Assessing biosafety of GM plants containing lectins

The introduction of genetic engineering has already shown its benefits in transferring genes into crop plants and conferring resistance towards pests. Most of these crop plants on the market have been transformed with the cry genes from Bacillus species, conferring resistance towards certain insects. However, since the cry genes are not active against all insects, e.g. sap-sucking insects, other genes coding for proteins such as lectins show promise of complementing the cry genes for insect resistance. As with other novel plants, lectin-expressing plants will need to be assessed for their potential risks to human and animal health and the environment. The expressed lectin protein should be assessed on its own for potential toxicity and allergenicity as for any other new protein. Although not many lectins have been thoroughly tested for their toxicity, our evaluation suggests that most of the lectins that are potentially useful for insect resistance will pose no health risk in genetically modified (GM) plants. Since some lectins are known for their toxicity to humans, the insertion of lectin genes in food crop plants will have to be assessed carefully. It is expected that in some cases there will be a need to perform animal tests of such GM plants in order to eliminate any uncertainties about potential safety issues for these plants. A 90-day study designed and optimized for this purpose is suggested as one way to cope with these uncertainties.