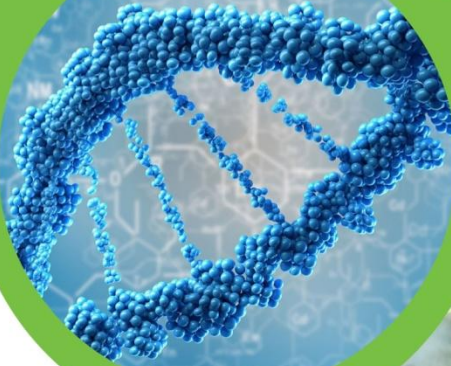


ISBN 978-81-984884-5-9

Molecular Insights into Plant Pathology



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Publication

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BioThink Publication

Official organization of BioThink- National Academy of Bio Sciences

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© 2025, Publisher

ISBN: 978-81-984884-5-9

DOI : <https://doi.org/10.5281/zenodo.14800614>

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Composed, Designed and Printed in India

Printed by Dev Graphics, Dehradun, Uttarakhand, India

ACKNOWLEDGMENT

The completion of this book, *Molecular Insights into Plant Pathology* would not have been possible without the support, guidance, and encouragement of many individuals and institutions. First and foremost, I extend my heartfelt gratitude to my Professors and Seniors for their invaluable guidance, encouragement, and expertise, which have been instrumental in shaping the content and direction of this book. Their insights and constructive feedback have significantly enriched this work.

I also acknowledge the contributions of the research community whose studies and findings have laid the foundation for this book. The dedication of scientists working in plant pathology and molecular research has been a guiding force behind this endeavor.

Special thanks to my parents Mr. Dharmendra Pandey and Mrs. Kanchan Pandey and friends for their unwavering encouragement and patience throughout the writing process. Their belief in my work has been a constant motivation.

Finally, I would like to express my sincere appreciation to the publishers and editorial team for their assistance in bringing this book to life. Their support and professionalism have been invaluable in ensuring the highest quality of this publication.

This book is dedicated to all researchers, students, and professionals in the field of plant pathology who are striving to advance knowledge and develop innovative solutions for sustainable agriculture.

Kartikey Pandey
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Dated:
02/011/2024
S.No.:02/05/2
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Foreword

It is with great pleasure that I introduce the book: **Molecular Insights into Plant Pathology**, a comprehensive guide on the essential molecular techniques transforming our understanding and management of plant diseases. In recent years, advancements in molecular biology have revolutionized the field of plant pathology, enabling researchers to identify pathogens, understand disease mechanisms, and develop novel management strategies with unprecedented precision and speed.

This book is an invaluable resource for students, researchers, and practitioners in plant pathology and related fields, providing clear and practical guidance on fundamental and advanced techniques. From DNA sequencing and gene expression analysis to pathogen detection and bioinformatics, each chapter is meticulously designed to bridge theory and practice. It not only elucidates the scientific principles underlying each method but also offers step-by-step protocols and troubleshooting tips, making it an ideal manual for both novices and seasoned scientists.

I commend the author for their dedication to compiling such an accessible and informative work. This book represents a significant contribution to the field and will undoubtedly inspire new generations of researchers in plant pathology.

Cordially,

Dr. Vishnu D Rajput
Done in Rostov-on-Don, Russia on November 02, 2024

PREFACE

Plant diseases pose a significant threat to global food security, causing substantial losses in crop yield and quality. Traditional approaches to plant pathology have provided a strong foundation for disease diagnosis and management. However, recent advancements in molecular biology have revolutionized our understanding of plant-pathogen interactions, leading to more precise, rapid, and effective disease detection and control strategies.

Molecular Insights into Plant Pathology is an effort to bridge the gap between classical plant pathology and modern molecular techniques. This book provides a comprehensive overview of cutting-edge molecular tools and their practical applications in plant disease diagnostics, pathogen identification, and disease resistance studies. It aims to serve as a valuable resource for students, researchers, and professionals in the field of plant pathology, agriculture, and biotechnology.

The book covers a range of topics, including molecular markers, DNA-based diagnostic techniques, next-generation sequencing, genome editing, and bioinformatics approaches for plant disease management. Each chapter is designed to provide theoretical insights along with practical applications, ensuring that readers gain both conceptual understanding and hands-on knowledge of molecular techniques. I extend my sincere gratitude to all the researchers, scientists, and academicians whose work has contributed to the development of molecular plant pathology. Their dedication and innovations continue to inspire advancements in this field.

I hope this book serves as a useful guide for those eager to explore molecular methodologies in plant pathology and contributes to the advancement of sustainable plant disease management.

Kartikey Pandey

Sunita Yadav

Ziaul Haque

Mohd Shahid Anwar Ansari

Swarna Kurmi

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Dr. Swarna Kumari completed her Ph. D. from the Department of Plant Pathology, at JNKVV, Jabalpur. She has cleared ICAR-Net in the year 2023. She is the life time member of IPS. She has published many research papers in national and international journals also published many book, booklet, book chapters and articles.

Price: 550/-

BioThink Publication

Dehradun, Uttarakhand -248001

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978-81-984884-5-9