

CHAPTER 12

GENETIC ENGINEERING OF GROUNDNUT (*ARACHIS HYPOGAEA* L.) FOR ABIOTIC STRESS TOLERANCE: CHALLENGES AND PROSPECTS

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Abstract:

Groundnut (*Arachis hypogaea* L.) is one of the important legume cash crops of tropical and semi-arid regions, where it provides a major source of edible oil and vegetable proteins. Abiotic and biotic stresses in ground nut negatively influences on survival, biomass production and total crop yield. Breeding groundnut genotypes for abiotic stress tolerant will likely sustain groundnut production. Traditional approach in breeding for abiotic stress tolerance has been slow, due to the rareness of alleles for the abiotic stress tolerance in the exiting groundnut germplasms. Hence, engineering abiotic stress resistance is an important target for increasing groundnut productivity. The chapter focuses on the abiotic constraints to groundnut production and describes the recent progress in using genetic engineering approach for the improvement of abiotic stress tolerance in groundnut. This includes discussion on regulatory measures, risks and concerns.

12.1 Introduction

Groundnut (*Arachis hypogaea* L.) is an annual legume crop and 4th most important oil seed crop, growing under a wide range of agro climatic conditions across the world. Apart from the seeds (kernels) which are main source for edible oil (43-55%) and protein (25-28%); the other parts

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