

South Asia Biosafety Program

NEWSLETTER for private circulation only – not for sale



Registration & Abstract

Submission Forms:

6th Annual South Asia Biosafety Conference

PAGES 2-3

Wheat Tissue Culture and Transgenic Development Facility at ICAR-Indian Institute of Wheat and Barley Research

PAGE 4

Training Workshop on the Application of Genome Editing (CRISPR/Cas9) Technique for Crop Improvement

PAGE 5

Calendar of Regional and International Biosafety Events

PAGE 6



INSTITUTE FOR INTERNATIONAL
CROP IMPROVEMENT
DONALD DANFORTH
PLANT SCIENCE CENTER
DISCOVERY | COMMUNITY | IMPACT

Prizes Announced for the South Asia Biosafety Conference Poster Session

Submission Deadline: August 31, 2018

The Institute for International Crop Improvement, Donald Danforth Plant Science Center, has generously provided the following prizes for the SABC Poster Session.

First Prize



Registration, airfare, and hotel accommodation to attend the International Society for Biosafety Research Symposium (formerly the International Symposium on the Biosafety of Genetically Modified Organisms or ISBGMO), which will be held April 1-4, 2019 in beautiful Tarragona, Spain.

Second Prize

USD \$300 cash and a two-year membership to the International Society for Biosafety Research.

Submission Guidelines

The poster session is open to all SABC attendees who submit an abstract accepted for the poster session and complete registration (including payment) by no later than **August 31, 2018**.

Submit your abstract online at: sabc.biotech.co.in
or use the registration form on pages 2-3



The poster session at the 5th Annual South Asia Biosafety Conference (2017).

Registration Form

6th Annual South Asia Biosafety Conference

September 15-17, 2018

The Westin, Dhaka, Bangladesh



Registrations are limited to 120 for the conference. Registrants that cannot be accommodated will be added to a waitlist and notified if space becomes available.

Select one optional workshop to attend on September 16:

Workshop I: Science Communication - The Importance of Audience Engagement

Workshop II: Detection of Genetically Modified Crops and Tour of Diagnostic Lab

Workshop III: Synthetic Biology and Digital Sequence Information under the Convention on Biological Diversity

Attach mailing label from brochure,
or your business card.

Name Preferred on Badge

Complete the following if the information on the mailing label is incorrect or no label is provided.

Registrant is:

Gender Male Female

Title Mr. Mrs. Ms. Dr.

First Name

Middle Initial

Last/Surname

Job Title

Employer/Company/Institution

Address

Street

City

State/Province

Zip/Postal Code

Country

Telephone

Facsimile

E-mail

Registration*

Category	Fee	
	INR	US\$
Industry	Rs. 6,500/-	\$100
Research Institution, Universities, Individual Experts	Rs. 3,500/-	\$50
Students	Rs. 2,700/-	\$40
BCIL Biotech Club Members	25% discount	
Additional delegates from same organization (except students)	25% discount	
Government Departments and Ministries	No fee up to two nominations and Rs. 2,000/- each for additional nomination. Registration must be submitted through email to vibhaahuja.bcil@nic.in and confirmed by organizers. No online registration.	

*No free on-the-spot registrations.

Please download the registration form and send it to: vibhaahuja.bcil@nic.in along with payment via bank transfer. Details for the bank transfer are as follows:

Beneficiary Name: Biotech Consortium India Limited

Account Number : 00032320008527

IFSC Code : HDFC0000003 (HDFC Bank Limited)

Those in Bangladesh who wish to pay their fee in takas and are facing difficulty with online payment should send an email to vibhaahuja.bcil@nic.in.

Cancellation/Refund Policy

Registration cancellations must be made in writing and received by BCIL no later than September 1, 2018. Cancellations received by this date are subject to a 20% processing fee. Registration and ticketed event cancellations received after September 1, 2018, are NOT subject to a refund.

Registration forms should be sent to:

Dr. Vibha Ahuja, Chief General Manager

Biotech Consortium India Limited (BCIL)

Anuvrat Bhawan, 5th Floor, 210, Deen Dayal Upadhyaya Marg

New Delhi, India - 110 002

Telephone Number +91-11-23219064-67 (Ext. 204; 205); 23219059(D)

Fax Number +91-11-23219063

Email: vibhaahuja@biotech.co.in; vibhaahuja.bcil@nic.in

Abstract Submission Form

6th Annual South Asia Biosafety Conference

September 15-17, 2018
The Westin, Dhaka, Bangladesh



Registrants are encouraged to participate in this year's program in two ways:

1. Submit an abstract for an oral presentation in:

- Plenary Session II: Engineering Plant Tolerance to Abiotic and Biotic Stressors
- Plenary Session III: Research Advances in the Development of Transgenic and Gene Edited Products in South Asia
- Plenary Session IV: Animal, Arthropod and Aquatic Biotechnology - Biosafety Research, Risk Assessment and Regulation
- Plenary Session VI: Biosafety Risk Assessment and Regulation of Gene Edited Plants.

