

# South Asia Biosafety Program

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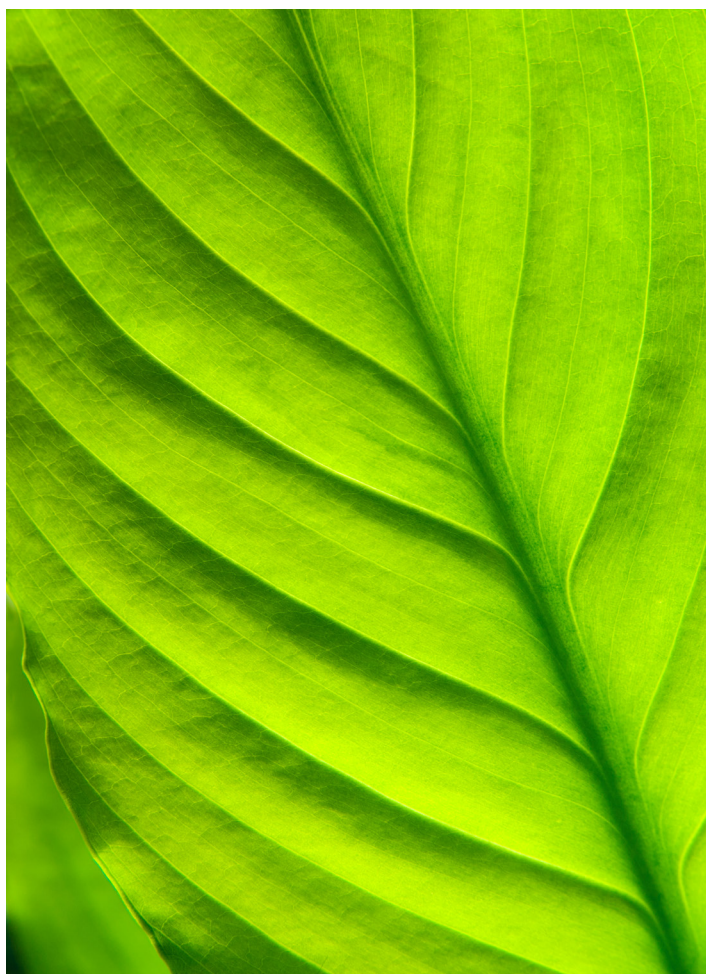
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## New Paper Published

### **A Comparative Analysis of Insertional Effects in Genetically Engineered Plants: Considerations for Pre-Market Assessments**

**Authors:** Jaimie Schnell, Marina Steele, Jordan Bean, Margaret Neuspiel, Cécile Girard, Nataliya Dormann, Cindy Pearson, Annie Savoie, Luc Bourbonnière, Philip Macdonald

**Abstract:** During genetic engineering, DNA is inserted into a plant's genome, and such insertions are often accompanied by the insertion of additional DNA, deletions and/or rearrangements. These genetic changes are collectively known as insertional effects, and they have the potential to give rise to unintended traits in plants. In addition, there are many other genetic changes that occur in plants both spontaneously and as a result of conventional breeding practices. Genetic changes similar to insertional effects occur in plants, namely as a result of the movement of transposable elements, the repair of double-strand breaks by non-homologous end-joining, and the intracellular transfer of organelle DNA. Based on this similarity, insertional effects should present a similar level of risk as these other genetic changes in plants, and it is within the context of these genetic changes that insertional effects must be considered. Increased familiarity with genetic engineering techniques and advances in molecular analysis techniques have provided us with a greater understanding of the nature and impact of genetic changes in plants, and this can be used to refine pre-market assessments of genetically engineered plants and food and feeds derived from genetically engineered plants

**Link:** <http://link.springer.com/article/10.1007/s11248-014-9843-7>

## REGISTER FOR THE SIXTH INTERNATIONAL BOTANICAL CONFERENCE

THE ROLE OF THE BOTANIST IN GLOBAL CLIMATE CHANGE

DECEMBER 6-7, 2014

UNIVERSITY OF DHAKA, BANGLADESH

Changing climate and its impacts on environment and human lives have been much talked about in the recent years. The consequence of climate change and climate fluctuations will affect all countries of the world – rich or poor, directly or indirectly, now or in the future. Plant scientists have the expertise to understand the impacts of climate change on biological diversity. They can also explore nature to identify elements and mechanisms for adapting plants in the changing environment. Through innovations, scientists can further improve our genetic resource base and contribute to, for example, improving food production systems under climatic variability. The 6<sup>th</sup> International Botanical Conference invites you to share your research, ideas and thoughts to show how plant science can contribute to sustainable development under a changing climate. For more information on how to register, please visit the conference website at [www.bdbotsoc.org](http://www.bdbotsoc.org).

