

Preface

The damage to the ecological foundation essential for sustainable advances in productivity led to the onset of fatigue in Green Revolution. Scientific principles of soil and plant health management are being developed in order to sustain the benefits of enhanced productivity over long periods. Therefore, amazing gains and phenomenal increase have been observed in crop productivity by the use of effective microorganisms (plant growth and health-supporting bacteria) and practices. The agricultural crops which are a major source of food and nutrition are of immense importance to meet out the requirements of burgeoning human population. The productivity of the crops both in terms of quality and quantity of food is of paramount importance. Keeping in view of our immediate and long-term needs, the role of beneficial bacteria in agricultural–biological issues is envisaged.

The book entitled “*Bacteria in Agrobiology: Crop Productivity*” contains 19 chapters that cover multiple facets of contribution of the microbial attributes in addressing the crop’s productivity that advance in perpetuity without accompanying ecological harm. Exploitation of endophytic, root-nodulating, and rhizospheric bacteria having beneficial plant growth-promoting and health-supporting characteristics proved significant in low-input food, forage, and nonfood crops for sustainable agricultural system. On one hand, beneficial bacteria also provide improvement in the growth of medicinal plants grown commercially, while on the other hand, also proved to be significant in adaptation of psammophytes (plants grown in sand dunes) to nutrient-limited sand dune ecosystem. Plant-associated bacteria including indigenous rhizobia and their bioformulations impart productivity enhancement in rice, banana, chickpea, and some common legumes cultivated at high altitude of western Himalayas. PGPB-mediated siderophores have indirect contribution to successful plant growth promotion in order to achieve maximum productivity, while inoculation of bacteria increasing uptake and mobilization of nutrients aiding cereal biofortification has direct contribution to the same. Other topics discussed in the book include the priming as a suitable strategy to induce plant defense responses resulting in induced systemic resistance that impart plant immunity, PGPR secreting volatile and nonvolatile substances, exopolysaccharides, PGPR adoption to heavy metal tolerance, and blending

of plant microbial remediation as one of the given cleanup processes for amalgamated chemo-remediation through rhizobacterial interactions in crop improvement.

We trust this book will be useful for researchers, teachers, students, and policy makers but also for those who are interested in the subjects of plant sciences, microbiology, phytopathology, ecology, environmental science, and agricultural sciences.

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