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# South Asia Biosafety Program

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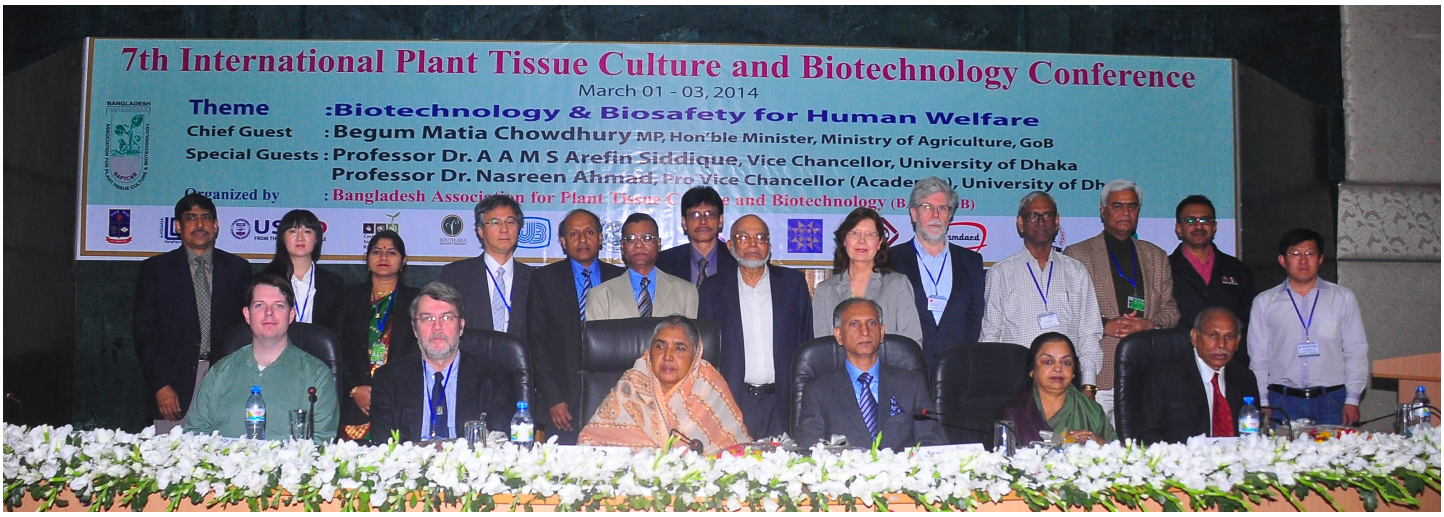
BANGLADESH

## Highlights from the 7th International Plant Tissue Culture and Biotechnology Conference




The 7th International Plant Tissue Culture & Biotechnology Conference was held March 1-3, 2014, at the University of Dhaka, Bangladesh. The conference was organized by the Bangladesh Association for Plant Tissue Culture & Biotechnology (BAPTC&B) in collaboration with Dhaka University, the South Asia Biosafety Program (SABP), Janata Bank, Bangladesh Development Bank Ltd. (BDBL) along with many international and national organizations who joined as sponsors and co-sponsors. The theme of the conference was biotechnology and biosafety for human welfare. A large number of participants from Bangladesh, India, Pakistan, Malaysia, Japan, Germany and the USA joined in this three day international conference.

The inaugural ceremony of the conference was held in the Nabab Nawab Ali Chowdhury Senate Bhaban building of the University of Dhaka. Agriculture Minister Begum Matia Chowdhury MP inaugurated the conference as the chief guest along with special guests, Prof. Dr. AAMS Arefin Siddique, Hon'ble Vice-Chancellor, Dhaka University, Pro-Vice Chancellor Prof. Dr. Nasreen Ahmad and Treasurer of Dhaka University Prof. Dr. Kamal Uddin.

Professor Dr. Hans-Jorg Jacobsen of the University of Leibniz University of Hannover, Germany, delivered the plenary lecture during the inaugural ceremony. President of BAPTC&B Prof. M. Mozammel Haque delivered the welcome address, and Secretary of the Organizing Committee Prof. Sk. Shamimul Alam gave the vote of thanks.

Begum Matia Chowdhury MP urged researchers to take on revolutionary roles to promote the agricultural system in Bangladesh. She stressed the importance of increasing food production to make food security in the country through biotechnology research.

Dr. AAMS Arefin Siddique mentioned biotechnology is the key technology of the 21st century. It provides us with opportunities for nutrition, agricultural productivity, fine chemicals and bio-based plastics.

