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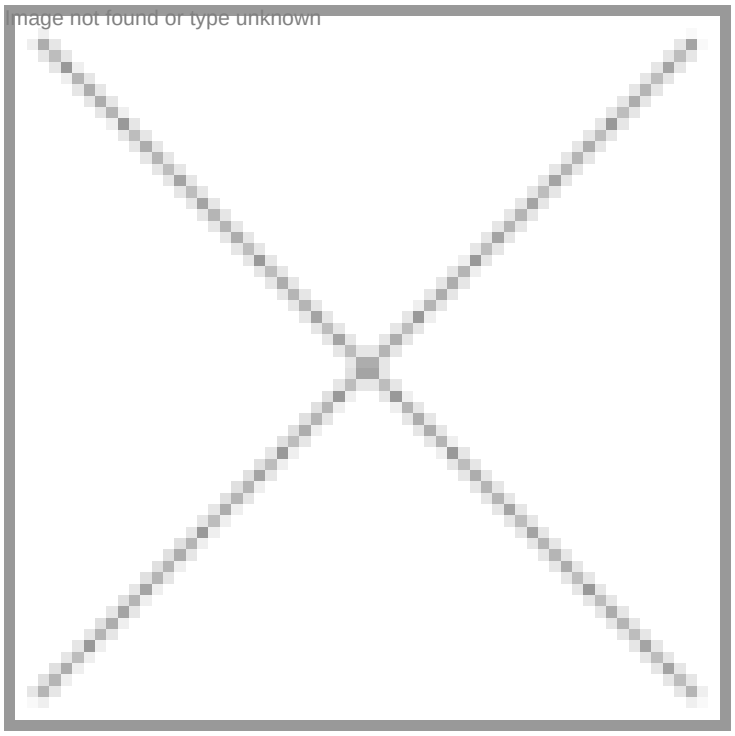

How to assure safety of GM foods?

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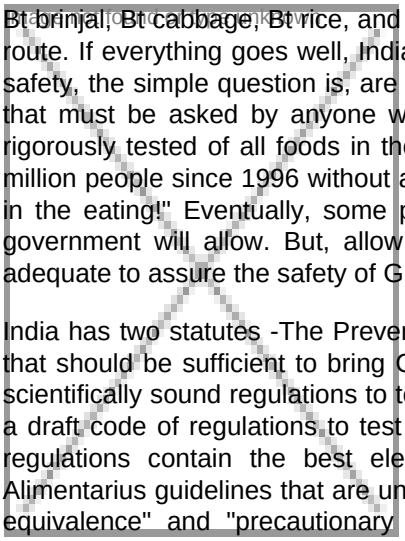

Bt brinjal, Bt cabbage, Bt rice, and a series of GM food crops are making their way to Indian markets via a tortuous regulatory route. If everything goes well, Indians will be eating them safely in a couple of years. But, given all the brouhaha about their safety, the simple question is, are GM foods safe for consumers in the long run? It is an important question indeed, and one that must be asked by anyone with common sense. There are many answers. First, GM crops and foods are the most rigorously tested of all foods in the market, and second, the GM foods are being consumed in North America by over 350 million people since 1996 without a single verifiable ill effect on people or animals. The answer is "the proof of the pudding is in the eating!" Eventually, some people in India will have to eat and live to tell whether it is safe or not, but only if the government will allow. But, allow on what basis? Does the Government of India have a food safety policy and is that adequate to assure the safety of GM food? The answer is "yes" to both.

India has two statutes -The Prevention of Food Adulteration Act of 1954, and The Food Safety and Standards Act of 2006 - that should be sufficient to bring GM foods under their ambit. There is really no need for another law. What India needs is scientifically sound regulations to test GM food for safety. The Indian Council of Medical Research (ICMR) has come out with a draft code of regulations to test for GM food safety in 2006 that is being debated in different forums. The draft codes of regulations contain the best elements of North American and European Union based on the non-voluntary Codex Alimentarius guidelines that are under development. The ICMR GM food safety guidelines adopt the principles of "substantial equivalence" and "precautionary principle" to make sure certain universal standardized tests for allergenicity, toxicity, chemical and nutritional composition is carried out. The purveyors of Bt brinjal have submitted the food safety data as required by the ICMR guidelines and have been reviewed by a group of competent experts appointed by GEAC, and have come to the conclusion that Bt brinjal shows no significant differences from a non-Bt brinjal. Some of the tests that have been conducted on Bt brinjal include toxicological studies by an accredited private lab in Pune, INTOX Pvt Ltd, using Sprague Dawley rats; allergenicity studies conducted by Bangalore-based Rallis India Ltd, by acute cutaneous anaphylaxis in Brown Norway rats; primary skin irritation test in rabbits at INTOX, Pune; and mucous membrane irritation test in female rabbit at the same INTOX labs.

