad Jewel</u>, <u>Sudip Biswas</u>, <u>Thomas E Juenger</u>, <u>Zeba I. Seraj</u>. **Abstract Book:** International Conference on Genomics, Nanotech and Bioengineering, North South University, Bangladesh, PGP 005 (*Presenting Author: Poster*)

- Validation of salt tolerant QTLs in horkuch F₅ population by molecular and physiological analysis. Aftab Uz Zaman Noor, Nurnabi Azad Jewel, Taslima Haque, Md. Sazzadur Rahman, Sabrina M. Elias, Sumaiya Farah Khan, Tokee Md. Tareq, Zeba I. Seraj. Abstract Book: International Conference on Genomics, Nanotech and Bioengineering, North South University, Bangladesh, PGP 001 (Presenting Author: Poster)
- Linking expression variation and genetic polymorphism: understanding mechanism of salt tolerance in a population derived from rice landrace Horkuch. Sabrina M Elias, Taslima Haque, Samsad Razzaque, Sumaiya F Khan, Sazzadur Rahman, Sudip Biswas, Thomas Juenger, Harkamal Walia, Abdelbagi Ismail, Zeba I Seraj Abstract Book: DUBANA (Dhaka University Biochemist Association in North America) scientific conference, 2016, # 09, (Presenting Author: Oral)
- 6 From expression variation to genetic polymorphism: understanding mechanism of salt tolerance in a population derived from rice landrace Horkuch, *Elias SM*, *Haque T*, *Razzaque S*, *Rahman S*, *,Biswas S*, *Juenger T*, *Walia H*, *Ismail A and Seraj ZI* **Abstract book:** 2nd South Asian Biotechnology Conference-2016, # O-A103, (*Presenting Author: Oral*)
- 7 SNP analysis, linkage map construction and QTL mapping for salinity stress response in rice, Haque T, Elias SM, Razzaque S, Rahman S, , Khan SF, Juenger T and Seraj ZI, Abstract book: 2nd South Asian Biotechnology Conference-2016, # O-A105
- Identification, characterization and validation of salt tolerance determinants in rice (Oryza sativa L) landrace Horkuch and its segregating population using sequencing based genotyping and expression measurement, Taslima Haque, Samsad Razzaque, Sabrina M. Elias, Md. Sazzadur Rahman, Sudip Biswas, Sumaiya Farah Khan, Thomas Juenger, Harkamal Walia, Abdelbagi Ismail, Zeba I Seraj. Abstract book: BAPTCB annual Conference, 2016, Abstract #3, (Presenting Author: Oral)
- 9 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. U.S.Mahzabin Amin, Sudip Biswas, Sabrina M Elias, Samsad Razzaque, Taslima Haque, Richard Malo and Zeba I Seraj Abstract book: 3rd Annual South Asia Biosafety Conference (2015)
- 10 Constitutive overexpression of an alternatively spliced variant of the vacuolar Na+/H+ antiporter (*OsNHX1*) for conferring salinity tolerance in rice. Farida Yasmin, Sabrina M. Elias, Sudip Biswas, Samsad Razzaque, G.M. Nurnabi Azad Jewel, and Zeba I. Seraj Abstract book: Annual Plant Tissue Culture and Biotechnology Conference 2015, #4.
- 11 Constitutive and inducible overexpression of the plasma membrane Na+/H+ antiporter for conferring salinity tolerance in rice. Farida Yasmin, Sudip Biswas, G.M. Nurnabi Azad Jewel, Samsad Razzaque, Sabrina M. Elias, Taslima Haque, and Zeba I. Seraj Abstract book: 3rd Annual south Asia Biosafety Conference (2015)
- 12 Phenotyping and estimation of genetic measurements of important traits associated with salt tolerance and yield in two reciprocally cross population of Salt tolerant rice cultivar Horkuch (*Oryza sativa* L) *Sabrina M. Elias*, *M. Sazzadur Rahman*, *Sumaiya F. Khan*, *Sudip Biswas*, *Taslima Haque*, *Samsad Razzaque and Zeba I. Seraj* Abstract book: Bangladesh Society of Biochemistry and Molecular Biology conference, 21st March, 2015, # Oral 25
- 13 Identification, characterization and validation of salt tolerance determinants in rice (Oryza sativa 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 Abstract book: Plant and Animal genome Conference (PAG-XXIII), San Diego, California, January 10-14, 2015, (Presenting Author: Poster), # P0508
