

## Intended Use of Genetically Modified Organisms, Advantages and Disadvantages

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**Abstract :** GMO (genetically modified organism) is the result of a laboratory process where genes from the DNA of one species are extracted and artificially forced into the genes of an unrelated plant or animal. This technology includes; nucleic acid hybridization, recombinant DNA, RNA, PCR, cell culture and gene cloning techniques. The studies are divided into three groups of properties transferred to the transgenic plant. Up to 59% herbicide resistance characteristic of the transfer, 28% resistance to insects and the virus seems to be related to quality characteristics of 13%. Transgenic crops are not included in the commercial production of each product; mostly commercial plant is soybean, maize, canola, and cotton. Day by day increasing GMO interest can be listed as follows; Use in the health area (Organ transplantation, gene therapy, vaccines and drug), Use in the industrial area (vitamins, monoclonal antibodies, vaccines, anti-cancer compounds, anti-oxidants, plastics, fibers, polyethers, human blood proteins, and are used to produce carotenoids, emulsifiers, sweeteners, enzymes, food preservatives structure is used as a flavor enhancer or color changer), Use in agriculture (Herbicide resistance, Resistance to insects, Viruses, bacteria, fungi resistance to disease, Extend shelf life, Improving quality, Drought, salinity, resistance to extreme conditions such as frost, Improve the nutritional value and quality), we explain all this methods step by step in this research. GMO has advantages and disadvantages, which we explain all of them clearly in full text, because of this topic, worldwide researchers have divided into two. Some researchers thought that the GMO has lots of disadvantages and not to be in use, some of the researchers has opposite thought. If we look the countries law about GMO, we should know Biosafety law for each country and union. For this Biosecurity reasons, the problems caused by the transgenic plants, including Turkey, to minimize 130 countries on 24 May 2000, 'the United Nations Biosafety Protocol' signed nudes. This protocol has been prepared in addition to Cartagena Biosafety Protocol entered into force on September 11, 2003. This protocol GMOs in general use by addressing the risks to human health, biodiversity and sustainable transboundary movement of all GMOs that may affect the prevention, transit covers were dealt and used. Under this protocol we have to know the, 'US Regulations GMO', 'European Union Regulations GMO', 'Turkey Regulations GMO'. These three different protocols have different applications and rules. World population increasing day by day and agricultural fields getting smaller for this reason feeding human and animal we should improve agricultural product yield and quality. Scientists trying to solve this problem and one solution way is molecular biotechnology which is including the methods of GMO too. Before decide to support or against the GMO, should know the GMO protocols and it effects.

**Keywords :** biotechnology, GMO (genetically modified organism), molecular marker

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