

# Preface

Bacteria are among the most adaptable organisms. Their evolutionary passage across the long timescale, extremely short generation time, and aptitude to adapt to diverse and often hostile environments, combined with the remarkable power of natural selection have made these microorganisms the most resilient of life forms on this planet. As such, bacteria and fungi abound in the soil are the essential contributors in maintaining the ecological balance.

One of the most remarkable developments of the twentieth century vis-à-vis microorganisms is the discovery of the plant growth promoting bacteria (PGPB) that offers a vast array of beneficial attributes to plants, and thereby facilitating enhancement of crop productivity in a sustainable manner. More than 97% of our food requirements are realized from terrestrial ecosystems through agricultural productivity. Diversified populations of bacterial species occur in agricultural fields and contribute to crop productivity directly or indirectly. Plants provide a substantial ecological niche for microorganisms and below ground (roots) portions of plants and soil are constantly associated with a larger number of microorganisms reaping several benefits from such associations. This volume is accordingly conceived to provide consolidated information on the subject.

The book entitled *Bacteria in Agrobiolgy: Crop Ecosystems* has chapters that cover studies on various aspects of bacteria–plant interactions. Better understandings of the challenges in development of PGPB as efficient commercial bioinoculant have met in enhancing crop production. A large number of bacterial genera interplay with rhizosphere communities in different crops ecosystems, in particular, the oil-yielding crops, cereals, fruits and vegetables, forest trees, etc. Keeping in fitness with such important crops, the developmental challenges faced in the management of growth and soil and seed borne diseases associated with food crops such as rice, sesame, peanut, along with horticultural, sericultural plant ecosystems as well as in forestry are aptly covered in this volume. Detection of PGPR and biocontrol of postharvest pathogens as suitable alternatives to agrochemicals for sustainable crop production and protection, and restoration of degraded soils has also been duly addressed. I believe that this book will be useful not

only for researchers, teachers, and students, but also for those who are interested in the subjects of applied microbiology, plant protection, ecology, environmental science, and agronomy.

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