

1. Record Nr.	UNINA9910483885903321
Titolo	Endophytes : potential source of compounds of commercial and therapeutic applications / / Ravindra H. Patil, Vijay L. Maheshwari, editors
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-15-9371-X
Descrizione fisica	1 online resource (275 pages)
Disciplina	581.70913
Soggetti	Endophytes Plants - Microbiology Metabolites Micologia Microbiología Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Contents -- About the Editors -- 1: Biologically Active Secondary Metabolites from Endophytic Alternaria Species -- 1.1 Introduction -- 1.2 Pharmaceutically Active Metabolites -- 1.2.1 Antimicrobial Agents -- 1.2.2 Anti-Viral Agents -- 1.2.3 Anti-Parasitic Agents -- 1.2.4 Cytotoxic Agents -- 1.2.5 Enzyme Inhibitors -- 1.2.6 Miscellaneous Pharmacological Activities -- 1.3 Agrochemically Active Metabolites -- 1.4 Future Perspectives -- References -- 2: Endophytic Fungi of Wild and Domesticated Crop Plants and Their Prospect for Applications in Sustainable Agriculture -- 2.1 Introduction -- 2.2 Diversity of Endophytic Fungi in Wild and Domesticated Crop Plants -- 2.3 Application of Endophytic Fungi in Sustainable Agriculture -- 2.3.1 Phytostimulants -- 2.3.2 Phosphate Solubilizers -- 2.4 Store House of Bioactive Metabolites -- 2.4.1 Nematicide -- 2.4.2 Biocontrol Agent -- 2.5 Conclusion and Future Aspects -- References -- 3: Recent Update on Novel Anticancer Compounds from Endophytes -- 3.1 Introduction -- 3.2 Anticancer Compounds from Endophytes -- 3.3 Conclusion --

References -- 4: Indo-Pak Medicinal Plants and Their Endophytes: An Emphasis on Nutraceutical and Bioactive Potential -- 4.1 Introduction -- 4.2 The Ethnobotany Prevailing in the Indo-Pak Subcontinent -- 4.3 Traditional Systems of Medicine Prevailing in the Indo-Pak Region -- 4.3.1 Tibb e Unani -- 4.3.2 Ayurveda -- 4.3.3 Siddha -- 4.4 Indo-Pak Medicinal Plants -- 4.4.1 *Azadirachta indica* -- 4.4.2 *Ocimum sanctum* -- 4.5 Nutraceutical Potential -- 4.5.1 *Tamarindus indica* (Linn.) -- 4.5.2 *Emblica officinalis* (Gatertn) -- 4.5.3 *Moringa oleifera* (Lam.) -- 4.6 Endophytes -- 4.6.1 Endophytic Actinomycetes -- 4.6.2 Association of Endophytic Actinomycetes with Their Host Plant -- 4.7 Conclusion -- References.

5: Pharmacological Applications of Bioactive Secondary Metabolites from Endophytes -- 5.1 Introduction -- 5.2 Plant-Endophyte Association: Selection of Suitable Plants for Endophyte Isolation and Subsequent Metabolite Studies -- 5.3 Structural Diversity and Bioactivities of Endophytic Secondary Metabolites -- 5.4 Pharmaceutical Application of Natural Products Obtained from Endophytes -- 5.4.1 Endophytic Products as Antimicrobial and Antiviral Agents -- 5.4.2 Anticancer Activity of Endophytic Natural Compounds -- 5.4.3 Endophyte Derived Antioxidant Agents -- 5.4.4 Antidiabetic and Immunosuppressant Compounds from Endophytes -- 5.5 Conclusion -- References -- 6: Antimicrobial Activity of Endophytic Fungi Isolated from Some Selected Ethnomedicinal Plants of Assam, India -- 6.1 Introduction -- 6.2 Endophytic Fungi from Ethnomedicinal Plants -- 6.3 Endophytic Fungi of Epiphytic Orchids -- 6.4 Endophytic Fungi from Wild Leafy Vegetables -- 6.5 Selection of Plants and Epiphytic Orchids from Assam -- 6.5.1 Isolation and Identification of Endophytic Fungi from Selected Plants -- 6.5.2 Preparation of Endophytic Fungal Extract to Obtain Secondary Metabolites -- 6.5.3 Antimicrobial Activity Assay of the Crude Extracts of Endophytic Fungi -- 6.6 Results and Discussion -- 6.7 Conclusion -- References -- 7: Endophytic Fungi: A Source of Novel Pharmaceutical Compounds -- 7.1 Introduction -- 7.1.1 Why Endophytic Fungi Now Become an Important Topic to the Researchers? -- 7.2 Endophytic Fungi as a Source of Plant Secondary Metabolites -- 7.3 Antimicrobial Compounds from Endophytic Fungi -- 7.3.1 Echinocandins A -- 7.3.2 Sordaricin -- 7.3.3 Pestalothol C -- 7.3.4 Phomopsichalasin -- 7.4 Anticancer Compounds from Endophytic Fungi -- 7.4.1 Taxol -- 7.4.2 Camptothecin -- 7.4.3 Vinca Alkaloids -- 7.4.4 Podophyllotoxin -- 7.4.5 Cytochalasins.

