

## **A Summary of Prof. Haseena Khan's Career as a Researcher and Educator**

Haseena Khan, Member, UGC is a retired Professor, Department of Biochemistry and Molecular Biology, University of Dhaka is a recipient of Independence Day award for Research and Training in 2019. She is well known for her research on jute molecular biology. Jute is a symbol of Bangladesh's national identity. Dr. Khan's efforts brought the crop to the forefront of the country's molecular research.

Professor Khan has been involved in research using the techniques of molecular biology since 1982 when this discipline was at its infancy in most countries of the world and more so in Bangladesh. Her pioneering and ground breaking work on the molecular biology of jute, grown mainly by small and marginal farmers in South-east Asia brought this neglected crop into the very focus of policy makers. This ultimately led to sequencing of the jute genome. Her lab provided the essential genomic and bioinformatics manpower for the success of this project. She was one of the genome leaders and is a co-lead author of a Nature Plant article. Sequencing the jute genome is the first large scale genome project done in Bangladesh.

Hilsa Shad (*Tenulosa hilsa*) is a cultural icon representing the heritage of Bangladesh. This most popular fish is geographical indicator of the country and contributes to 1.15% GDP of Bangladesh. Professor Haseena Khan with the help of an international team comprising of experts from Bangladesh, USA and Australia decoded the Hilsa genome within the span of just one year and was the first group of scientists to publish the genome findings in an internationally reputed science journal. Her team is continuing the work to understand the reasons for migration of Hilsa from sea to fresh water which would in the future allow us to delineate conditions for growing the fish in fresh water bodies. Prof Haseena Khan also works on jute endophytes and has identified them to have plant growth promoting activities and are very good as biocontrol agents. Some endophytes have proved to be pristine sources of novel therapeutic compounds. Her lab has recently purified a new antibiotic and several of its naturally occurring variants.

Dr. Khan has been successful as an educator as well. Because of her long experience in both teaching and research in molecular biology she was made the **first Chairperson of the Department of Genetic Engineering and Biotechnology, University of Dhaka in 2001**. Her tireless efforts gave the new department a strong footing which helped to draw many of the top students of the country. The difficult journey she started as the founding chairperson of the nascent department of Genetic Engineering and Biotechnology in January 2001 has now blossomed into a successful, thriving and vibrant department attracting the best students of the country. She has also been instrumental in setting up the **Marine Biotechnology Department at the Bangabandhu Sheikh Mujibur Rahman Maritime University** which started its program on October 2018 and had helped in developing its syllabus.

**The Government of Bangladesh has used her expertise in the development of biotechnology in the country.** As one of the two scientists, she has served in the first **National Executive Committee on Biotechnology**, (2004-2006) chaired by the Principal Secretary of the People's Republic of Bangladesh and advised on the application of biotechnology in national development. As a **consultant** she helped in the development of the **National Biotechnology Guidelines**. She presently serves as a member of the Board of Governors, of the **National Institute of Biotechnology** and had been a member of the **Forensic DNA Laboratory Advisory Council (2016-2018)** and is now a member of the **National Technical Committee on Biotechnology (2016 – till date)**. She had been on the **Board of Studies (2016 – 2018), Faculty of Life Sciences and Biotechnology, South Asian University (an International University sponsored by the eight Member States of the South Asian Association for Regional Cooperation, SAARC, of which Bangladesh is a member), New Delhi, India where she had earlier worked as a Visiting Professor for one year.** She is now an external **member of the Academic Council** of the South Asian University in New Delhi. In recognition of her excellent career in research and education she was elected in 2002 a **Fellow of the Bangladesh Academy of Science**, as one of only five female members of this apex body of science. She is also a **Fellow of The World Academy of Science**. She is now serving as the first female **Secretary of the Bangladesh Academy of Sciences**.

She has received the **Young Scientist Award** in the field of Biotechnology by **UNESCO/ROSTSCA** (Regional Office for Science and Technology for South and Central Asia) in 1989. She has also been awarded the **Bangladesh Academy of Science-M.O. Ghani Memorial Gold Medal in 2011** and the **Kazi Mahbubullah Gold Medal in 2015 and Moni Singh - Farhad Memorial Trust Award, 2016** for her contribution to jute molecular biology and genome sequencing. Her work has also been recognized by **Dhoritri, Bangladesh** in December 2019. She is the recipient of **RTV 'Joya Alokito Nari'** award-2023 and has also received the first **BASIS Luna Shamsuddoha Award 2022**

She maintains strong research ties with the International Centre for Genetic Engineering and Biotechnology (ICGEB), South Asian University, New Delhi, and the Regional Centre for Biotechnology or RCB (an academic institution established by the Govt. of India with regional and global partnerships synergizing with the programs of UNESCO). Her students have worked in the above institutions as part of their Ph.D. dissertations.



### **Curriculum Vitae of Haseena Khan**

<b>Name</b>	<b>Haseena Khan</b>
<b>Date of Birth</b>	May 01, 1954
<b>Marital Status</b>	Married with one daughter
<b>Corresponding Address</b>	Member, University Grants Commission, Bangladesh
<b>Telephone number</b>	Cell: +8801711612344
<b>E-mail</b>	prof.haseena@gmail.com

### **EDUCATION**

- 1985** **Doctorate of Philosophy**  
Nitrogen Fixation Laboratory, AFRC,  
University of Sussex, Brighton, England.
- 1977** **M.Sc. in Biochemistry.** Placed in the First Class second position  
Department of Biochemistry, University of Dhaka, Dhaka, Bangladesh.
- 1976** **B.Sc. Honors in Biochemistry,** placed in the First Class second position  
Department of Biochemistry, University of Dhaka, Dhaka, Bangladesh.

