

South Asia Biosafety Program

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BANGLADESH

Welcoming Dr. Aparna Islam to the South Asia Biosafety Program

Andrew Roberts, ILSI Research Foundation



Dr. Aparna Islam at the 6th Annual South Asia Biosafety Conference (Dhaka, Bangladesh, September 15-17, 2018)

The South Asia Biosafety Program (SABP) is very pleased to welcome Dr. Aparna Islam as the new Country Manager for SABP Bangladesh. Dr. Islam joins us from BRAC University, where she held the position of Professor in the Biotechnology Program. Since joining BRAC as an Assistant Professor in 2007, she has been active as a teacher, mentor, and researcher. This includes serving as a supervisor for 25 students receiving their B.Sc./M.S. degrees and the Coordinator for the M.S. Biotechnology Program.

Dr. Islam's research interests include plant biotechnology and biosafety, and she served as the Principal Investigator on an agricultural research project supported by the Bangladesh Academies of Science-U.S. Department of Agriculture Endowment Fund, which was involved in the establishment of the Plant Biotechnology Laboratory and Molecular Biology Laboratory at

Dr. Islam officially joined SABP on November 15, 2018 and has taken over responsibility for the new SABP office in Dhaka.

BRAC University. Over the last two years, she has been involved in work related to assessing the perception of GM food in Bangladesh among young people. Dr. Islam completed her M.Sc. in Botany from Dhaka University and her Ph.D. from Jawaharlal Nehru University, with research conducted at the International Center for Genetic Engineering and Biotechnology in New Delhi.

Dr. Islam officially joined SABP on November 15, 2018 and has taken over responsibility for the new SABP office in Dhaka. From there, she will oversee activities in Bangladesh, advancing the mission of SABP to work collaboratively with stakeholders and the Government of Bangladesh to strengthen institutional governance of biotechnology. SABP is delighted to have someone of Dr. Islam's academic stature and personal and professional energy join us in this role.

Exploring the Potential of Halophytic Wild Rice, Uri Dhan: Seminar at Dhaka University

Dr. Zeba I. Seraj, Dhaka University

The Bangladesh Government has established a Climate Change Trust (BCCT) that works under the Ministry of Environment, Forests, and Climate Change. Operating under the BCCT, a national climate fund (BCCT Fund - BCCTF) enables projects involving research and other activities that help in mitigating the effects of climate change.

Financed by the BCCTF, collaborative research was carried out by Dhaka University (DU) and the Bangladesh Rice Research Institute (BRRI) to investigate the potential of Uri dhan or *Porteresia coarctata* (Pc) to help in the production of salt tolerant commercial rice. After the successful completion of the project, a seminar was held at Nawab Ali Chowdhury Senate Bhaban, University of Dhaka. The seminar was graced by special guests: Mr. Dipak Kanti Paul, Managing Director (Additional Secretary), BCCT and Dr. Md. Shahjahan Kabir, Director General, BRRI. The seminar was inaugurated by Dr. M. Akhteruzzaman, Vice-Chancellor, University of Dhaka. Dr. Zeba I. Seraj, the project's Principal Investigator delivered the presentation: "The Different Ways Uri dhan (*Porteresia coarctata*) Can Be Used for Developing Highly Salt Tolerant Rice Varieties."

Pc or *Porteresia coarctata* is a rice-like halophyte, locally known as Dhanighash (the grass with rice-like grains) or Uri dhan (the rice was originally discovered at a depositional landform off the coast on Noakhali

called Uri). It is endemic to the complete coastal area of Bangladesh, from Cox's Bazaar in the west to Khulna in the east. The halophyte can complete its lifecycle in seawater (400mM salt), profusely flowers from October to November, but propagates through rhizomes as the grains dry out quickly and thus fail to germinate. Keeping this in mind,

the project was carried out with three objectives. Part of the project investigated the de-salinization ability of Pc in both hydroponics and soil and how this could help in rice growth. The second part of the project involved forced hybridization between *Oryza sativa* and Pc, while the third part involved identification of genes related with stress and

transport in Pc and transformed into rice.

