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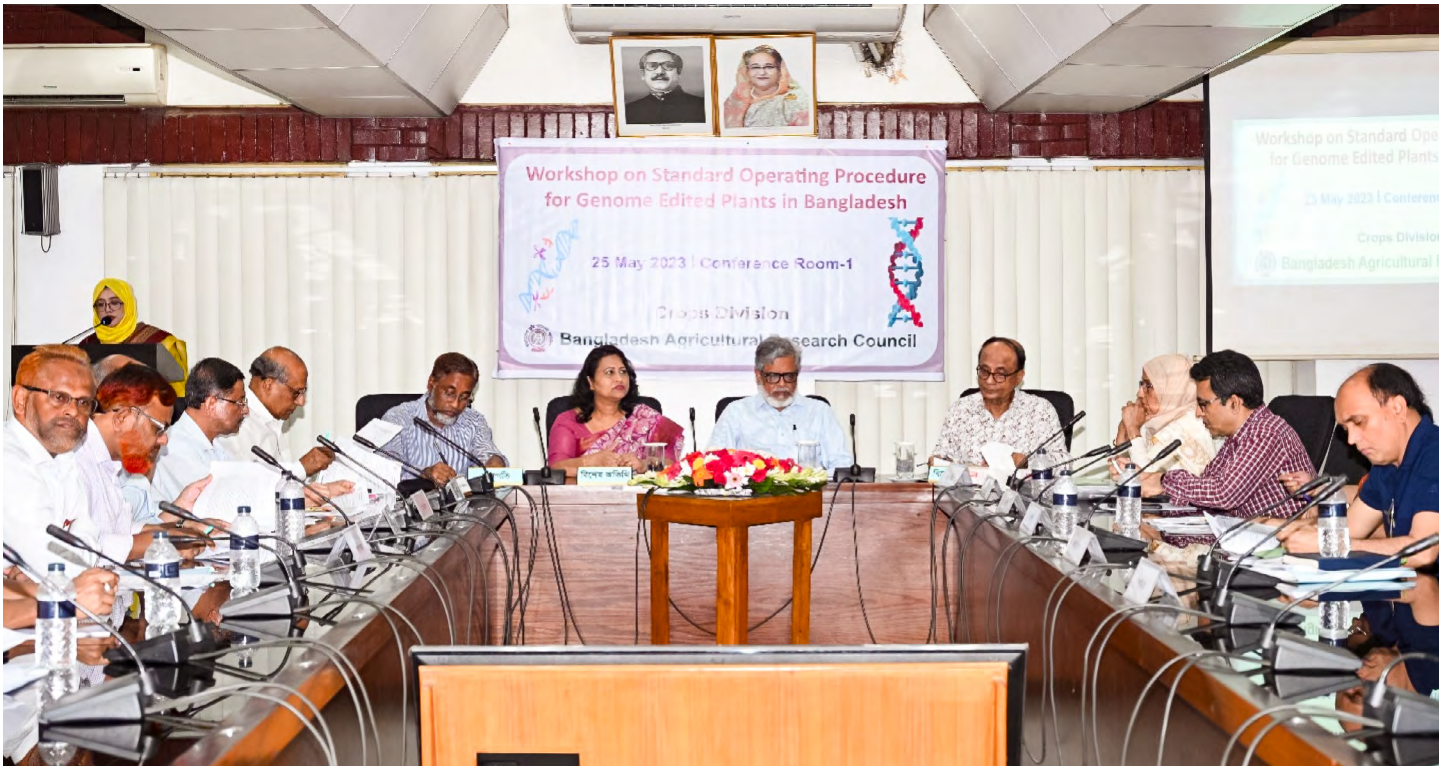
South Asia Biosafety Program

NEWSLETTER FOR PRIVATE CIRCULATION ONLY – NOT FOR SALE

BANGLADESH

Workshop on Standard Operating Procedure (SOP) for Genome Edited Plants in Bangladesh

Dr. Md. Rezwan Molla, Principal Scientific Officer (Crops) and
Dr. Mst. Sufra Akhter Banu, Senior Scientific Editor, Bangladesh Agricultural Research Council (BARC)



Guests and participants at the Workshop on Standard Operating Procedure (SOP) for Genome Edited Plants in Bangladesh (25 May 2023).

