Record Nr. UNINA990007633430403321 Il commercio tra Marsiglia e Ragusa allafine del Settecento / J., Berenger Titolo Descrizione fisica p. 255 - 274 Bérenger, Jean <1934-> Altri autori (Persone) Lingua di pubblicazione Non definito Materiale a stampa **Formato** Livello bibliografico Monografia Record Nr. UNINA9910586633603321 **Autore** Chen Jen-Tsung Titolo Plant and Nanoparticles Singapore:,: Springer,, 2022 Pubbl/distr/stampa ©2022 **ISBN** 9789811925030 9789811925023 Descrizione fisica 1 online resource (430 pages) Disciplina 660.6 Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Intro -- Contents -- About the Editor -- Emerging Trends of Nota di contenuto Nanoparticles in Sustainable Agriculture: Current and Future Perspectives -- 1 Introduction -- 2 Sources of Nanoparticles -- 2.1 Natural Sources of NPs -- 2.1.1 Volcanic Eruptions and Forest Fires --2.1.2 Water Bodies -- 2.1.3 Dust Storms and Cosmic Dust -- 2.1.4 Biogenic Production -- 2.2 Anthropogenic Sources -- 2.2.1 Mobile Sources -- 2.2.2 Industrial and Stationary Sources -- 2.2.3 Engineered

NPs -- 2.2.4 Miscellaneous Sources -- 3 Types of Nanoparticles -- 3.1 Silver NPs -- 3.2 Gold NPs -- 3.3 Magnetic NPs -- 3.4 Zinc NPs -- 3.5

-- 4 Applications of Nanoparticles -- 4.1 Biomedical Applications --4.1.1 Nanomedicine -- 4.1.2 Targeted Drug Delivery -- 4.2 Biosensors -- 4.3 Catalytic Applications -- 4.4 Agriculture -- 5 Nanoparticle-Plant Interactions -- 5.1 Uptake and Translocation Mechanism -- 5.1.1 Uptake of NPs Through Root -- 5.1.2 Uptake of NPs via Foliar Spray --5.2 Nanoparticles and Plant Genetic Engineering -- 6 Nanoparticles as Frontiers in Agriculture -- 6.1 Nano-farming: Novel Window in Crop Production -- 6.2 Nanoparticle-Mediated Delivery System: New Avenue in Sustainable Agriculture -- 6.3 Nanofertilizers: Effectual Crop Nutrition -- 6.4 Nanomaterials in Modulating Crop Production, Quality, and Yield -- 6.5 Nanoparticles in Stress Management and Plant Protection -- 7 Conclusions and Future Perspectives -- References --Nanoparticles in Plant Disease Management -- 1 Introduction -- 2 Nanoparticles in Delivery of Herbicides -- 3 Nanoparticles in Delivery of Insecticides -- 4 Nanoparticles in Delivery of Fungicides -- 5 Nanoparticles: Carriers of Pesticides -- 6 Nano-encapsulation of Pesticides -- 7 Nanoparticles: Against Plant Pest and Pathogens -- 8 Conclusion -- References. Proteomics of Plant-Nanoparticle Interaction Mechanism -- 1 Introduction -- 2 Proteomics to Understand the Interaction Between Plant and Nanoparticles -- 2.1 Silver Nanoparticles -- 2.2 Aluminum Oxide Nanoparticles -- 2.3 Iron Nanoparticles -- 2.4 Zinc Nanoparticles -- 2.5 Other Nanoparticles -- 3 Molecular Mechanisms Altered by Nanoparticles -- 3.1 Energy Regulation in Plants on Exposure to Nanoparticles -- 3.2 Oxidative Stress -- 4 Nanoparticle Perception and Method of Action Under Stress Conditions -- 4.1 Nanoparticles' Interaction with Soybean -- 4.2 Nanoparticles' Interaction with Wheat -- 5 Conclusion and Future Perspective --References -- Importance of the Secondary Metabolites and Biological Parameter Modification by Metallic, Oxide, and Carbon-Based Nanomateria... -- 1 Introduction -- 1.1 Forage Plants -- 1.2 Nanomaterials and Their Uses in the Agriculture -- 1.2.1 Nanofertilizers -- 1.2.2 Nanopesticides -- 1.2.3 Nanofungicides and Nanobactericides -- 1.2.4 Protection Against Environmental Stresses --1.2.5 Seed Priming -- 2 Nanomaterials and the Secondary Metabolism in Plants -- 3 Metallic Nanoparticle Effects Over Forage Plants -- 4 Metal Oxides' Effects Over Forage Plants -- 5 Carbon-Based Nanomaterials' (CBNs) Effects Over Forage Plants -- 6 Conclusion --References -- Polymer-Based Nanoparticles (NPs): A Promising Approach for Crop Productivity -- 1 Introduction -- 2 Polymer NPs: Types and Preparation Methods -- 2.1 Chitosan NPs -- 2.2 Alginate NPs -- 2.3 Pectin NPs -- 2.4 Cellulose and Starch NPs -- 2.5 Lignin NPs -- 2.6 Polyaspartate NPs -- 2.7 Beeswax NPs -- 3 Effects of Polymer-Based NPs on Plants -- 3.1 Application of NPs as a Growth Promoter --3.2 Application of NPs for Controlling Environmental Stresses -- 3.2.1 Role of Chitosan-Based NPs in Plants Exposed to Salt Stress. 3.2.2 Effect of Chitosan-Based NPs in Plants Exposed to Drought Stress -- 3.2.3 Impact of Chitosan-Based NPs on Plant Exposed to Heavy Metal Stress -- 3.2.4 Impact of Chitosan-Based NPs on Plants Exposed to Biotic Stress -- 3.3 Application of NPs with Biostimulants -- 3.3.1 Beneficial Microorganisms -- 3.3.2 Substances and Organic Materials -- 3.4 Effects of Polymer-Based NPs on Fruit Development and Quality -- 3.5 The Fate of Polymeric NPs -- 3.6 Conclusion and Future Perspective -- References -- Plant-Mediated Eco-Friendly Synthesis of Platinum Nanoparticles and Their Applications -- 1 Introduction -- 2 Synthesis of PtNPs -- 2.1 Chemical Approaches -- 2.2 Physical Approaches -- 2.3 Biological Approaches -- 3 Green Synthesis of PtNPs

