

THE EFFECT OF GENETICALLY MODIFIED PRODUCTS ON THE ORGANISM

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Annotation: This article analyzes scientific research on the effects of genetically modified organisms (GMOs) on the human body. Based on the conclusions of leading scientific institutions such as the World Health Organization (WHO), the National Academy of Sciences of the United States (NAS), and the European Food Safety Authority (EFSA), the toxicological, allergenic, and metabolic safety of GMO products is reviewed. Existing studies show no reliable evidence that GMOs negatively affect the liver, kidneys, heart, or the gastrointestinal system. The article also highlights the positive aspects of GMOs, including their contribution to food security, increased crop yields, and reduced pesticide use. However, the necessity of continued long-term epidemiological monitoring and careful evaluation of environmental impacts is emphasized.

Keywords:GMO, genetic modification, genetically modified foods, human health, allergy, toxicology, food safety, biotechnology, environmental risk, metabolism, transgenic plaLL SA

Introduction:Genetically modified organisms (GMOs) are organisms whose genotype has been artificially altered using genetic engineering methods. This process can be applied to plants, animals, and microorganisms. The World Health Organization provides a narrower definition, stating that genetically modified organisms are those whose genetic material (DNA) has been altered in a way that does not occur naturally through reproduction or natural recombination. Genetic modifications are usually carried out for scientific or economic purposes. Unlike natural or artificially induced mutation processes characterized by randomness, genetic modification refers to the targeted alteration of an organism's genotype. Currently, one of the main types of genetic modification is the creation of transgenic organisms through the use of transgenes.

Main part: The development of GMOs, especially their commercialization, has generated numerous objections. For example, many debates focus on the safety of GM crops and the products derived from them, as well as the potential environmental impacts of their cultivation. Other concerns include the objectivity and strictness of regulatory bodies, and the consequences of genetic alterations. Although there is a scientific consensus that foods derived from GM crops do not pose greater risks to human health than conventional foods, GMO food safety remains a major concern for critics. Gene flow, effects on non-target organisms, and plant migration are considered among the main environmental issues.

The Food and Agriculture Organization (FAO) of the United Nations regards the use of genetic engineering methods to create transgenic plant varieties or other organisms as an integral part of agricultural biotechnology. The direct transfer of genes responsible for beneficial traits represents a controlled process of creating new varieties and expanding their potential. This development naturally extends the possibilities of breeders, particularly in terms of transferring advantageous traits between species that cannot interbreed naturally.

Studies conducted in 2012 (including reports from seed-producing companies) on the use of transgenic soybeans, corn, cotton, and canola from 1996 to 2011 indicated that cultivating herbicide-resistant crops is less costly and, in some cases, more efficient. Crops containing insecticidal properties, especially in developing countries where previously used pesticides had become ineffective, produced higher yields.

Conclusion: Current scientific evidence indicates that genetically modified foods evaluated under international safety standards do not pose greater health risks than conventional foods. Environmental concerns—such as gene flow, herbicide-resistant weeds, and effects on non-target species—require continuous monitoring, though these risks arise mainly from agricultural practices rather than the technology itself. At the same time, GM crops can enhance agricultural productivity by improving yield stability, reducing pesticide use, and increasing resistance to various stresses. Overall, with proper regulation and evidence-based oversight, GMOs can contribute to sustainable agricultural development.

References

1. Хайитова, Ш. Д. "ИЗУЧЕНИЕ СТЕПЕНИ ДОМИНАНТНОСТИ ЦЕННЫХ ХОЗЯЙСТВЕННЫХ ПРИЗНАКОВ В ГИБРИДНЫХ ЛИНИЯХ ГЕНЕТИЧЕСКОЙ КОЛЛЕКЦИИ ХЛОПЧАТНИКА." Colloquium-Journal. No..
2. Mardonova G., Ne'matova M. — The role and impact of GMO products in human life 2023 Analyzes the impact of GMOs from a biological, social and ecological perspective
3. Turakulova N. — Genetically Modified Products and Their Safety 2022 shows the food safety and health risks of GMO products.
4. Abdukhalikovna, Xayitova Shaxlo Davlatovana Khayitova Shoir. "STUDY OF IMMUNE INFLAMMATION IN THE KIDNEY OF PATIENTS WITH VIRAL INFECTION." Journal of Modern Educational Achievements 1212.12 (2023): 342-345..
5. Davlatovna, Xayitova Shaxlo. "Of Valuable Agricultural Characters In F1 Plants Of Medium Fiber Cotton Gen Collection Lines." Texas Journal of Multidisciplinary Studies 26 (2023): 50-53