Agricultural production needs to be increased manifold to feed the ever-increasing population in Bangladesh. There are limited options to boost agricultural output and nutrition for progressive agriculture due to severe climate change issues. The techniques of modern biotechnology have been used globally to improve crop plants. Genome editing is a cutting-edge technology that employs targeted changes to the genome to deploy desired traits in crops. A day-long workshop on "Standard Operating Procedure for Genome Edited Plants in Bangladesh," organized by the Crops Division, Bangladesh Agricultural Research Council (BARC), was held on 25 May 2023. The objective of this program was to ensure the development of standard procedures for the safe and appropriate use of these plants while keeping environmental, health, and ethical considerations in mind and, at the same time, maintaining and keeping pace with international standards. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC, was present as the Chief Guest. Major General (Ret.) Prof. Dr. ASM Matiur Rahman, Fellow, BAS, and Rehana Yasmin, Additional Secretary (Research), Ministry of Agriculture, attended as Special Guests. Dr. Md. Abdus Salam, Member Director (Crops), BARC, welcomed the participants, highlighted the program's importance in his welcome speech, and presided over the workshop. Thirty scientists from NARS institutes, different universities, and other public organizations attended the event.

The Executive Chairman of BARC [...] suggested that the SOP should be followed by all researchers, institutions, and stakeholders in Bangladesh who are working on the development of genome-edited plants.

Prof. Dr. Rakha Hari Sarker, Department of Botany, Dhaka University and Country Coordinator, South Asia Biosafety Program (SABP), presented the draft SOP for Genome Edited Plants in Bangladesh. He briefly outlined the current situation of agriculture and how biotechnology may be used in agriculture. In his presentation, he emphasized the relevance of genome editing technology in

