Agri Express: **1 (01),** ***Article No.*** **V01I01.04**

Genetically Modified Mustard

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Integrated cropping system (SWI) is a cropping system that includes additional equipment for cropping, such as planting, sowing, seeding and nutrient management. These controls provide better conditions for root crops to grow than conventional plants. It also makes plants more resistant to biotic and abiotic stress, which will worsen due to climate change. The use of SWI can increase the productivity and income of poor farmers by saving agricultural inputs. It can cut the time it takes to mow your lawn from one-third to one-half. SWI pesticides are effective, but farmers are developing or improving tools to reduce the labor hours required to control weeds. So SWI is every drop of water, every drop of fertilizer, seed, etc. It is a machine that aims to increase efficiency and implement all agricultural methods in order to obtain maximum profit per kilogram of agricultural product.

Keywords: conventional, implement, productivity, improving

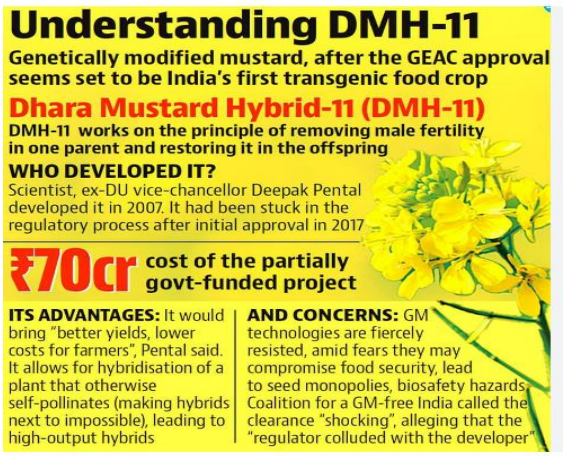
Introduction

Dhara Mustard Hybrid-11 or DMH-11 is a genetically modified version of mustard. DMH-11 was developed using genetic male infertility technology specifically as an antibiotic. Genetic Manipulation of Plants, University of Delhi, South Campus. It took 14 years and cost about 700 million rupees to successfully cultivate the DMH-11 variety. If approved, DMH-11 will be the first genetically modified food in India. The program to develop DMH-11 was funded by the National Dairy Development Council of India and the Department of Biotechnology (DBT). Mustard is an oilseed crop that currently covers 6 to 7 million hectares (15 to 17 million acres) of agricultural land, mostly in the dry regions of northern India. Mustard is one of the three most important oilseed crops in India.

However, its production did not show a significant growth during the year and remained below 7.5 million tons. DMH-11 mustard variety was developed to reduce India's dependence on foreign oil for human consumption. India spends about Rs. While 14.5 million tons of edible oil worth Rs 6,000 billion has been imported, more than 60% of the domestic demand for edible oil can be met from foreign sources alone.

Methodology

The genetically modified DMH-11 variant was developed by Dr. Deepak Pental and colleagues at the Center for Genetic Engineering, University of Delhi South Campus, with the aim of reducing India's need for fossil fuels. DMH-11 was developed by changing technology, especially the Bar, Barnase and Barstar gene systems. While the Barnase gene confers sterility on the male, the Barstar gene restores DMH-11's ability to produce fertile seeds. Insertion of our gene Bar causes DMH-11 to produce glufosinate-N-acetyltransferase, the enzyme responsible for glufosinate resistance. Today's hybrid mustard variety has been subject to intense public scrutiny, mostly due to concerns that DMH-11 may have adverse effects on the environment and consumer health. DMH-11 has been shown to be harmless to foods and provide better results than existing fruits. Mustard accounts for 40% of India's total edible oil. India will need 34 million tonnes of edible oil by February 6, 2025, which will create a huge burden on the country's foreign currency. Mustard (Brassica juncea) is commonly used by people with vitamin A deficiency (VAD) in the form of oil that can be genetically modified to express high levels of beta-carotene (a precursor to vitamin A). The main reasons for introducing the Barnase-Barstar gene system into modified orange seed are hybrid vigor production and prevention of self-fertilization. The two parental strains used for the development of DMH-11 are Hira early mutant (EH-2) and Varuna bn 3.6, developed by Anil Khalatkar of Nagpur University. Seed weight of DHM-11 is reported to be approximately 3.3 to 3.5 g (0.12 oz)/1000 seeds. The mechanism of action of glufosinate involves inhibiting glutamine synthetase, thereby preventing ammonia detoxification and subsequently causing toxicity in plants. Glutamine serves as an important source of amino acids for signaling molecules and nucleotide synthesis.

