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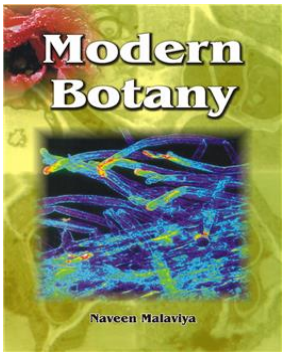
Modern Botany



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Blurb

The present book is a text book on modern topics of Botany. The first chapter of this book is on plasma membrane, wherein, details of transport mechanism is discussed. There are three sections in this book. Section I deals with the biochemistry and metabolism. Section II covers developmental physiology and the Section III is on plant biotechnology. In this section, Ti plasmid, transposable elements and transgenic plants are discussed in details. In this book there are separate chapters on bioinformatics and biosignalling. The text of this book is based on biochemical, physiological and molecular aspects, along with the modern and emerging ideas in Botany.

Foreword

Dr. S.M. Paul Khaurana

Vice Chancellor

Rani Durgavati Vishwavdyalaya, Jobalpur

Table of Contents

Synthesis and catabolism of amino acids.

11. Protein Synthesis

Some concepts and definitions, Transcription in prokaryotes, Transcription in eukaryotes, RNA processing, Translation, Post transitional modification of proteins.

12. Fat Metabolism

Biosynthesis of saturated fatty acid, the carbon source for fatty acid synthesis, formation of Malonyl CoA:Acetyl CoA carboxylase, homomeric and heteromeric forms of ACCase, biosynthesis cycle, the prokaryotic and eukaryotic pathways. The ER membrane is the site of fatty acid elongation and desaturation, the first double bond in a newly formed fatty acid. Biosynthesis of triacylglycerols,lipid catabolism oxidation.

SECTION II : DEVELOPMENTAL PHYSIOLOGY

13. Signal Transduction

Some basic concepts: the second messenger, signal transduction pathway, Mechanism of Signal Transduction: G protein, Calcium Calmodulin mediated Signal Transduction. Cyclic Nucleotides.

14. Plant Growth Regulators and Elicitors

Indole 3 Acetic acid, Gibberllins, Cytokinins, Abscisic acid, Ethylene, Brassinosteroids, Jasmonic acid, Polyamines, Salycylic acid, Phytohormones and Signal Transduction Chains, Application of Phytohormones in Agriculture.

15. Photomorphogenesis

Phytochrome, Crytochrome, The Chimeric Photoreceptores, Mechanism of Photoreceptor action. The Signal Transduction Chain, Seed Germination, Seedling and Vegetative Growth, Effect of light on pigment.

16. Physiology of Flowering

Photoperiodism, Role of Phytochrome, Florigen, The Genetic Aspect, The Constans and The Phloem Mobile Signal.

SECTION III : BIOTECHNOLOGY

17. Transformation and Transposons

Transformation using Plasmid of Agrobacterium: Molecular Biology of the Crown Gall, Ti Plasmid derived Vector system. Markers, The Gene transfer. Transposable elements, Transposition, Transpson Families, Transposon Tagging.

18. Transgenic Plants

Pest resistant and Herbicide Tolerant Plants, Microbial Pathogen resistant plants.

19. Tissue Culture

Historical background, Some basic terms and definitions. The different culture systems. The basic technique, Application of tissue culture.

20. Bioinformatics

Genomics, Proteomics, Genetic and Physical Mapping of Genes, Molecular markers, Artificial Chromosome, Database, Sequence alignment, algorithms. Application of bioinformatics, Bioinformatics in India.

Glossary

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