

Genetically modified organisms (GMOs) have received a lot of attention in recent years, initially for their great potential in aiding the food shortage for a growing world population and later for the lower price, durability (resistance to insects, herbicides, viruses) and nutritional value of GM plants. In this issue of AJMB, a review article has addressed some of the major issues and concerns related to uses of GMOs. Due to recent progress in production of several GMOs by the agricultural biotechnology institutes in Iran, it is appropriate that issues such as potential health and environmental risks of GMOs are discussed in a biotechnology Journal such as AJMB. Since there are many issues that need to be addressed on the production and uses of GMOs, I have summarized some of the issues of concern for our readers and encourage submission of articles on this topic to AJMB.

One of the major issues in GM foods is potential risks to human health. Safety assessment is an important method to address direct health effects (toxicity), allergenicity, nutritional or toxic properties, stability of the inserted gene, nutritional effects associated with genetic modification. Gene transfer and outcrossing are the two major concerns in the area of food safety and food security. If gene transfer (particularly antibiotic resistance genes) from GM foods to cells or bacteria in the gastrointestinal tract occurs, it would cause concern if the transferred genetic material adversely affects human health. The outcrossing can also occur if the movement of genes from GM plants into conventional crops or related species in the wild occurs. This problem has occurred when traces of a maize type only approved for feed use appeared in maize products for human consumption in the United States of America.

Another major issue of concern is how GMO affects the environment? It is known that GMOs are capable to escape and potentially introduce the newly engineered genes into wild populations which then can potentially lead to loss of biodiversity on earth. Intellectual property rights and monopolization are also issues that are likely to become very significant as competition increases among nations and companies in applying biotechnology in improving food and medicine.

The release of GMOs into the environment and the marketing of GM foods have in recent years resulted in public debates in many parts of the world, especially in the European Union. This debate is predicted to continue and intensify even more in the coming years mainly due to uses of biotechnology in medicine and its implications for human societies. It is appropriate that the leaders of biotechnology institutes and appropriate governmental bodies supervising the production and release of GMOs in Iran, actively participate in a national dialogue on the use and safety of GMOs. Furthermore, they should provide the right information to the public on matters of safety and security of GM foods produced domestically or imported to Iran from GM food producing countries.

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