- Abiotic stress tolerance conferred by in planta transformation of SNAC1 Transcription Factor in a commercial rice variety of Bangladesh. Shanaz Parvin, Sudip Biswas, Samsad Razzaque, Taslima Haque, Sabrina M Elias and Zeba I Seraj Abstract book: ICBHA-GNOBB conference 2015, # 50
- 15 Identification, characterization and validation of salt tolerance determinants in rice (Oryza sativa L) landrace Horkuch and its segregating population under salinity stress, Sabrina M Elias, Samsad Razzaque, Taslima Haque, Md. Sazzadur Rahman, Sudip Biswas, Sumaiya Farah Khan, Thomas Juenger, Harkamal Walia, Abdelbagi Ismail and Zeba I. Seraj. Abstract Book: ASPB Meeting 2014, Portland, Oregon, USA (Presenting Author: Poster) #P003022-A
- **QTL** mapping for salt tolerance traits of a Bangladeshi landrace Horkuch. *Sumaiya F. Khan, Sabrina M. Elias, M. Sazzadur Rahman and Zeba I. Seraj.* **Abstract Book,** BSBMB conference, 2013, University of Chittagong, Bangladesh. #SDP-4
- 17 Relatedness of a farmer-developed variant with high yield in rice growing in the same field and linking its genotype with phenotype. Sabrina M. Elias, Rokeya Begum, Md. Sazzadur Rahman, Habibul Bari Shozib, Md. Muntasir Ali, Zeba I. Seraj Abstract Book, BSBMB conference, 2013, University of Chittagong. (Presenting Author: Poster) #SDP-5
- 18 Vacuolar Na+/H+ antiporter overexpression: a complex regulation in rice. Sabrina M. Elias, U. S. Mahzabin Amin, Richard Malo, Sudip Biswas, Farhana Naznin, Touhid Omar, Saima Shahid, Taslima Haque, Zeba I. Seraj. Abstract Book, 13th FAOBMB congress, 2012, Thailand. (Presenting Author: Poster) #P-F-09
- 19 Vacuolar Na+/H+ antiporter overexpression: a complex regulation in rice. Sabrina M. Elias, U. S. Mahzabin Amin, Richard Malo, Sudip Biswas, Farhana Naznin, Touhid Omar, Saima Shahid, Taslima Haque, Zeba I. Seraj. Abstract Book, 10th International Rice Functional Genomics meeting 2012, Thailand. (Presenting Author: Poster) # PE-20
- 20 Overexpression of a DEAD box helicase, PDH45 confers salinity tolerance in genetic background of farmer popular rice varieties. Mahzabin Amin, Sabrina M. Elias, Alamgeer Hossain, Tasnim Ahmed, Taslima Haque, Aliya Ferdousi, Md. Sazzadur Rahman, Narendra Tuteza, Zeba I. Seraj. Abstract Book, Biovision Alexandria Conference 2012, Alexandria, Egypt, April, 2012., (Presenting Author: Poster)
- Vacuolar Na+/H+ Antiporter Overexpression for Salt Tolerance: A complex Regulation in Rice. Richard Malo, Sabrina M. Elias, Farhana Nazneen, Saima Shahid, Touhid Omar, U. S. Mahzabin Amin, Taslima Haque and Zeba I. Seraj Abstract Book, TWAS.BVA.NXT 2012, Alexandria, Egypt, April, 2012., (Presenting Author: Poster)
- 22 Pea DNA helicase (PDH45) gene confers salt tolerance in the genetic background of farmer popular rice varieties. *Mahzabin Amin, Alamgeer Hossain, Tasnim Ahmed, Taslima Haque, Sabrina M. Elias, Aliya Ferdousi, Md. Sazzadur Rhaman, Narendra Tuteja and Zeba I Seraj.* BSBMB Conference, 2012, University of Rajshahi, Bangladesh. # O-S2-15
- **Vacuolar Na+/H+ antiporter overexpression for salt tolerance: A complex regulation in rice.** Richard Malo, Sabrina M. Elias, Farhana Nazneen, Saima Shahid, Touhid Omar, U. S. Mahzabin Amin, Taslima Haque and Zeba I. Seraj. **Abstract Book**, BSBMB Conference, 2012, University of Rajshahi, Bangladesh (*Presenting Author: Oral*), # O-S2-16
- 24 Computational identification of stress inducible promoter. Saima Shahid, Taslima Haque, Saddam Raj, Sabrina M. Elias, Zohirul A. Tiemann, Shabnam Zaman, Farjana Khatun, Fokhruz Zaman, Zeba I. Seraj. Abstract Book, 3rd Congress of Young Bangladeshi Biotechnologists, Shahjalal University of Science and Technology, Sylhet, March 2012.

