



## SABP

The South Asia Biosafety Program (SABP) is an international developmental program initiated with support from the United States Agency for International Development (USAID). The program is implemented in India and Bangladesh and aims to work with the local governments to facilitate implementation of transparent, efficient and responsive regulatory frameworks that ensure the safety of new foods and feeds, and protect the environment.

Over the next three years, SABP will work with its in-country partners to:

- Identify and respond to technical training needs for food, feed and environmental safety assessment.
- Develop a sustainable network of trained, authoritative local experts to communicate both the benefits and the concerns associated with new agricultural biotechnologies to farmers and other stakeholder groups.
- Raise the profile of biotechnology and biosafety on the policy agenda within India and address policy issues within the overall context of economic development, international trade, environmental safety and sustainability.

## GM CROP DATABASE - A WEB BASED INFORMATION RESOURCE IN INDIA

Dr. T. R. Sharma

National Research Centre on Plant Biotechnology

Indian Agricultural Research Institute, New Delhi –110012, India

(Correspondence: [trsharma@nrcpb.org](mailto:trsharma@nrcpb.org))

In the recent past, there has been rapid increase in research and development activities on genetically modified organisms (GMOs) in India. However, the application of biotechnology in agriculture raises biosafety concerns towards environment and human health. Adopted in January 2000 as a supplement to the Convention on Biological Diversity, the Cartagena Protocol on Biosafety addresses the safe transfer, handling, and use of living modified organisms focusing especially on their transboundary movement. Under the sponsorship of Global Environment Facility and the World Bank, the Ministry of Environment and Forests initiated a project to enhance India's national capacity to implement the Cartagena Protocol. The specific objectives of the project include strengthening institutional and legal frameworks, to improve capacity and coordination in decision making across Ministries and to improve capacity for risk evaluation and management. As part of the latter, the National Research Centre on Plant Biotechnology (NRCPB) has undertaken a project to develop a comprehensive and detailed database of the genetically modified (GM) crops released or to be released in India. It is hoped that this database will be very useful for researchers in the field of agricultural biotechnology as well as others who are interested in this topic.

For the collection of GM crop data and storage of information for dissemination and future use various bioinformatics tools and computational algorithms can be used. Such algorithms

have now become indispensable and crucial tools in biotechnological research and its application. For the efficient and optimal use of published data generated on potential transgenic crops, construction of an integrated database by data collection and storage would be of great importance. This type of genetically modified organisms (GMOs) data resource would serve as a catalyst for the identification of potential risks involved in the release of such organisms. However, the retrieval and data querying through a user friendly interface has great significance for its popularization.

INFORMATION	NO. OF RECORDS
Crops	3
Cotton lines	135
Transgene	9
Promoter	3
Soil microflora	29
Environmental concern	9
Health concern	9
Developer Institution	21
PUBLICATION DATABASE	
Review articles	379
Research papers	88
Biosafety and IPR issues	41
Other publications	144

Table 1. Summary of records in GM crop database.

In NRCPB's project, "Development of Integrated database on GMOs and Biosafety Issues in India", efforts have been made to construct a complete database on genetically modified crops, which provides all necessary information about transgenic crop varieties being cultivated in India. Important information about such transgenic crops, whether these are commercially released or under limited field trials have also been provided (Table 1). Besides, we have included useful

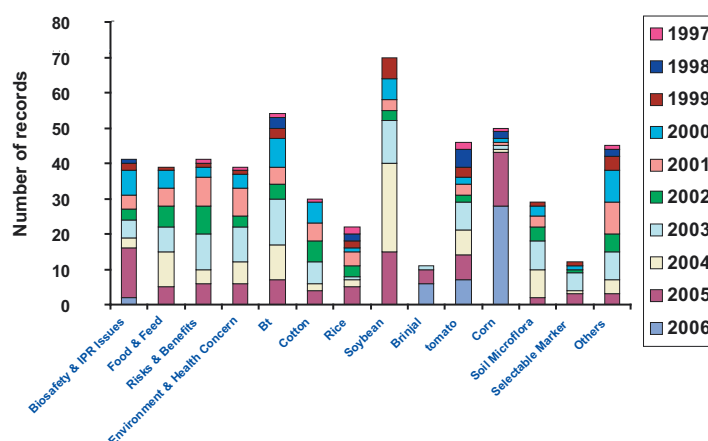


Fig. 1. Status of information stored in GM Publication database.

