

1. Record Nr.	UNINA9910574861403321
Titolo	Microbial Cross-talk in the Rhizosphere // edited by Benjamin A. Horwitz, Prasun K. Mukherjee
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	981-16-9507-5
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (337 pages)
Collana	Rhizosphere Biology, , 2523-8450
Disciplina	574.526404
Soggetti	Microbiology Microbial ecology Plant diseases Soil science Microbial Ecology Plant Pathology Soil Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1 - Plant-microbe crosstalk in the rhizosphere: Introductory remarks -- Chapter 2 - How plants modulate their rhizosphere microbiome -- Chapter 3 - Strigolactone signalling and plant-microbe communications -- Chapter 4 - The role of phytohormones in cross-communication between plants and rhizo-microbes -- Chapter 5: Quorum sensing in the rhizosphere -- Chapter 6 - Metabolomics approaches for studying the Trichoderma-plant interactions -- Chapter 7 - Cross-talk between wilt-causing fungi, plants and their microbiome -- Chapter 8 - Biocontrol from the rhizosphere: probiotic pseudomonads -- Chapter 9 - Plant microbiome modulation through seed coating: A novel approach for a smart and efficient microbial delivery -- Chapter 10 - Trichoderma rhizosphere competence, suppression of diseases and biotic associations -- Chapter 11 - Ectomycorrhizal symbiosis: from genomics to trans-kingdom molecular communication and signaling -- Chapter 12 - Fungal effector proteins: Molecular mediators of fungal symbionts of plants.
Sommario/riassunto	This book addresses a very important aspect of microbial ecology that

has direct relevance to crop productivity. The soil zone under the direct influence of roots, or rhizosphere, is known for very intense microbial activities that include interactions with plants and other organisms. Many a times, these interactions are very specific and dictated by exchange of signaling molecules, broadly known as the cross-talk. This book covers our recent understanding of the mechanisms of plant-microbe cross-talk in the rhizosphere. In addition, it delves into the subject of how such interactions can influence plant health. The book opens with an overview of plants' interaction with, and indeed influence on, their microbiome. Both beneficial and disease-causing microbes inhabit the soil. Wilt-causing fungi are discussed here as an example of soilborne disease as well as insights on sustainable ways to control it. There are chapters related to beneficial rhizosphere residents like *Trichoderma*, pseudomonads and mycorrhizae, many of which are commercially used in agriculture, and also a specialized chapter on how to effectively deliver such plant-beneficial microbes through seed coating. The book concludes with a chapter on fungal effector proteins, some of which can be used to modulate plant defense against pests and pathogens.