### **TEACHING EXPERIENCE**

- Sep 2023 - till date** **Member**  
University Grants Commission of Bangladesh
- Jan 2021-Dec 2023** **UGC Professor**  
Dept. of Biochemistry and Molecular Biology  
University of Dhaka
- Jan. 2014- Oct 2015** **Chairman**  
Department of Biochemistry and Molecular Biology  
University of Dhaka

- Jan 2013 – Jan. 2014 Visiting Professor**  
Faculty of Life Science and Biotechnology  
South Asian University, Akbar Bhawan, Chanakyapuri  
New Delhi 110021, India
- Jan 2001-Aug 2005 First Chairperson**  
Department of Genetic Engineering and Biotechnology  
University of Dhaka
- 07/95 -June 2020 Professor,**  
Department of Biochemistry and Molecular Biology  
University of Dhaka, Dhaka, Bangladesh.
- 03/90 - 07/95 Associate Professor,**  
Department of Biochemistry, University of Dhaka
- 02/87 - 03/90 Assistant Professor,**  
Department of Biochemistry, University of Dhaka
- 01/82 - 02/87 Lecturer**  
Department of Biochemistry, University of Dhaka

**FELLOWSHIPS AND ACADEMIC AWARDS** (with study leave from Dhaka University)

**1982 - 85 Ph.D. Fellowship Supported by a fellowship from the Association of Commonwealth Universities at University of Sussex, UK.**

The project involved a molecular genetic study of the regulatory mechanisms of biological nitrogen fixation, a very important biological process. The project required developing methods for site-directed mutation of the *nif* LA promoter of *Klebsiella pneumoniae* such that single base-pair changes would be made in order to determine by DNA sequencing the mutated promoter and the specific nucleotides recognized by the transcriptional activators, NifA and NtrC of the promoter. These transcriptional activators are known to regulate the expression of nitrogen-fixing genes.

**1985–86 Post-doctoral Research Fellow Laboratoire de Biologie Moléculaire, INRA-CNRS, Castanet-Tolosan, France. Supported by Elf-BioRecherche** (with study leave from Dhaka University)

This project involved a study of the plant partner in a symbiotic relationship of biological nitrogen fixation. Project involved construction of a genomic bank of the leguminous plant alfalfa (*Medicago sativa*) to isolate and study the nodule specific plant genes formed in the symbiotic relationship between *Rhizobium meliloti* and *Medicago sativa* (with study leave from Dhaka University).

**March 1991-September 1991 Research Fellow: Nitrogen Fixation Laboratory, University of Sussex, Sussex, UK (Fellowship provided by the British Council, UK).**

Project involved cloning of the *nif H* gene of *Klebsiella pneumoniae* into the Ti plasmid of *Agrobacterium tumefaciens*. *Agrobacterium* mediated transformation of *Nicotiana tabacum* (tobacco) and screening of the transgenic plants for the *nif H* gene were also part of the project which included extensive plant tissue culture work (with study leave from Dhaka University).

**1992–1995 Research Associate (supported by a fellowship of the Medical Research Council of Canada) Reproduction Research Laboratory Clinical Research Institute of Montreal, Montreal, Quebec, Canada**

Project involved characterization of alternatively spliced variants of sheep testicular follicle stimulating hormone receptors by cloning cDNA of the variants into eukaryotic expression vectors and studying their expression in eukaryotic cells. These clones had also been engineered for prokaryotic expression. These proteins made in the bacteria had been successfully purified and used in the production of antibodies against them in the rabbits (with study leave from Dhaka University).

**Present Research Interests:**

I had been involved in research work on molecular biology and genetic engineering since 1982 when this discipline was at its infancy. I have attracted several foreign and national funding agencies including the USDA, ICGEB and the Ministry of Science and Technology, People's Republic of Bangladesh in getting research funds for carrying out research in molecular biology and genetic engineering.

I have worked on the genetic improvement of jute, an important cash of Bangladesh. We had very little information at the molecular level on jute when I started work on the crop in 1996. I developed protocols for isolating quality DNA from jute. The presence of mucilage makes quality DNA isolation very difficult from jute leaves. I had also identified random markers which could differentiate between jute cultivars and later developed jute specific markers for studying polymorphism in jute. The use of jute specific molecular markers has been successful in identifying jute plants/seeds with different characteristics. My lab provided the necessary manpower skilled in jute molecular biology and bioinformatics and was therefore instrumental in ensuring the success of the jute genome project, the first mega genome project of Bangladesh.

The high amount of lignin in jute prevents diversification of jute products. My research team has successfully reduced the expression of some jute genes involved in the lignin biosynthetic pathway using a modern genetic approach. The plants which show 16-25% reduction of lignin and concomitant increase of cellulose are in their 5-7<sup>th</sup> generation following transformation. Biosafety clearance will soon be sought for the commercial use of such jute lines. Such jute lines are expected to lead to value addition of jute as it can now be used as a source of paper pulp and can even be considered as a source of biofuel because of an increase in cellulose and decrease in lignin.

The present focus of the laboratory that I established at the Dept of Biochemistry and Molecular Biology, University of Dhaka lies in the elucidation of the diverse microbial community that have co-existed with jute along the evolutionary line. These microorganisms known as endophytes have been acclaimed to be exquisite sources of materials that have major therapeutic and industrial applications. My lab has reported the existence of this diverse microbial endophytic community in jute and these explorations have found jute endophytic microbes to be high yielding and pristine sources of commercially invaluable substances such as: the anti-cancer billion-dollar drug- taxol, biodiesel, new potent antibiotics and industrially significant enzymes such as: cellulases, proteases, pectinases, chitinases and so on. Endophytes of jute are also being studied for their role in plant growth promotion. These ventures are expected to manifest an extensive impact on the growth of Bangladesh's economy.

My lab has successfully decoded the Padma Hilsa Genome and now working on determining protein sequences of juvenile and adult Hilsa and matching the same with the Hilsa genome in order to understand the basis of its migration from sea to river and vice versa and also determine the basis of its taste.

**AWARDS/HONOURS:**

**Awarded the Independence Day Award, 2019**

Recipient of RTV 'Joya Alokito Nari' award-2023

Recipient of the first **BASIS Luna Shamsuddoha Award 2022**

**Dhoritri, BD Award for Research and Excellence, 2019**

**Moni Singh - Farhad Memorial Trust Award, 2016** for contribution to science and research

**Awarded the Kazi Mahbubullah Gold Medal in 2015** for contribution to molecular biology of jute.

**Awarded Bangladesh Academy of Science-M.O. Ghani Memorial Gold Medal 2011.**

**Awarded Young Scientist Award in the field of Biotechnology by UNESCO/ROSTSCA** (Regional Office for Science and Technology for South and Central Asia) in 1989.

