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HEALTH RISKS OF GM FOODS: MANY OPINIONS BUT FEW DATA

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Section: **SCIENCE'S COMPASS LETTERS**

In the mass media in recent months the debate about genetically modified (GM) foods has increased, and scientific journals have not been an exception.

Science and other prestigious journals such as British Medical Journal, Lancet, and Nature have contributed to this broad debate, which was vigorous in 1999, particularly as a result of the stir caused by Arpad Pusztai's premature release of information to the popular media (before publication in the scientific press) about adverse effects in rats that ate GM potatoes [see, for example, **Science**, 21 Aug. 1998, p. 1124; 19 Feb. 1999, p. 1094; and 22 Oct. 1999, p. 656]. In the early months of 2000, however, the concern about the health risks of the transgenic foods seems relatively latent.

I reviewed the scientific information on the health risks of GM foods using the Medline database (available at <http://www.ncbi.nlm.nih.gov/pubmed/>). For the first search, I used "toxicity of transgenic foods" as the base phrase for the search, which gave 44 citations. Only one citation corresponded to an experimental study in mice ([1](#)), whereas seven were letters to the editors of various journals, comments, viewpoints, or mere opinions. Although they did not provide a single new experimental result, some of these pieces were written as if the authors were certain about the absence of health risks of GM foods. Finally, 36 of the 44 citations were not directly related to the main topic of the search.

In a second search, I used "adverse effects of transgenic foods" as the search phrase. This search gave 67 citations, of which only two appeared to be directly related to the subject I was interested in: one had been found in the previous search ([1](#)), and the other was a 38-day feeding study that evaluated whether standard broiler diets prepared with transgenic Event 176-derived Bt corn had any adverse effects on broiler chickens ([2](#)). Of the remaining 65 citations, 16 were comments, opinions, viewpoints, etc., but again without any experimental basis, whereas 49 were not directly related to health issues of GM foods.

For a third search, I used the phrase "genetically modified foods," which gave 101 citations. Only four citations corresponded to experimental studies in which the potential adverse health effects of GM foods were evaluated. Two of them evaluated the safety of GM soybean consumption by rats ([3](#), [4](#)). Another citation was the controversial study by Ewen and Pusztai ([5](#)), in which the effects of diets containing GM potatoes were examined in rats ([5](#)). The fourth citation corresponded to a study of the effects of the insecticidal lectin GNA on human blood cells ([6](#)). Only two additional studies did I consider to be related to health risks in GM foods ([7](#), [8](#)). In contrast to this very scant number of experimental studies, 37 citations were again letters to the editor, comments, opinions, or briefs. Most of them were written by proponents of the safety of transgenic foods, and only a minority showed scepticism or were opposed to the indiscriminate consumption of GM foods. However, the common denominator of all 37 citations was the fact that the opinions and comments were not based on experimental data.

One of the more surprising results of this review was the absence of citations of studies performed by biotechnology companies. If, as I assume, safety and toxicity studies of GM foods have been carried out by these companies, why have the results not been subjected to the judgment of the international

scientific community, as would be the course if such research were published in reputed journals?

To corroborate my findings with Medline ([1-8](#)), I performed similar searches in a second database, Toxline (<http://igm.nlm.nih.gov/>). Among the citations found, there were no new references concerning direct studies on the potential toxicity or adverse health effects of GM foods. The only possible exception was a few articles, mostly reviews, on the risks for allergic patients and the potential allergenicity of novel foods.

With respect to the above findings, I suggest to biotechnology companies that they publish results of studies on the safety of GM foods in international peer-reviewed journals. The general population and the scientific community cannot be expected to take it on faith that the results of such studies are favorable. Informed decisions are made on the basis of experimental data, not faith.

References

- (1.) N. H. Fares and A. K. El-Sayed, *Nat. Toxins* 6, 219 (1998).
- (2.) J. Brake and D. Vlachos, *Poult. Sci.* 77, 648 (1998).
- (3.) G. G. Onishchenko et al., *Vopr. Pitan.* 68, 3 (1999).
- (4.) V. A. Tutel'ian et al., *Vopr. Pitan.* 68, 9 (1999).
- (5.) S. W. B. Ewen and A. Pusztai, *Lancet* 354, 1353 (1999).
- (6.) B. Fenton, K. Stanley, S. Fenton, C. Bolton-Smith, *Lancet* 354, 1354 (1999).
- (7.) B. G. Hammond et al., *J. Nutr.* 126, 717 (1996).
- (8.) R. Schubert, D. Renz, B. Schmitz, W. Doerfler, *Proc. Natl. Acad. Sci. U.S.A.* 94, 961 (1997).

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