

1. Record Nr.	UNINA9910483875403321
Titolo	Current trends in microbial biotechnology for sustainable agriculture / / Ajar Nath Yadav [and three others] editors
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-15-6949-5
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XX, 572 p. 72 illus., 44 illus. in color.)
Collana	Environmental and Microbial Biotechnology
Disciplina	660.62
Soggetti	Microbial biotechnology Sustainable agriculture Agriculture
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Soil Microbiomes for Healthy Nutrient Recycling -- 2 Soil Microbial Diversity: Calling Citizens for Sustainable Agricultural Development -- 3 Metagenomics in deciphering microbial communities associated with medicinal plants -- 4 Role of Metagenomics in Deciphering the Microbial Communities Associated with Rhizosphere of Economically Important Plants -- 5 Plant-Microbe Association for Mutual Benefits for Plant Growth and Soil Health -- 6 Deciphering and Harnessing Plant microbiomes: Detangling the Patterns and Process - A Clean, Green Road to Sustainable Agriculture -- 7 Rhizosphere Biology: A Key to Agricultural Sustainability -- 8 Rhizosphere Microbiomes and their Potential Role in Increasing Soil Fertility and Crop Productivity -- 9 Plant Growth Promoting Rhizobacteria (PGPR): Current and Future Prospects for Crop Improvement -- 10 Beneficial Microbiomes for Sustainable Agriculture: An Ecofriendly Approach -- 11 Endophytic Microbiomes and their Plant Growth Promoting Attributes for Plant Health -- 12 Mycorrhiza: A Sustainable Option for Better Crop Production -- 13 Phyllospheric Microbes: Diversity, Functions, Interaction, and Applications in Agriculture -- 14 Mitigation Strategies for Abiotic Stress Tolerance in Plants through Stress Tolerant Plant Growth Promoting Microbes -- 15 Plant and Microbes Mediated Secondary Metabolites: Remunerative venture for Discovery and

Development -- 16 Potential Strategies for Control of Agricultural Occupational Health Hazards -- 17 Insecticides Derived from Natural Products: Diversity and Potential Applications -- 18 *Bacillus thuringiensis* as Potential Biocontrol Agent for Sustainable Agriculture -- 19 Entomopathogenic Microbes for Sustainable Crop Protection: Future Perspectives -- 20 Soil Microbes as Biopesticides: Agricultural Applications and Future Prospects -- 21 Biofertilizers for Agricultural Sustainability: Current Status and Future Challenges -- 22 Current Trends in Microbial Biotechnology for Agricultural Sustainability: Conclusion and Future Challenges. .

Sommario/riassunto

Microbial biotechnology is an emerging field with applications in a broad range of sectors involving food security, human nutrition, plant protection and overall basic research in the agricultural sciences. The environment has been sustaining the burden of mankind from time immemorial, and our indiscriminate use of its resources has led to the degradation of the climate, loss of soil fertility, and the need for sustainable strategies. The major focus in the coming decades will be on achieving a green and clean environment by utilizing soil and plant-associated beneficial microbial communities. Plant-microbe interactions include the association of microbes with plant systems: epiphytic, endophytic and rhizospheric. The microbes associated with plant ecosystems play an important role in plant growth, development, and soil health. Moreover, soil and plant microbiomes help to promote plant growth, either directly or indirectly by means of plant growth-promoting mechanisms, e.g. the release of plant growth regulators; solubilization of phosphorus, potassium and zinc; biological nitrogen fixation; or by producing siderophores, ammonia, HCN and other secondary metabolites. These beneficial microbial communities represent a novel and promising solution for agro-environmental sustainability by providing biofertilizers, bioprotectants, and biostimulants, in addition to mitigating various types of abiotic stress in plants. This book focuses on plant-microbe interactions; the biodiversity of soil and plant microbiomes; and their role in plant growth and soil health. Accordingly, it will be immensely useful to readers working in the biological sciences, especially microbiologists, biochemists and microbial biotechnologists. .
