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Genetically modified foods: Their benefits and controversies

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Genetically modified foods are the foods obtained from plants, animals and microorganisms which have their genetic code modified by selective introduction of specific DNA segments by the help of gene splicing technique. These techniques are much more precise than mutagenesis where an organism is exposed to radiation or chemicals to create a non-specific but stable change. With the help of genetic engineering, a selective trait can be introduced into plants, animals and microbes to get desired results, for example, increased production yield and much better insect, pest and disease resistance, improvement in nutritional value and appearance, taste, drought resistant.

The increasing world population which is expected to touch 9.1 billion in 2050, demands an increase in the production of food crops which could potentially be achieved through genetic engineering. Despite their numerous benefits, there have been many concerns regarding their risk to human or animal health and environment associated with their wide use. Due to their continuous and wide use, many non-target species are affected and rapid evolution of resistant pests and pathogens, development of antibiotic resistant micro-organisms, toxicity and allergenicity to humans has been reported. The cost and time involved in their development is quite high. Patent infringement is also a big concern for agribusiness.

In the future, new molecular and genetic engineering techniques will make genetic engineering to crops much precise and will help scientists to replace an existing copy of a gene with another copy that will be slightly better. The study of the genome of plants or microorganisms will allow more rational and cleverer approaches to genetically improve the crops.

Biography

Tawheed Amin is pursuing his M. Tech Food Technology from Amity Institute of Food Technology, Amity University, NOIDA, Uttar Pradesh, India. He has published 5 papers in reputed journals and 2 abstracts in the proceedings of an international conference. His areas of interests are Functional Foods & Nutraceuticals, Synbiotics, Omics technologies, extraction and isolation of bioactive components from medicinal plants, Somes technologies, and microbial analysis of foods. He has carried out the major project: "Extraction of Essential Oil from Rosemarinus officinalis L. and isolation of Bioactive Components from its Extracts" at Indian Institute of Integrative Medicine (CSIR), Srinagar, Jammu & Kashmir.

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Formulation and quality evaluation of hot beverage nutritive soyfee as a substitute of coffee

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The soybean (*Glycine max L. Merrill*) has been called the "miracle crop" because of its vast array of uses. They are high in protein and contain beneficial photochemical such as isoflavones, which may help fight chronic diseases. Coffee contains caffeine. Overtime caffeine can increase risk of heart diseases, insomnia or disrupted sleep, infertility problems, high blood pressure, miscarriage, panic, anxiety and overall stress and a horde of other diseases. Hence hot beverage nutritive soyfee was prepared, soaked, splitted and dried soybeans were roasted at two temperature 170^{0}C (T_1) and 160^{0}C (T_2) for 8 minutes up to dark brown and medium brown colour then coarsely ground, they were used to make a beverage that tastes quite similar to coffee with the addition of cardamom and ginger powder in the milk. Samples were evaluated after at the interval of 15, 30, 45 and 60 days for sensory and chemical analysis. It was found that moisture content was slightly increased, fat and protein content were slightly decreased during storage. But no significant difference in ash content of sample T_1 and T_2 during storage. On the basis of overall sensory attributes, colour of sample T_1 has better appearance as compare to T_2. Flavour, Aroma, Taste, After Taste and Overall Acceptability of sample T_1 has got higher score than sample T_2 because of dark browning colour of the powder. Its score was slightly decreased during storage. After chemical analysis it was found that sample T_2 had high percentage of protein and other nutrients. The shelf life of product was stable up to 60 days during storage period.

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