Research and Reviews: Journal of Botanical Sciences ISSN: 2320-0189

Transformation of Antimicrobial Protein in Flowering Plants

Ahmed Hassan *

Department of Horticulture, Suez Canal University Ismailia, Egypt

Short Communication

Received: 03-Jun-2022, Manuscript No. JBS-22-66513;
Editor assigned: 06-Jun-2022, PreQC No. JBS-22-66513(PQ);
Reviewed: 20-Jun-2022, QC No. JBS-22-66513;
Revised: 27-Jun-2022, Manuscript No. JBS-22-66513(R);
Published: 04-Jul-2022, DOI : 10.4172/2320-0189.11.5.004

***For Correspondence:**
Ahmed Hassan, Department of Horticulture, Suez Canal University Ismailia, Egypt
E-mail: hassan2011@gmail.com

ABOUT THE STUDY

The development of transgenic crops has ability in floriculture, as a large number of cut flower crops, such as rose, chrysanthemum, and carnation, have already been altered. Plants transformed with the antimicrobial protein gene *Ace-AMPI* were more resistant to powdery mildew-causing *Sphaerotheca pannosa* than nontransformed plants. When challenged by the CMV-chrysanthemum strain, *Chrysanthemum morifolium Ramat*. CV Kundan transformed with the Coat Protein (CP) gene of Cucumber Mosaic Virus (CMV) demonstrated delayed resistance and produced higher-quality flowers than susceptible plants. Roses with the *chitinase* transgene were more resistant to the black spot pathogen *Diplocarpon rosae*. Plant regeneration from callus and gladiolus suspension cultures have both been the subject of several investigations. Direct DNA transfer *via* callus, as well as cell suspension cultures by biolistics, have previously been documented. The transgenic gladiolus plants were grown in the greenhouse in accordance with federal requirements for genetically modified plant containment. It has been reported that a gene producing a chitinase capable of hydrolyzing fungal cell walls *in vitro* was transformed into a variety of carnation types.

In a conventional glasshouse study, the CaMV35S promoter caused several events with markedly delayed onset of symptoms. Following challenge with *F. oxysporum, f. sp. dianthi race 2,* one line with a delayed start of symptoms and a delayed time to death was created *via* transformation with a bacterial chitinase gene (ChiA) from serratia marcescens. Regrettably, this success has yet to be translated to the field [1-3]. Genetic engineering is a useful tool for increasing the floriculture gene pool and encouraging the development of new commercial types. Extensive research has been undertaken on the genetic transformation of several flowering plant species and many ornamental species, including those that are commercially important, have now been successfully converted. Anthurium (*Anthurium cubensis*), begonia (*Begonia spp.*), carnation, *chrysanthemum*, *cyclamen*, datura (*Datura sanguinea*), gentian (*Genciana gorse*), gerbera (*Gerbera jamesonii*), gladiolus, iris (*Bulbous*), *lilies*, *lisianthus*

(*Eustoma grandiflorum*) Breeders are developing new decorative plant varieties in response to market demand for new items. In general, engineered features are beneficial to both consumers and producers. Only consumer qualities appear to be capable of providing a return sufficient to justify what is still a relatively costly molecular breeding technology. Currently, the commercialization of genetically modified flowers is limited to novel-colored carnations. The first success story in floriculture genetic engineering was the creation of novel flower colours. Given the degree of effort in the field, more goods are predicted [4,5]. Floral smell, floral and plant shape, flower senescence on the plant and postharvest, and disease resistance are among traits that have been studied. Only a few ornamental Genetically Modified (GM) products are currently in development, with only one in the market, a carnation genetically modified for flower colour. Around 8 hectares of transgenic carnation are in production around the world, mostly in South America. Other breeding efforts aimed at changing plant architecture and height, such as roses and gerberas, are still focused on roses, gerberas, and diverse pot plant species. It has been successful in selecting species and cultivars with natural genetic resistance to diseases. In gerbera, one of the world's most important floricultural crops, improving disease resistance has become a major breeding goal. The development and deployment of molecular markers is likely to aid in the selection of disease-resistant gerberas. Many cultivars have been shown to be resistant to *F. oxysporum*, *F. sp. gladioli*, which causes yellows in gladioli, according to screening programmes conducted by numerous researchers. New gladiolus cultivars resistant to Fusarium have also been generated through cross-breeding. *Fusarium spp*. and *Curvalaria spp.* are resistant to one of the gladiolus varieties known as georgia peach. Georgia peach can also withstand the hot weather in florida during the summer and early fall (august to october) as well as the cold weather in the middle of the year [6].

REFERENCES

1. Mukherjee A, et al. Effects of biochar and other amendments on the physical properties and greenhouse gas emissions of an artificially degraded soil. Sci Total Environ. 2014;487:26-36.
2. Blume HP. In: Page, AL, Miller RH and Keeney DR, et al. Methods of soil analysis part 2 chemical and microbiological properties, 2. Aufl. 1184 S., Am Soc Agronomy. 1985;148:363-364.
3. Cade-Menun BJ and Lavkulich LM. A comparison of methods to determine total, organic, and available phosphorus in forest soils. Commun Soil Sci Plan. 1997;28:651-663.
4. Mace JE, et al. Comparison of gypsum and sulfuric acid for sodic soil reclamation. Arid Soil Res Rehab 1999;13:171-188.
5. Lepleux C, et al. A short-term mineral amendment impacts the mineral weathering bacterial communities in an acidic forest soil. Res Microbiol 2013;164:729-739.
6. Goi A, et al. Contaminated soil remediation with hydrogen peroxide oxidation. World Acad Sci Eng Technol 2009;3:154-159.