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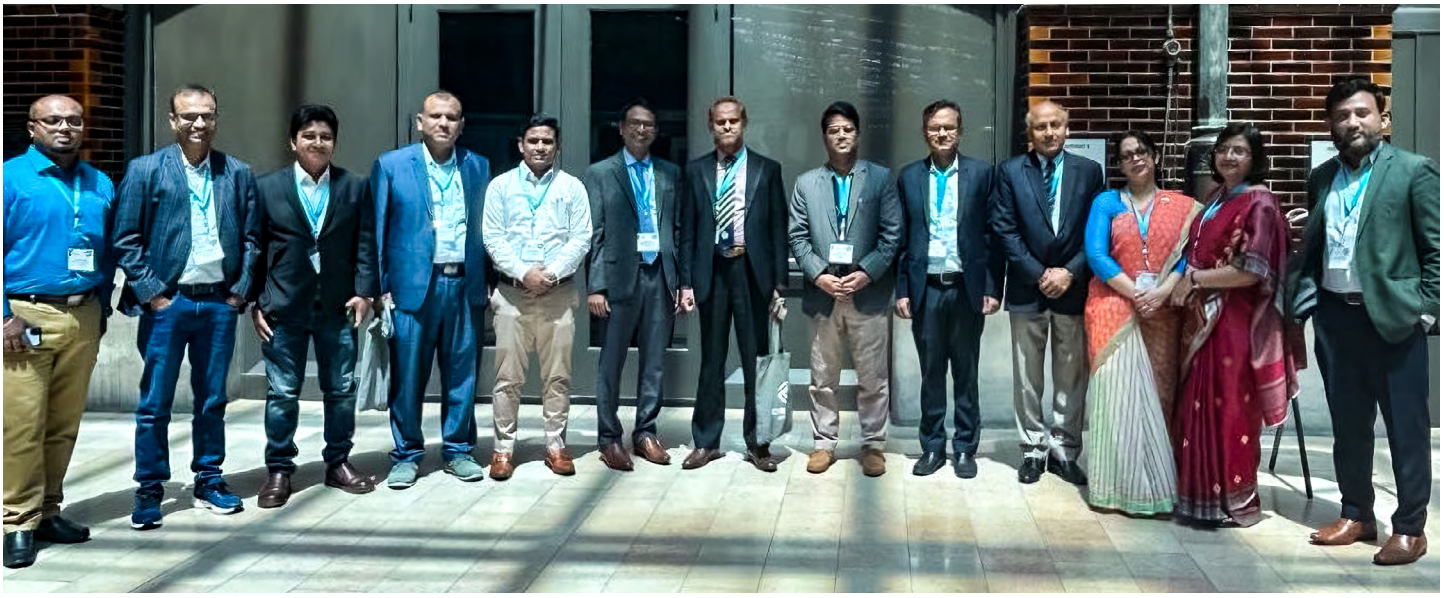
crop development and how many industrialized countries around the world are implementing this technology. The Executive Chairman of BARC remarked on the use of genome editing in several countries. He suggested that the SOP should be followed by all researchers, institutions, and stakeholders in Bangladesh who are working on the development of genome-edited plants. It includes everything from laboratory studies to field trials and commercialization. He also emphasized the rapid advancement of technology and advised that the SOP prepared by the Bangladesh Academy of Sciences (BAS) should be finalized and submitted to the Ministry of Agriculture for its approval as soon as feasible. The participants opined that it was a time-demanding program that met global and country-level expectations. However, valued experts and participants provided feedback, suggestions, and recommendations. It was suggested that a technical committee or a specific subject-oriented evaluation committee of expert scientists should be included in the SOP. This evaluation committee will be responsible for identifying and certifying SDN1 and SDN2 categories of genome-edited plants provided by various research institutes and universities. The workshop ended with the recommendation to facilitate the development and release of genome-edited crops that fulfill the demands of Bangladeshi farmers and consumers.

BANGLADESH

16th ISBR Symposium: Experiences of Participants from Bangladesh

Dr. Rakha Hari Sarker, Country Coordinator, South Asia Biosafety Program



Participants from Bangladesh at the 16th ISBR Symposium (30 April 2023).

The International Society for Biosafety Research (ISBR) organized the 16th ISBR Symposium (ISBR 2023) at the Union Station Hotel in St. Louis, Missouri, USA, from 30 April to 4 May 2023. This four-day symposium had several plenary lectures, parallel sessions, workshops, and poster presentations. Participants of this highly recognized international symposium included researchers, technology creators, policymakers, biosafety regulators, government officials, business leaders, lawmakers, non-governmental groups, and other stakeholders. This symposium represented the largest global gathering of scientists involved in biotechnology and biosafety research and regulators involved in biosafety. During this symposium, the significance of biosafety was highlighted to maximize its utilization in developing genetically engineered products, notably in the field of plant biotechnology. This symposium certainly created a wonderful opportunity for the community of biosafety practitioners and scientists from different parts of the world to better their understanding and share their views in areas related to biosafety. Participants from across the globe discussed optimal scientific practices and regulations for the long-term use of biotechnology. This symposium revitalized a live, interactive platform where key biotechnology and biosafety players exchanged information, discussed problems, and looked at prospects for the future.

The seven awardees of the Biosafety Research in Bangladesh Grants Program (BRBGP), one AFSI fellow, and a representative from the Ministry of Environment, Forest and Climate Change (MOEFCC) of Bangladesh participated in this symposium.

Several scientists were part of the group from Bangladesh that attended ISBR 2023. The seven awardees of the Biosafety Research in Bangladesh Grants Program (BRBGP), one AFSI fellow, and a representative from the Ministry of Environment, Forest and Climate Change (MOEFCC) of Bangladesh participated in this symposium.