**National/International Expert:**

1. Member, **National Executive Committee on Biotechnology**, (2004-2006) chaired by the Principal Secretary of the People's Republic of Bangladesh. Responsible for advising on the application of biotechnology in national development.
2. Consultant, **National Biotechnology Guidelines, 2011.**
3. Member of the Board of Governors, of the **National Institute of Biotechnology (2013-till date)**. Responsible to oversee and review research curricula and output.
4. Member of the **Forensic DNA Laboratory Advisory Council, (2016-2018)** of Bangladesh. Responsible for providing feedback to crime lab administration on the work the lab produces.
5. Member of the **Board of Studies (2016 – 2019), Faculty of Life Sciences and Biotechnology, South Asian University, New Delhi, India.** Responsible for curriculum discussion and approval.
6. Member, **National Technical Committee on Biotechnology (2016 – till date )**
7. **External Member, Academic Council, South Asian University, New Delhi, India**

**ACADEMIC AFFILIATION**

**Membership:**

1. **Secretary, The Bangladesh Academy of Sciences** (2019-till date)
2. **Associate Secretary, The Bangladesh Academy of Science** (2015- 2021)
3. **President, Bangladesh Society for Biochemistry and Molecular Biology** (2018-till date)

4. **Ex-General Secretary**, Bangladesh Society for Biochemistry and Molecular Biology (2016-2018)
5. **Ex-President**, Graduate Biochemists Association
6. **Member, Executive Committee**, Bangladesh Society for Biochemistry and Molecular Biology (2008-2015)

**Editorial:**

1. Member, Editorial Board, “Bioresearch Communications”
2. Ex-Member, Editorial Board, “Bangladesh Journal of Microbiology”
3. Review Editor, Plant Genomics, Frontiers in Genetics

**As an Organizer of Meetings and Workshops:**

1. One of the two **organizers** of International Hands-on Training Workshop on “Novel DNA Markers for Crop Improvement” Sponsored by ICGEB and Departments of Botany and Biochemistry and Molecular Biology, University of Dhaka, Bangladesh, Nov. 4-13 2001.
2. **Organizing Secretary** of Conference on Promotion of Biotechnology in Bangladesh: National and International Perspectives, April 6-8, 2007, Dhaka, Bangladesh
3. **Organizing Secretary** of an IUBMB International Symposium on: **Cancer and Developmental Biology: Latest Biochemical Advances**” organized by the Bangladesh Society for Biochemistry and Molecular Biology in Dhaka, Bangladesh, January 29-31, 2010
4. **Organizing Chairman** BSBMB Conference held in Dhaka, Bangladesh February 2015.
5. **Organizing Chairman**, 2<sup>nd</sup> South Asian Biotechnology Conference, held in Dhaka, Bangladesh, February 2016

**Governor, Alternate (ICGEB)**

1. Attended as Alternate Governor, International Centre for Genetic Engineering and Biotechnology (ICGEB) **Board of Governors’ Meeting**, Nov. 2004 held in New Delhi, India.
2. Attended as Alternate Governor, International Centre for Genetic Engineering and Biotechnology (ICGEB) **Board of Governors’ Meeting**, Oct. 2005 held in Trieste, Italy.

**Invited Lectures (not exhaustive):**

1. Invited Speaker at the Tenth Asian Symposium on Medicinal Plants, Spices and Other Natural Products (ASOMPS X). 18-23 November 2000, Dhaka, Bangladesh, **DNA Fingerprinting of Commercial and Flood Tolerant Jute by RAPD**. (2000).
2. Invited to speak on “Status of Transgenic Development in Bangladesh” in Agricultural Biotechnology Support Project II of USAID **Harvesting the Benefits of Agricultural Biotechnology Products in Bangladesh**, October 6-7, 2004, Dhaka
3. Invited by British Council to participate in a Workshop on “**Complex Genetics**” held in New Castle upon Tyne, England, April 2005.

4. Invited as country representative to attend the **Asian Food Hygiene Network Workshop** held on March 7-8, 2006 in Tsukuba, Japan to present a paper titled: "Modern Biotechnology and Food Security: A Bangladesh Perspective."
5. Invited to present a paper titled '**Understanding Jute at the Molecular Level**' at the conference titled 'Promotion of Biotechnology in Bangladesh' April 6-8, 2007, Dhaka, Bangladesh
6. Invited to the **Regional Biosecurity Workshop**, held in Bangkok, Thailand, Dec. 009, 2007, organized by Center for International and Security Studies at Maryland, USA.
7. Invited to present a paper in the **International Symposium on Jute and allied Fibers**, organized by the Indian Fibre Society. Kolkata, India, 9-12 January, 2008.
8. Invited to present a paper titled '**The Use of Jute in Meeting the Challenges of Climate Change**' in the **International Symposium on Climate Change & Food Security in South Asia**, 25-30 August 2008, held in Dhaka, Bangladesh
9. Invited by Universiti Putra Malaysia (UPM) to present work on jute regarding "**Biofibres of the Future**" at an **International Conference on Kenaf and Allied Fibres (ICKAF 2009)** Kuala Lumpur, Malaysia from Dec. 01-03, 2009
10. Invited to **The Global Biosafety Management Program** held on 27 – 31 March, 2010 at the Fort Aguada Beach Resort in Goa (organized by Cornell in India and Sathguru)
11. Invited Speaker at the International Seminar on "**Strengthening of Collaboration of Jute, Kenaf and Allied Fibre Research and Development**" held in Dhaka, June 08-09, 2011 (organized by the International Jute Study Group)
12. Invited to speak on "**Bioinformatics: The future prospect in Asia**" in e-Asia, Dhaka Dec. 1-3, 2011 (<http://www.e-asia.org/2011/Session-Matrix/Bioinformatics.aspx>)
13. Invited Speaker on '**Emerging Directions in Jute Gene Technology**' in the 3rd International Conference on Environmental Aspects of Bangladesh (ICEAB 2012), Fukuoka, Japan on 13~14 October, 2012.
14. Invited Speaker at the 19<sup>th</sup> IAS (Islamic World Academy of Sciences) Conference on "**Improvement of Jute Growth under Abiotic Stress Conditions**", May 5-8, 2013, Dhaka, Bangladesh.
15. Invited to present my work in the **First South Asian Biotechnology Conference** held from 12<sup>th</sup> to 14<sup>th</sup> February 2015, at South Asian University, New Delhi, India
16. Invited to present a paper on my research at the 11th AASSA Regional Workshop on "**Gender Issues in Science Research and Education**," in conjunction with the **Gender Summit 6 Asia Pacific 2015 (GS 6 AP 2015)** on 26-29 August 2015 in Seoul, Republic of Korea.
17. Invited to present a paper on the Molecular Biology of Jute at Hyogo University, a private university in Japan regarding signing a **Memorandum of Understanding between University of Dhaka and Hyogo University, Japan** Nov. 25-27, 2015.
18. Nominated by the Bangladesh Academy of Sciences to present a paper on "**Science & Technology Policy in the context of Biotechnology towards sustainable development**" during the conference, organized jointly by RCB, India and UNESCO - **Regional Dialogue on "Science & Technology Policy in the context of Biotechnology"**, 11-12 December 2015, Faridabad (NCR of Delhi), India.