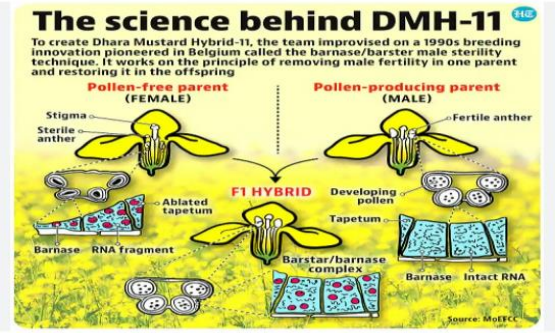


Protocol's

India's Agricultural Research Council (GEAC) approved environmental clearance for locally produced seeds in an environmental review last week, with genetic modification leading to commercial use of the first crop to replace food. DMH-11 was developed in 2002 by a team of scientists at India's Center for Gene Improvement, led by Deepak Pental, a former professor of genetics and vice-chancellor of the University of Delhi. It has two alien species (barnase and barstar) of soil bacteria called Bacillus amyloliquefaciens that can grow commercial mustard hybrids. It was developed by the Center for Plant Gene Operations, University of Delhi. Genetic modification is required to support current sustainable production with lower cultivation costs. The Scientific Advisory Committee (GEAC) is a key body to approve genetically modified (GM) mustard, the first such initiative.

Discission

The decision to release genetically modified crops will encourage greater research and innovation to reduce the environmental impact of agriculture and develop more resilient crops, curbing climate change and thus ensuring the country's food and nutrition security. Extracellular ribonuclease (RNase) protein contains 110 amino acids. Barnase is an RNase that cleaves RNA. Barnase is toxic to cells other than bacteria that secrete it (due to Barstar, which is also produced by Bacillus amyloliquefaciens. Plant genes have been fused to Barn-ase and Bar-star in band cells. Tapetal cells play a role in pollen development. Genetically modified mustard extract is important in patients with respiratory allergies. ELISA in 96 patients showed comparable IgE reactivity. The transgenic mustard protein showed no IgE response. Since volunteer plants have males and females, mustard cannot be confused with each other. In order for the farmer to get the entire crop, bacteria (barstar) are also given to the male progeny to reproduce in the offspring. Mustard is a common ingredient that can cause allergic symptoms in people sensitive to mustard. The aim of this study is to investigate the potential of genetically modified soybeans (GM-V2 and GM-V4) with increased carotenoid content and compare them with local (Varuna) and commercial (Urvashi) varieties. Large IgE-binding proteins of 21,29 and 33 kDa were found in all mustard varieties. Increases in MCP-1, MCPT-1 and histamine levels were also observed in groups treated with commercial mustard, natural mustard, GM-V2 and GM-V4 mustard. Modifying hazelnuts by adding carotenoid content does not increase the risk of allergic reactions.



Advantages of GMOs

- Crops are increasing because crops are decreasing due to insects and diseases.
- Less pesticides need to be purchased and used, thus increasing the economic benefits for farmers and reducing pollution.
- More food, less hunger in LCD countries.
- Genetically modified foods often have an increased odor.
- Genetically modified foods do not need fertile soil to grow like other foods.
- Less additives are required to keep GMO foods fresh.
- Genetically modified products are less harmful.
- Products with saplings that freeze less in winter can be produced.
- It can be used in medicine to produce more hormones (such as insulin) by using bacteria (such as bacteria).
- It could be used in future medicine to create animals with organs suitable for transplantation into humans.
- Transported products use less energy, less water, less pesticides

and therefore cost less because they use fewer resources.

- This product is rich in nutrients and has good health benefits.
- Many genetically modified crops could help feed large numbers of people with limited resources.

Disadvantages of GMOs

- Genetically modified foods are not as tasty as non-GMO foods.
- Pesticides in genetically modified foods can harm certain organisms (such as butterflies and bees).
- Labeling of genetically modified foods leads to additional costs and registration.
- Cross-pollination may occur between genetically modified foods and non-GMO foods, making it unusable. Voluntary monitoring of genetically modified organisms.
- Insects will evolve to resist pests in modified crops.
- Cross-pollination of transgenic crops and contact with weeds can lead to the emergence of "super weeds".
- New allergies may arise against genetically modified foods.
- Since the long-term effects of genetically modified foods are unknown, health problems will occur.
- Genetically modified crops sometimes fail, as do conventional crops (GM cotton failed in India).
- The effects of altering the body's genome are difficult to predict, the transgenic embryo may not survive, and if it does, the disease will later create healthy nutrition problems.
- Genetic engineering in agriculture and medicine can lead to human genetic engineering (i.e. genetic engineering). Children's design with many morals.
- These products contain DNA from other plants and therefore may cause allergic reactions in humans.
- These crops have lower nutritional value because genetics ignore nutrition and focus on other needs.
- These products are resistant to antibiotics due to their genetic modifications.

Conclusion

Taken together, all these findings suggest that the introduction of modified soybeans with increased carotenoid content does not cause more allergic reactions than its natural counterparts and is therefore allergy-safe. Transgenes in the genetically modified mustard variety do not cause more allergies. Mice sensitized to mustard CPE showed increased levels of allergic reactions. Transgenic mustard containing genetically modified mustard is allergic to natural mustard and does not develop IgE or any conceptus due to genetic manipulation. Chemical use will increase. Reduce physical activity; It affects biodiversity and reduces honey production. It increases productivity and is more resistant to insects and diseases. Safety studies conducted on DMH-11 are divided into the following categories: Molecular characterization studies including the expression of Bar, Barnase and Barstar genes in DMH-11 DNA sequences. The food safety analysis examined the toxicity of three proteins in DMH-11 using chemical analysis tools and bioinformatics.

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