

Plant Genomics and Biotechnology

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Preface

The rapid advancement of genomics and biotechnology has revolutionized plant science, providing unprecedented opportunities to improve crop productivity, resilience, and nutritional quality. The book, *Plant Genomics and Biotechnology*, has been developed to present a comprehensive overview of the fundamental concepts, recent developments, and practical applications of these transformative disciplines in modern agriculture.

With the growing challenges of climate change, population expansion, emerging pests and diseases, and declining natural resources, innovative approaches are essential to ensure global food and nutritional security. Plant genomics has enhanced our understanding of gene structure, function, and regulation, while biotechnology has enabled the development of improved crop varieties through molecular breeding, genetic engineering, genome editing, and other advanced techniques.

This volume brings together contributions from researchers, academicians, and biotechnology professionals to provide insights into genome sequencing, functional genomics, molecular markers, bioinformatics, genetic transformation, CRISPR-based technologies, and their applications in crop improvement. Emphasis is placed on integrating scientific discoveries with practical solutions for sustainable agricultural development.

The editors hope that this book will serve as a valuable resource for students, researchers, teachers, and professionals working in plant sciences and biotechnology. We sincerely acknowledge the contributions of all authors and reviewers whose expertise and dedication have made this publication possible and meaningful.

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CONTENTS

S. NO.		PAGE NO.
1.	Introduction to Plant Genomics: Concepts and Applications <i>Ajit Kumar Mannade</i>	1-12
2.	Genome Organization and Structural Dynamics in Plants <i>Sanjay Kumar Bhariya</i>	13-24
3.	Advances in DNA Sequencing Technologies for Plant Genomics <i>Vinay Premi</i>	25-36
4.	Functional Genomics and Gene Expression Analysis in Plants <i>Hemant Sahu</i>	37-48
5.	Plant Transcriptomics, Proteomics, and Metabolomics <i>Vikky Kumar</i>	49-60
6.	Comparative and evolutionary Genomics in crop improvement <i>Sharmila Kumari, Darshana A. S, Jyoti, Budhayash Gautam, Mahesh Santosh Shirsat</i>	61-72
7.	Molecular Markers and Marker-Assisted Selection (MAS) <i>Bidaya Kumar, Sadia Khan, Krishna Tandekar, Kalyani D. Deshmukh, D.H. Sarang</i>	73-84
8.	Genetic Engineering and Transgenic Crop Development <i>Kingslee Sujan S, Sarita Dubey, Ram Krishna Choudhary, Harshit Chavda, Prakriti Chauhan</i>	85-96

- 9. Genome Editing Technologies: CRISPR/Cas and Beyond 97-108**
Ketan Anand, Manisha Mote, Harsh Harilal Maru, Isha Goswami, Dhanashila Subhash Sutar
- 10. Plant Epigenomics and Regulation of Gene Expression 109-120**
Vishal Pareek, Surendra Dhami, Tharun Kumar C J, Pallavi S, Budhayash Gautam
- 11. Applications of Plant Biotechnology for Sustainable Agriculture 121-132**
Udit Prakash, Nakka Amulya, Budhayash Gautam, Saibal Ray, Ritik Roshan
- 12. Bioinformatics and Artificial Intelligence in Plant Genomics Research 133-144**
Ajit Kumar Mannade, Sanjay Kumar Bhariya, Vinay Premi, Hemant Sahu, Vikky Kumar