19. Invited to present an Invited Lecture at **3<sup>rd</sup> South Asian Biotechnology Conference 2017**, Feb 2017, Kathmandu, Nepal.
20. Invited to present a Plenary Lecture at the **Asian Federation of Biotechnology (AFOB) Conference**, Dhaka, Bangladesh Feb. 2018.
21. Invited to present a Plenary Lecture at **4<sup>th</sup> South Asian Biotechnology Conference 2018**, March 2018, Colombo, Sri-Lanka.
22. Invited to present an Invited Lecture at **5<sup>th</sup> South Asian Biotechnology Conference 2019**, March 14-16, 2019, New Delhi, India.

**Guest Speaker:**

Guest speaker (1998-2006) at different training courses on:

**“Use of DNA Fingerprinting in Identification of Individuals”**

In the following institutions:

1. **Police Staff College**
2. **Detective Training School**
3. **Judicial Administration Training Institute**

**RESEARCH GRANTS:**

**Completed research projects:**

1. **International Centre for Genetic Engineering and Biotechnology (ICGEB)** Jan. 2018 - Dec. 2020 (CRP/BGD17-01) Elucidation of Taxol Biosynthetic Pathway in Endophytic Fungi *Grammothele lineata* -SDLCO-2015-S1
2. **Ministry of Education**, Gov't of Bangladesh (2018-2020) Identification of Volatile Organic Compounds (VOCs) of jute endophytic fungi for their effects on seed germination, plant growth promotion and disease resistance.
3. **Ministry of Science and Technology**, Government of Bangladesh, (2018-2019) Screening for novel compounds active against *Plasmodium falciparum* by high throughput screening of secondary metabolites produced by jute endophytes
4. **Ministry of Science and Technology**, Government of Bangladesh, July 2017-June 2018 A comparative study of flowering inducing circadian rhythm regulated genes and concomitant physiological variation(s) between two species of jute (*Corchorus olitorius* and *C. trilocularis*)
5. **HEQEP** (Higher Education Quality Enhancement Project, funded by the World Bank) Sub-Project (CP-3250), July, 2014- June, 2017
6. **Ministry of Science and Technology**, Government of Bangladesh, (2015- 2016) Assessment of the host response against *Macrophomina* infection in sensitive and resistant species of jute (*Corchorus* sp.)
7. Project from the **Ministry of Education**, Gov't of Bangladesh (2012-2013) “Computational Prediction and Experimental Validation of micro RNAs (miRNA) in Jute”

8. Research grant from **BAS-USDA** Program for Agricultural and Life Sciences (2011-2012) Development of Low Lignin Containing Tolerant Jute Variety.
9. Project from the **Ministry of Education**, Gov't of Bangladesh (2010-2013) Development of Salt Tolerant Jute by introducing *kat E* gene
10. Research Grant from the **US Department of Agriculture** (2006-2010) Development of Jute EST/cDNA Library and Identification of Genes of Economic Importance.
11. **International Centre for Genetic Engineering and Biotechnology** (ICGEB) Grant (2003-2005) The Development of Microsatellite Primers for Genetic Analysis and Marker-Aided Selection of Jute.
12. Research Grant from the **US Department of Agriculture** (2001-2004) Genetic Improvement of Jute by Marker-Aided Selection and Transformation
13. Project from **Ministry of Science and Technology**, Gov't of Bangladesh (1999-2000) Upgrading of Laboratory Facilities for Conversion to Molecular Biology Laboratory Suitable for DNA Fingerprinting for Practical Applications.
14. **Project from Ministry of Science and Technology**, Gov't of Bangladesh (1998-1999) DNA Fingerprinting: An Aid for Plant Breeders”
15. Project from **International Jute Study Group** (IJSJ) (1997-1998) Potential Improvement of Jute by Biotechnological Approaches”.

## SCIENTIFIC PUBLICATIONS AND COMMUNICATIONS

### A. Book Chapters:

1. **Harnessing Biotechnology to Build a Better Bangladesh** (2003) Zeba I. Seraj, **Haseena Khan**, Rakha Hari Sarker, Shakila N. Khan and Ahmad S. Islam ‘Bangladesh in the New Millennium’, published by Dhaka University
2. **Bengali-English, English-Bengali Biotechnology Glossary** (2007) **Haseena Khan**, Sabina Yeasmin, Mustak Ibn Ayub and Thomas Creamer Published by McNeil Technologies, Dunwoody Press, USA
3. **Plant Genetic Engineering: A Tip of Microbial Iceberg** **Haseena Khan** (2008) ‘Microbial Biotechnology in Horticulture’, Volume 2 Chapter 3 (Editors: R.C. Ray and Owen P. Ward), Science Publishers, USA.
4. **Bengali-English, English-Bengali Avian Flu Glossary** (2009) **Haseena Khan**, Sabina Yeasmin, Mustak Ibn Ayub and Thomas Creamer. Published by McNeil Technologies, Inc. Dunwoody Press, USA
6. **Trans-kingdom Signaling Systems between Plant and its Associated Beneficial Microbes in Relation to Plant Growth and Development** (2017) Ahlan Sabah Ferdous, Mohammad Riazul Islam, **Haseena Khan** Ajit Varma et al. (Eds): Mycorrhiza - Nutrient Uptake, Biocontrol, Ecorestoration, 978-3-319-68866-4, 429178\_4\_En, (24). Published by Springer Nature.
7. **Potential Applications** (2018) Farhana Tasnim Chowdhury, Mohammad Rakibul Islam, Mohammad Riazul Islam, **Haseena Khan** Published by Springer Nature.
8. One of the Editors of a Springer book entitled **The Jute Genome**, published in Dec 2021.