Funded by the United States Agency for International Development (USAID) Mission in Bangladesh and managed by the Agriculture & Food Systems Institute (AFSI) as part of the South Asia Biosafety Program, the BRBGP supported research from 2019-2021 that builds local knowledge and establishes baseline data to support comparative assessments for agricultural biotechnology. BRBGP awardees received funding and logistical support for travel to St. Louis to attend ISBR 2023 and very actively and enthusiastically participated in the symposium.

Among the awardees, Dr. Mohammad Tofazzal Hossain Howlader from Bangladesh Agricultural University presented a poster entitled "Diversity of Arthropods Under Cotton Ecosystem in Bangladesh" and won first prize at the ISBR 2023 Poster Competition. Dr. Abu Shamim Mohammad Nahiyan of Advanced Seed Research and Biotech Center, ACI Limited, won the second prize for his poster "Fertilizer Management and Agronomic Practices in Bangladesh: A Baseline Study for GE Potato Biosafety Assessment."

AFSI invited Ms. Syeda Masuma Khanam, Director, Natural Resources Management, Department of Environment, Government of Bangladesh, to attend ISBR 2023. Ms. Khanam is one of the key members of the biosafety regulatory authority in Bangladesh. At ISBR 2023, she participated in the workshop entitled "Safety Assessment of Potato with 3 R

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Genes for Late Blight Resistance: A Global Perspective," which was organized by the Global Biotech Potato Partnership program on 2 May 2023. During the workshop, as a member of the biosafety regulatory authority in Bangladesh, Ms. Khanam delivered a presentation on the status of biotechnology and the national framework for biosafety of Bangladesh.

At the symposium, Prof. Dr. Aparna Islam, Biotechnology Program, Brac University and AFSI Fellow, presented three posters. Mr. Sium Ahmed, Deputy Manager, SABP, presented his research work on "Public Perception of Genetically Engineered Brinjal and Modern Biotechnology in Bangladesh."

THE EXPERIENCES OF BRBGP AWARDEES AT ISBR 2023

Iftekhar Alam, National Institute of Biotechnology

I consider ISBR 2023 a memorable reconnecting event after the pandemic. I had an opportunity to connect with research scientists, students, and industry people. A variety of talks widened my knowledge about the safe applicability of genetic engineering and genome editing. Showcasing research works to the relevant international community and learning more from them are extremely important for personal development and growing science. Parallel workshops suited the need of the specific interests of participants. Learning about data requirements in biosafety risk assessment and the decision-making process was fascinating. My research project was to assess the impact of herbicide usage on rice cultivation in Bangladesh. The conference organizers insisted on following a new form of poster presentation. I realized that impactful scientific posters are all about being short, concise, snappy, and coherent. The impact was noticeable in the session as viewers got the take-home message very quickly. I also appreciate the organizers' efforts to make a comfortable gathering, including the venue amenities. A trip to the Donald Danforth Plant Science Center added more value to our trip.

Prof. Dr. Muhammad Shahidul Haque, Department of Biotechnology, Bangladesh Agricultural University

The 16th ISBR symposium provided a vital forum for key players in the fields of biotechnology and biosafety. I attended the previous 15th ISBR Symposium in Spain. In this symposium, I had a great chance to share the outcome of the research funded by AFSI as I presented a poster during the poster session and discussed future opportunities for collaboration with researchers from advanced countries. I met researchers and technology developer companies in their stalls, gained knowledge of their products, had discussions with regulatory authorities and other stakeholders, and shared information and experiences. There is a rapid advancement in new technologies in the field of agriculture, especially in advanced countries that have created enormous opportunities and challenges. Although we are lagging, we certainly benefitted from sharing and advancing our understanding of contemporary biosafety research in other countries by asking questions in the oral session, at tea breaks and lunches, and during the poster sessions.

I visited the Bayer Crop Science Research and Development Center on 4 May 2023. I gained new information on the birth of agriculture and its relation to the beginning of the modern world and updated information on the use of modern biotechnology. Attending scientific meetings, symposia, conferences, and workshops is always very exciting and the best way to achieve new insight into modern science. We returned home with lots of experience and knowledge that we want to use in the future for the food and nutrition security of Bangladesh.