Submissions should describe research directly relevant to the session topic.

Abstracts submitted for oral presentations will be evaluated by the conference organizers for quality and applicability. Abstracts that are not selected for oral presentations may be considered for posters instead.

2. Submit an abstract for a poster presentation during the Poster Session. Presenting a poster is a noteworthy way to share expertise or accomplishment, and poster presenters will have a dedicated time to present and discuss their work with the diverse group of attendees. All posters must convey relevance to biosafety research, environmental or food safety assessment of genetically modified organisms (GMOs), or the regulation of GM plants, animals, arthropods, or micro-organisms.

Deadlines

- ➔ August 15, 2018 for oral presentations
- ➔ August 31, 2018 for poster presentations

Guidelines for Submission

The following are suggestions that will contribute to ensuring the readability and quality of abstracts submitted for oral or poster presentations:

- check for proper spelling and grammar
- use a standard typeface such as Times New Roman, with a font size of 12
- begin sentences with words (not numbers)
- standard abbreviations may be used without definition, but nonstandard abbreviations/acronyms should be placed in parentheses after the first use of the terminology. It is important to keep nonstandard abbreviations/acronyms to a minimum, to allow for readability and understanding
- do not include tables, figures, or graphs in the abstract
- limit the abstract to 300 words
- organize the abstract with the following headings where appropriate: purpose, methods, results, and conclusions (e.g., for research projects) OR purpose, description, evaluation, and outcomes (e.g., for capacity building projects).

Space is limited. Abstracts will be considered on a first come, first served basis.

Abstracts may be submitted online at: <http://sabc.biotech.co.in/>

If you experience technical difficulties, please complete the form below and email it, **along with your abstract** (maximum 300 words), to rf@ilsa.org and carbon copied to vibhaahuja.bci@nic.in. You will receive a return email acknowledging receipt of your abstract and subsequently, a second email informing you if your abstract has been accepted into the program.

I. Lead Presenter

First Name

Last/Surname

Institution

Telephone

E-mail

II. Co-Presenters (include name, organization, e-mail)

III. Submission Category

- Student (enrolled in a bachelor's, master's, or PhD program)
- Early Career Scientist (5 years or less since completion of Ph.D.)
- Other

IV. Abstract Submission for

Plenary Session II: Engineering Plant Tolerance to Abiotic and Biotic Stressors

Plenary Session III: Research Advances in the Development of Transgenic and Gene Edited Products in South Asia

Plenary Session IV: Animal, Arthropod, and Aquatic Biotechnology - Biosafety Research, Risk Assessment and Regulation

Plenary Session VI: Biosafety Risk Assessment and Regulation of Gene Edited Plants

Poster Presentation

V. Abstract Title

** Please include your abstract (maximum 300 words) along with this form submission.*

Wheat Tissue Culture and Transgenic Development Facility at ICAR-Indian Institute of Wheat and Barley Research (ICAR-IIWBR)

Mamrutha HM, Rakesh Kumar, Amandeep Kaur, Ankita Pandey, and GP Singh, ICAR-Indian Institute of Wheat and Barley Research



Climate controlled green house facility at ICAR-IIWBR

Wheat is recalcitrant to plant tissue cultures, which is a major hurdle for the production of transgenics and double-haploids (DH). In the past two decades, a few researchers have reported efficient regeneration and transformation protocols in wheat. However, most of these protocols were for model wheat genotypes such as Bobwhite and Chinese Spring, and they are genotype dependent.

Recently, a well-equipped plant tissue culture and transgenic development facility was built at ICAR-IIWBR, where a genotype independent regeneration protocol was developed with recently released high-yield Indian wheat genotypes, using both mature and immature embryos as explants (Kumar et al. 2017, *Physiol Mol Biol Plants* 23:945). A robust *Agrobacterium*-mediated transformation protocol with higher efficiency (14.9%) over existing protocols was also established. The binary vector pCambia3301, having marker genes *uidA* and *bar* encoding, respectively, beta-glucuronidase (GUS) and phosphinothricin acetyltransferase (PAT)

The strengths of these protocols are genotype independence and higher transformation efficiency.

