SOUTH ASIA
BIOSAFETY PROGRAM

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NEWSLETTER

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www.agbios.com/sabp

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.

SABP is working 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.

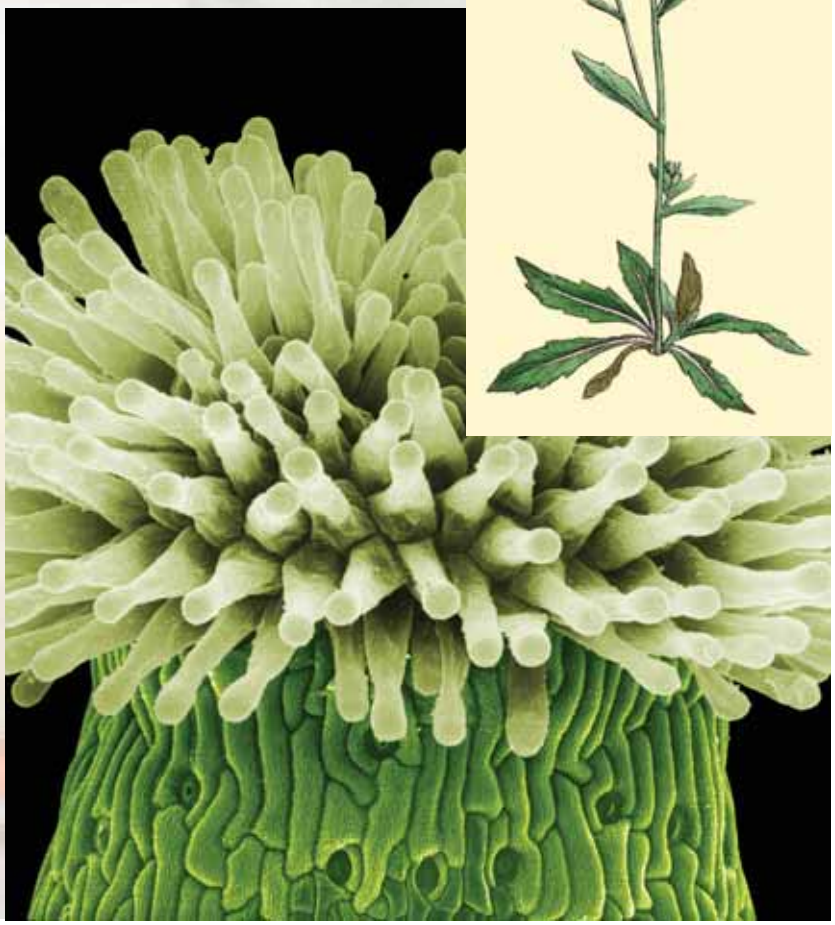
GENE TARGETING IN PLANTS

Dr. P. Ananda Kumar, Director
National Research Centre on Plant Biotechnology

Development of transgenic plants is an important endeavour with multiple applications in molecular biology and biotechnology. Many transgenic plant species expressing foreign traits have been commercialized in the past fifteen years. One of the important concerns related to the environmental release of transgenic plants is biosafety. The biosafety of the foreign protein to human and animal health is also influenced by the site and nature of gene integration in the plant genome, which may lead to unintended effects on human health. In addition, the quality of transgene expression in plants is influenced by the position of integration and the complexity of the integrated DNA. These limitations and concerns can be addressed by developing techniques by which foreign genes are targeted to pre-determined locations in the plant genome. Gene targeting also allows the production of specific and predictable changes in any chosen gene as it allows the systematic introduction of mutations and opens the door for novel approaches to analyze sequenced genomes.

