

South Asia Biosafety Program

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Workshop on SOP for Research and Release of Genome Edited Plants in Bangladesh

PAGE 2

Inter-Country Knowledge Sharing Webinar on the Biosafety Related Target 17 of the GBF

PAGE 3

Calendar of Regional and International Events

PAGE 4

About the South Asia Biosafety Program

PAGE 4

BANGLADESH

Conference on Genome Editing for Agriculture in Bangladesh

Dr. Md. Rezwan Molla, Principal Scientific Officer (Crops), Bangladesh Agricultural Research Council (BARC)



Dr. Rehana Yasmin (Special Guest), Dr. Shaikh Mohammad Bokhtiar (Chief Guest), Dr. Zahurul Karim (Special Guest), Dr. Md. Abdus Salam (Chairperson), and Dr. Rakha Hari Sarker (Welcome Speaker), and Dr. Andrew Roberts (Keynote Speaker), at the Conference on Genome Editing for Agriculture in Bangladesh (11 February 2024).

Molecular techniques have become available that can modify the genomes of all kinds of organisms in a targeted approach called genome editing. It opens a new window in crop improvement research using biotechnological tools. CRISPR/Cas9 is a unique technology that enables scientists to edit parts of the genome by removing, adding, or altering sections of the DNA sequence. It is currently the simplest, most versatile, and precise method of genetic manipulation and is, therefore, causing a buzz in the scientific world. Changing climate patterns pose a challenge to boosting agricultural output. Genome editing is a cutting-edge technology that employs targeted and fixed genetic traits to rapidly develop desired characteristics.

The *Conference on Genome Editing for Agriculture in Bangladesh*, which was jointly organized by the Bangladesh Agricultural Research Council (BARC) and the South Asia Biosafety Program (SABP), was held on 11 February 2024 at BARC. In the inaugural session of this event, Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC, was present as Chief Guest, and Dr. Zahurul Karim, Vice-President, Bangladesh Academy of Sciences (BAS) and Rehana Yasmin, Joint Secretary (Research), Ministry of Agriculture attended as Special Guests. Dr. Md. Abdus Salam, Member Director (Crops), BARC, presided over the session. Dr. Rakha Hari Sarker, Country Coordinator, SABP and Professor, Department of Botany, University of Dhaka, was present as the Welcome Speaker.

The approval of the SOP was a timely decision for promoting the research and release of genome edited products in Bangladesh, and this initiative will open new horizons for biotechnological research in the country.

A total of 80 participants, including delegates from abroad, eminent experts of the country, university teachers, scientists, and officials of the National Agricultural Research System (NARS), National Institute of Biotechnology (NIB), and other public and private institutions related to agriculture were present as distinguished participants. The program began with the Session Chair welcoming all attendees, stating the conference's aims, and highlighting the importance of the program. Dr.

Andrew F. Roberts, Chief Executive Officer, Agriculture and Food Systems Institute, presented the Keynote Presentation at the conference and briefly outlined how genome editing can support agriculture in Bangladesh. In his talk, he covered the science of

genome editing, its use, safety issues, and potential in the country.

Addressing the attendees, BARC Executive Chairman Dr. Shaikh Mohammad Bokhtiar emphasized the necessity of pooling the benefits of innovative technologies in sustaining food and nutritional security for science-led agriculture. He also expressed his great pleasure for the approval of *Standard Operating Procedures (SOP) for Research and Release of Genome Edited Plants of Categories SDN-1 and SDN-2 in Bangladesh* on 11 December 2023 by the Ministry of Agriculture (MoA). He remarked that the approval of the SOP was a timely decision for promoting the research and release of genome edited products in Bangladesh, and this initiative will open new horizons for biotechnological research in the country.

Continued on page 2



Participants at the conference (11 February 2024).

In his remarks, BAS Vice-President Dr. Zahurul Karim emphasized the relevance of biotechnology in solving the different hurdles to producing new crop varieties in Bangladesh. He emphasized various measures the Bangladesh Academy of Sciences undertook to develop the genome editing SOP for Bangladesh. He underlined the comprehensive implementation of the newly designed SOP to improve major crops in Bangladesh.

MoA Joint Secretary (Research) Rehana Yasmin stated in her address that the Ministry of Agriculture intends to fully utilize biotechnology to improve agricultural output. She observed that Bangladesh's newly formulated genome editing SOP will undoubtedly be beneficial in improving crop production and addressing crop production constraints.