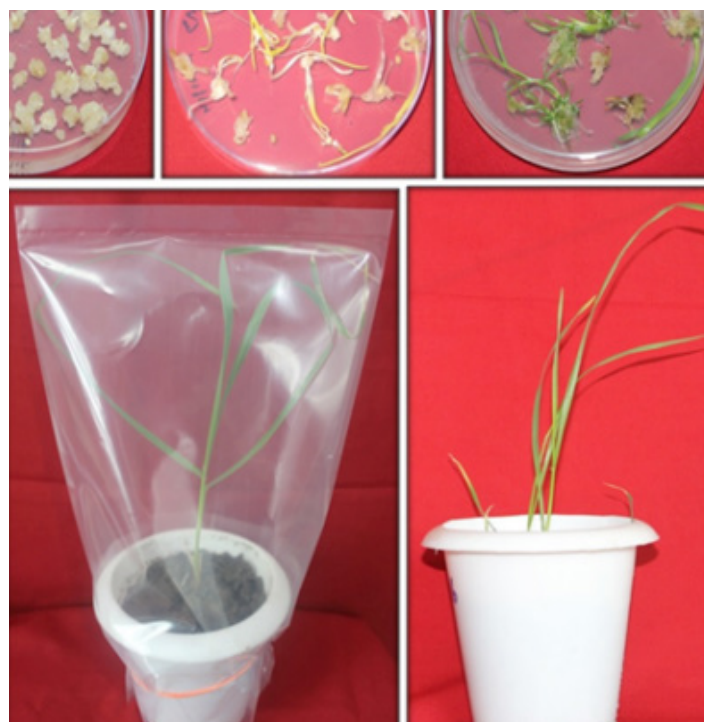


was used to establish the transformation system. The strengths of these protocols are genotype independence and higher transformation efficiency. To validate this assertion, transgenic wheat expressing *PgNHX1* and *AtSHN1* were developed using these protocols to increase abiotic stress tolerance in wheat. Other transgenics for functional validation of *AhBTF3*, *AhNF-YA7*, and *EcSAP-ZF* genes are in progress.

These protocols are also very useful for CRISPR-mediated genome editing in wheat. At ICAR-IIWBR, an initiative has begun to develop CRISPR-based genome edited wheat plants focusing on the major productivity and quality improvements in wheat. A climate-controlled greenhouse facility for wheat production was also recently established at ICAR-IIWBR in collaboration with C-DAC and MeitY. At this facility, various parameters viz. temperature, humidity, light, and CO₂ can be controlled using full automation.



Wheat tissue culture laboratory.



Regeneration system.

Training Workshop on the Application of Genome Editing (CRISPR/Cas9) Technique for Crop Improvement

Tahmina Islam, Department of Botany, University of Dhaka



Participants during the inaugural ceremony.

The Training Workshop on the Application of Genome Editing (CRISPR/Cas9) Technique for Crop Improvement was held at the Department of Botany, University of Dhaka on July 23-27, 2018, thanks to financial support from the University of Dhaka and the Alexander von Humboldt Foundation, as well as technical support from the Christian Albrecht University Institute of Plant Breeding. CRISPR/Cas9 is a modern genome editing technology that has changed the very foundation of genetic engineering by making gene modification simpler and more feasible. The workshop's primary focus was to provide participants with theoretical and practical knowledge related to CRISPR/Cas9.

The inaugural ceremony was held on the morning of July 23, 2018. Prof. Dr. Nasreen Ahmad, Honorable Pro-Vice Chancellor of the University of Dhaka, inaugurated the training workshop as the Chief Guest. Prof. Dr. M. Imdadul Hoque, Dean of the Faculty of Biological Sciences, attended the inaugural ceremony as the Special Guest. Prof.

Dr. Rakha Hari Sarker, Chairman of the Department of Botany, chaired the inaugural ceremony.

