About the Editors

Dr. Ashutosh Kumar *has completed his B.Sc. (Hort.) from College of Agriculture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri, Maharashtra, followed by M.Sc. Hort. (Vegetable Science) from Sher-e-Kashmir University of Agricultural Sciences and Technology, Shalimar, Srinagar, Jammu and Kashmir and Ph.D. (Olericulture) from Bihar Agricultural University, Sabour, Bhagalpur, Bihar. Presently, he is working as a Subject Matter Specialist, Horticulture, Vegetables at Krishi Vigyan Kendra, Narkatiyaganj, West Champaran, Bihar. Having job experience of more than six years at Krishi Vigyan Kendra, Sheohar, Bihar &Krishi Vigyan Kendra, Narkatiyaganj. Dr. Kumar has published more than ten research papers, is the author of two books, and has attended numerous workshops, seminars, symposia and conferences as a key speaker and resource person. Life member of the Indian Society of Vegetable Science and recipient of awards for his services, namely the Popular Extension Worker Award and the Young Scientist Award.*

Dr. Pamirelli Ranjith, *Assistant Professor, Genetics Plant Breeding, OUAT, Chiplima, Odisha since 2018 He was born in ASR District, Andhra Pradesh, He completed B.Sc. (Hons.) Horticulture from Dr. Y.S.R. Horticulture University, Andhra Pradesh. M.Sc. Agriculture (GPB) from Dr. P.D.K.V Akola, Maharashtra. He did his Ph.D. from (OUAT), Bhubaneswar in collaboration with ICAR-CRRI, Cuttack. He is having seven and half years of teaching and research experience. He is also involved in AICRIP on Rice, as Scientist (Plant Breeding) in Rice and associated in developing heat tolerant released Rice variety OUAT Kalinga Rice-8 (Suryashree). He is having 20 Research papers in peer- reviewed journals, 25 Abstracts published in National and International Seminars, 3 Practical manuals, 3 Book chapters to his credit.*

Miss Deepali Mohapatra *has an impressive academic background. She has completed her B.Sc. in Agriculture from OUAT, Bhubaneswar and M.Sc. in Plant Pathology from OUAT, Bhubaneswar. She is Currently pursuing Ph.D. in Plant Pathology at OUAT, Bhubaneswar and serving as a Teaching Assistant in Plant Pathology at College of Agriculture, OUAT, Bhubaneswar. She has qualified ASRB-NET (Plant Pathology). She received various scholarships and fellowship during his academic journey, State Merit Fellowship, and Prestigious BPRF Fellowship of Dept. Of Biotechnology, Govt. of Odisha. She has attended several national and international conferences and training programs. She has published several research and review article in national and international journals and edited several book chapters and popular articles.*

Dr. Vinayaka *K.S. has presently working as Assistant Professor and Head of Botany Department at Sri Venkataramana Swamy College, Bantwal, Dakshina Kannada, Karnataka. He has been teaching and conducting research in Botany for the past one and half decade. He has published over 160 research paper in National and International journals and has authored 18 books and having two patents to his credit. Presently serving as the reviewer and editor-in-chief for few National and International journals. He has received many research awards and grants like DST Young Scientist, Radhakrishna Shikshana Ratna award, INSAVisiting Scientist grants etc. Presently severing as BOS & BOE member for Mangalore University UG Botany and Environmental Studies.*

Mr. Lipikant Sahoo *has done B.Sc. (Ag) from S.V. Agricultural College, ANGRAU, Tirupati and M.Sc. in Plant Pathology from OUAT, Bhubaneswar. Currently pursuing Ph.D. in Plant Pathology at OUAT, Bhubaneswar. He achieved excellence in various examinations, including ICAR-JRF (Plant Science), ICAR-SRF (Plant Pathology), UGC-NET (Environment Science), and ASRB-NET (Plant Pathology). He received various scholarships and fellowship during his academic journey, including ICAR-NTS, State Merit Fellowship, and Prestigious MEDHA Fellowship of BCKIC and Principal Scientific Advisor, Govt. of India. He has published 5 research and review article in national and international journals and edited several book chapters and popular articles. He has attended several national and international conferences and training programs.*

Address

N D Global Publication House 31, Near Lakshmi Sagar Police Chowki Shahganj Haringtonganj Ayodhya, Uttar Pradesh, Pin -224284, India.

SCAN ME

9 789349 603424

PRICE ₹1001/-

Fundamentals of Plant Sceince

ND Global Publication

Editors:
Dr. Ashutosh Kumar
Dr.Pamirelli Ranjith
Deepali Mohapatra
Dr. Vinayaka K.S
Lipikant Sahoo

FUNDAMENTALS OF PLANT SCEINCE

Fundamentals of Plant Sceince

Editors

Dr. Virendra Singh

Mr. Thejavath Laxman

Dr. Naushad Khan

Dr. Shweta Chaudhary

Dr. Sandeep Rout

ND GLOBAL PUBLICATION HOUSE

ND GLOBAL PUBLICATION HOUSE

Head Office:- Murali Kunj Colony, Near Chandra Greens, Society, Transport Nagar, Mathura, Uttar Pradesh, Pin-281004,India.

MobileNo.:-9026375938

Email: *bsglobalpublicationhouse@gmail.com*

Web: *https://ndglobalpublication.com/*

9 789349 603424

Price:- 1001/-

PREFACE

Plants are the foundation of life on Earth. They convert the energy of the sun into the food that sustains nearly all living things. They release the oxygen we breathe and absorb the carbon dioxide we exhale. They clothe us, shelter us, heal us, and inspire us with their beauty.

Despite the vital importance of plants, their intricacies and inner workings remain a mystery to many. In a world facing unprecedented environmental challenges, a deep understanding of plant science has never been more critical. Climate change, habitat destruction, and a growing human population pose existential threats to global plant diversity and the ecosystems they support. Meanwhile, advances in fields like genetics and biotechnology are unveiling new frontiers in our relationship with the plant kingdom.

This book aims to provide a comprehensive introduction to the fundamentals of plant science. It is written for anyone who seeks to understand the fascinating world of plants, from the biology student exploring the subject for the first time to the seasoned horticulturist, farmer, or nature enthusiast looking to deepen their knowledge.

In these pages, we will journey from the tiniest cellular structures to the mightiest forest giants, from the history of humanity's agricultural beginnings to the cutting edge of plant science research today. We will explore the anatomy, physiology, genetics, ecology, and evolution of plants, always with an eye toward the practical applications of this knowledge for society and the environment.

The study of plants is the study of life itself in its most foundational form. It is a subject that touches on nearly every aspect of the human experience and will only grow in importance in the coming years. By understanding plants, we better understand ourselves and our place in the world. It is my hope that this book will inspire in readers a lifelong passion for these incredible organisms and the wonders they hold.

Happy reading and happy gardening!

Editors……

TABLE OF CONTENTS