**B. Research Publications:**

1. Integrated transcriptome catalog of *Tenualosa ilisha* as a resource for gene discovery and expression profiling (2023) Md Arko Ayon Chowdhury, Md Rakibul Islam, Al Amin, Sadia Noor Mou, Kazi Newaz Ullah, Abdul Baten, Mohammad Shoyaib, Amin Ahsan Ali, Farhana Tasnim Chowdhury, Md Lifat Rahi, **Haseena Khan**, M Ashraful Amin, Mohammad Riazul Islam *Sci Data*, 2023 Apr 17;10(1):214
2. **A plant endophyte *Staphylococcus hominis* strain MBL\_AB63 produces a novel lantibiotic, homiocorcin and a position one variant** (2021) M.Aftab Uddin, Shammi Akter, Mahbuba Ferdous, Badrul Haidar, Al Amin, A. H. M. Shoful Islam Molla, **Haseena Khan**, and Mohammad Riazul Islam *Scientific Reports* | (2021) 11:11211
3. Deciphering Oxidative Stress Responsive microRNA (miRNA) in Hilsa (*Tenualosa ilisha*) and Rohu (*Labeo rohita*) (2020) Jakir Hossain, Mohammad Shahnewaz Khan, Salma Akter, Md. Golam Rabbane, **Haseena Khan**, Goutam Kumar Kundu, Bijoya Paul. *Genetics of Aquatic Organisms* 4(2), 97-110
4. **On the reappearance of the Indian grey wolf in Bangladesh after 70 years: what do we know?** (2020) Muntasir Akash, Umar Faruq Chowdhury, Fatema-Tuz-Zohora Khaleque, Rifath Nehleen Reza, Dulal Chandra Howlader, Mohammad Riazul Islam, **Haseena Khan** *Mammalian Biology*, DOI: 10.1007/s42991-020-00064-4
5. Proteome Analyses Reveal *Macrophomina phaseolina*'s Survival Tools When Challenged by *Burkholderia contaminans* NZ (2020) Nazia R. Zaman, Bhoj Kumar, Zulia Nasrin, Mohammad R. Islam, Tushar K. Maiti and Haseena Khan *ACS Omega* 2020, 5, 3, 1352–1362
6. **Genome and secretome analysis of jute endophyte *Grammothele lineata* strain SDL-CO-2015-1: Insights into its lignocellulolytic structure and secondary metabolite profile** (2020) Tasneem Ehsan Rifath Nehleen Reza Avizit Das Oly Ahmed, A K M Abdul Baten, Ahlan Sabah Ferdous, Mohammad Riazul Islam, **Haseena Khan** *Genomics*, 2020 Jul;112(4):2794-2803
7. **A Comparative study of host response against *Macrophomina phaseolina* Infection in sensitive and resistant jute (*Corchorus* sp) species unravels a possible defense mechanism** (2018) Shaheena Amin, Ahlan Ferdous, Tanima Sharker, Samira Bushra, Al-Amin, Parag Palit, Mohammad Islam and **Haseena Khan** *J Plant Physiol Pathol* 6:4
8. **Investigation of Antimicrobial Activity and Identification of Bioactive Volatile Metabolites of Jute Endophytic Fungus *Aspergillus flavus*** (2018) Farhana Tasnim Chowdhury, Mrinmoy Sarker, Muhammad Saiful Islam, Husna Parvin Nur, Mohammad Riazul Islam, **Haseena Khan** *Bioresearch Communications-(BRC)*. 4(1), pp. 476-482.
9. **Genome of *Tenualosa ilisha* from the river Padma, Bangladesh** (2018) Avizit Das, Peter Ianakiev, Abdul Baten, Rifath Nehleen, Tasneem Ehsan, Oly Ahmed, Mohammad Riazul Islam, M. Niamul Naser, Mong Sano Marma, **Haseena Khan** *BMC Research Notes* 11:921
10. **Population diversity of bacterial endophytes from jute (*Corchorus olitorius*) and evaluation of their potential role as bioinoculants** (2018) Badrul Haidar, Mahbuba Ferdous, Babry Fatema, Ahlan Sabah Ferdous, Mohammad Riazul Islam, **Haseena Khan** *Microbiological Research* 208:43-53
11. **An endophytic Basidiomycete, *Grammothele lineata*, isolated from *Corchorus olitorius*, produces paclitaxel that shows cytotoxicity** (2017) Avizit Das, Mohammad Imtiazur Rahman, Ahlan Sabah Ferdous, Al- Amin, Mohammad Mahbubur Rahman, Nilufar Nahar,

Md. Aftab Uddin, Mohammad Riazul Islam, **Haseena Khan** PLOS One  
<https://doi.org/10.1371/journal.pone.0178612>