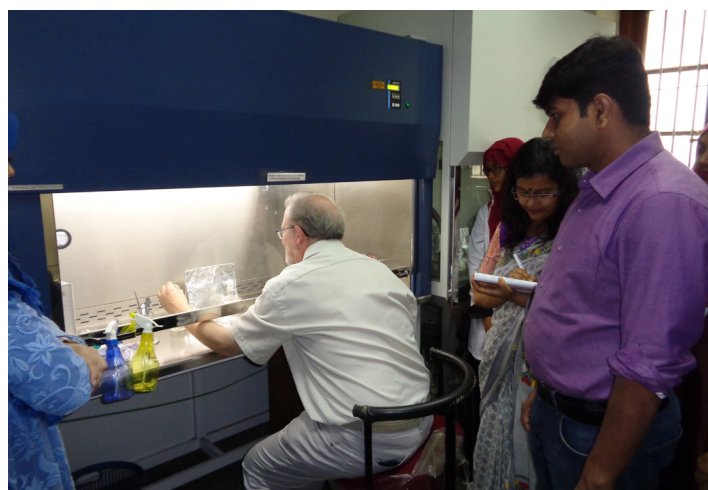
The inaugural ceremony started with a welcome speech by Prof. Dr. M. Imdadul Hoque, who provided background information about the training workshop for the benefit of students and scientists at

the University of Dhaka, as well as participants from other institutes. He pointed out that the university's Department of Botany has always taken a pioneering role in introducing biotechnological research techniques within Bangladesh. Research

on plant tissue culture in Bangladesh was first initiated in the early eighties at the Department of Botany, which at the time had far fewer facilities than it does today. Work on plant genetic transformation at the university started in the mid-1990s.

Currently, many universities, national research institutes, and private agri-business companies have plant biotechnology laboratories. In Prof. Hoque's opinion, this hands-on training workshop will open avenues for

This hands-on training workshop will open avenues for students, researchers, and scientists to carry out research on genome editing.



Workshop participants during the practical demonstration.



Workshop participants during the practical demonstration.



Workshop participants during the theoretical portion.

students, researchers, and scientists to carry out research on genome editing. Prof. Hoque concluded by thanking the University of Dhaka and the Alexander von Humboldt Foundation for their financial support, as well as Dr. Hans-Joachim Harloff of Christian Albrecht University for conducting the training workshop.

In his speech, Dr. Hans-Joachim Harloff highlighted the importance of genome editing techniques, especially CRISPR/Cas9, for crop improvement. He also provided examples of the practical uses of CRISPR/Cas9 and a brief overview of the theoretical and practical portions of the training workshop. He expressed hope that despite the workshop's relatively short length, participants will have the opportunity to gain insight about CRISPR/Cas9.

The Chief Guest, Prof. Dr. Nasreen Ahmad, thanked the organizers for holding this training workshop, which focuses on an important discipline of plant sciences. She remarked that while Bangladesh is a small country, it is very densely populated. Agricultural land in the country is decreasing every year at an alarming rate, and Bangladesh needs to produce more food from its limited land. In her opinion, CRISPR/Cas9 could help Bangladeshi scientists develop biotic and abiotic stress tolerant crop plants for cultivation in stress prone areas. She wished everyone success and expressed hope that the participants of this training workshop will immensely benefit from both the theoretical lectures and practical demonstrations.

The inaugural ceremony ended with concluding remarks by Prof. Dr. Rakha Hari Sarker, who thanked the University of Dhaka and Alexander von Humboldt Foundation for their financial support, and especially Dr. Hans-Joachim Harloff for agreeing to conduct the training. Dr. Sarker



Group photo of workshop participants and trainers.

asked all participants to make good use of this opportunity to learn more about CRISPR/Cas9.

Dr. Hans-Joachim Harloff conducted the training workshop with assistance from University of Dhaka faculty—Dr. Tahmina Islam, Prof. Dr. Mohammed Nurul Islam, Prof. Dr. Rakha Hari Sarker, and Prof. Dr. M. Imdadul Hoque. There were approximately 25 participants, including post-graduate students from the University of Dhaka's Department of Botany, Department of Biochemistry & Molecular Biology, and Department of Fisheries, as well as Sher-e-Bangla Agricultural University and the National Institute of Biotechnology.

The theoretical portion included lectures on the Origins of Gene Editing (bacterial systems, evolution, etc.), Targets and Techniques (*nCas*, *dCas*, *Cpf1*, mutant detection: *T7Endo*, *dCAPS*, *KASP*), Knock-Out/Off Targets (multiple targeting and target selection), Edit and Regulate (HR, epigenome, and chromosome), and Visions, Ethics, Environment (gene drive, medical applications, agriculture, etc.).