Selenium and Tellurium NPs -- 3.6 Cadmium NPs -- 3.7 Palladium NPs

from Plant Extracts -- 4 Applications -- 4.1 Antibacterial Efficacy of PtNPs -- 4.2 Anticancer Efficacy of PtNPs -- 4.3 Catalytic and Photocatalytic Performance of PtNPs -- 5 Concluding Remarks and Future Direction -- References -- Foliar Application of Metallic Nanoparticles on Crops Under Field Conditions -- 1 Introduction -- 2 Different Roles of Engineered Nanomaterials in Agricultural Fields -- 3 Application of Nanoagrochemicals -- 4 Role of Properties of Engineered Nanoparticles in Crop-Nanoparticle Interaction -- 4.1 Surface Modification -- 4.2 Size -- 4.3 Shape -- 4.4 Chemical Composition and Crystal Structure -- 5 Interaction of Metallic Nanoparticles with Plants After Foliar Application -- 6 Impact of Engineered Nanoparticles on the Leaf Traits -- 7 Metal and Metal Oxide Nanoparticles Affect Plant Yields and Nutritional Parameters -- 7.1 Quantitative Improvements in Plant Yields -- 7.2 Qualitative Improvements in Plant Yields -- 8 Evaluation of Nanoparticles in the Context of Reproductive and Environmental Safety Through the Palynological Analysis -- 9 Conclusion and Future Perspectives and Development.