Ms. Syeda Masuma Khanam presenting on the Biosafety Framework of Bangladesh (2 May 2023)

Prof. Dr. Mohammad Zabed Hossain, Department of Botany, University of Dhaka

Receiving a research grant from Biosafety Research in Bangladesh Grants Program (BRBGP) opened a new avenue for me to expand my research area towards biosafety issues of genetically modified crops in Bangladesh. Starting in 2020, this research helped me understand the extent of environmental problems associated with the pesticides used in potato cultivation and farmers' perception of it in Bangladesh. This study's findings are relevant for improving potato cultivation in the country. During the symposium, I came to learn from scientists, researchers, regulators, and policymakers about biosafety issues of genetically modified crops that have been or will be introduced in agriculture. This symposium, along with the workshops, helped me not only gain knowledge on several aspects of biosafety issues but also on environmental risk assessment of genetically modified crops in the field. In this symposium, I could see that both governmental and non-governmental organizations, private entrepreneurs, universities, research institutes, and non-profit volunteering organizations were brought together on this issue. This symposium engaged respective stakeholders to work together on biosafety towards sustainable development in agriculture.

It was a rewarding experience to engage in meaningful conversations, share insights, and establish connections with researchers with similar interests. Winning the second prize at the ISBR 2023 Poster Competition was an absolute honor.

Dr. Abu Shamim Mohammad Nahiyan, Principal Scientist, Advanced Seed Research and Biotech Centre (ASRBC), ACI Limited

The symposium was a hub of scientific knowledge, innovation, and collaboration. Interacting with fellow researchers, experts, and scholars from various disciplines and backgrounds was inspiring. The exchange of ideas, discussions, and networking opportunities enriched my understanding and expanded my horizons in the field of biosafety and biotechnology. Presenting my research topic as posters provided a platform to showcase my findings and receive valuable feedback from the scientific community. It was a rewarding experience to engage in meaningful conversations, share insights, and establish connections with researchers with similar interests. Winning the second prize at the ISBR 2023 Poster Competition was an absolute honor. It was a testament to the hard work, dedication, and meticulousness that went into my research project. This recognition has further motivated me to continue pushing the boundaries of scientific exploration and contribute to advancing agricultural biotechnology. Attending the symposium was

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BRBGP Awardees during the Poster Session at the 16th ISBR Symposium (1 May 2023).

an unforgettable journey filled with learning, growth, and a sense of accomplishment.

Prof. Dr. Md. Fuad Mondal, Department of Entomology, Sylhet Agricultural University

This symposium highlighted the world's scenario of biotechnology and biosafety and the challenges and opportunities for bio-innovations in different countries. I had the opportunity to interact with researchers, academicians, policymakers, and industry representatives and share knowledge and experience in achieving sustainable biotechnological improvement throughout the world. Among the sessions, "Gaining social license for bio-innovations" and "Potential and challenges of using bio-innovation technologies in a sustainable economy" were very interesting. This opportunity surely increased the connectivity among the participants. During the poster session, I presented my research and connected with many researchers, where I received constructive suggestions to expand my research work.

Prof. Dr. Gopal Das, Department of Entomology, Bangladesh Agricultural University

The symposium was an excellent platform where I met many distinguished experts and professionals, government and private sector representatives, leading scientists, sponsors, exhibitors, and participants. The symposium was well-organized and vibrant, where all aspects of biosafety research were highlighted clearly through various sessions like plenary, parallel, poster, and Pecha Kucha. ISBR2023 gave me an excellent opportunity to update my knowledge on the status of modern biotechnology research and biosafety. It was wonderful to hear from scientists about the regulatory frameworks and policies, their stories, and the challenges they faced related to modern biotechnology-derived products, which gave me insights into future regulatory challenges and biosafety assessments of GMOs. The opportunity to meet eminent scientists and listen to their experience and expertise in individual topics was very pleasing. The poster session was exciting as I could present my work and interact with distinguished scientists. I was also able to get valuable feedback on my research. I really enjoyed the five-day program, including all plenary and parallel sessions, workshops, and interactions with the scientists.