- Microsatellite marker and sequence variability for determination of genetic diversity and polymorphism in the red rice populations of Bangladesh. Sabrina M. Elias, Mahbub Hasan, Zeba I. Seraj Abstract book: Poster No. P8-16, pg 207, 6th rice genetics symposium proceeding abstract book, The Philippines, November 2009, (Presenting Author: Poster)
- **26** Rice landraces in Bangladesh: mutation in waxy and Rc genes. Rokeya Begum, Sabrina M. Elias, U.S Mahjabin Amin and Zeba I. Seraj Abstract book pg 31, Golden Jubilee Scientific Session Proceeding, Department of Biochemistry and Molecular Biology, University of Dhaka., December 2008, (*Presenting Author: Poster*)

Books

Book chapter (Published, July, 2018)

- 1. Helicases and their Importance in Abiotic Stresses Zeba I. Seraj, Sabrina M. Elias, Sudip Biswas and Narendra Tuteja, Novel perspectives for salinity responses and tolerance in plants, Springer Publisher.
- 2. Ahmad Shamsul Islam (Editor), Mustak Ibne Ayub, **Sabrina M. Elias**, Sumaiya Farah Khan (Subeditors), "Bongshogotibidyar mulkotha o gene prokoushol" (The title can be translated as: "Principles of heredity and genetic engineering" A text book written in Bangla Language for undergraduate plant science students), September, 2011, Scholars Publication, Bangladesh.

Other Conferences and Workshops

International:

- 3rd International Symposium on Innovations in Plant and Food Sciences (to be held on December, 2018, (invited speaker)
- Phenome 2018, Tucson, Arizona, USA, held on February 14-17 2018.
- Workshop on Digital Phenotyping, Phenome 2018, Tucson, held on 13th and 14th February, 2018
- 3rd International Conference of Biotechnology on Health and Agriculture, 2017, arranged by GNOBB, December 2017.
- Plant Genomes & Biotechnology: From Genes to Networks, Cold Spring Harbor Laboratory (CSHL), USA. (November, 2017)
- CSHL bioinformatics workshop, November 2017 (CSHL)
- Workshop on Transforming rice breeding: cutting edge breeding approaches, arranged by IRRI Bangladesh (October, 2017)
- International Conference on Genomics, Nanotech, and Bioengineering, North South University, Bangladesh, (May 2017)
- Basic Experimental Design and Data Analysis, IRRI short training courses, IRRI, The Philippines (March 2017)
- DUBANA scientific conference, Austin, TX, USA (August 2016)
- 2nd South Asian Biotechnology Conference-2016, Dhaka, Bangladesh

- Holland Computing Centre Data Carpentry workshop, University of Nebraska Lincoln, USA (2015)
- Plant and Animal Genome Conference, PAG-XXIII, 2015, San Diego, USA
- World food prize, Des Moines, Iowa, USA, 2013 and 2014 as an MBBISP fellow
- Workshop on Career Adaptability: How to set yourself up for a changing professional environment in ASPB meeting, 2014.
- American Society of Plant Biologists (ASPB) meeting, 2014, Portland, Oregon, July 2014.
- BGRI 2014 technical workshop and Borlaug Summit 2014 on the occasion of Dr. Norman Borlaug's 100th Birthday, Obregon, Mexico, March, 2014
- Leadership workshop arranged by Tero International, October, 2013 and October 2014
- 19th Islamic Academy of Science Conference, 2013, Dhaka, Bangladesh
- 10th International Symposium on Rice Functional Genomics, 2012, Thailand.
- 13th FAOBMB congress and young scientist program, 2012, Thailand.
- BioVision Alexandria Conference 2012, Alexandria, Egypt
- Chemical safety, Biological safety and Gene Technology Course, 2011, JCSMR, Australian National University, Australia.
- Rice Annotation Project 6 (RAP6) workshop, 15th November, 2009.
- 6th International Rice Genetics Symposium and 7thInternational Symposium on Rice Functional Genomics held on 16th to 19th November, 2009 at Manila Hotel, The Philippines.
- GCP training workshop on Marker-assisted Breeding for Bangladesh with collaboration of IRRI, BRRI, BINA and Dhaka University. held on 18th to 27th November, 2008
- International Symposium on Regulatory and Safety issues in the Commercialization of Biotechnology Research in the Developing World. held on 2nd to 4th December, 2008

National:

- Annual BAPTC&B Conference, 2018, Ishordi, Pabna, Bangladesh
- BSBMB Conference, 2013, Chittagong, Bangladesh
- BSBMB Conference 2012, Rajshahi, Bangladesh,
- 3rd YoungBB congress, Sylhet, Bangladesh
- 6th international Plant Tissue Culture and Biotechnology Conference held on 3rd to 5th December, 2010, Dhaka, Bangladesh. \Box
- Conference on Promotion of Biotechnology in Bangladesh: National and International perspective, *on April 6*, 7 and 8, 2007 at Sasakawa Auditorium, ICDDR, B, Dhaka