

Preface



The purpose of this book is to provide the basic and advanced theoretical information about the various aspects of plant biotechnology. Chapters 1 and 2 discuss all aspects of plant biotechnology effectively in detail, including tissue culture, nutrient medium, micronutrients, macronutrients, solidifying agents/supporting systems, growth regulators, sterilization of the medium, somatic embryogenesis, synthetic seeds, applications of tissue culture, production of haploids, diploids in genomics, germplasm conservations, production of secondary metabolites, industrial production of useful chemicals from plant tissue culture, industrial production of food additives and greenhouse technology.

Chapter 3 discusses plant transformation technology, hairy root culture, functions of *vir* proteins in T-DNA integration, gene expression reprogramming in response to *Agrobacterium*, development of binary vector systems, uses of 35S promoter, reporter genes, biolistic gene transfer, transgene stability, and gene silencing.

Chapters 4 and 5 analyse the plant genetic engineering for productivity and performance, resistance to herbicides, insect resistance, resistance to abiotic stresses, and molecular marker aided breeding, molecular markers, types of markers, biochemical markers, RFLP, linkage analysis, RAPD markers, microsatellites, SCAR, SNPs, AFLP, QTL, and mapping functions.

In Chapter 6, applications of plant biotechnology, industrial enzymes, genetic engineering, applications in food and food ingredients, dairy applications, baking applications, brewing and juicing applications, household and personal care applications, edible vaccines, plantibodies are dealt with. Chapter 7 examines propagation of economically important plants, biofertilizers, biopesticides, and vermiculture.



Chapter 8 explains different aspects of important issues in plant biotechnology, commercial status and public acceptance, biosafety guidelines, gene flow, and IPR.

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I would appreciate suggestions/constructive criticisms from teachers and students for the improvement of this book subsequently.