## Key Messages from the Workshop on the Safety Assessment of Food Derived from GE Plants

DR. EMDADUL HAQUE CHOWDHURY, PROFESSOR, DEPARTMENT OF PATHOLOGY, BANGLADESH AGRICULTURAL UNIVERSITY, MYMENSINGH AND FORMER NATIONAL CONSULTANT FOR THE DEVELOPMENT OF NATIONAL BIOSAFETY FRAMEWORK OF BANGLADESH AND BIOSAFETY EXPERT OF FAO



Food safety assessments of genetically engineered (GE) plants are important concerns for the countries who want to release GE plants for environmental cultivation or use as foods and feeds. Several international organizations have addressed the issues (OECD, 1993; WHO, 1995; FAO, 1996; EC, 1997) and agreed that such assessments require an integrated, case-by-case approach and corresponding international guidelines are available. Accordingly, different national authorities have developed guidelines or frameworks to address the issues scientifically. In Bangladesh, greenhouse testing and confined field trails are being conducted by several institutions for a few GE crops. Therefore, food safety assessments have become a vital issue for the scientists and regulators of my country.

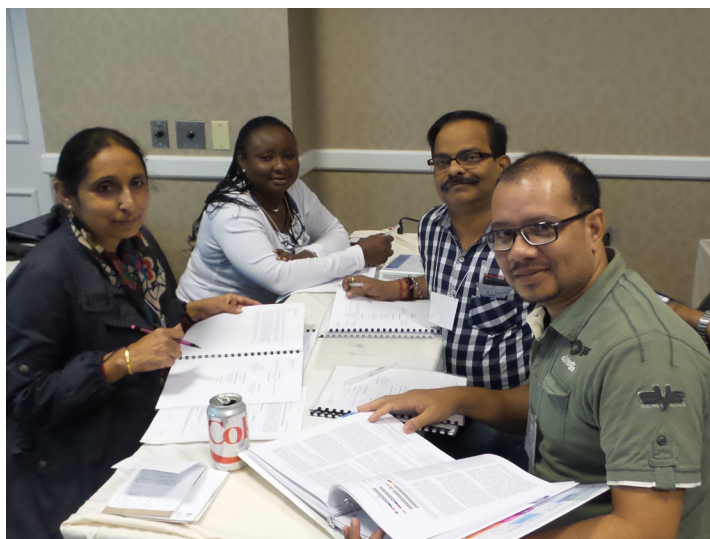
It was my great pleasure to be able to attend the food safety workshop September 15-19, 2014 in Delaware, USA. The workshop focused on what we need to help our scientists and regulators. The workshop nicely dealt with critical issues from molecular characterization of GE plants to acute and chronic toxicity testing theoretically by interactive presentations, group exercises and visits to the laboratories.

**“The experiences I gained from the workshop will be very practical for me as I work on developing genetically engineered microorganisms, teaching students on biosafety and as a member in different national committees.”**



I really enjoyed the group exercises that enabled us to deal with dossiers more scientifically for the safety parameters from a country perspective. I was very satisfied with the training. The visits to the DuPont Stine Haskell Research Center gave me an immense satisfaction about the way they deal with safety and health of people and the environment with the highest ethical behavior. I never thought that a developer company would show such colossal respect to the people and environment and would be employing science to solve the world problem.

I am really very grateful to the Center for Safety Assessment of Food and Feed (CSAFF) of the ILSI Research Foundation and DuPont Pioneer resource personnel for sharing their knowledge with us and making the training very successful. The experiences I gained from the workshop will be very practical for me as I work on developing GE microorganisms, teaching students on biosafety and as a member in different national committees. I suppose I could help our regulator more soundly now in approving GE plants as foods and feeds. Finally, I would like to thank the South Asia Biosafety Program for selecting me to attend this worthwhile workshop.





## 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 environmental risk assessment of genetically engineered plants in Pakistan.

The Biosafety Research in Pakistan Grants Program 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.

The 2014 proposals have been reviewed and five grantees have been accepted into the program for this year. Over the next several newsletters, we will be introducing each of the 2014 grantees that are part of BRPGP.



**2014 GRANTEE:** Dr. Mazhar Iqbal

**JOB TITLE:** Assistant Professor, Department of Environmental Sciences

**ORGANIZATION:** COMSATS Institute of Information Technology

**PROJECT TITLE:** "Risk Assessment of Transgenic Potato on Microbial Community, Enzymatic Activity and Physical/Chemical Properties of Soils from Major Growing Areas of Pakistan"

### PROJECT DESCRIPTION:

The main aim of this study is to provide the baseline information about the potential risks involved with the soil biological attributes in distinct agro-ecological and major potato growing areas of Pakistan by the introduction of PfkB-transgenic (anti-sweetening) potato and in comparison with non-transgenic ones. The specific objectives of this research will be to estimate the impact of PfkB-transgenic potato and non-transgenic potato, grown under major potato growing areas of Pakistan.

