

Bacteria in Agrobiology: Disease Management

Bearbeitet von
Dinesh K. Maheshwari

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Preface

For burgeoning population while arable land and most other natural resources continue to decrease, and as our environment becomes further congested and stressed, the need for management of crop plant diseases effectively and safely has become one of the most basic requirements for feeding the hungry billions of our increasing overpopulated world.

Although diverse group of microorganisms exhibit to impart interference with the growth of disease causing phytopathogens, but only few of these microbial antagonists have achieved success in providing protection against deleterious pathogens resulting in growth promotions and in crop yield enhancements. Such antagonists are one of the important groups of plant growth promoting bacteria (PGPB), which act as potential biocontrol agents for the management of plant diseases. The combination of PGPB rhizospheric proficiency along with suppressiveness of diseases and pests are considered as contemporary research themes to a great extent. Numerous bacterial genera have now been analysed for their efficiency against soil and seed borne diseases causing pathogens, but their replication in field has been chimerical to a great extent.

Contents of the present book discuss various facts of advancement of disease management in sustainable manner, is suitably described in the 18 chapters contributed by eminent experts of their area of research. Bacteria in general and PGPR in particular in disease management is followed by effect of various factors influencing their efficacy in biological control of pre- and post-harvest disease of roots, tuber crops, cereals and other wide range of crop plants followed by well-established phenomenon of induced systemic resistance in plant diseases that leads to healthy plant growth. A due account is provided on PGPR plant interaction in disease management and suppressiveness of phytopathogens. For such purpose the involvement of antifungal substance of bacterial origin cannot be ruled out. The beneficial bacteria produce certain antagonistic molecules that are not limited to act against harmful bacteria and fungi, but their application has proved a better insight in to the management of plant parasitic nematodes and disease complex with fungi in suitable manner.

This book will be useful not only for the students, teacher and researchers but also for those interested to strengthen their knowledge in Agricultural Microbiology, Phytopathology and Plant Protection, Environmental Management, Crop Science and Agronomy.

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Haridwar, Uttarakhand, India

Dinesh K. Maheshwari