Professor Dr. Hans-Jorg Jacobsen gave an account on the scope and opportunities of agricultural biotechnology, especially in developing countries. He said, the position of Bangladesh in the field of *Bt* brinjal is very praiseworthy and credit for this should go to the government of Bangladesh.

Four presentations were made at the SABP sponsored session entitled "Biosafety and Public Acceptance of Genetically Modified Crops". Presenters included Dr. Andrew Roberts, Deputy Director, Center for Environmental Risk Assessment (CERA), Professor Imdadul Hoque, SABP Bangladesh Country Coordinator, Mr. Mohammed Solaiman Haider, Deputy Director, Department of Environment and Member Secretary, National Committee on Biosafety. Topics covered during this session included an introduction to biosafety and the need for genetically modified crops and food. It also included an overview of SABP's activities supporting the development of biosafety regulation in Bangladesh and elsewhere.

Draft recommendations were presented by Prof. Dr. Zeba Islam Seraj during the concluding ceremony. There was an open discussion on the presented recommendations, which were adopted with the remarks of the participants. The conference ended with a vote of thanks offered by Prof. Dr. Sheikh Shamimul Alam, Secretary of the Organizing Committee.

## SPOTLIGHT ON THE BIOSAFETY RESEARCH IN PAKISTAN GRANTS PROGRAM

The Biosafety Research in Pakistan Grants Program (BRPGP) supports laboratory, field, and literature research that will significantly advance knowledge relevant to the environmental risk assessment of genetically engineered plants in Pakistan.

The BRPGP is managed by the Center for Environmental Risk Assessment (CERA), ILSI Research Foundation, as part of the biosafety component of the Pakistan Strategy Support Program (PSSP). The PSSP is financially supported by the US Agency for International Development (USAID) through the International Food Policy Research Institute (IFPRI), which manages PSSP.

The Biosafety Research in Pakistan Grants Program recognizes the need for biosafety research as part of a broader effort to support science-based decision-making and policy development and will fund research aimed at addressing the effects of agricultural biotechnology, particularly transgenic crops, on the environment and biodiversity in Pakistan. Grantees come from agricultural or environmental research institutions and universities in Pakistan.

All grantees work to:

- Address the effects of genetically engineered (transgenic) crops on the environment.
- Be relevant to Pakistan and take place in Pakistan.
- Demonstrate applicability to environmental risk assessment of transgenic plants and regulatory decision-making in Pakistan.

**2013 GRANTEE:** Dr. Muhammad Naveed

**JOB TITLE:** Scientific Officer and Cotton Entomologist

**ORGANIZATION:** Central Cotton Research Institute Multan

**PROJECT TITLE:** "*Earias* spp survival to transgenic *Bt* cotton strains having different protein levels"

**PROJECT DESCRIPTION:** In Pakistan, the area of transgenic cotton is rapidly increasing although most of the varieties are unapproved by the regulatory authorities. The toxin known as "cry protein" in *Bt* cotton grown in the country is highly variable. This variability may result in better survival and development of target pests, as well as escaping direct or high doses of the toxin. A major challenge for planting *Bt* cotton for pest control is the potential for insects to evolve to become resistant to *Bt* toxins. If the insect resistance occurs to *Bt* cotton, it would be a catastrophic crisis to 1.3 million cotton farmers in Pakistan.

This project was initiated to correlate endotoxin concentrations with *Earias* spp bollworms survival and development and to ensure the best recommendation to farmers. It is likely that a continuous presence of the low toxin imposes a strong selection pressure on the target insect pest, eventually resulting in the development of insect resistance to the toxin. It is therefore necessary to monitor the changes in efficacy of *Bt* cotton over time regularly. It is also pertinent to develop and initiate implementation of proactive resistance management strategies to ensure that the rate of resistance development is delayed.

**To view all grant projects, visit the CERA website at:**

**http://bit.ly/1hVizAM**

# Lessons Learned on Raising Awareness on Dual Use Concerns in Biotechnology

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On March 25, 2014, an international workshop was organized by the Pakistan Academy of Sciences and the Department of Biotechnology, Quaid-i-Azam University (QAU), Islamabad, which is part of the European Union (EU) Chemical, Biological, Radiological and Nuclear (CBRN) Centres of Excellence (CoE) Risk Mitigation Initiative and the InterAcademy Panel through the Pakistan Academy of Sciences.

This workshop was organized with the following objectives: to minimize the biological and environmental hazards produced from these technologies; to develop new policies and practices that will prevent the ethical issues that arise from biomedical research; and to develop a multidisciplinary system where different scientist share their ideas for the betterment of all living creatures.