Dr. Sultanul Aziz, a famous Botanist-cum-Microbiologist, explained the interesting physiology of Pc after the Keynote. Dr. Kabir and Mr. Paul talked at length about urgent and extensive research work needed to tackle climate change and how the project had many take-home messages for more research to be undertaken. A lively discussion followed the talk, where invited scientists from BRRI, DU, and others took part under the facilitation of Dr. M. Sayedul Islam of the Department of Biochemistry and Molecular Biology, DU. The seminar was attended by several delegates from the Ministry of Agriculture and Ministry of Environment, Forests, and Climate Change.

Collaborative research was carried out by Dhaka University (DU) and the Bangladesh Rice Research Institute (BRRI) to investigate the potential of Uri dhan or *Porteresia coarctata* (Pc) to help in the production of salt tolerant commercial rice.



Dr. Sultanul Aziz, Mr. Dipak Kanti Paul, Dr. M. Sayedul Islam, Dr. M. Akhteruzzaman, Dr. Md. Shahjahan Kabir, and Dr. Zeba I. Seraj at the seminar at Dhaka University.

Lecture on Gene Editing at University of Delhi, South Campus

Dr. Vibha Ahuja, Biotech Consortium India Limited

The University of Delhi, South Campus invited Dr. Andrew F. Roberts, Deputy Executive Director, ILSI Research Foundation to deliver a lecture on Biosafety Risk Assessment and Regulation of Gene Edited Plants on December 11, 2018. Dr. Roberts oversees programs addressing environmental risk assessment and food safety assessment for agriculture biotechnology and was warmly welcomed by Dr. Deepak Pental, Professor of Genetics and the former Vice Chancellor at the University of Delhi.

Dr. Roberts introduced the topic of gene editing and talked about its application to plants. He informed the audience of the lack of a globally accepted definition of gene editing. In general, gene editing

refers to the application of various techniques, viz. Zn Finger nucleases, TALENS, CRISPR-Cas, etc., to make targeted changes to DNA sequences at a known location. Dr. Roberts indicated that gene editing tools allow the generation of desired traits more efficiently than conventional breeding. He spoke about the potential of gene editing in plant improvement and indicated that the techniques are likely to be of much significance to plant varieties having a limited market lifespan, e.g., fruits and vegetables, species with genomes that make breeding difficult such as wheat, and clonally or vegetatively propagated crops such as potato. Further, he deliberated on using existing risk/safety assessment frameworks to evaluate the products of gene editing. He also gave an

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Dr. Deepak Pental at the University of Delhi, South Campus, with students in the audience.

overview of the global regulatory review policies followed by several countries like Argentina, Australia, Brazil, Canada, European Union, Japan, Republic of Korea, South Africa, and United States.

The session was highly informative, engrossing an audience comprised of students and faculty at Delhi University. A question and



Dr. Andrew Roberts delivering the lecture at the University of Delhi, South Campus.

answer session followed the lecture, with significant participation from the audience. Dr. Deepak Pental thanked Dr. Andrew Roberts for sharing his views on risk/safety assessment and regulatory issues with the students and faculty.

INDIA

7th Training Workshop for Institutional Biosafety Officers on Confined Field Trials of Genetically Engineered Plants

Dr. Vibha Ahuja, Biotech Consortium India Limited

The ICAR Programme on Biosafety Compliance and Readiness sponsored by the Indian Council of Agricultural Research (ICAR), Biotech Consortium India Limited (BCIL), and ILSI Research Foundation under the aegis of the South Asia Biosafety Program (SABP) organizes training workshops for Institutional Biosafety Officers (IBOs) of ten participating institutes. The 7th Training Workshop for Institutional Biosafety Officers on Confined Field Trials (CFTs) of Genetically Engineered (GE) Plants was organized at the National Research Center of Plant Biotechnology (NRCPB) on December 10-11, 2018. The focus of the workshop was on the conduct and monitoring of CFTs of regulated GE plants. In addition to IBOs, scientists engaged in the development of GE plants under the ICAR Network Project of Transgenics in Crops (NPTC) also participated in the workshop.