The practical portion covered various bioinformatics topics—Gene Retrieval and Analysis of the Sequences (structure of genome: *BLAT*, *TAIR*, and *NCBI BLAST* and candidate genes: *ALC*, *IND*, *NST1*, *SFAR4*, *SFAR5*, and *CLV3*), Gene Analysis (exon/intron, CDS, functional annotation and alignments, protein sequence and structure, and gene expression databases), Target Site and Primer Development (golden rules for primer development and off targets), PCR Experiments for Target Site Confirmation (SNP, off targets, and genotype specificity), Colony PCR (cloning), and Mutation Specific Primers—and other experiments, including Target Site Cloning into pChimera, sgDNA Cloning into pCas9-TPC, and Transformation into Rapeseed Hypocotyls. The training workshop ended with the awarding of certificates.



Guests at the inaugural ceremony.



The certificate awarding ceremony.

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA & BANGLADESH			
New Innovations in Improvement of Vegetable Crops	Dr. Y. S. Parmar University of Horticulture & Forestry	September 5 – 25, 2018 Nauni-Solan, India	http://www.yspuniversity.ac.in/trainings/Caft_Brochure_2018.pdf
6 th Annual South Asia Biosafety Conference	South Asia Biosafety Program (SABC), ILSI Research Foundation, and Biotech Consortium India Limited (BCIL)	September 15 – 17, 2018 Dhaka, Bangladesh	http://sabc.biotech.co.in/
13 th Asian Maize Conference and Expert Consultation on “Maize for Food, Feed, Nutrition and Environmental Security”	Indian Council of Agricultural Research	October 8 – 10, 2018 Ludhiana, India	http://bit.ly/2sUAWPi
9 th Conference of the Indian Science Congress Association (Haridwar Chapter) on “Future India: Science and Technology”	G.B. Pant University of Agriculture & Technology, Pantnagar	October 13 – 14, 2018 Pantnagar, India	http://www.gbpuat.ac.in/trainings_conferences/30.07.2018_brochure_final.pdf
8 th Indian Horticulture Congress – 2018	Indira Gandhi Krishi Vishwavidyalaya	October 29 – November 2, 2018 Raipur, India	http://igau.edu.in/pdf/event/event_ihc2018.pdf
2 nd National Biotechnology Conclave	Confederation of Indian Industry (CII)	November 30, 2018 New Delhi, India	http://www.cii.in/Events.aspx
2 nd International Conference on Nanobiotechnology for Agriculture	The Energy and Resources Institute	December 6 – 7, 2018 New Delhi, India	http://www.teriin.org/event/second-international-conference-nanobiotechnology-agriculture
INTERNATIONAL			
5 th International Conference on Biotechnology Engineering (ICBioE)	Department of Biotechnology Engineering (BTE) and International Islamic University Malaysia (IIUM)	September 19 – 20, 2018 Kuala Lumpur, Malaysia	http://www.iium.edu.my/icbioe/2018/
The 3 rd International Agriculture Innovation Conference (IAIC 2018)	International Association for Agricultural Sustainability	October 12 – 13, 2018 Beijing, China	http://iaic2018.iaas.org.sg/
5 th International Rice Congress	International Rice Research Institute	October 14 – 17, 2018 Singapore	http://ricecongress2018.irri.org/



SOUTH ASIA
BIOSAFETY PROGRAM

The South Asia Biosafety Program (SABP) is an international developmental program implemented in India and Bangladesh with support from the United States Agency for International Development. SABP aims to work with national governmental agencies and other public sector partners to facilitate the implementation of transparent, efficient, and responsive regulatory frameworks for products of modern biotechnology that meet national goals as regards the safety of novel foods and feeds, and environmental protection.



CONTACT SABP

BANGLADESH

Prof. Dr. M. Imdadul Hoque
Department of Botany
University of Dhaka
Dhaka - 1000
Bangladesh
Email: mimdadul07@yahoo.com

UNITED STATES

Ms. Layla Tarar
Communications Associate
ILSI Research Foundation
740 Fifteenth Street NW, Suite 600
Washington, D.C. 20005 USA
Email: ltarar@ilsi.org
Twitter: @ILSIRF

INDIA

Dr. Vibha Ahuja
Chief General Manager
Biotech Consortium India Limited
Anuvrat Bhawan, 5th Floor
210, Deendayal Upadhyaya Marg
New Delhi 110 002 India
Email: vibhaahuja.bcil@nic.in

To receive an electronic copy of this newsletter, send your name, institutional information, and e-mail address to: vibhaahuja.bcil@nic.in