The workshop focused on developing awareness about dual use issues arising from the present biotechnologies for researchers and the public. It also aimed to develop a new novel system that could provide risk free technologies to consumers. The efforts of QAU in educating scientists and youth about dual use were reviewed.

The Japanese ambassador in Pakistan, HE Hiroshi Inomata, inaugurated the workshop, sharing his point of view with the participants. Biotechnology experts from Pakistan gathered to provide insight, including Dr. Anwar Naseem, Pakistan Academy of Science and SABP Pakistan Country Coordinator, Dr. Aamier Ikram, Secretary General, Pakistan Biosafety Association, Dr. Khan Bahadar Marwat, VC, Shaheed Banazeer, Bhutto University Sheringal Dir Upper, VC of QAU, and Chief Organizer, Dr. Zabta Khan Shinwari, Chairman Department of Biotechnology, QAU. International delegates from Japan and Italy also participated in the discussion.

Students from the Biotechnology Department of QAU delivered group presentations on different topics related to dual use education, including synthetic biology and its impact on society, conduct of responsible science, emerging technologies and dual use concerns. Their contributions made this event more interesting.

The workshop put forward recommendations as to how governments, institutions, and professionals in both the developed and developing world can make the world safer from emerging pathogens, whether natural or manmade. The workshop was also useful to make a novel system to solve some of the major issues that arise from the misuses of biotechnology and other life sciences.

# Key Messages from the Biosafety Procedures for Recombinants and GM Crops Workshop

A one-day workshop was organized by the Biotech Consortium India Limited (BCIL) and the National Institute of Nutrition (NIN), an institution of the Indian Council of Medical Research (ICMR) in Hyderabad on "Biosafety Procedures for Recombinants and Genetically Modified (GM) Crops" on March 26, 2014. The objective of the workshop was to share information about the guidance and procedures adopted during the safety assessment of GM crops. NIN is one of the leading institutions in the country actively engaged in conducting safety studies, particularly toxicity and allergenicity assessments of GM crops. More than 120 participants, including scientists and students from NIN and other public and private institutions engaged in the development of GM crops, attended the workshop.

In her opening address, Dr. K. Polasa, Director, NIN, welcomed all the participants and informed them that the Indian regulatory system is on par with some of the current leading global regulatory systems. She shared that approval for any GM crop is only after a thorough analysis of the food and feed safety studies being conducted. She requested all participants to utilize this opportunity for clarifying any queries and doubts related to developing GM crops and conducting confined field trials in India.

The workshop was inaugurated by Prof. Arjula R. Reddy, former Co-Chair of the Genetic Engineering Approval Committee (GEAC) and Vice Chancellor of Yogi Vemana University. In his address, Prof. Reddy mentioned that adoption of new technologies in agriculture is extremely important to address the ever increasing Indian population which is projected to reach 1.50 billion by the end of 2050. He indicated that each crop has a potential to yield more than what it produces in a farm. To feed the burgeoning population, it is necessary to reduce the gap between potential yield and the farm yield. From his viewpoint, genetic engineering can play a crucial role in this process of achieving higher yields through various interventions targeting biotic and abiotic stresses. He mentioned that at present, GM crops are being grown in more than 17 million hectares in 28 countries. He shared that in India, *Bt* cotton is the only crop which has been commercialized in 2002 and since then, this technology has moved India from the stage of cotton importer to cotton exporter. He confirmed that currently, India is the 2nd highest of all countries that produce cotton globally.

Presentations were made by Dr. Kiran K Sharma, Principal Scientist and Director Platform for Translational Research on Transgenic Crops (PTTC) at ICRISAT and Dr. S.M. Balachandran, Senior Scientist and Head, Crop Improvement Section, Directorate of Rice Research, the two leading institutions in Hyderabad working for development of GM crops as per the local needs. Dr. B. Dinesh Kumar, Deputy Director and Dr. S. Vasanthi, Senior Scientist from NIN, provided a detailed account of extensive toxicity and allergenicity studies being conducted at NIN to generate required data for safety assessment of GM crops for different technology developers. Both the scientists explained concept and principles of these assessments and shared their views. Dr. S.J. Rahman, Principal Scientist and Head, AICRP on Bio Control and Member RCGM, ANGRAU, presented key features of the regulatory process for conducting confined field trials and provided a detailed account on the monitoring of these trials.

The e-learning module on confined field trials of GE crops prepared under the aegis of South Asia Biosafety Programme (SABP) was introduced to the participants by BCIL.

