

Contents

Part I Coexistence Between Populations

1 Plant Associated Soil Micro-organisms.....	3
Mika Tarkka, Silvia Schrey, and Rüdiger Hampp	
2 Role of Microbial Diversity for Soil, Health and Plant Nutrition	53
C.R. Bhatia	
3 Reconstructing Soil Biology	75
Patrice Dion	
4 Rhizosphere Colonization: Molecular Determinants from Plant-Microbe Coexistence Perspective.....	99
Chandra Shekhar Nautiyal, Suchi Srivastava, and Puneet Singh Chauhan	
5 Belowground Mycorrhizal Endosymbiosis and Aboveground Insects: Can Multilevel Interactions be Exploited for a Sustainable Control of Pests?	125
Emilio Guerrieri, Maria Cristina Digilio	

Part II Coexistence Between Genomes

6 Evolutionary Genomics: Linking Macromolecular Structure, Genomes and Biological Networks.....	155
Gustavo Caetano-Anollés	
7 Evolutionary Genomics of the Nitrogen-Fixing Symbiotic Bacteria	183
Víctor González, Luis Lozano, Santiago Castillo-Ramírez, Ismael Hernández González, Patricia Bustos, Rosa I. Santamaría, José L. Fernández, José L. Acosta, and Guillermo Dávila	
8 Genetic and Epigenetic Nature of Transgenerational Changes in Pathogen Exposed Plants	199
Alex Boyko, Igor Kovalchuk	

9 Recent Advances in Functional Genomics and Proteomics of Plant Associated Microbes	215
P. Nannipieri, J. Ascher, M.T. Ceccherini, G. Guerri, G. Renella, and G. Pietramellara	
10 Molecular Mechanisms of Biocontrol by <i>Trichoderma</i> spp.	243
P.K. Mukherjee, C.S. Nautiyal, and A.N. Mukhopadhyay	
Part III Coexistence Between Molecules	
11 Quorum Sensing in Bacteria-Plant Interactions.....	265
Kristien Braeken, Ruth Daniels, Maxime Ndayizeye, Jos Vanderleyden, and Jan Michiels	
12 Signals in the Underground: Microbial Signaling and Plant Productivity	291
Fazli Mabood, Woo Jin Jung, and Donald L. Smith	
13 Protein-Protein Interactions in Plant Virus Movement and Pathogenicity	319
Joachim F. Uhrig, Stuart A. MacFarlane	
14 Effects of Root Exudates in Microbial Diversity and Activity in Rhizosphere Soils	339
P. Nannipieri, J. Ascher, M.T. Ceccherini, L. Landi, G. Pietramellara, G. Renella, and F. Valori	
Part IV Methods to Study Plant and Microbe Coexistence	
15 Siderotyping, a Straightforward Tool to Identify Soil and Plant-Related Pseudomonads.....	369
Jean-Marie Meyer, Christelle Gruffaz, and Marion Fischer-LeSaux	
16 Molecular Strategies for Identifying Determinants of Oomycete Pathogenicity	383
Howard S. Judelson, Audrey M.V. Ah-Fong	
17 Molecular Methods for Studying Microbial Ecology in the Soil and Rhizosphere.....	411
Janice E. Thies	
18 Morphotyping and Molecular Methods to Characterize Ectomycorrhizal Roots and Hyphae in Soil.....	437
Laura M. Suz, Anabela M. Azul, Melissa H. Morris, Caroline S. Bledsoe, and María P. Martín	
Index.....	475

Molecular Mechanisms of Plant and Microbe
Coexistence

Nautiyal, C.S.; Dion, P. (Eds.)

2008, X, 486 p., Hardcover

ISBN: 978-3-540-75574-6