Major alkaloid content comparisons were carried out at the Indian Institute of Chemical Technology, Hyderabad that showed no differences between the GM and non-GM brinjal. Similarly, nutritional analyses on Bt and non-Bt brinjal were carried out to demonstrate that both are substantially equivalent in terms of major nutrients and minerals. In addition, wholesomeness of the feed from Bt brinjal has been demonstrated using fish, chicken, cow, goat and rabbit feeding studies. The rabbit study was conducted by Bangalore-based Advinus Therapeutics, the fish studies were done at the Central Fisheries and Education, Mumbai, chicken feeding studies at the Central Avian Research Institute, Izatnagar, goat feeding and cow feeding studies were carried out by Advinus, and GB Pant University of Agricultural Sciences, respectively.

Clearly, by all universal standards, the GEAC has made sure that Bt brinjal is at least as safe and as nutritious as its non-Bt counterpart before commercialization. With all these tests, should something deleterious happen with Bt brinjal, there should be post-market surveillance mechanisms for the authorities to call it back. This shows that GEAC has taken due precautions before approving this Bt brinjal on the consumers. All due-diligence care has been taken.

"GM-free India" agenda

Anti-GM activists have gone to court to see the raw safety data which should be made available by GEAC without much fuss. These kinds of safety data should not be treated as confidential business information. The safety data cannot and must not be treated as confidential business information as there is no justification for the same. The reason the anti's want to see the raw data is to get it reviewed by their own committee of "experts" who in their opinion are independent, and perhaps, even send it to some outside anti-GM experts who will find one thing or another wrong with it and will say how this or another set of tests have not been done, and then go to town crying hoarse that GEAC is not doing its job properly and therefore, stop this GM crop or better, ban it. One can go on doing tests after tests till no end, or do some careful and diligent standardized tests to move the technology forward, and be prepared to take action if something goes wrong. But, that is not what the anti's want. What they want is to apply the "precautionary principle" sensu stricto just so that until and unless all exhaustive tests are conducted including the so-called "long term" health effect studies, no GM food should be commercialized. This makes scientifically no sense and should be dismissed with contempt. Competent scientific experts must advise courts not to heed to this kind of scientific nonsense, and dismiss such frivolous cases out of hand. All these delaying tactics of anti-tech activists is to force developers of GM technology to quit in frustration which would fulfil their "GM-free India" agenda, whatever that means.

Segregation and labeling of GM foods

Anti-tech activists are ready to launch another protest regarding segregation and labeling which is much contested around the world. Once again, the idea is simple. India's food chain and marketing system is chaotic and unorganized, tracing and tracking is impossible and there will be mixing of GM foods other commodities, and India's regulatory system cannot enforce

clear cut separation, and therefore, labeling will be impossible. Because, India cannot segregate and labeling GM foods will be meaningless, ban GM the foods completely. Last month, GEAC did a fine job of allowing importation of inert (non-reproducible) foods derived from GM materials without labeling. A commendable and meaningful decision, indeed. First of all, no one labels commodities, and labeling takes place only in processed and packaged foods to disclose chemical and nutritional composition, and any contra-indications of safety. Segregation and labeling are an additional cost burden that has nothing to do with safety as safety has been assured already by elaborate food safety testing. Moreover, threshold levels of adventitious presence of GM foods or their ingredients are highly contested at the global level. Given that most rules and regulations cannot be enforced in India because of various social, cultural and political reasons, the authorities must be careful not to impose impractical and unenforceable and unnecessary regulations that will not be complied with anyway.

For the same reasons, there cannot be any liability laws as it will be very difficult to fix a point source for liability under India's conditions. Moreover, if there is a case to be made against GM foods regarding liability, first damage to the public health or the environment must be demonstrated unequivocally, and that burden of proof is very high. The existing tort law can handle such contingencies very well and there are many case laws where liability has been fixed and penalties and redressal have been awarded in consumer courts in agriculture. In any case, issues of segregation, labeling and liability are all being discussed and debated at various international forum, and India can wait for some modicum of international consensus on these issues before moving in on national regulations.

Safe food system

Public health through a safe food system is what every nation must strive for. India's food safety system is far from satisfactory with untold number of food adulteration and food poisoning cases. The best way to achieve general food safety is enforce the existing food safety standards and take caution against violators through existing laws. The organic foods and foods produced through chemical and radiation mutagenesis are not evaluated for safety at all. Unlike GM foods, organic foods are notorious for bacterial and fungal contamination and other nutritional problems, but they are not tested for safety by any legal authority, and no one is bothered. Irradiation is well known to scramble the entire genomes and no one can understand what kind of changes take place in fruits, vegetables and food crops that are on the market produced out of this technique. But, when it comes to the most precise recombinant DNA techniques, all anti-tech activists go up in arms, in spite of their proven safety record and preciseness of the technology when compared to organic cultivation and radiation mutagenesis. This clearly shows that the anti-biotech activists have a different political agenda, and they are not really bothered about safety.

But, anti-technology activists will argue that precisely because of these reasons, India cannot handle the GM technology, and therefore, ban it. That is like throwing the baby along with the bath water. Indian agriculture and consumers need and deserve all technologies that can benefit them, and all these unscientific reasoning must not be allowed to dictate GM food policy. One thing for sure, regulatory authorities must strive for a greater degree of transparency to usher a new era of increased public confidence in the regulatory system.