12. **Draft genome sequence of *Grammothele lineata* SDL-CO-2015-1, a jute endophyte with a potential for paclitaxel biosynthesis** (2017) Avizit Das Oly Ahmed A. K. M. Abdul Baten Samira Bushra M. Tariqul Islam Ahlan Sabah Ferdous Mohammad Riazul Islam **Haseena Khan** Genome Announcements (American Society for Microbiology) 5 (39)
13. **Comparative genomics of two jute species and insight into fibre biogenesis** (2017) Md Shahidul Islam, Jennifer A Saito, Emdadul Mannan Emdad, Borhan Ahmed, Mohammad Moinul Islam, Abdul Halim, Quazi Md Mosaddeque Hossen, Md Zakir Hossain, Rasel Ahmed, Md Sabbir Hossain, Shah Md Tamim Kabir, Md Sarwar Alam Khan, Md Mursalin Khan, Rajnee Hasan, Nasima Aktar, Ummay Honi, Rahin Islam, Md Mamunur Rashid, Xuehua Wan, Shaobin Hou, Taslima Haque, Muhammad Shafiul Azam, Mahdi Muhammad Moosa, Sabrina M Elias, A M Mahedi Hasan, Niaz Mahmood, Md Shafiuddin, Saima Shahid, Nusrat Sharmeen Shommu, Sharmin Jahan, Saroj Roy, Amlan Chowdhury, Ashikul Islam Akhand, Golam Morshad Nisho, Khaled Salah Uddin, Taposhi Rabeya, S M Ekramul Hoque, Afsana Rahman Snigdha, Sarowar Mortoza, Syed Abdul Matin, Md Kamrul Islam, M Z H Lashkar, Mahboob Zaman, Anton Yuryev, Md Kamal Uddin, Md Sharifur Rahman, Md Samiul Haque, Md Monjurul Alam, **Haseena Khan**, Maqsudul Alam. *Nature Plants* 3 16223
14. **Modification of monolignol biosynthetic pathway in jute: Different gene, different consequence** (2017). Farhana Shafrin, Ahlan Sabah Ferdous, Suprovath Kumar Sarker, Rajib Ahmed, Al- Amin, Kawsar Hossain, Mrinmoy Sarker, Jorge Rencoret, Ana Gutiérrez, Jose C. del Rio, Neeti Sanan-Mishra, **Haseena Khan**. *Scientific Reports* 7:39984
15. **Artificial miRNA-mediated down-regulation of two monolignoid biosynthetic genes (C3H and F5H) cause reduction in lignin content in jute.** (2015) Farhana Shafrin, Sudhanshu Sekhar Das, Neeti Sanan-Mishra, **Haseena Khan**. *Plant Molecular Biology* Volume 89, Issue 4, pp 511-527
16. **High-throughput sequencing reveals diverse sets of conserved, non-conserved, and species-specific miRNAs in jute.** (2015) Md. Tariqul Islam, Ahlan Sabah Ferdous, Rifat Ara Najnin, Suprovath Kumar Sarker, and **Haseena Khan**. *International Journal of Genomics*. Volume 2015 Article ID 125048.
17. **Identification of stable reference genes for quantitative PCR in jute under different experimental conditions: An essential assessment for gene expression analysis.** (2015) Ferdous, Ahlan Sabah; Islam, Md Tariqul; Alam, Salma Sultana; **Haseena Khan**. *Australian Journal of Crop Science* Volume 9 Issue 7
18. **Corchorus L. and Hibiscus L.: Molecular phylogeny helps to understand their relative evolution and dispersal routes.** (2015) Arif Mohammad Tanmoy, Md. Maksudul Alam, Mahdi Muhammad Moosa, Ajit Ghosh, Waise Quarni, Farzana Ahmed, Nazia Rifat Zaman, Sazia Sharmin, Md. Tariqul Islam, Md. Shahidul Islam, Kawsar Hossain, Rajib Ahmed and **Haseena Khan**. *Bioresearch Communications*. Volume 1, Issue 1.
19. **A diverse community of jute (*Corchorus* spp.) endophytes reveals mutualistic host-microbe interactions.** (2015) Rifat Ara Najnin, Farhana Shafrin, Ahsan Habib Polash, Aubhishek Zaman, Amzad Hossain, Taha Taha, Rajib Ahmed, Jannatul Ferdoush Tuli,

Rashu Barua, Abu Ashfaque Sajib & Haseena Khan. *Annals of Microbiology*. Vol 65, Issue 3.

20. **Jute (*Corchorus olitorius* var. O-72) stem lignin: variation in content with age.** (2015) Tanmoy, MA Alum, MS Islam, T Farzana, H Khan. *Bangladesh Journal of Botany* 43(3):309-314.
21. **Improved salt tolerance of jute plants expressing the *katE* gene from *Escherichia coli*** (2012) Md. Shahidul Islam, Muhammad Shafiul Azam, Sazia Sharmin, Abu Ashfaque Sajib, Md. Maksudul Alam, Md. Shamim Reza, Rajib Ahmed, Haseena Khan, *Turk J Biol* Vol 37, Issue 2.
22. **Xyloglucan endotransglycosylase/hydrolase genes from a susceptible and resistant jute species show opposite expression pattern profile during/following *Macrophomina phaseolina* infection** (2012) Sazia Sharmin, Muhammad Shafiul Azam, Md. Shahidul Islam, Abu Ashfaque Sajib, Niaz Mahmood, A. M. Mahedi Hasan, Rajib Ahmed, Kishwar Sultana, Haseena Khan *Communicative and Integrative Biology* 5(6)
23. **Estimation of genome size of jute (*Corchorus capsularis* (L.) var. CVL-1 using Flow Cytometry** (2012) Ryo Akashi, Nurun N. Fancy, Arif M. Tanmoy and Haseena Khan *Plant Tissue Cult. & Biotech.* 22(1) 83-86
24. **Members of *Ectocarpus siliculosus* F-box family are subjected to differential Selective Forces** (2012) Niaz Mahmood, Mahdi Muhammad Moosa, S. Abdul Matin and Haseena Khan. *Interdisciplinary Bio Central* 4, 1-7
25. **A Simple and swift method for isolating high quality RNA from jute (*Corchorus* spp.)** (2011) Niaz Mahmood, Razib Ahmed, Mohammed Shafiul Azam and Haseena Khan *Plant Tissue Cult. & Biotech.* 21(2) 207-211
26. **Identification of a novel dehydration responsive transcript from tossa jute (*Corchorus olitorius* L.)** (2011) Sazia Sharmin, Mahdi Muhammad Moosa, Md. Shahidul Islam, Inamul Kabir, Arzuba Akter and Haseena Khan. *Journal of Cell and Molecular Biology* 9(1): 21-29
27. **Combination of two rare mutations causes  $\beta$ -thalassaemia in a Bangladeshi patient** (2011) Mahdi Muhammad Moosa, Mustak Ibn Ayub, AMA Emran Bashar & Golam Sarwardi, Waqar Khan, Haseena Khan and Sabina Yeasmin. *Genetics and Molecular Biology*, 34(3):406–409
28. **Identification and characterization of jute LTR retrotransposons: Their abundance, heterogeneity and transcriptional activity** (2011) Salim Ahmed, MD Shafiuddin, Muhammad Shafiul Azam, Md. Shahidul Islam, Ajit Ghosh and Haseena Khan. *Mobile Genetic Elements* 1: 18 – 28
29. **SSR markers linked to mite (*Polyphagotarsonemus latus* Banks) Resistance in Jute (*Corchorus olitorius* L.)** (2010) Ajit Ghosh, Sazia Sharmin, Sazzadul Islam, Minhazuddin Pahloan, Shahidul Islam and Haseena Khan. *Czech Journal of Genetics and Plant Breeding* 46:64-74
30. **Mutation analysis of the HBB gene in selected Bangladeshi  $\beta$ -thalassemic individuals: Presence of rare mutations** (2010) Mustak Ibn Ayub, Mahdi Muhammad Moosa, Golam

