

REFERENCES

- Genetically Modified Foods and Organisms
<http://www.ornl.gov/hgmis/elsi/gmfood.html>
- BioTechnology and Food
http://www.accessexcellence.org/AB/Biotech_&_Food.pdf
- Microsoft Encarta Encyclopedia Standard 2001



This is a project of the Second Year High School students of Section Aguila Group 1 for their Biology subject under Ms. Helen Catalan.

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*“What is food to one man
may be fierce poison to others.”*

Lucretius Bartlett, John

GROUP 1 STAND: INFORM AND REFORM

Genetically Modified Food

(GMF) may be widely

available in the future. Issues

and controversies surround this

technology. Our group believes

that genetically modified food

has both benefits and risks to

offer us, thus, the public needs

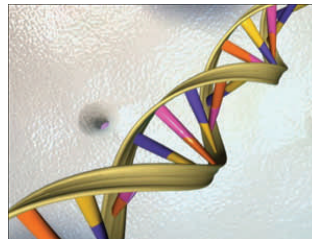
to be informed on both sides of

the issue for them to be able to

confront the many

controversies on GMF so as to

make wise decisions concerning



Genetically Modified Foods

Harmful or Helpful?

Group 1



WHAT ARE GENETICALLY MODIFIED FOODS?



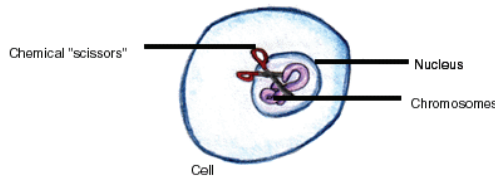
Genetic modification is a special set of technologies that alter the genetic makeup of living organisms such as animals, plants, or bacteria. Genes from another source are introduced to a plant to alter certain characteristics of a specific food crop. Combining genes from different organisms is known as recombinant DNA technology, and the resulting organism is said to be "genetically modified" or "genetically engineered".

WHAT IS GENETIC ENGINEERING?

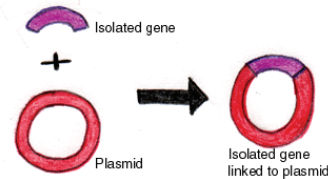
Genetic Engineering is a method of changing the inherited characteristics of an organism in a pre-determined way by altering its genetic material. Genetic engineering involves the manipulation of deoxyribonucleic acid or DNA.

HOW DO YOU GENETICALLY ENGINEER A PLANT?

1. Scientists use chemical "scissors" (enzymes) to isolate a piece of DNA (a gene). The gene isolated may be useful because it codes for a protein which could help a plant resist disease or insects, or be able to grow without too much water. This desirable gene could be isolated from an animal, a bacterium, or another plant.



2. Once the gene is isolated, it needs to be placed into a plant cell. Cells are very small, so you need a clever way of doing this. One way you can do this is to link the isolated gene to a circular ring of genetic material called a plasmid. A plasmid can be absorbed by a bacterium which transfers the plasmid to plant cells.



3. Once the DNA is inside the plant cell, it migrates to the plant's nucleus, where the genetic material is permanently integrated into the chromosomes.

4. The bioengineered plant cells are then grown in a special culture (a sort of nutrient broth). In a few months, a fully formed young plant grows from the altered cells.
5. These little plants are transferred to the soil where they grow like normal plants, except that now they carry a gene that can give them new traits.



POTENTIAL BENEFITS

- increased crop yields
- more powerful control of pests (insects, weeds, etc.)
- reduced use of some agrochemicals
- enhanced nutritional value of crops



POTENTIAL RISKS

- danger of transferring crop traits to wild species
- negative impacts on wildlife because of more powerful control of pests and weeds
- increased corporate control of seed supply