Gene targeting relies on homologous recombination and provides a uniquely powerful tool for the sophisticated manipulation of genomes. Among eukaryotes, this approach has been most dramatically exploited in the manipulation of yeasts and other simple eukaryotes, including filamentous fungi and single-celled protozoan parasites such as *Trypanosoma* and *Leishmania*. Progress in the general understanding of homologous recombination and the discovery of highly efficient gene targeting in a moss (lower plant) permit us to develop techniques to accomplish gene targeting in higher plants. In recent years, approaches based on the availability of the genomic sequence of *Arabidopsis* have been successful. Concepts shown to improve gene targeting in such model systems can be applied to commercially important crops for practical applications. Although it has been reported that gene targeting was achieved in rice, through a stringent positive–negative selection procedure, the efficiency of gene targeting was very poor.

A major advance toward increasing the efficiency of precision gene integration in plants has been made by the expression of yeast Rad54 protein in *Arabidopsis*. If increased levels of Rad54 protein confer similar increases in gene trageting frequency in crop plants, it will become feasible to modify gene sequences *in vitro* and replace the resident gene with the modified gene.



Arabidopsis - stigma (below) and whole plant (right).

ACTIVITIES

CALENDAR OF EVENTS

INDIA

Event	Organization	Date	Place
Training Programme on Natural Resource Management for Sustainable Agriculture - A New Paradigm	Centre for Advanced Studies in Agronomy, Tamil Nadu Agricultural University (TNAU)	October 15 – November 4, 2007	TNAU, Coimbatore
Food Safety Workshop for Bt Cabbage and Cauliflower	Collaboration on Insect Management for *Brassicas* in Asia and Africa (CIMBAA)	October 26, 2007	TERI Habitat Centre, New Delhi
Farmers Awareness Workshops in Tamil Nadu, Andhra Pradesh and Haryana	Biotech Consortium India Limited (BCIL) and All India Crop Biotechnology Association (AICBA)	October – December 2007	Tamil Nadu, Andhra Pradesh and Haryana
6th Asian Crop Science Association Conference	BioAsia 2007 Thailand	November 7 - 9, 2007	Queen Sirikit National Convention Center Bangkok, Thailand
2nd International Conference on Rice for the Future (as part of BioAsia 2007)	BioAsia 2007 Thailand	November 7 - 9, 2007	Queen Sirikit National Convention Center Bangkok, Thailand
Biotech-2007: 5th Annual Conference of Biotechnology Society of India	Industrial Toxicology Research Centre (ITRC)	November 17 - 19, 2007	ITRC, Lucknow
International Training Programme on *In Vitro* and Cryopreservation of Plant Genetic Resources	National Bureau of Plant Genetic Resources (NBPGR) (for more information go to http://www.nbpgr.ernet.in/%5CPDF%5CTCCU_Training_Nov_2007.pdf)	November 15 - 29, 2007	NBPGR, Pusa Campus, New Delhi

WIPO RECOGNISES DEVELOPING WORLD RIGHTS

SciDev.Net - October 4, 2007

The World Intellectual Property Organization (WIPO), a UN agency, has approved a new development-oriented agenda that takes into account the needs of developing countries.

The WIPO development agenda was announced at the WIPO general assembly in Geneva, Switzerland, last week (28 September).

"It's gratifying that WIPO member states accept that we can no longer go on this way, and realise that WIPO's orientation needs to shift towards a more pragmatic and pro-poor agenda," said Graham Dutfield, co-director of the Centre for International Governance at the UK-based University of Leeds.

The agenda includes 45 proposals designed to harness intellectual property arrangements for development. These include promoting scientific cooperation between research and development institutions in developed and developing countries, as well as exploring intellectual property related policies and initiatives for the transfer and dissemination of technology to benefit developing countries.

It also calls for a database to match specific intellectual property related development needs with available resources — such as genetic resources — in developing countries, and international guidelines to protect genetic resources and traditional knowledge.

WIPO approved the creation of a new committee to implement the 45 proposals, which will meet twice in the next year.

Argentinean ambassador Alberto Dumont told a press briefing that these decisions will not be implemented overnight. "Some will take time, a lot of discussion and a lot of political will," he said.

