Plant-Microbe Interactions in the Rhizosphere

*Edited by: Adam Schikora*
Julius Kühn-Institut, Braunschweig, Germany

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The rhizosphere is the part of the soil directly influenced by the root system. It is intensively colonised by microorganisms and represents an environmental hot-spot in which the interactions between organisms reach a very complex level. There is a great deal of interest in understanding and manipulating these interactions with a view to development of new agricultural strategies and plant protection practices. In recent years the application of advanced technologies have permitted rapid progress in this field.

In this volume expert authors review current research on diverse aspects of the interactions which occur in the rhizosphere between the host plant and the microorganisms. The chapters focus on specific phenomena, from the biochemical and genetical level to complex inter-organism communication. The authors provide valuable insights into phenomena which are exemplary for diverse types of interaction and highlight emerging research providing important new insights into the interaction networks. Topics include: bacterial metabolism in the rhizosphere, the role of plasmids, plant immunity, the MTI-ETI model, endofungal bacteria, plant-nematode interactions, and apple replant disease.

This excellent volume is recommended for anyone involved in plant science or environmental microbiology and is indispensable for scientists working in the areas of soil microbiology and plant-microbe interactions.

**Chapter 1.** You Are What You Can Find to Eat: Bacterial Metabolism in the Rhizosphere (*Nicola Holden*)

**Chapter 2.** Role of Plasmids in Plant-Bacteria Interactions (*Jasper Schierstaedt, Nina Bziuk, Nemanja Kuzmanovic, Khalid Blau, Kornelia Smalla and Sven Jechalke*)

**Chapter 3.** Plant Immunity: The MTI-ETI Model and Beyond (*Hanna Alhoraibi, Jean Bigeard, Naganand Rayapuram, Jean Colcombet and Heribert Hirt*)

**Chapter 4.** Endofungal Bacteria Increase Fitness of their Host Fungi and Impact their Association with Crop Plants (*Ibrahim Alabid, Stefanie P. Glaeser and Karl-Heinz Kogel*)

**Chapter 5.** Plant-Nematode Interactions Assisted by Microbes in the Rhizosphere (*Olivera Topalovic and Holger Heuer*)

**Chapter 6.** Apple Replant Disease: Causes and Mitigation Strategies (*Traud Winkelmann, Kornelia Smalla, Wulf Amelung, Gerhard Baab, Gisela Grunewaldt-Stöcker, Xorla Kanfra, Rainer Meyhöfer, Stefanie Reim, Michaela Schmitz, Doris Vetterlein, Andreas Wrede, Sebastian Zühke, Jürgen Grunewaldt, Stefan Weiß and Michael Schloter*)

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