Prof. Dr. Mohamamd Tofazzal Hossain Howlader, Department of Entomology, Bangladesh Agricultural University

Having a background in entomology and biotechnology, I always wanted to explore new related research fields. I initiated research on Bt Cotton at the Bangladesh Cotton Development Board to explore the diversity of insects in cotton ecosystems and understand non-target effects.

It was wonderful to hear from scientists about the regulatory frameworks and policies, their stories, and the challenges they faced related to modern biotechnology-derived products, which gave me insights into future regulatory challenges and biosafety assessments of GMOs.

It was a pleasant experience to be at ISBR and interact with like-minded individuals passionate about advancing various fields related to biosafety and biotechnology. During the stay, the symposium offered a myriad of opportunities to engage in intellectual discussions, exchange ideas, and establish valuable connections with fellow attendees like distinguished biosafety experts and professionals, governmental and private sector representatives, leading scientists, sponsors, exhibitors, and participants from different corners of the world. What made the experience truly special were the interactive sessions, panels, and poster discussions. Representing my institute and country at the symposium was a great pleasure and a matter of pride. I presented my research findings on "*Diversity of Arthropods Under the Cotton Ecosystem in Bangladesh,*" which won first prize at the ISBR 2023 Poster Competition. Thus, it was a thrilling, educational, and rewarding experience to participate in vigorous discussions, ask challenging questions, and get direct answers from eminent scholars in the respective field. The conference offered plenty of opportunities for networking with peers and experts during coffee breaks, poster sessions, and social gatherings, which further enlightened me. In conclusion, attending the symposium was an unforgettable experience that left an indelible mark on my academic and professional journey.

A STUDENT'S EXPERIENCE AT ISBR 2023

Fahadul Alam, Department of Biotechnology, Bangladesh Agricultural University

I received a very warm reception from the organizers and attendees of the symposium. This was the first time I had traveled so far from home, but I was comfortable, surrounded by so many like-minded people. The arrangement and the program were amazing, the sessions

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Mr. Fahadul Alam presenting his research during the Pecha Kucha Session (1 May 2023).

were enjoyable, and I had opportunities to learn many new things. I got to present my work during the Pecha Kucha Session, and the audience admired my research and presentation. As a student and young researcher, this will undoubtedly inspire me.

There were a good number of students at the symposium. The organizing committee hosted a breakfast for the students where we all got to know each other better and heard from graduate students at various institutions about their experiences in higher education and the research they had been conducting. On the last day of the symposium, I visited the Bayer Crop Science Center. It was one of my favorite experiences at the symposium, as I learned many new things from an industry perspective.

I'd like to express my gratitude to the ISBR symposium committee for giving me the opportunity to participate and present my research and the Agricultural Biotechnology Stewardship Technical Committee (ABSTC) for awarding me the scholarship to attend the symposium. It was an experience of a lifetime for me. I will cherish this memory forever.

ANNOUNCEMENT

5th International Conference on Biotechnology in Health and Agriculture (ICBHA)

5th ICBHA-2023

Global Network of Bangladeshi Biotechnologists (GNOBB) is pleased to announce its 5th International Conference on Biotechnology in Health and Agriculture (ICBHA) as a joint conference with Bangladesh Biosafety and Biosecurity Society (BBBS) and the Federation of Asian Biotech Associations (FABA). Conference is to be held from **September 1 - 3, 2023**, highlighting the theme "**Biotechnology for Sustainable Development in Agriculture, Environment, and Health**". The first two days of the conference will be on the current status of Biotechnology in Health and Agriculture with emphasis on Biosafety and Biosecurity in Biotechnology applications. The third day of the conference will be dedicated for discussions on the containment of Antimicrobial Resistance (AMR). The goal of this conference is to build capacity and create awareness on the latest trends in biotechnology for improving health, agriculture and the environment in Bangladesh.