**CALENDAR OF EVENTS (INDIA)**

Event	Organization	Date	Place
Biosafety Awareness Raising Workshop	Ministry of Environment & Forests (MoEF)	December 18-19, 2006	Marathwada Agriculture University, Parbhani, Maharashtra
National consultation on issues related to regulatory compliance in GM crops	All India Crop Biotechnology Association and BCIL	December 22, 2006	New Delhi
Biosafety Programme for Science Writers/Journalists	MoEF	December 22-23, 2006	Chennai
Biosafety Awareness Raising Workshop	MoEF	December 29-30, 2006	Orissa University of Agriculture & Technology, Bhubaneswar
Biosafety Awareness Raising Workshop	MoEF	January 2007	University of Agriculture Sciences, Bangalore
Biosafety Awareness Raising Workshop	MoEF	January 2007	Agriculture University, Hyderabad
Awareness workshop on GM crops with a focus on post release monitoring	Ministry of Agriculture (MoA) and BCIL	January 8, 2007	Bangalore
National Consultation on Safety Assessment of GM Food Crops	Department of Biotechnology and BCIL	January 12, 2007	Varanasi
Training programmes on "Detection of LMOs"	Central Food Technological Research Institute (CFTRI)	January 16-20, 2007 and April 9-13, 2007	CFTRI, Mysore

**Database - continued from page 1**

information in the database on transgene, promoter, crop description and institutions involved in the development of transgenic lines. The database also stores categorized literature (more than 600 records) on biosafety and other related issues of GMOs published in the scientific journals from 1997 onwards (Fig.1). Some useful links to related databases have been provided so that users can visit other databases directly from NRCPB website. Hence, an effort has been made to avoid duplication of databases already existing in the World Wide Web. The database is available in public domain and accessible to one and all on the website ([www.nrcpb.org](http://www.nrcpb.org)) of NRCPB, New Delhi.

**GM FOOD SAFETY WORKSHOPS**

The Indian Council of Medical Research (ICMR), in association with AGBIOS Inc. and Biotech Consortium India Limited (BCIL), and under the South Asia Biosafety Program, will be hosting two workshops on the Safety Assessment of Foods Derived from Genetically Modified Crops. The workshops will be held January 22-26, 2007 in Pune and January 29-February 2, 2007 in Kolkata.

Topics that will be addressed during the five-day workshop are:

- Concepts and principles of GM food safety assessment
- Regulating GM foods
- Starting the safety assessment
- Host and donor organisms
- Molecular characterization
- An introduction to protein expression
- Introduction to the case study
- Case study review
- Overview of allergenicity assessment and introduction to specific steps

- Introductory bioinformatics
- FASTA
- BLASTP
- Limitations to short amino acid searches
- Transitioning from sequence searches to serum screening
- Bioinformatics report writing
- Case study review: allergenicity
- Human serum testing
- Animal models for assessing potential allergenicity
- Pepsin digestion
- Heat stability and abundance
- Assessing potential toxicity of novel proteins
- Assays
- Case study review: toxicity
- Compositional analysis
- Livestock feeding trials
- Case study review: nutritional assessment
- Case study review and preparation of decision letter
- Case study and decision letter presentations
- GM food safety assessment: the road ahead in India

For more information, please contact Dr. Vibha Ahuja or submit the registration form, which can be found on page 4 of this newsletter.

Dr. Vibha Ahuja  
Deputy General Manager  
Biotech Consortium India Limited  
Anuvrat Bhawan, 5th Floor,  
210, Deen Dayal Upadhyaya Marg  
New Delhi - 110 002  
Tel. No. ++91-11-23219064-67 (PBX); 23219059 (D)  
Fax No. ++91-11-23219063  
Email: [biotechdelhi@vsnl.com](mailto:biotechdelhi@vsnl.com); [bcildelhi@vsnl.com](mailto:bcildelhi@vsnl.com)  
Website: <http://www.biotech.co.in>

(continued on page 4 - see Workshops)

## REPORT ON INTERNATIONAL CONFERENCE ON THE IMPLICATIONS OF THE CARTAGENA PROTOCOL ON BIOSAFETY

An International Conference on the Implications of the Cartagena Protocol on Biosafety was organized in New Delhi, India from November 20-22, 2006, under the GEF-World Bank Capacity Building Project on Biosafety. The conference was inaugurated by Mr. A. Raja, Minister of Environment and Forests. The Conference was aimed at sharing country and regional experiences about biosafety and also to



Speakers at the International Conference on the Implications of the Cartagena Protocol on Biosafety.

improve capacity among key stakeholders. Shri Namo Narain Meena, Minister of State (Environment & Forests), Dr. Ahmed Djoghlaif, Executive Secretary, Convention on Biological Diversity (CBD) and many eminent scientists and experts from various countries *viz.* India, Canada, Mexico, Colombia, Philippines, Ghana and China participated in the Conference. Speakers from UN agencies and other international organizations *viz.* World Bank, UNU, UNEP-GEF, ICGEB and USAID deliberated in the Conference and shared their views on biosafety.