Sarwardi, Waqar Khan, **Haseena Khan** and Sabina Yeasmin **Genetic Testing and Molecular Biomarkers**.14 (3):299-302

31. ***In silico* analysis of jute SSR library and experimental verification of assembly** (2010). Samira R, Moosa MM, Alam MM, Keka SI, **Khan H**. **POJ** 3(2):57-65
32. **Identification and characterization of ribosomal protein S8 gene of jute** (2009) Salim Ahmed, Md. Maksudul Alam, Md. Sazzadul Islam, MD. Shafiuddin, Md. Mosharrof Hossain Mondal, Md. Amzad Hossain and **Haseena Khan**. **Plant Tissue Cult. & Biotech.** 19(2) 207-215
33. **A computational and experimental approach for developing jute ESTs from genomic clones** (2009). Salim Ahmed, Md. Zinnatun Nabi, Md. Maksudul Alam, Md. Sazzadul Islam, Rozalynne Samira, Mahdi M Moosa and **Haseena Khan**. **Australian Journal of Crop Science** 3(6): 322-328
34. **Genetic diversity and relationship in jute (*Corchorus* spp) revealed by SSR markers** (2009). Saaimatul Huq, Md. Shahidul Islam, Abu Ashfaque Sajib, Nadim Ashraf, Samiul Haque and **Haseena Khan**. **Bangladesh Journal of Botany** 38(2): 161-169
35. **A putative leucine-rich repeat receptor-like kinase of jute involved in stress response.** (2009) Md. Maksudul Alam, Sazia Sharmin, Zinnatun Nabi, Shakhinur Islam Mondal, Md. Shahidul Islam, Sarmah Bin Nayeem, Mohammad Shoyaib, and **Haseena Khan**. **Plant Molecular Biology Reporter** 28 (3): 394-402
36. **Construction of genetic map of jute (*Corchorus olitorius* L.) Based on RAPD Markers** (2008) Samiul Haque, Nadim Ashraf, Selina Begum, R.H. Sarkar and **Haseena Khan**. **Plant Tissue Cult. & Biotech.** 18(2): 165-172
37. **Identification of Drosophila Promoter Using Positional Differential Matrix and Support Vector Machine from Sequence Data** (2008) Azizul Haque, Firoz Anwar, Taskeed Jabid, Syed Murtuza Baker, **Haseena Khan**, Mohammad Nurul Islam, and Mohammad Shoyaib. **Plant Tissue Cult. & Biotech.** 18(2): 123-130.
38. **Identifying simple sequence repeat (SSR) marker linked to mite tolerance in jute** (2008). Shamima Islam Keka, Md. Shamsuzzaman, Minhaz Uddin Pahloan Sultana Pervin and Md. Maksuder Rahman and **Haseena Khan**. **Bangladesh Journal of Botany** 37(2): 161-171.
39. **Pol II promoter prediction using characteristic 4-mer motifs: a machine learning approach** (2008) Firoz Anwar, Syed Murtuza Baker, Taskeed Jabid, Md. Mehedi Hasan, Mohammad Shoyaib, **Haseena Khan** and Ray Walshe. **BMC Bioinformatics** 9:414
40. **Tissue culture independent transformation for *Corchorus olitorius*** (2008) Abu Ashfaque Sajib Md. Shahidul Islam Md. Shamim Reza Arpita Bhowmik Layla Fatema **Haseena Khan**. **Plant Cell Tiss. Organ Cult.** 95: 333-340.
41. **Microsatellite markers for determining genetic identities and genetic diversity among jute cultivars** (2008) **Haseena Khan**, Jesmin Akter, Md Shahidul Islam, Abu Ashfaque Sajib, Nadim Ashraf, Samiul Haque **Australian Journal of Crop Science** 1(3): 97-107
42. **Determining genetic diversity of some jute varieties and accessions using RAPD**

- markers (2007) Samiul Haque, Selina Begum, R.H. Sarker and **Haseena Khan**. **Plant Tissue Cult. & Biotech** 17(2) 183-191
43. **Development and use of microsatellites for study of DNA polymorphism, transferability and genetic diversity in jute** (2007). Ryazul Rouf Mir, Sharma S., R. Singh, S. Rustgi, A. Goyal, J. Kumar, A. Gaur, A. Tyagi, **Haseena Khan**, M. Sinha, H. S. Balyan and P. K. Gupta. **Euphytica**, 161:413-427
44. **Method for quality DNA isolation from different parts of a jute plant: *Corchorus capsularis* L. and *C. olitorius* L.** (2004) Samiul Haque, Nadim Ashraf, Aleya Awal, R. H. Sarker, Selina Begum and **Haseena Khan**. **Plant Tissue Cult. & Biotech**. 14(2): 143-148.
45. **Use of RAPD fingerprinting for discriminating two populations of Hilsa shad (*Tenulosa ilisha* Ham.) from inland rivers of Bangladesh** (2003). Rehnuma Shifat, Anwara Begum, and **Haseena Khan**. **Journal of Biochemistry and Molecular Biology** 36 (5)462-467
46. **Distinction between cold sensitive and cold tolerant jute by a combined RAPD and AFLP study.** Mohammad Belayat Hossain, Aleya Awal, Mohammad Aminur Rahman, Samiul Haque, (2003) **Haseena Khan**. **Journal of Biochemistry and Molecular Biology** 36 (5)427-432
47. **DNA typing by RAPD for differentiation between two species of catfish, *Heteropneustes Fossilis* and *Clarias Batrachus*.** (2002) **Haseena Khan**, Fateema Parveen and Anwara Begum Dhaka Univ. **J. Biol. Sci.** 11 (2) 1-8. (Bangladesh)
48. **DNA fingerprinting of jute germplasm by RAPD.** (2002) Mohammad Belayat Hossain, Samiul Haque and **Haseena Khan**. **Journal of Biochemistry and Molecular Biology** 35(4), 414-419.
49. **Association between angiotensin-I converting enzyme (ACE) gene polymorphism and hypertension in a Bangladeshi population** (2002) M. Morshed, **H. Khan** and S. Akhteruzzaman. **Journal of Biochemistry and Molecular Biology** 35 (3) 251-254
50. **Some aspects of the extraction of human chorionic gonadotropin from the urine of pregnant women** (1999). **Haseena Khan**. Bio. Tech. Res. In Dhaka University. Suppl. Issue Dhaka Univ. **J. Biol. Sci** 8(2): 25-30.
51. **Immunization of male bonnet monkeys (*M. radiata*) with a recombinant FSH receptor preparation affects testicular function and fertility** (1997). N.R. Moudgal, M.R. Sairam, H.N. Krishnamurty, S. Sridhar H. Krishnamurty and **H. Khan**. **Endocrinology** 138, 3065-3068.
52. **Molecular cloning, structure and expression of a testicular follitropin receptor with selective alteration in the carboxy terminus that affects signaling function** (1997). T.A. Yarney, L. Jiang, **H. Khan**, E.A. MacDonald, D.W. Laird and M.R. Sairam. **Mol. Reprod. Dev.** 48(4) 458-470.
53. **Alternative splicing converts the G-protein coupled follitropin receptor gene into a growth factor type I receptor: implications for pleiotropic actions of the hormone** (1997). M.R. Sairam L.G. Jiang T.A. Yarney and **H. Khan**. **Mol. Repro. Dev.** 48(4), 471-479.

