



Uses of transgenic plants in agricultural industry

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DESCRIPTION

Environmental degradation and an ever-growing population are the two major problems on the planet today. Given the limited arable land available in the world, meeting the needs of this growing population is extremely difficult. Despite legal, social and political obstacles to the use of biotechnology, advances in this field have greatly improved agriculture and human livelihoods. One of the most important tools in biotechnology is genetic engineering (GE), which is used to modify plants, animals and microorganisms as needed. In fact, genetic engineering allows the transfer of desirable traits to other plants, which is not possible with conventional plant breeding. Various plants to improve tolerance to different stresses such as herbicides, pesticides, viruses and combinations of biotic and abiotic stresses in various crops such as rice, mustard, maize, potato and tomato is being developed. In genetic engineering research in agriculture, it is widely used to modify plants to improve the production of vaccines, hormones, etc. Vaccines for certain diseases are certainly available on the market, but most of them are very expensive.

For many years, people have used traditional breeding methods to modify the genomes of

plants and animals. Artificial selection for certain desirable traits has given rise to a wide variety of creatures, from candy cones to hairless cats. However, this artificial selection of selecting organisms with specific traits to breed the next generation is limited to naturally occurring variations. However, advances in the field of genetic engineering in recent decades have allowed us to precisely control the genetic changes introduced into organisms. Today, genetic engineering allows the insertion of certain new genes into perfectly related species to optimize agricultural performance or facilitate the production of valuable pharmaceuticals. Crops, livestock and soil bacteria are some of the more prominent examples of genetically modified organisms.

Transgenic plants are plants whose DNA has been modified using genetic engineering techniques. The goal is to introduce new traits into plants that do not occur naturally in that species. Transgenic plants contain an artificially inserted gene. The inserted gene sequence is called a transgene and may come from an unrelated plant or an entirely different species. The purpose of incorporating genetic combinations into plants is to make them as

useful and productive as possible. This process provides benefits such as improved shelf life, increased yield, improved quality, pest resistance, resistance to heat, cold and drought, and various biotic and abiotic stresses. Transgenic plants can also be engineered to express foreign proteins with industrial and pharmaceutical value. Vaccines and antibodies composed of plants (plant bodies) are particularly prominent. Because plants are free of human diseases, it reduces the cost of screening for viral and bacterial toxins.