The three day Conference had nine technical sessions on various significant issues about biosafety such as international and national efforts for implementation of the Cartagena Protocol on Biosafety, capacity building in biosafety, labeling of LMOs, risk assessment and detection of LMOs, information



Delegates at the International Conference on the Implications of the Cartagena Protocol on Biosafety.

sharing and the Biosafety Clearing House, *etc.* The Conference stimulated productive discussion amongst the speakers and attendees. Some of the significant outcomes include the following:

- A multi year Plan of Action on South-South Co-operation for implementation of biosafety issues needs to be prepared.
- There is a need for a Plan of Action for Regional Co-operation on Biosafety.
- National prioritization of actions, identified through the National Biosafety Frameworks and other similar processes, are a critical requirement and need to be communicated appropriately.
- Biosafety need not be considered in isolation but within the framework of sustainable development.
- There is a need for harmonization of national policy frameworks and scientific basis for decision making to avoid the conflict between policy makers and scientists.
- Countries should engage in progressive debates on harmonization of trade and environmental issues within the framework of Cartagena Protocol on Biosafety and WTO-TRIPS.
- Regional programmes for sharing of information on biosafety need to be promoted.
- There is a need for involvement of various stakeholders in biosafety.

### NEW CROPS NEEDED TO AVOID FAMINES

BBC News - December 4, 2006

The global network of agricultural research centres warns that famines lie ahead unless new crop strains adapted to a warmer future are developed.

The Consultative Group on International Agricultural Research (CGIAR) says yields of existing varieties will fall.

New forecasts say warming will shrink South Asia's wheat area by half.

CGIAR is announcing plans to accelerate efforts aimed at developing new strains of staple crops including maize, wheat, rice and sorghum.

See the full article at: [http://agbios.com/sabp\\_main.php?action=ShowNewsItem&id=8039](http://agbios.com/sabp_main.php?action=ShowNewsItem&id=8039)

### CANADA TO PARTNER INDIA IN KNOWLEDGE CITY PROJECT

RxPG News Service - December 6, 2006

NEW DELHI -- Canada will help India set up a knowledge city at Mohali in Punjab as part of a pact the two countries signed Tuesday to step up their cooperation in the field of science and technology.

The knowledge city is to be set up over an area of 350 acres, Science and Technology Minister Kapil Sibal said after signing a memorandum of understanding by Canada's Deputy Minister of Agriculture and M.K. Bhan, secretary, Department of Biotechnology.

See the full article at: [http://agbios.com/sabp\\_main.php?action=ShowNewsItem&id=8047](http://agbios.com/sabp_main.php?action=ShowNewsItem&id=8047)

**WORKSHOPS ON SAFETY ASSESSMENT OF GENETICALLY MODIFIED (GM) FOODS  
JANUARY 22 - 26, 2007, PUNE, AND JANUARY 29 - FEBRUARY 2, 2007, KOLKATA**

**REGISTRATION FORM**

PLEASE USE BLOCK LETTERS

**Name:** \_\_\_\_\_ **Position:** \_\_\_\_\_

**Employer/Institution/Company:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Relevant areas of expertise to GM food safety assessment:** \_\_\_\_\_

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**PLEASE FAX/E-MAIL REGISTRATION FORM TO  
OR FOR MORE INFORMATION PLEASE CONTACT:**

Dr. Vibha Ahuja, Deputy General Manager  
Biotech Consortium India Limited  
Anuvrat Bhawan, 5th Floor  
210, Deen Dayal Upadhyaya Marg  
New Delhi - 110 002  
Tel. ++91-11-23219064-67 (PBX), 23219059 (D)  
Fax No. ++91-11-23219063  
Email: [biotechdelhi@vsnl.com](mailto:biotechdelhi@vsnl.com); [bcildelhi@vsnl.com](mailto:bcildelhi@vsnl.com)  
Website: <<http://www.biotech.co.in/>>

**SABP CONTACTS**

**Canada**  
AGBIOS (Canada) Inc.  
106 St. John Street  
P.O. Box 475  
Merrickville, Ontario  
K0G 1N0 Canada  
Tel: +613-269-7966  
Email: [info@agbios.com](mailto:info@agbios.com)

**India**  
Purvi Mehta-Bhatt  
SABP Coordination Cell,  
The Science Ashram,  
9, Krishna Industrial Estate,  
Opp. B IDC,  
Gorwa, Vadodara - 390 016,  
Gujarat, India  
Tel: 0265-3257368  
Email: [p\\_mehta\\_bhatt@rediffmail.com](mailto:p_mehta_bhatt@rediffmail.com)

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We welcome reader comments or suggestions. E-mail your letters to: [nringma@agbios.com](mailto:nringma@agbios.com) Mail your letters to: The Editor, SABP Newsletter, P.O. Box 475, Merrickville, Ontario, K0G 1N0 Canada