54. **Recognition of follicle stimulating hormone (alpha-subunit) by a recombinant receptor protein domain coded by an alternately spliced mRNA and expressed in *Escherichia coli* (1997).** H. Khan, L.G. Jiang, G.N. Jayashree, T.A. Yarney and M.R. Sairam. **J. Mol. Endocrinol.** 19(2), 183-190.
55. **Ontogeny of FSH receptor messenger ribonucleic acid transcripts in relation to FSH secretion and testicular function in sheep (1997).** T.A. Yarney, M.H. Fahmy, M.R. Sairam, H. Khan and E.A. MacDonald. **J. Mol. Endocrinol.** 18(2), 113-125.
56. **Follitropin signal transduction: Alternative splicing of the FSH receptor gene produces a dominant negative form of receptor which inhibits hormone action (1996).** M.R. Sairam, L.G. Jiang, T.A. Yarney and H. Khan. **Biochem. Biophys. Res. Commun.** 226, 717-722
57. **Molecular cloning and expression of the ovine testicular follicle stimulating hormone receptor (1993).** T.A. Yarney, M.R. Sairam, H. Khan, N. Ravindranath, S. Payne and N.G. Seidah. **Molecular and Cellular Endocrinology** 93, 219-226.
58. **Cloning of alternately spliced mRNA transcripts coding for variants of ovine testicular follitropin receptor lacking the G protein coupling domains (1993).** Haseena Khan, T.A. Yarney, and M.R. Sairam. **Biochem. Biophys. Res. Commun.** 190, 888-894.
59. **Host-controlled restriction and modification of phage SK101 and its mutants by different *Shigella* species (1992).** Mustafizur Rahman, Hossain Uddin Shekhar and Haseena Khan. Dhaka Univ. **J. Biol. Sci.** 1(1), 65-70.
60. **Identification of two groups of leghemoglobin genes in alfalfa and a study of their expression during root nodule development (1988).** David Barker, Phillip Gallusci, Valerie Lullien, Haseena Khan, Michelle Gherardi and Thierry Huguet. **Plant Molecular Biology** 11, 761.
61. **Deletion loop mutagenesis of the *nifL* promoter from *Klebsiella pneumonia*: role of the -26 to -12 region in promoter function (1986).** Haseena Khan, Martin Drummond and Ray Dixon. **Gene** 45, 281-288.
62. **Regulation of the nitrogen fixing genes in *Klebsiella pneumonia*: Implications for genetic manipulation (1986).** R.A. Dixon, M. Buck, M. Drummond, T. Hawkes, H. Khan, S. MacFarlane, M. Merrick and J.R. Postgate. **Plant and Soil.** 90, 225-233.
63. **Site-directed mutagenesis of the *Klebsiella pneumonia nifL* and *nifH* promoter activity (1985).** Martin Buck, Haseena Khan and Ray Dixon. **Nucleic Acids Research** 13, 7621-7633.

**Awards Obtained by M Phil/PhD Students:**

1. **Rozalynne Samira (former M.Phil student) was a recipient of a FAOBMB travel fellowship for the following Congress: 21<sup>st</sup> IUBMB and 12<sup>th</sup> FAOBMB Congress, Shanghai, August 2-7, 2009 (Poster Presentation)**
2. **M. Shahidul Islam (former Ph.D. student) was a recipient of a FAOBMB travel fellowship for the following Congress: 12<sup>th</sup> FAOBMB Congress, Shanghai, August 2-7, 2009**



**3. Farhana Shafrin (former Ph.D. student) was a recipient of a FAOBMB travel fellowship for the following Conference: 22<sup>nd</sup> FAOBMB Conference, Singapore 5-7 October, 2011**

**4. Nazia Rifat Zaman, former PhD student, obtained HOPE Award for attending a meeting of Nobel laureates in Japan**

**5. Julia Nasreen, present PhD Student awarded the ISRF (India Science Research Fellowship) 2015**

**6. Al-Amin, PhD present student awarded the ISRF (India Science Research Fellowship) 2018**

**Patents:**

(i) Polynucleotides encoding enzymes from the jute lignin biosynthetic pathway  
M Alam, **H Khan**, M Zaman, MK Uddin, MS Haque, MS Islam, MS Azam  
US Patent 20,140,344,997

(ii) Nucleic acid molecules encoding enzymes that confer disease resistance in jute  
M Alam, **H Khan**, M Zaman, MK Uddin, MS Haque, MS Islam, MS Azam  
US Patent 20,140,317,778