The idea for a development agenda was first introduced by Argentina and Brazil at the 2004 WIPO general assembly and was backed by a group of 13 other developing nations

(continued on page 4 - see WIPO)

SPOTLIGHT ON THE WORDWIDE WEB

Over the next number of newsletters we will be spotlighting some important websites, created by the Department of Biotechnology (DBT) and the Ministry of Environment and Forests (MoEF), that provide information on GMOs.

This month we feature the Department of Biotechnology, Ministry of Science & Technology, Government of India (DBT) (http://dbtindia.nic.in). In the months ahead we will look at the websites of the Indian Biosafety Rules & Regulations; Ministry of Environment and Forests, Government of India; Capacity Building on Biosafety; India Biosafety Clearing House; National Research Centre on Plant Biotechnology; Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India; and Biotech Consortium India Limited (BCIL). - Editor

SPOTLIGHT ON THE WORLDWIDE WEB

Department of Biotechnology

Ministry of Science & Technology, Government of India

(http://dbtindia.nic.in)

The setting up of a separate Department of Biotechnology (DBT), under the Ministry of Science and Technology in 1986 gave a new impetus to the development of the field of modern biology and biotechnology in India. In more than two decades of its existence, the department has promoted and accelerated the pace of development of biotechnology in the country. Through several R&D projects, demonstrations and creation of infrastructural facilities a clear visible impact of this field has been seen. The department has made significant achievements in the growth and application of biotechnology to the broad areas of agriculture, health care, animal sciences, environment, and industry.

The impact of the biotechnology related developments in agriculture, health care, environment and industry, has already been visible and the efforts are now culminating into products and processes. More than 5,000 research publications, 4,000 post-doctoral students, several technologies transferred to industries and patents filed including US patents, can be considered as a modest beginning. Department of Biotechnology has been interacting with more than 5,000 scientists per year in order to utilise the existing expertise of the universities and other national laboratories. A very strong peer reviewing and monitoring mechanism has been developed. There has been close interaction with the State Governments particularly through State S&T Councils for developing biotechnology application projects, demonstration of proven technologies, and training of human resources in States and Union Territories. Programmes with the states of Gujarat, Rajasthan, Madhya Pradesh, Orissa, West Bengal, Haryana, Punjab, Jammu & Kashmir, Mizoram, Andhra Pradesh and Uttar Pradesh have evolved. Biotechnology Application Centres in Madhya Pradesh and West Bengal have been started.

A unique feature of the department has been the deep involvement of the scientific community of the country through a number of technical task forces, advisory committees and individual experts in identification, formulation, implementation and monitoring of various programmes and activities.

In India, more than a decade of concerted effort in research and development in identified areas of modern biology and biotechnology have given rich dividends. The proven technologies at the laboratory level have been scaled up and demonstrated in field. Patenting of innovations, technology transfer to industries and close interaction with them have given a new direction to biotechnology research. Initiatives have been taken to promote transgenic research in plants with emphasis on pest and disease resistance, nutritional quality, silk-worm genome analysis, molecular biology of human genetic disorders, brain research, plant genome research, development, validation and commercialisation of diagnostic kits and vaccines for communicable diseases, food biotechnology, biodiversity conservation and bioprospecting, setting up of micropropagation parks and biotechnology based development for SC/ST, rural areas, women and for different States.

Necessary guidelines for transgenic plants, recombinant vaccines and drugs have also been evolved. A strong base of indigenous capabilities has been created. The field of biotechnology both for new innovations and applications will form a major research and commercial endeavor for socio-economic development in the next millennium.

WIPO - *continued from page 2*

(Bolivia, Cuba, the Dominican Republic, Ecuador, Egypt, Iran, Kenya, Peru, Sierra Leone, South Africa, Tanzania, Uruguay and Venezuela) under the banner 'Friends of Development'.

Negotiations have been taking place for three years and the proposals met resistance from WIPO members and some developed countries.

