

## Drug Tolerance

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### EDITORIAL

Plant breeding is an art and science focused on solving specific problems, such as productivity, resistance to biotic and abiotic stresses, fruit quality, and postharvest performance. To progress efficacy and sturdiness of plant breeding programs about parent and seedling selection, the implementation of molecular tools is an essential requirement, including the development of Marker Assisted Selection (MAS) strategies. DH methods, combined with marker-assisted selection (MAS), allow a quicker and more effective fixation of favorable alleles. Plant genetic engineering is one of the most potent tools implemented in current molecular crop breeding techniques. The conventional methods of plant genetic transformation include *Agrobacterium tumefaciens*, particle bombardment, DNA uptake into protoplast. The transgenic events derived by these methods carry the transgenes integrated at random sites in the plant genome. Novel techniques that mediate integration of foreign genes at specific pre-determined locations circumvent many problems associated with the existing methods of gene transfer. The recent years have observed the development of gene targeting techniques by employing zinc finger nucleases (ZFNs), transcription activator-like effector nucleases (TALENs), and clustered regularly interspaced short palindrome repeats (CRISPR). This demonstration aims to discuss the new perspective of Plant Breeding in the context of the present Postgenomic era.

### CLASSIFICATION

Seasoned Plant Biotechnologist, Currently spearheading

as a Senior Scientist – Biotechnology and R&D professional with 12 years of diversified experience, from research, consulting to product development at one of the renowned seed company in India –Ganga Kaveri Seeds Pvt. Ltd. He holds a Ph D in Plant Biotechnology with specialization of Genetic Engineering and was part of various Research Projects conducted by National Research Centre on Plant Biotechnology in India. He has hands on experience in Development and molecular analysis of transgenic plants, Molecular cloning and Genome editing (CRISPR), Marker assisted breeding, Tissue culture and double haploids. His research was published in high impact journals like Nature Scientific Reports, Frontiers in Plant Science, Plant and Cell Physiology.

### References:

- Genetic transformation of *Chlorella vulgaris* mediated by HIV-TAT peptide.
- The membrane tethered transcription factor EcbZIP17 from finger millet promotes plant growth and enhances tolerance to abiotic stresses.
- Rapid and efficient *Agrobacterium* mediated transformation of early scutellum derived calli of indica rice.
- A review on advanced methods in plant gene targeting.
- Marker-assisted breeding for bacterial blight resistance in parental lines of hybrid rice.

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