The workshop program included an opening session and three technical sessions on key aspects related to the conduct of CFTs as per stipulated guidelines by regulatory authorities in India. A total of 20 participants attended the workshop.

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited welcomed the participants and informed them that the program was structured based on requests from IBOs and scientists working in the NPTC project who are taking their research products from laboratory to field per the Indian biosafety regulatory framework. In his opening remarks, Dr. N. K. Singh, Director, NRCPB and Coordinator,

The workshop program included an opening session and three technical sessions on key aspects related to the conduct of CFTs

NPTC indicated that there are several products in the advanced stage in ICAR institutions that need to be subjected to event selection trials or Biosafety Research Level I trials. He thanked the ILSI Research Foundation and BCIL for this timely initiative. He also asked all scientists to clarify their doubts, if any, and work towards submitting applications for CFTs to regulatory agencies at the earliest.

Dr. Andrew Roberts, Deputy Executive Director, ILSI Research Foundation provided an overview of the program. The program was designed with presentations followed by exercises that were prepared for an in-depth understanding of the CFT process. He informed the participants that interactive walkthroughs for the application for CFTs and recording formats were included to ensure threadbare discussions. Highly informative presentations were delivered by Dr. Vibha Ahuja and Dr. Andrew Roberts on regulatory process for CFTs, applicable guidelines and SOPs, component of application forms and handling material, maintaining isolation, and harvest/terminal and post-harvest procedures. Requirements for demonstrating compliance and also examples of non-compliance were explained so as to ensure that the conduct of CFTs by ICAR scientists is in line with regulatory requirements.

The workshop was well received, and participants were actively engaged in all exercises and discussions.



Workshop participants with Dr. Vibha Ahuja and Dr. Andrew Roberts.



Dr. Andrew Roberts speaking at the workshop.

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA			
First Vegetable Science Congress on Emerging Challenges in Vegetable Research and Education (VEGCON-2019)	Indian Society of Vegetable Science, Agriculture University, Jodhpur, Indian Institute of Vegetable Research, Varanasi, and Indian Council of Agricultural Research	February 1 - 3, 2019, Jodhpur	http://aujodhpur.ac.in/
13 th International Conference on Dryland Development: Converting Dryland Areas from Grey into Green	International Dryland Development Commission, Arid Zone Research Association of India, and Central Arid Zone Research Institute	February 11 - 14, 2019, Jodhpur	http://www.13icdd.com/
International Conference on Trends in Plant Sciences and Agrobiotechnology 2019	Department of Biosciences and Bioengineering and Center for Rural Technology, IIT Guwahati and Plant Tissue Culture Association - India	February 14 - 16, 2019, Guwahati	https://ictpa2019.in/
XIV Agricultural Science Congress – Innovations for Agricultural Transformation	National Academy of Agricultural Sciences, Indian Council of Agricultural Research, and Indian Agricultural Research Institute	February 20 - 23, 2019, New Delhi	http://14agricongress2019.in/index.php and http://www.iari.res.in/files/Latest-News/14ASCFirstCircular_19042018.pdf
INTERNATIONAL			
International Seminar on Conservation and Prospecting of Bioresources in Asia-Pacific Region	Asia-Pacific Association of Agricultural Research Institutions	December 18 - 20, 2018, Taipei, Taiwan	https://www.apaari.org/
15 th ISBR Symposium	International Society for Biosafety Research (ISBR)	April 1 - 4, 2019, Tarragona, Spain	http://www.isbr2019.com/
Workshop on Use of Genome Editing and Other New Breeding Technologies for Global Food Security	International Center for Genetic Engineering and Biotechnology and National Institute for Biotechnology and Genetic Engineering Faisalabad, Pakistan	April 8 - 10, 2019, Islamabad, Pakistan	https://www.icgeb.org/pakistan-genome-editing-2019.html



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.



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