

1. Record Nr.	UNINA9910481960003321
Titolo	Microbial metatranscriptomics belowground // Manoj Nath [and three others], editors
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-15-9758-8
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XIII, 679 p. 64 illus., 50 illus. in color.)
Disciplina	581.10428
Soggetti	Rhizosphere Soil microbiology Rizosfera Microbiologia dels sòls Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Metatranscriptomics in Microbiome study: A comprehensive approach -- Chapter 2. Molecular Tools to Explore Rhizosphere Microbiome -- Chapter 3. Relevance of metatranscriptomics in symbiotic associations between plants and rhizosphere microorganisms -- Chapter 4. Chemical Signal Dissemination through Infochemicals -- Chapter 5. Nitrogen fixation through genetic engineering: A future systemic approach for Nitrogen fixation -- Chapter 6. Functional AM fungi in the rhizosphere of fruit crops -- Chapter 7. Importance of PGPRs in rhizosphere -- Chapter 8. Flavonoid Infochemicals: Unraveling insights of rhizomicrobiome interactions -- Chapter 9. Augmenting the abiotic stress tolerance in plants through microbial association -- Chapter 10. Role of functional defense signal in plant -microbe interactions -- Chapter 11. Understanding rhizosphere through metatranscriptomics approaches -- Chapter 12. Rhizospheric microbial communities: occurrence, distribution and functions -- Chapter 13. Psychrotrophic Microbes: Biodiversity, Adaptation, and Implications -- Chapter 14. Significance of belowground microbial-rhizosphere interactions -- Chapter 15. Functional niche under abiotic stress --

Chapter 16. Functional Diversity in Rhizosphere Microbial Community: Concept to Applications -- Chapter 17. Epiphytic Microbes of roots: Diversity and Significance -- Chapter 18. Evaluation of dynamic microbiome ecology within the plant roots -- Chapter 19. Maneuvering Soil Microbiome And Their Interactions: A Resilient Technology For Conserving Soil And Plant Health -- Chapter 20. Exploration of Rhizospheric Microbial Diversity of the Indian Sunderbans - a World Heritage Site -- Chapter 21. Advances and challenges in metatranscriptomic analysis -- Chapter 22. Metatranscriptomics: A Promising Tool to Depict Dynamics of Microbial Community Structure and Function -- Chapter 23. A pipeline for assessment of Pathogenic Load in the Environment using Microbiome Analysis -- Chapter 24. High Throughput analysis to decipher bacterial diversity and their functional properties in fresh water bodies -- Chapter 25. Functional defense signals in plants -- Chapter 26. Metatranscriptomic: A recent advancement to explore and understand rhizosphere -- Chapter 27. Advances in Biotechnological tools and techniques for metatranscriptomics -- Chapter 28. Microbes and soil health for sustainable crop production -- Chapter 29. Molecular Mechanisms Deciphering Cross-Talk Between Quorum Sensing Genes And Major Iron Regulons In Rhizospheric Communities -- Chapter 30. Exploring the Potential of Below ground Microbiome: Mechanism of action, Applications & Commercial Challenges -- Chapter 31. Plant growth promoting bacteria (PGPB) - a new perspective in abiotic stress management of crop plants.

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#### Sommario/riassunto

The book emphasizes role of functional microbes in soil to improve fertility and plant health in agro-ecosystem. In this compendium main emphasis is on occurrence and distribution of microbial communities, In situ active microbial quorum in rhizosphere, metatranscriptomics for microflora- and fauna, and functional diversity in rhizosphere. The book also highlights the importance of PGPRs in rhizosphere, root endotrophic microbes, functional niche under biotic stress, functional niche under abiotic stress, functional root derived signals, as well as functional microbe derived signals. Approaches deployed in metatranscriptomics, and molecular Tools used in rhizosphere are also discussed in detail. The book presents content is useful for students, academicians, researchers working on soil rhizosphere and as a policy document on sustenance of agriculture.

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