

Preface

Terrestrial root system is the most dynamic system in plants which regulates directly or indirectly the morphology, physiology, biochemistry, flowering, and the synthesis of secondary metabolites. It maintains a continuous conductivity link to stem and leaves. Any blockage in upward (xylem tissues) or downward (phloem) movement of water and solutes may damage the plants. Average scientists and plant biologists believe that it is an organ of anchorage into the soil and transportation of minerals and water. This is not true.

The prime aim and the objective of the book are to highlight the various essential roles of roots and their interaction with diverse microorganisms which are localized in the root system and/or in the vicinity, e.g., endophytes, rhizosphere (mycorrhizosphere), and non-rhizosphere. These are under the influence of root exudates (amino acids, sugars, and growth hormones). Microbial interaction has deep influence on plant growth, flowering, fruiting, production of secondary metabolites, and in combating biotic and abiotic stresses. In modern biology teachers and students are forgetting the role of root system which is subterranean, and the biomass is as enormous as that of aerial portion. They prevent soil erosion and play vital role in maintaining soil health.

The volume with 22 chapters, cleverly prepared by internationally recognized academicians, will serve and motivate the readers to value the root system and explore for better use of mankind and preservation of our ecosystem.

Murcia, Spain
Noida, India

Asunción Morte
Ajit Varma

Root Engineering

Basic and Applied Concepts

Morte, A.; Varma, A. (Eds.)

2014, XI, 493 p. 85 illus., 42 illus. in color.,

ISBN: 978-3-642-54276-3