Dutfield said the approval of the agenda came largely thanks to the persistence of the Friends of Development. "WIPO is in no position to actively oppose such a large grouping of developing countries, including fairly powerful ones like Argentina and Brazil, for any length of time."

GM-SEED EDIBLE OIL IMPORT ALLOWED

Commodity Online - October 1, 2007

Fearing a shortage of edible oil during the festival season, the Directorate General of Foreign Trade (DGFT) has lifted the ban on the import of edible oils extracted from genetically modified oilseeds.

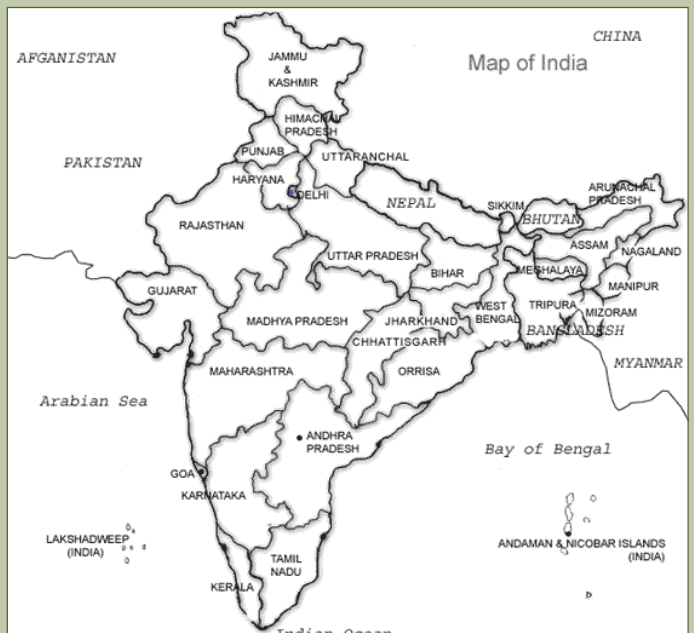
According to officials, the move allows traders to freely import edible oil derived from GM oilseeds.

Officials said the restriction on the import of edible oil sourced from GM oilseeds has been removed. Earlier, the importers had to declare that the oil was not sourced from GM oilseeds but it was difficult to trace whether the oil was sourced from GM seeds.

Seeing the increasing demand from exporters and the country's requirement of imported edible oils, the import ban had been relaxed.

The freeing of edible oil imports would come as a boon for hundreds of licence holders to import GM oils.

Because a great deal of the content of this newsletter features India and because not all readers may be familiar with the geography of its States I thought it might be helpful to include the following map. -- Editor



http://www.eholidaysindia.com/maps.htm

GOVT ASKS INDUSTRY TO MONITOR GM SOYBEAN OIL IMPORTS

The Hindu - October 5, 2007

After allowing import of genetically modified soyabean oil without the need to get case-to-case approval by the Environment Ministry, the government has asked the industry to strictly monitor inflow of GM edible oil.

The Commerce Ministry has directed the Solvent Extractors Association of India (SEA) to compile the monthly data of the GM soyabean oil imports.

However, SEA may find it difficult to meet the obligation in the absence of executive powers.

"We are talking to the Commerce Ministry to issue some kind of guidelines," SEA Executive Director B V Mehta said.

Mehta said it would be difficult to compile the data about those importers who are not members of the association.

Most of the soya oils coming from Argentina or Brazil are genetically modified. In the past, every shipment had to get clearances of the Genetic Engineering Approval Committee (GEAC), under the Environment Ministry.

In August, the Environment Ministry had allowed import of GM soyaoil without approval of this committee as the oil does not have living modified organisms (LMO). The ministry, in fact, exempted all imported processed food articles from seeking GEAC approval if they do not contain LMOs.

India's edible oil import has reached 38 lakh tonnes during November-August of 2006-07 oil year. Of this, soyabean oil (both crude and refined) accounted for 10.55 lakh tonnes. Oil year runs from November to October.

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