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Soggetti	Plant biotechnology Botanical chemistry Plant physiology Plant Biotechnology Plant Biochemistry Plant Physiology
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Nota di contenuto	1. Undeniable Positive Impacts of Metal Nanoparticles in Plant Tissue Culture -- 2. Overview of Production Methods of Selected Metal Nanoparticles,- 3. Application of Polymeric Nanoparticles on Ameliorating Crop Productivity -- 4. Silver Nanoparticles as a Sterilant in Plant Micropropagation -- 5. Silver Nanoparticles as a Stimulant in Organogenesis of Several Plants -- 6. Enhanced Somatic Embryogenesis of Some Plants by Silver Nanoparticles -- 7. Positive Effect of Silver Nanoparticles in In Vitro Flowering and Fruiting of Passion Fruit -- 8. Enhanced Plantlet Quality on Microponic System Containing Silver Nanoparticles -- 9. Enhanced Growth of Single Cells of Limonium sinuatum on Medium Containing Silver Nanoparticles -- 10. Enhanced Growth of Plantlets on Medium Containing Cobalt Nanoparticles -- 11. Hardening of Plantlets Regenerated from Transgenic Hairy Roots of Panax vietnamensis on Medium Containing Iron Nanoparticles -- 12. Enhanced Surface Disinfection and Subsequent Growth in Plant Micropropagation by Copper Nanoparticles -- 13. Selenium Nanoparticles as a Stimulant in Plant Micropropagation -- 14. Hardening of Plantlets by Using Silicon Dioxide Nanoparticles -- 15.

Metal Nanoparticles on Overcoming Several Abnormal Phenomena in Plant Micropropagation.

Sommario/riassunto

This edited book presents recent developments in the field of plant biotechnology involving highly efficient micropropagation for the commercial exploitation of nanomaterials (such as silver, cobalt, copper, zinc, magnesium, silicon, iron, nickel, manganese, and selenium nanoparticles, etc.). The book covers the concept, preparation, and synthesis of metallic and non-metallic nanoparticles, as well as their application in plant cell, tissue, and organ culture. Metal nanoparticles have gained significant attention in various fields, including plant cell, tissue, and organ culture. Their unique physical, chemical, and biological properties make them attractive candidates for applications in plant science. