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Nota di contenuto	Chapter 1. Rhizosphere Metagenomics – Methods and Challenges -- Chapter 2. Metagenomic Approach in Relation to Plant-Microbe and Microbe-Microbe Interactions -- Chapter 3. Metagenomics and metatranscriptomics approaches in understanding and discovering novel molecules in rhizosphere environment -- Chapter 4. "Omics" approaches for understanding soil suppressiveness in agriculture -- Chapter 5. Rhizosphere dynamics: an OMICS perspective -- Chapter 6. Transcriptomics analyses and the relationship between plant and plant growth-promoting rhizobacteria (PGPR) -- Chapter 7. Proteomics for understanding the interaction between plant and rhizospheric microflora -- Chapter 8. A proteomics perspective for understanding rhizosphere biology at higher altitudes -- Chapter 9. Structural and functional rhizospheric microbial diversity analysis by cutting edge biotechnological tools -- Chapter 10. Rhizosphere Fingerprints: Novel Biomolecules via Meta-Omics Technology -- Chapter 11. Rhizosphere virology and plant health -- Chapter 12. Long sequencing tools for rhizosphere study -- Chapter 13. Rhizoengineering: A strategy to enhance soil and crop productivity -- Chapter 14. Endospheric microbiome assisted alteration in the metabolomic profiling of host

towards abiotic stress mitigation. .

Sommario/riassunto

This book presents a timely review of the latest advances in rhizosphere biology, which have been facilitated by the application of omics tools. It includes chapters on the use of various omics tools in rhizosphere biology, focusing on understanding plant and soil microbe interactions. The role of proteomics and metagenomics in research on symbiotic association is also discussed in detail. The book also includes chapters on the use of omics tools for the isolation of functional biomolecules from rhizospheric microorganisms. The book's respective sections describe and provide detailed information on important omics tools, such as genomics, transcriptomics, proteomics, metabolomics and meta-epigenomics. In turn, the book promotes and describes the combined use of plant biology, microbial ecology, and soil sciences to design new research strategies and innovative methods in soil biology. Lastly, it highlights the considerable potential of the rhizosphere in terms of crop productivity, bioremediation, ecological engineering, plant nutrition and health, as well as plant adaptation to stress conditions. This book offers both a practical guide and reference source for all scientists working in soil biology, plant pathology, etc. It will also benefit students studying soil microbiology, and researchers studying rhizosphere structure. .