References -- Phytotoxic Effects of Nanoparticles and Defense Mechanisms in Plants -- 1 Introduction -- 2 Methods for the Assessment of Nanoparticle-Induced Phytotoxicity -- 3 Factors Influencing the Phytotoxicity of Nanoparticles -- 3.1 Physicochemical Characteristics of Nanoparticles -- 3.2 Species and Growth Stage of Target Plants -- 3.3 Type and Composition of Culture Medium -- 3.4 Environmental Factors -- 4 Uptake and Translocation of Nanoparticles in Plants -- 4.1 Nanoparticles Uptake -- 4.2 Translocation of Nanoparticles in Plants -- 5 Intrinsic Detoxification and Defense Mechanisms in Plants -- 5.1 Enzymatic Antioxidant Defense System --5.2 Nonenzymatic Antioxidant Defense System -- 6 Mechanisms of Nanoparticle-Induced Phytotoxicity -- 7 Phytotoxic Effects of Nanoparticles -- 7.1 Effects of Nanoparticles on Seed Germination --7.2 Influence of Nanoparticles on Plant Hormones and Growth -- 7.3 Impact of Nanoparticles on Grain Quality and Yield -- 7.4 Effects of Nanoparticles on Photosynthesis -- 7.5 Cytotoxic and Genotoxic Effects of Nanoparticles in Plants -- 7.6 Transgenerational Effects of Nanoparticles in Plants -- 8 Conclusions and Future Perspectives --References -- Plant Molecular Responses to Nanoparticle Stress -- 1 Introduction -- 2 Mechanism of Plant-Nanoparticle Interaction -- 2.1 Metal Containing Nanoparticles -- 2.2 Metal Oxide Nanoparticles -- 3 Nanoparticle's Role in Stress Mitigation -- 4 Subcellular Transport and Mobilization of Nanoparticles -- 5 Gene Expression Analyses in Response to Nanoparticle Stress -- 6 Molecular Analyses of Plants Under Nanoparticle-Induced Stress -- 7 Conclusions and Future Perspective -- References -- Nanoelicitation: A Promising and Emerging Technology for Triggering the Sustainable In Vitro Production of Secondary Metabolit... -- 1 Introduction.

2 Different Abiotic Elicitors for Augmentation of Secondary Metabolites -- 2.1 Carbohydrates -- 2.2 Minerals -- 2.3 Plant Growth Regulators (PGRs) -- 2.4 Light Source -- 2.5 Chemicals -- 3 The Era of Nanotechnology and Nanoparticle-Based Elicitation of Secondary Metabolites -- 3.1 Metallic Nanoparticles -- 3.2 Metallic Oxide Nanoparticles -- 3.3 Carbon-Based Nanomaterials -- 4 Uptake and Internalization of Nanoparticles -- 5 Mechanism of Triggering Behavior of Nanoparticles -- 6 Nanotoxicity -- 7 Conclusions and Perspectives -- References -- Nanomaterials as Unique Carriers in Agricultural Practices for Plant Growth and Development: A State of Current Knowledge -- 1 Introduction -- 2 Nanomaterials for Sustainable Intensification in Agriculture -- 3 Nanomaterials: A New Carrier in Agricultural Development -- 3.1 Sources and Synthesis -- 3.1.1

Incidental NMs -- 3.1.2 Engineered NMs -- 3.1.3 Naturally Produced NMs -- 3.1.3.1 By Bacteria -- 3.1.3.2 By Fungi -- 3.1.3.3 By Plants --3.1.3.4 By Algae -- 3.1.3.5 By Viruses -- 3.2 Synthesis -- 3.2.1 Synthesis of NMs by Top-Down Method -- 3.2.2 Synthesis of NMs by Bottom-Up Method -- 4 Nano-based Essential Metals -- 4.1 Zinc Based -- 4.2 Copper Based -- 4.3 Carbon Based -- 4.4 Manganese Based --4.5 Titanium Based -- 4.6 Silver Based -- 4.7 Silicon Based -- 4.8 Other Metal Based -- 5 Mechanism of Nanomaterial Uptake, Translocation, and Action -- 6 Nanomaterials Interaction and Physiochemical Response of Plants -- 7 Toxicological Impact and Health Hazards in Agriculture -- 8 Concluding Remarks and Future Directions -- References -- Nanotechnologies and Sustainable Agriculture for Food and Nutraceutical Production: An Update -- 1 Sustainable Agriculture in the Era of Nanotechnology -- 2 Nanotechnologies for Food and Nutraceutical Production -- 3 Sustainable and Novel Nanomaterials.

3.1 Biosynthesized Nanomaterials.