Plenary Session 1

Plenary Talks

01. Biotechnology for Sustainable Development in Agriculture and Environment
02. Biotechnology in the Containment of Antimicrobial Resistance
03. Progress and Prospect of Biotechnology in Asia Pacific by FABA

Plenary Session 2

01. GNOBB award Lectures and award ceremony

Technical Sessions

Day 1

01. Microbial Biotechnology
02. Medical Biotechnology
03. Flash Talk from Students

Day 2

01. Plant Biotechnology
02. Fisheries and Marine Biotechnology
03. Young emerging scientists session on agriculture, environment, and human health
04. Animal Biotechnology
05. Industrial Biotechnology

Day 3

01. AMR in Human Health
02. AMR in Animal Health
03. AMR in Food and Feed Produces
04. AMR in Environment
05. Panel Discussion on the Containment of Antimicrobial Resistance

Highlights of the conference

01. GNOBB award lecture from 4 awardees
02. Workshop on CRISPR technology and Rice Ratooning
03. 16 Flash talk for graduate and undergraduate students
04. Young Emerging Scientists session (10 presentations from young emerging scientists)
05. Poster session
06. Awards for best poster and flash talk presentations
07. Presentation on Life time achievement of **Prof. Ahmad Shamsul Islam**

For details please visit our website
www.gnobb.org/conference

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
BANGLADESH			
5th International Conference on Biotechnology in Health and Agriculture (ICBHA)	Global Network of Bangladeshi Biotechnologists (GNOBB), Bangladesh Biosafety and Biosecurity Society (BBBS), and the Federation of Asian Biotech Associations (FABA)	1-3 September 2023	https://gnobb.org/conference
INDIA			
Training on Tissue Culture Propagation of Banana Plant	ICAR-Indian Institute of Horticultural Research	26-28 June 2023 Bengaluru	https://www.iihr.res.in/events
Training Programme on CRISPR-Cas Based Molecular Diagnostics Platform	Tamil Nadu Veterinary and Animal Science University	3-7 July 2023 Chennai	https://www.tanuvas.ac.in/announcements.php
Hands-On Training in Molecular Markers and Tissue Culture Assisted Plant Breeding	Division of Genetics, ICAR-Indian Agricultural Research Institute	24 July-2 August 2023 New Delhi	https://www.iari.res.in/bms/announcements/training.php
XVI Agricultural Science Congress and ASC Expo	National Academy of Agricultural Sciences (NAAS)	10-13 October 2023 Kochi	http://www.16asc2023.in
International Conference on Biochemical and Biotechnological Approaches for Crop Improvement	Society for Plant Biochemistry and Biotechnology, ICAR-Indian Agricultural Research Institute (IARI), ICAR-National Institute for Plant Biotechnology (NIPB), and CSIR- National Botanical Research Institute (NBRI)	30 October-1 November 2023 New Delhi	https://www.ibbaci.org
10th Indian Horticulture Congress (2023): Unleashing Horticultural Potential for Self-Reliant India	Indian Academy of Horticultural Sciences (IAHS)	6-9 November 2023 Jorhat	http://www.aau.ac.in
INTERNATIONAL			
First Meeting of the Multidisciplinary Ad Hoc Technical Expert Group on Synthetic Biology to Support the Process for Broad and Regular Horizon Scanning, Monitoring, and Assessment	CBD Secretariat	11-14 July 2023 Montreal, Canada	https://www.cbd.int/meetings/?thm=CPB
6th International Rice Congress 2023	International Rice Research Institute and Department of Agriculture, Republic of the Philippines	16-19 October 2023 Manila, Philippines	https://www.irri.org/IRC2023-teaser.html

The South Asia Biosafety Program (SABP) is an international development program implemented in India and Bangladesh with support from the United States Agency for International Development (USAID). 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.

SOUTH ASIA BIOSAFETY PROGRAM

Agriculture & Food Systems Institute

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