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

**[http://cera-gmc.org/index.php/The\\_Biosafety\\_Research\\_in\\_Pakistan\\_Grants\\_Program](http://cera-gmc.org/index.php/The_Biosafety_Research_in_Pakistan_Grants_Program)**



## SPECIAL EDITION OF THE TRANSGENIC RESEARCH JOURNAL

### FEATURING ISBGMO12 NOW AVAILABLE

Transgenic Research has issued a special edition, Volume 23, Issue 6, that contains the publications and conference proceedings from the 12<sup>th</sup> International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO12).

To view the journal, please visit: [http://link.springer.com/journal/11248/23/6?wt\\_mc=alerts.TOCjournals](http://link.springer.com/journal/11248/23/6?wt_mc=alerts.TOCjournals)

| EVENT  | ORGANIZED BY  | DATE   | WEBSITE   |
|--|---|--|---|
| <b>INDIA</b>   |   |  |   |
| Winter School on Strategies to Enhance Oilseed Brassica Production Under Climate and Resource Constraint Scenario                          | Directorate of Rapeseed-Mustard Research, Bharatpur   | November 11-December 1, 2014<br>Bharatpur      | <a href="http://www.drmr.res.in/publication/DRMR_Winter_School.pdf">http://www.drmr.res.in/publication/DRMR_Winter_School.pdf</a>   |
| Training Programme on the Application of Biotechnological Tools and Bioinformatics in Agriculture  | Center of Excellence in Agri-Biotechnology and Bioinformatics Infrastructure Facility, College of Biotechnology, Sardar Vallabhbhai Patel, University of Agriculture and Technology | November 12-December 2, 2014<br>Meerut         | <a href="http://svbpm Meerut.ac.in/repos/Training%20Programme.pdf">http://svbpm Meerut.ac.in/repos/Training%20Programme.pdf</a>   |
| Communication Workshop on Agricultural Biotechnology   | IFIC Foundation, USA, MoEF&CC, IIMC and BCIL  | November 19, 2014<br>New Delhi                 | Email: <a href="mailto:info.bcil@nic.in">info.bcil@nic.in</a>   |
| Media Workshop on Communicating Food Science and Agricultural Biotechnology  | IFIC Foundation, USA, MoEF&CC, IIMC and BCIL  | November 20, 2014<br>New Delhi                 | Email: <a href="mailto:info.bcil@nic.in">info.bcil@nic.in</a>   |
| National Conference of Plant Physiology (NCP-2014) On "Frontiers of Plant Physiology Research: Food Security and Environmental Challenges" | Department of Plant Physiology Orissa University of Agriculture and Technology Bhubaneswar and the Indian Society for Plant Physiology  | November 23-25, 2014<br>Bhubaneswar, Orissa    | <a href="http://www.ouat.ac.in/download/NCP%202014.pdf">http://www.ouat.ac.in/download/NCP%202014.pdf</a>   |
| National Seminar on Integrated Crop Management In Sugarcane For Increasing Cane, Sugar And Jaggery Yields                                  | Acharya N.G. Ranga Agricultural University  | December 5-6, 2014<br>Visakhapatnam            | <a href="http://www.angrau.ac.in/hlfiles/2014/aug/National%20Seminar%20%20on%20sugar%20canebrochure.pdf">http://www.angrau.ac.in/hlfiles/2014/aug/National%20Seminar%20%20on%20sugar%20canebrochure.pdf</a> |
| 2 <sup>nd</sup> International Conference on Bio-Resource and Stress Management   | Prof Jayashankar Telangana State Agricultural University and Acharya N.G. Ranga Agricultural University   | January 7-10, 2015,<br>Hyderabad               | <a href="http://www.angrau.ac.in/hlfiles/2014/oct/Brochure-ICBSM-2015_05092014_2100_with_RC.pdf">http://www.angrau.ac.in/hlfiles/2014/oct/Brochure-ICBSM-2015_05092014_2100_with_RC.pdf</a>                 |
| <b>INTERNATIONAL</b>   |   |  |   |
| 13 <sup>th</sup> International Symposium on the Biosafety of Genetically Modified Organisms (ISBGM013)                                     | International Society for Biosafety Research (ISBR)   | November 9-13, 2014<br>Cape Town, South Africa | <a href="http://isbr.info/ISBGM013">http://isbr.info/ISBGM013</a>   |
| Webinar on Biosafety   | Food and Agriculture Organization of the United Nations (FAO)   | November 12, 2014<br>Online                    | <a href="http://www.fao.org/food/food-safety-quality/events-projects/event/detail/en/c/24223/">http://www.fao.org/food/food-safety-quality/events-projects/event/detail/en/c/24223/</a>                     |
| 6 <sup>th</sup> International Botanical Conference   | Bangladesh Botanical Society  | December 6 -7, 2014<br>Dhaka, Bangladesh       | <a href="http://www.bdbotsoc.org">www.bdbotsoc.org</a>  |



**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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