7.5 Mechanisms of Action of the Anticancer Compounds Isolated from Endophytic Fungi -- 7.6 Anti-inflammatory Compounds from Endophytic Fungi -- 7.6.1 Ergoflavin -- 7.6.2 Xylariphilone -- 7.6.3 Ambuic acid -- 7.6.4 Subglutinol A -- 7.6.5 Aspernolide F -- 7.7 Mechanisms of Action of the Anti-inflammatory Compounds Isolated from Endophytic Fungi -- 7.8 Future Perspective -- 7.9 Conclusion -- References -- 8: Endophytic Microflora of Sri Lankan Plants: An Overview of the Therapeutic and Agricultural Applications of the Secondary M... -- 8.1 Introduction -- 8.2 Host-Endophyte Relationship -- 8.3 The Endophytic Reservoir of Bioactive Compounds -- 8.3.1 Therapeutic Applications of Compounds Isolated from Endophytic Fungi in Sri Lanka -- 8.3.1.1 Antibiotic Compounds -- 8.3.1.2 Anticancer Compounds -- 8.3.1.3 Other Bioactive Compounds -- 8.3.2 Agricultural Applications of Compounds Isolated from Endophytic Fungi in Sri Lanka -- 8.3.2.1 Phytotoxic Compounds -- 8.3.2.2 Anti-plant Pathogenic Compounds -- 8.3.2.3 Other Applications in Agriculture -- 8.4 The Way Forward -- References -- 9: In Situ Probing of Endophyte Natural Products with DESI-Imaging Mass Spectrometry -- 9.1 Introduction -- 9.2 Dynamics of Bioactive Metabolites in Endophytic

Microorganisms -- 9.3 Imaging Mass Spectrometry (IMS) for In Situ Probing of Metabolites of Endophytic Organisms -- 9.3.1 Sample Preparation -- 9.4 Application of DESI-IMS in Profiling of Endophyte NPs -- 9.5 Conclusion -- References -- 10: Role of Phytohormones-Producing Fungal Endophytes in Plant-Microbial Interactions Under Stress -- 10.1 Introduction -- 10.2 Plant Hormones: Structures, Metabolism and Mechanisms of Action -- 10.2.1 Developmental Hormones -- 10.2.2 Stress Hormones -- 10.3 Microbiome in Plants-Interactions -- 10.4 Role of Endophytic Fungi in Mitigating Abiotic Stresses.

10.5 Impact of EF Phytohormones in Fitness and Growth Promotion of Host Plants -- 10.6 Genomics and Metabolomics of Endophytic Microbes -- 10.7 Future Outlook and Conclusions -- References -- 11: Strategies for Tapping into Hidden Potential of Endophytic Fungi as Sources of Novel Biomolecules: Need for an Integrated ... -- 11.1 Introduction -- 11.2 Activation of BGCs -- 11.2.1 One Strain Many Compounds (OSMAC) -- 11.2.2 Co-cultivation -- 11.2.3 Small Molecule Elicitors (SMEs) -- 11.3 Genome Mining for the Discovery of Novel Metabolites -- 11.3.1 Bioinformatics Tools for In Silico Prediction of Gene Cluster -- 11.3.2 Strategies for Genome Mining -- 11.3.3 Linking Genome Mining with Bioactivity Studies -- 11.3.4 Gene-Knockout Studies and Pathway Analysis -- 11.3.5 Heterologous Expression -- 11.4 Untargeted Metabolomics and Dereplication -- 11.4.1 Molecular Networking (MN): A New Strategy for Dereplication and Metabolite Annotation -- 11.4.2 Combining MN with Bioactivity Studies -- 11.5 Integrating Genomics to Metabolomics -- 11.6 Conclusion -- References -- 12: Endophytic Fungi: A Potential Source of Bioactive Compounds for Commercial and Therapeutic Applications -- 12.1 Introduction -- 12.1.1 Interaction Between Plant and the Endophytic Fungi -- 12.1.2 Phytochemical Constituents -- 12.2 Bioactive Compounds -- 12.2.1 Enzyme Production by Endophytes -- 12.2.2 Anticancer Compounds -- 12.2.3 Other Therapeutic Bioactive Compounds -- 12.2.3.1 Antimicrobial Compounds -- 12.2.3.2 Antioxidant Compounds -- 12.2.3.3 Immunosuppressive Compounds -- 12.2.3.4 Antidiabetic Compounds -- 12.2.3.5 Biopesticide Compounds -- 12.3 Conclusion -- References.
