



SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution Coimbatore – 35

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Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

DEPARTMENT OF FOOD TECHNOLOGY

GENETICALLY MODIFIED FOODS

AND ORGANIC FOOD





INTRODUCTION



•Genetic modification process:

- Gmos are created using genetic engineering techniques that involve the manipulation of an organism's dna in a laboratory setting.
- This manipulation can involve the insertion, deletion, or modification of specific genes within the organism's genome.
- Techniques such as gene splicing, gene editing (e.G., Crispr-cas9), or recombinant DNA technology are commonly used.



CHARACTERISTICS

1. Insect resistance:

Insect-pests are the major scourge of agriculture down the ages as important crops and high-yielding genotypes are susceptible to insect pests.

2. Resistance to abiotic stresses:

Abiotic stresses such as drought (water deficit), excessive watering (water-logging/flooding), extreme temperatures (cold, frost, and heat), salinity (sodicity) and mineral (metal and metalloid) toxicity negatively impact growth, development, yield, and seed quality of crop and other plants.



3. Improved quality:

To improve the quality characteristics of the plant, genetic engineering techniques are mainly focused upon developing plants with A longer shelf life of fruits, reducing the starch level and production of novel carbohydrates, modification of storage proteins, improving the amino acid compositions, improving fatty acid compositions and increasing nutritional factors.



PURPOSES OF GENETICALLY MODIFIED FOODS

- **1. Increased Crop Yield:** GMOs aim to enhance agricultural productivity by developing crops that produce higher yields per acre of cultivation.
- **2. Pest and Disease Resistance:** Genetic modification introduces traits that make crops more resistant to pests, pathogens, and diseases, reducing crop loss and the need for chemical pesticides.
- **3. Herbicide Tolerance:** GMOs are engineered to tolerate specific herbicides, allowing farmers to control weeds more effectively without harming the crop plants.



- 4. Improved Nutritional Content:** Genetic modification can enhance the nutritional profile of crops, enriching them with essential vitamins, minerals, and other beneficial compounds to address nutritional deficiencies.
- 5. Extended Shelf Life:** GMOs may exhibit traits such as delayed ripening or enhanced resistance to spoilage, prolonging their shelf life and reducing food waste.
- 6. Environmental Sustainability:** GMOs contribute to sustainable agriculture by reducing the environmental impact of farming practices, such as minimizing pesticide use and preserving soil health.
- 7. Adaptation to Climate Change:** Genetic modification helps develop crops resilient to climate change-induced challenges like heat, drought, and flooding, ensuring food security in a changing climate.



ORGANIC FOODS

Organic foods are made in such a way diagnose synthetic ingredients are used during production agriculture is best described as organic for much of human history. But it was only during the 20 century that large amounts of synthetic chemicals were used in food supply.

Under organic production the use of inorganic pesticide, insecticide and drugs is prohibited and is reserved as last option. However, contrary to popular belief some inorganic fertilizers are still used to produce organic food in india.

A farm has been set up under national programme for organic production for govt. Of india it is message to obtain A certificate from the agricultural and processed food products export (apeda)for consecutive years meat and dairy products can be organic produced from cows and chickens after breeding without the use of chemicals and steroid.



However, Organic Milk Is One Of The Fastest Growing Segments In Beverage Market Genetically Modified Organisms Are Never Used In Organic Food Productions.

Organic Food Production Is Considered To Be More Environmentally, Friendly And Healthier Unlike Non Organic Food It Does Not Contain Hydrogenated Fat Which Is Known To A Factor For Heart Disease. Furthermore Organic Animals Feed Establishes That The Animals Are Fed Naturally.



Organic food also has some disadvantages such as:-

Compared to inorganic foods organic mass rots very easily and quickly because it does not contain any artificial preservatives . organic food is more expensive than inorganic food. Organic food is considered safer than than inorganic food but agencies such as the UK food standards agency the french food safety agency and the swedish national food administration claims to the contrary.

We are not even ignorant of the all effects of chemical agricultural and food. The cancer train running from matinda to bikaner is an example of what chemicals can do to food and water.



SUMMARY

Genetically Modified (GM) foods and Organic Foods underscores the need for a balanced approach to agriculture. While GM foods offer potential benefits in addressing food security challenges, organic foods prioritize environmental sustainability and reduced chemical exposure.

Neither option is without its limitations or controversies. Moving forward, it's crucial to prioritize evidence-based decision-making, transparency, and collaboration to ensure a resilient and equitable food system that meets the needs of both people and the planet.



THANK YOU

