

# Bt brinjal: Separating fact from fiction

► *Should Bt brinjal be banned for cultivation? Those who advocate this are closing off the non-pesticide option and arguing in favour of pesticide-based production of brinjal.*

**Bhaskar Balakrishnan**

The rather emotionally charged controversy over cultivation of Bt brinjal has raised a number of questions that need dispassionate and objective analysis.

Is the GEAC (Genetic Engineering Appraisal Committee) a scientifically competent body? The answer is, not quite. It is a 30-member committee comprising nine bureaucrats, which include the Chairman, an Additional Secretary in the Ministry of Environment. The other experts cover various disciplines — agriculture (6), biotechnology (8), law (1), chemistry (2), health (2), environment (1), and economics (1). Thus it is a mixed expert-administrative committee, but it can seek the advice of experts on specific technical issues. Therefore, the GEAC's findings cannot be taken as unquestionable from the scientific or technical point of view — it would depend on the scientific content on which a decision is based.

## PRIVATE FUNDING

Is it fair to suspect the *bona fides* of privately-funded research? This would be quite unfair. While such research may have certain specific objectives, so long as it is peer reviewed and accepted by the scientific community, it cannot be said to be biased. Usually privately-financed research is subject to more restrictions on dis-

closure and publication, due to the need to protect valuable IPR (Intellectual Property Right).

Therefore, merely because Bt brinjal research has been done with the help of private funding does not make it suspect — what is important is that the content must be peer reviewed and accepted. It does not help the cause of public-private partnerships (PPPs) in research and development (R&D) to make sweeping accusations.

## SAFETY ASPECT

Is Bt brinjal safe for humans to consume? The scientific consensus is that it is safe. The Bt toxin produced by the gene is not harmful to humans, but only to specific insect varieties. Toxicity studies have not shown any dangerous effects. The comparable toxic effects of pesticides both for those who work in the farms as well as consumers would be much worse. A 2008 review published by the Royal Society of Medicine noted that GM (genetically modified) foods have been eaten for millions of people worldwide for over 15 years, with no reports of ill-effects. Will Bt brinjal affect biodiversity? This is an open issue. India has some 2000 varieties of brinjal, and the impact of large scale Bt brinjal cultivation on this biodiversity is indeed a matter of concern. Also whether the Bt producing gene can get transferred to native Brinjal varieties.

Ideally, Bt brinjal should be such that the Bt-gene remains restricted to that particular variety and must not get unintentionally transferred to other plant varieties. However, this issue does not preclude allowing the use of Bt brinjal in areas that do not have a rich diversity of brinjal varieties, or in isolated environments such as in greenhouses.

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cide option and, in effect, are arguing in favour of pesticide-based production of brinjal.

So, while the producers of Bt brinjal seeds may lose out commercially, the pesticide industry is going to benefit. This does not seem to be fair, especially as pesticides are environmentally dangerous and pose numerous health hazards. Hence, a rational choice would be to allow Bt brinjal use but on a carefully controlled and monitored basis, with specific guidelines to limit as much as possible the spread of the Bt-gene.

## LABELLING ISSUE

Should Bt brinjal be labelled as such? Certainly. Consumers should be able to make an informed choice on whether they wish to consume this or not. In fact, the labelling requirement is part of the Cartagena Protocol which India has ratified.

The US and Canada do not require labelling of genetically modified foods. However in the European Union, Japan, Malaysia and Australia, labelling is required. This necessitates a labelling system and reliable separation of GM and non-GM organisms at the produc-

tion level and throughout the whole processing chain. Enforcing such requirements in India, given the nature of the agricultural sector, is going to be a major challenge.

Would Bt brinjal affect our agriculture and food exports? Yes it could. The EU requires a certificate that food products imported into the EU are GM-free. So far we have been getting away by stating that in India GM foods are not permitted, although GM cotton has been allowed. This is not the same as having a reliable testing laboratory that could actually check this point. In 2001, there was this case where a substantial donation of wheat from the US to a charitable organisation in India was held up because of concerns whether the consignment was free of GM material.

## GM TESTING

Hence, if we start allowing Bt brinjal and other GM food crops in India, we had better ensure that we have testing laboratories of acceptable international standards to certify whether food consignments are GM-free or not. The fact that in India the consuming public has little confidence that specifications

for foodgrains and food products are being followed, is not a good sign. GM-content testing requires fairly sophisticated technology. GM testing capability would also enable detection and monitoring of possible transfer of transgenes to other plant varieties, and bio-defence against possible hostile activities aimed at the agricultural sector.

The public concern over GM crops is more intense in Japan and Europe than in the US, Canada, Australia and Brazil where GM crops are more widely grown and their introduction has been less controversial. Curiously EU and Japan are protectionist as far as agri-imports are concerned, while the US, Brazil and Canada are aggressive agri-exporting countries. This leads some to speculate that the resistance to GM crops might have a protectionist motivation as well. Finally, we need an effective regulatory system to enable the biotechnology industry to make progress with conditions that enable it to compete with foreign players. Else, this sector will suffer and the scientists and investors will set up business abroad.

The current regulatory system is *ad hoc* — having multiple agencies with conflicting and overlapping roles — and needs to be completely overhauled. The recent move by the Government to pass the long pending national Biotechnology Regulatory Authority Bill is welcome. The new regulatory system must inspire confidence and credibility among business, the scientific community and consumers. It must also play a key role in ensuring that India complies with the UN Biosafety Protocols which India has ratified.

*(The author is a former member of the Genetic Engineering Approval Committee and has been on the Board of the International Centre for Genetic Engineering and Biotechnology, New Delhi.)*