The presentations were followed by a highly interactive question answer session particularly by the young research students. The participants appreciated this initiative and suggested that similar events for personnel engaged in nutrition education are also important.

## FAO SURVEY RESULTS ARE IN

On 20-21 March 2014, FAO held the "Technical Consultation on Low Levels of Genetically Modified (GM) Crops in International Food and Feed Trade" at FAO Headquarters in Rome, Italy. In 2013, FAO carried out an international survey to gather information on the extent and nature of problems incurred with low levels of GM crops in traded commodities and the results of the survey were used to conduct further analyses on trade, economic impact and relevant food/feed regulatory issues.

Prior to the meeting, FAO prepared two technical background documents entitled "Low Levels of GM Crops in Food and Feed: Regulatory Issues" and "Low Levels of GM Crops in International Food and Feed Trade: FAO International Survey and Economic Analysis," as well as a simple compilation document of the survey results, entitled "The Results of the FAO Survey on Low Levels of Genetically Modified (GM) Crops in International Food and Feed Trade."

A press release about the FAO survey, published on 13 March, is available at http://www.fao.org/news/story/en/item/216311/icode/ (in Arabic, English, French, Italian, Portuguese, Russian and Spanish). All relevant technical documents (in Arabic, Chinese, English, French, Russian and Spanish) and all the presentations made at the technical consultation are also available for download at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/llp/. Contact Masami.Takeuchi@fao.org for further information.

## NEW RESOURCE ON THE SAFETY ASSESSMENT OF GM FOODS

The International Life Sciences Institute (ILSI) has compiled a list of publicly available reviews and consensus statements from 40 major global health/scientific organizations, government agencies, and professional societies on the safety of genetically modified foods. To view this resource visit: http://www.ilsi.org/Pages/Safety%20Assessment%20of%20Genetically%20Modified%20Foods.aspx

## CALENDAR OF EVENTS

| EVENT | ORGANIZED BY | DATE | WEBSITE |
|---|---|---|---|
| **INDIA** | | | |
| Awareness Workshop on Issues Related to Genetically Modified (GM) Crops | Biotech Consortium India Limited | April 26, 2014, Tirupati, Andhra Pradesh | For more information, please contact info.bcil@nic.in |
| Global Conference on Technological Challenges & Human Resources for Climate Smart Horticulture: Issues and Strategies | ASM Foundation, New Delhi and Navsari Agricultural University | May 28-31, 2014 Navsari, Gujarat | http://nau.in/announce.php?id=12364 |
| **INTERNATIONAL & ONLINE** | | | |
| Ex Post Impact Assessment of Agricultural Research: Experiences, Lessons Learned and Perspectives | The Food and Agricultural Organization of the United Nations (FAO) | May 5-June 1, 2014 Online | For more information, please contact AIS@fao.org |
| Risk Assessment Considerations for RNAi-Based GM plants | European Food Safety Authority (EFSA) | June 4-6, 2014 Brussels, Belgium | http://www.efsa.europa.eu/en/events/event/140604.htm |
| Risk Assessment: The Role of Science in GMO Decision-Making | ICGEB Biosafety Unit, Trieste, Italy | June 30 – July 4, 2014 Trieste, Italy | http://www.icgeb.org/meetings-2014.html |
| Theoretical and Practical Course "Plant Tissue Culture: Tool for Genetic Engineering of Plants" | ICGEB and National Biotechnology Development Agency, Abuja, Nigeria | August 10-23, 2014 Abuja, Nigeria | http://www.icgeb.org/meetings-2014.html |
| 13th IUPAC International Congress of Pesticide Chemistry | IUPAC and ACS-AGRO | August 10-14, 2014 San Francisco, California United States | http://www.iupac2014.org/ |
| 12th Asian Conference and Expert Consultation on Maize for Food, Feed, Nutrition and Environmental Security | Asia-Pacific Association of Agricultural Research Institutions (APAARI), International Maize and Wheat Improvement Center (CIMMYT) and Vietnam Academy of Agricultural Sciences (VAAS) | October 27-29, 2014 Hanoi, Vietnam | http://www.apaari.org/events/12th-conference-on-maize.html |
| 13th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO13) | International Society for Biosafety Research (ISBR) | November 9-13, 2014 Cape Town, South Africa | http://isbr.info/ISBGMO13 |

SOUTH ASIA BIOSAFETY PROGRAM

**The South Asia Biosafety Program (SABP)** is an international developmental program implemented in India, Bangladesh and Pakistan 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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