Several scientific papers regarding genome editing research and policy were presented by scientists from different organizations, both from within the country and abroad, in the two technical sessions. Dr. Satendra Kumar Mangrauthia, Senior Scientist at the ICAR-Indian

Institute of Rice Research, delivered a presentation titled "Introduction to Genome Editing in Agriculture and Plant Breeding." Dr. Vibha Ahuja, Senior Advisor, South Asia Biosafety Program (SABP) and Chief General Manager, Biotech Consortium India Limited (BCIL), talked about the research and commercialization of genome edited plants. Additionally, the following speakers presented papers on their respective research findings on genome editing on various crop plants: Prof. Zeba Islam Seraj, Department of Biochemistry and Molecular Biology, University of Dhaka, Prof. Tofazzal Islam, Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Dr. Md. Salimullah, Director General, National Institute of Biotechnology (NIB), and Dr. Tahmina Islam, Department of Botany, University of Dhaka. The technical session also included a presentation on "Research and Development for Genome Edited Products: Considerations for Intellectual Property" by Dr. Pankaj Bhowmik, Senior Research Officer, National Research Council of Canada.

BANGLADESH

Workshop on Standard Operating Procedures for Research and Release of Genome Edited Plants in Bangladesh

Dr. Mousona Islam, Senior Scientific Officer, Bangladesh Council of Scientific and Industrial Research (BCSIR), BCSIR Laboratories

Genome editing, a cutting-edge technique for precise and targeted changes to plant genomes, is used extensively by scientists throughout the world to make desirable improvements in different crops. Modern biotechnology research and development involves scientists from different research institutes and universities in Bangladesh. Recently, the "Standard Operating Procedures for Research and Release of Genome Edited Plants of Categories SDN-1 and SDN-2 in Bangladesh" was approved by the Ministry of Agriculture, Government of the People's Republic of Bangladesh.

To keep pace with continued developments in agricultural biotechnology in Bangladesh, the Agriculture and Food Systems Institute's South Asia Biosafety Program (SABP) conducts capacity building training workshops, establishing a network of practitioners who exchange experiences and knowledge about the research, development, and regulation of plants derived from modern biotechnology, including genome edited plants. Under the auspices of the South Asia Biosafety Program and in cooperation with the Bangladesh Academy of

Sciences (BAS) and Biotech Consortium India Limited (BCIL), the Agriculture and Food Systems Institute (AFSI) organized the *Workshop on Standard Operating Procedures (SOP) for Research and Release of Genome Edited Plants in Bangladesh*. The workshop's purpose was to advance discussions on the SOP and conduct capacity building activities for researchers related to the guidelines and necessary activities pertaining to the development and release of genome edited plants in Bangladesh. The workshop was held on 13 February 2024 at the conference room of the Bangladesh Academy of Sciences (BAS), which is located at the National Science and Technology Complex, Shahid Shahabuddin Shorok, Agargaon, Dhaka.

The workshop was honored by the presence of Prof. Dr. Haseena Khan (Secretary, BAS), Dr. Rakha Hari Sarkar (Country Coordinator, SABP and Professor, University of Dhaka), Dr. Vibha Ahuja (Senior Advisor, SABP and Chief General Manager, BCIL), Dr. Satyendra Kumar Mangrauthia (Senior Scientist, ICAR-Indian Institute of Rice Research), Dr. Md. Aziz Zilani Chowdhury (Former Member Director, Bangladesh Agricultural

Continued on page 3



Participants and speakers at the Workshop on Standard Operating Procedures for Research and Release of Genome Edited Plants in Bangladesh (13 February 2024).

Research Council), Dr. Md. Salimullah (Director General, National Institute of Biotechnology), Dr. Andrew F. Roberts (Chief Executive Officer, AFSI) and participants from key research institutes and universities in Bangladesh, including the Bangladesh Council for Scientific and Industrial Research (BCSIR), National Institute of Biotechnology (NIB), University of Dhaka, University of Rajshahi, and University of Chittagong.

The workshop began with opening remarks by Prof. Dr. Haseena Khan, followed by Dr. Satyendra Kumar Mangrauthia's lecture titled "Applying Genome Editing Techniques in Crops: Practical Considerations," in which he provided an overview of procedures for generating genome edited plants from his practical experience. He also delivered a

talk on "Demonstrating Absence of Transgene: Process and Techniques," which covered how to screen transgene free genome edited plants in detail.

Dr. Rakha Hari Sarker, Professor, Dhaka University and Country Coordinator, SABP, gave an informative talk on "Standard Operating Procedures for Research and Release of Genome Edited Plants of Categories SDN-1 and SDN-2 in Bangladesh", in which he discussed the approval procedures for genome edited plants in the country. Dr. Md Aziz Zilani Chowdhury, Former Member Director of BARC, continued the discussion on this SOP, and Dr. Vibha Ahuja covered the preparation of documents for the release of genome edited plants.

