

Genetically Modified Organisms (GMO) As Food

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Genetically Modified Food and Public Controversy

GMO stands for genetically modified organisms. The organisms of any material, whether plants or food, are changed with this method. GMO is done by using methods specified in genetic engineering. This type of engineering changes the behavior of things. Many people and scientists have discovered that this method is of great use these days. Its extensive use is found in medicines being manufactured these days. Nowadays, many different kinds of foods are being made with genetically modified organisms. These are some of the applications of GMOs; however, the application is not restricted to food and medicines only. Its application is varied.

These days, several different scientists are working on the findings and the research of (GMO) Genetically Modified Organisms to solve the problems associated with them and make them acceptable all around the globe. There is a certain kind of genetically modified organism, which is known as the transgenic organism, and it is under consideration nowadays. Bioengineered food is another name for these genetically modified foods, and such foods also contain the system of creating a variation in their DNA via the techniques of genetic engineering. During 1994, this trend was initiated, and it was the time when GMO foods were commercially introduced to sell for the first time.

Since the very beginning, the focus of GMO food has always been on the cash crops. Cotton, canola, corn and soya bean are the main cash crops. Many of the researchers have stated that this food is not good for the health of the people eating it. The list of harm caused by genetically modified organisms food is quite long. Papaya, cotton, corn, and several other dairy products are named in this list of dangerous GMO foods. Every country has its own rules and legal actions regarding the sale and purchase of these foods. However, in some countries, these food products are forbidden owing to their negative effects and harmful impacts, while in others, there are no restrictions. However, the concerns for these food items only arise because of their devastating consequences and their associated research techniques. Several effects came forward regarding the use of these GMO products, which directly deteriorates the person's health and is quite damaging. These GMO foods became the reason for food allergies, an increase in toxicity and caused an acceleration in resistance against germs and bacteria. These factual statements have been proved by several studies and practical experiments. Jeffrey Smith stated some facts about GMO foods in 2003,

Health Risks and Criticism of Genetically Modified Food

“Several studies indicate serious health risks associated with genetically modified (GM) food, including immune problems, accelerated aging, faulty insulin regulation, and changes in major organs and the gastrointestinal system. The AAEM has asked physicians to advise all patients to avoid GM foods” (Jeffrey Smith, 2003).

Recent research has shown that allergy is one of the effects of GMO food. Almost two percent of adults and five percent of children are becoming a victim of the allergy caused by GMO food. Commonly, people against GMO food give a common reason for this: whenever people try to make changes in the natural things created by the Almighty, then they will have to face the consequences of it. There are many risks involved in it. The gene may get in the wrong place rather than changing the gene it was supposed to do. As regards GMO foods, an inoffensive protein goes in, which triggers the immune system to respond to the food. An experiment was done with the works of the village to demonstrate the procedure of how these [genetically modified foods](#) can turn out to be disastrous for human beings. A few laborers on the Agricultural side were asked to load or pick the BT cotton, which is a cotton variety of (GMO) Genetically Modified Organism, which is used to produce the insecticide for bollworms, and they claimed to suffer from several different allergies (Bernstein et al., 2003). Some of them suffered from skin allergies, while others had to bear eye allergies. Some even became the victims of reactions in the upper respiratory tract.

Being toxic means being poisonous, and this is among the greatest problems found in genetically modified edibles. Although there are some plants whose produce is at such low levels of toxicity to be considered safe for human consumption, the production of many other plants has been found to be toxic to human health. The main problem occurs when low toxicity-producing plants come in connection with any toxin genes. This triggers the chemical processes, which increase the toxicity to such levels, which are considered harmful for human consumption. This mechanism is a high-risk genetic methodology. To explain it further, for example, a plant's behavior towards the production of toxins can be different if a gene otherwise considered useful is inserted into the said plant and that negatively interacts with the first genes of this plant.

Experimental Evidence and Biological Effects

To study the reaction of living beings to Genetically engineered food, a great number of laboratory experiments have been conducted. One such experiment involved the feeding of GM potatoes to rodents. Scientific and biological evaluations of the results were in conformity with the assumption of – the toxic nature of GM food. It was discovered that all the rodents developed some precancerous cells and also registered abnormal growth. This was the effect of the consumption of GM food. It is believed that such food could have greatly affected the brains of rodents.

Consumption of GM tomatoes in rodents leads to even more disastrous results. Some rodents were found to be bleeding while eating the tomatoes, while others simply died. Since rodents are believed to have similar biological functionality as human beings, disastrous results of consumption of GM foods can be applied to humans as well. The degree of severity of results, however, can be subject to some debate.

Resistance to antibiotics is one of the major risk factors associated with GM foods. Many scientists are concerned about the resistance which is displayed by bacterial strains towards the effects of antibiotics. Since the number of bacteria showing resistance against antibiotics is increasing day by day, this has become a cause of great concern for scientists.

Natural Mutation, Genetic Engineering, and Antibiotic Resistance

Natural mutation is a mutation that occurs due to natural reasons without the induction of any mutagen. This natural mutation is believed to have led bacteria towards the development of resistance against antibiotics by way of the development of certain genes that are of the resistant type. While inserting new genes into the plants, biotechnologists use antibiotic resistance genes as selectable markers (Bakshi, 2003).

At the very initial stage, while the experiments were being done, the scientists did not know about the type of behavior that would be displayed by the plants. The behavior was keenly observed after attaching such resistance genes. Consequently, the survival of the plant demonstrates that they have taken the resistance, and on the other hand, the stronger growth of the bacteria is the answer when the resistance has not been taken. The latter case is being observed these days frequently where the bacteria are getting mighty where the resistance genes are not successfully stopping them because the genetic modification is now stronger and caused the anti-resistance.

To close, there are a lot of hazard factors incorporated into the admission of genetically modified food. Some have soundproofing for them, while some are limited to possible confirmation. In any case, the most dangerous ones are expressed that incorporate nourishment sensitivity, particularly in infants and children, Antibiotic resistance and abatement in supplements. The researchers nowadays are working so as to determine these issues.

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