

PREFACE

Plant tissue culture is the technique of growing cells, tissues and organs in an artificial nutrient medium, under aseptic conditions. It offers novel approaches to plant production, propagation and conservation. The discipline of plant tissue culture has augmented our knowledge on fundamental botany, in the field of agriculture, horticulture, forestry, plant breeding, phytopathology etc. This book on plant tissue culture is intended for students of Undergraduates and Postgraduates of various colleges and Universities. The book embodies eleven chapters, starting with introduction, principles and basic aspects including tools and techniques. It is followed by chapters on somatic embryogenesis, micropropagation, protoplast culture and somatic hybridization, synthetic seeds, production of haploids, meristem culture and production of disease-free plants, somaclonal variation, production of stress tolerant plants, cryopreservation and biodiversity and biotechnology. The importance of biodiversity in recent years and the role of plant biotechnological approaches including techniques of plant tissue culture in sustaining the biodiversity have also been presented. The methodology of techniques has been briefly given due place in the chapters, wherever necessary. Figures, illustrations and examples are presented to elucidate the topic in appropriate fashion, and these features of the book will generate interest in the readers toward the subject. Each chapter has suggested readings and

questions at the end. Further, the language used is readers-friendly.

The plant tissue culture, which is an integral part of plant biotechnology, constitutes a bulk of the course in Undergraduate and Postgraduate classes of several Universities. In recent years, vast data has been generated and compiled in the form of reference books, on this subject. There have been books published on the subject in the past which have presented the subject in elaborate form but with more emphasis on research findings. This book is an attempt to furnish students and teachers the information at one place in consolidated and precise manner, covering most of the aspects of plant tissue culture, which may serve as a great help to them. The book will also be useful for research students engaged in plant tissue culture related work, as research highlights with references have been provided.

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