ANNOUNCEMENT

Inter-Country Knowledge Sharing Webinar on the Biosafety Related Target 17 of the Global Biodiversity Framework (GBF)

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited



ONLINE WEBINAR

INTER-COUNTRY KNOWLEDGE SHARING WEBINAR ON THE BIOSAFETY RELATED TARGET 17 OF THE GLOBAL BIODIVERSITY FRAMEWORK

AN INITIATIVE OF THE UNEP/GEF MULTI-COUNTRY BIOSAFETY CAPACITY-BUILDING PROJECT (10991)

FRIDAY, 22 MARCH 2024
4 - 6 PM KST (SEOUL)

[REGISTER NOW](#)

SPEAKERS:

Dr. Alex Owusu-Biney, United Nations Environment Programme, Nairobi, Kenya

Ms. Wadzanayi Mandivenyi, UNEP/Secretariat of the Convention on Biological Diversity, Montreal, Quebec

Dr. Homin Jang, Korea Institute for Promoting Asia Biosafety Cooperation, Daejeon, Republic of Korea

Dr. Vibha Ahuja, Biotech Consortium India Limited, Delhi, India

Ms. Doreen Mnyulwa, Regional Agricultural and Environmental Innovations Africa, South Africa

Panel Discussion: Experts from Japan, Bangladesh, India, Mongolia, the Philippines and the Republic of Korea

WEBINAR OBJECTIVES:

- Introduce the Kunming Montreal [Global Biodiversity Framework](#), [Decision CP-10/3 Implementation Plan for the Cartagena Protocol on Biosafety](#) and [Decision 10/4 Capacity-building Action Plan](#).
- The potential funding window for Biosafety capacity-building support (GBF Fund, GEF Trust Fund, Regional/national funding)
- Initiate discussions and experience sharing on mainstreaming biosafety-related Target 17 in the NBSAPs.
- Introduce the initiatives under the GEF Project (10991) on 'Promoting the safe application of biotechnology through Multi-country Cooperation in the implementation of National Biosafety Frameworks in Asia'.

Registration Link: us06web.zoom.us/webinar/register/WN_-prn2MEKTUW9tgzTFYKG5Q

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
BANGLADESH			
Workshops on Standard Operating Procedures for Research and Release of Genome Edited Plants in Bangladesh	South Asia Biosafety Program (SABP) and Bangladesh Agricultural Research Council (BARC)	22 April 2024 (Workshop 1) 23 April 2024 (Workshop 2) Dhaka	https://foodsystems.org/sabp https://barc.gov.bd
INDIA			
Inter-Country Knowledge Sharing Webinar on the Biosafety Related Target 17 of the Global Biodiversity Framework (GBF)	Korea Institute for Promoting Asia Biosafety Cooperation (KIPABiC) and Biotech Consortium India Limited (BCIL)	22 March 2024 Virtual	https://us06web.zoom.us/webinar/register/WN_-prn2MEKTUW9tgzTFYKG5Q
ISSCT 13 th Germplasm & Breeding/ 10 th Molecular Biology Workshop	ICAR-Sugarcane Breeding Institute and Society for Sugarcane Research and Development	8-12 July 2024 Coimbatore	https://sugarcane.icar.gov.in/index.php/issctworkshop2024/
INTERNATIONAL			
BIO Agriculture & Environment Summit	Biotechnology Innovation Organization (BIO)	17-18 April 2024 Washington, DC	https://www.bio.org/events/bio-agriculture-environment-summit
Nineteenth Meeting of the Compliance Committee under the Cartagena Protocol on Biosafety	CBD Secretariat	20 April-2 May 2024 Montreal, Canada	https://bch.cbd.int/protocol#tab=2
Information Workshop on the Work of the <i>ad hoc</i> Technical Expert Groups on Indicators, Synthetic Biology, and Risk Assessment	CBD Secretariat	11 May 2024 Nairobi, Kenya	https://bch.cbd.int/protocol#tab=2
Eleventh Meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety	CBD Secretariat	21 October-1 November 2024 <i>Venue TBD</i> , Colombia	https://bch.cbd.int/protocol#tab=2
3 rd International Wheat Congress (IWC)	Murdoch University	22-27 September 2024 Perth, Australia	https://www.iwc2024.com/



SOUTH ASIA
BIOSAFETY PROGRAM

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.



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