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Nota di contenuto	Chapter 1 - Diversity, Plant Growth Promotion Attributes and Agricultural Applications of Rhizospheric Microbes (Gangavarapu Subrahmanyam, Amit Kumar, Sosanka Protim Sandilya, Mahananda Chutia, Ajar Nath Yadav) -- Chapter 2 - Culturable Endophytic Fungal Communities Associated with Cereal Crops and their Role in Plant Growth Promotion(Hira Saleem, Hareem Mohsin, Rabia Tanvir, Yasir Rehman) -- Chapter 3 - Current Perspectives on Phosphate Solubilizing Endophytic Fungi: Ecological Significances and Biotechnological Applications (Edla Sujatha, Kuraganti Gunaswetha, Pallaval Veera Bramhachari) -- Chapter 4 - Endophytic Microbes from Medicinal Plants and Their Secondary Metabolites for Agricultural Significances (Chanda V. Parulekar Berde, Prachiti. P. Rawool, Pallaval Veera Bramhachari, Vikrant B. Berde) -- Chapter 5 - Phyllospheric Microbiomes: Diversity,

Ecological Significance, and Biotechnological Applications (Natesan Sivakumar, Ramamoorthy Sathish Kumar, Gopal Selvakumar, Rajaram Shyamkumar and Kalimuthu Arjune Kumar) -- Chapter 6 - Biofilms Forming Microbes: Diversity and Potential Application in Plant-Microbe Interaction and Plant Growth (Ajay Kumar and Joginder Singh) -- Chapter 7 - Actinobacteria: Diversity, Plant Interactions and Biotechnology Applications (Monnanda Somaiah Nalini, and Harischandra Sripathy Prakash) -- Chapter 8 - Phylogenetic Diversity of Epiphytic Pink-Pigmented Methylophilic Bacteria and Role in Alleviation of Abiotic Stress in Plants (Ganapathy Ashok, Guruvu Nambirajan, Krishnan Baskaran, Chandran Viswanathan and Xavier Alexander) -- Chapter 9 - Potassium Solubilizing Microbes: Diversity, Ecological Significances and Biotechnological Applications (Dheeraj Pandey, Ifra Zoomi, Harbans Kaur Kehri, Uma Singh, Kanhaiya L. Chaudhri and Ovaid Akhtar) -- Chapter 10 - Alleviation of Stress-Induced Ethylene-Mediated Negative Impact on Crop Plants by Bacterial ACC Deaminase: Perspectives and Applications in Stressed Agriculture Management (Hassan Etesami, Fatemeh Noori, Ali Ebadi, Narges Reiahi Samani) -- Chapter 11 - Halophilic Microbes from Plant Growing Under the Hypersaline Habitats and Their Application for Plant Growth and Mitigation of Salt Stress (Jai Prakash, Enespa, Prem Chandra) -- Chapter 12 - Microbes Mediated Drought Tolerance in Plants: Current Developments and Future Challenges (Iti Gontia-Mishra, Swapnil Sapre, Reena Deshmukh, Sumana Sikdar and Sharad Tiwari) -- Chapter 13 - Microbial Consortium as Biofertilizers for Crops Growing Under the Extreme Habitats (Chuks Kenneth Odoh, Kabari Sam, Nenibarini Zabbey, Chibuzor Nwadike Eze, Amechi S. Nwankwegu, Charity Laku and Boniface Barinem Dumpe) -- Chapter 14 - Global Scenario of Plant Microbiome for Sustainable Agriculture: Current Advancements and Future Challenges (Simranjeet Singh, Vijay Kumar, Satyender Singh, Daljeet Singh Dhanjal, Shivika Datta and Joginder Singh) -- Chapter 15 - Current Aspects and Application of Biofertilizers for Sustainable Agriculture (Modhurima Misra, Ashish Sachan, Shashwati Ghosh Sachan) -- Chapter 16 - Plant Microbiomes for Sustainable Agriculture: Conclusion and Future Vision (Ajar Nath Yadav).

Sommario/riassunto

This book encompasses the current knowledge of plant microbiomes and their potential biotechnological application for plant growth, crop yield and soil health for sustainable agriculture. The plant microbiomes (rhizospheric, endophytic and epiphytic) play an important role in plant growth, development, and soil health. Plant and rhizospheric soil are a valuable natural resource harbouring hotspots of microbes, and it plays critical roles in the maintenance of global nutrient balance and ecosystem function. The diverse group of microbes is key components of soil-plant systems, where they are engaged in an intense network of interactions in the rhizosphere/endophytic/phyllospheric. The rhizospheric microbial diversity present in rhizospheric zones has a sufficient amount of nutrients release by plant root systems in form of root exudates for growth, development and activities of microbes. The endophytic microbes are referred to those microorganisms, which colonize in the interior of the plant parts, viz root, stem or seeds without causing any harmful effect on host plant. Endophytic microbes enter in host plants mainly through wounds, naturally occurring as a result of plant growth, or through root hairs and at epidermal junctions. Endophytes may be transmitted either vertically (directly from parent to offspring) or horizontally (among individuals). The phyllosphere is a common niche for synergism between microbes and plant. The leaf surface has been termed as phyllosphere and zone of leaves inhabited by microorganisms as phyllosphere. The plant part,

especially leaves, is exposed to dust and air currents resulting in the establishments of typical flora on their surface aided by the cuticles, waxes and appendages, which help in the anchorage of microorganisms. The phyllospheric microbes may survive or proliferate on leaves depending on extent of influences of material in leaf diffuseness or exudates. The leaf diffuseness contains the principal nutrients factors (amino acids, glucose, fructose and sucrose), and such specialized habitats may provide niche for nitrogen fixation and secretions of substances capable of promoting the growth of plants.
