



Preface

Plant biotechnology is a rapidly developing field of plant research, and genetic engineering is an important tool in biotechnology.

While preparing this textbook, advances in genetics continue to be made at an ever increasing rate, making it difficult to write an introductory text on the subject. In last few years, many new applications of gene manipulation technology have been developed, covering an increasingly diverse range of disciplines and applications. However, we feel that the basic technical introduction to the subject should remain the major focus, to acquaint the readers with the core principles and concepts of genetic engineering.

A large number of courses on genetic engineering and biotechnology are offered at graduate and postgraduate levels in various departments such as Botany, Biochemistry, Biotechnology, Microbiology, Genetics, Food Technology, and Horticulture and Plant Pathology. Though a number of books explaining specialized and research-oriented information of genome organization, cloning of genes, etc. are available in the market, we anticipated the need of a book dealing with the basics of genetic engineering and plant biotechnology in a single volume, making it convenient for the readers to understand the concepts and applications of the subject.

The first twelve chapters of the book give comprehensive information regarding basic genetics, techniques and tools of recombinant technology. Chapter 13 deals with genomics, proteomics and metabolomics, whereas Chapter 14 gives a brief account on bioinformatics. The last sixteen chapters comprehensively cover plant cell and tissue culture, genetic transformation, transgenic plants, germplasm conservation and plant secondary metabolite production. To help students of genetic engineering and plant biotechnology and to prepare them for examination, the book provides chapter-end summary and practice questions including MCQs, True-False, Fill in the Blanks, Short Answer Questions and Long Answer Questions.

Mrs. Jyoti Govil, wife of late Professor C.M. Govil (the first author), their son Mr. Sandeep Govil and daughter Mrs. Deepti Mangal must be overwhelmingly contented to see his last publication, and the dream project.

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Finally, the authors express gratitude to their family members for their unwavering support and encouragement.

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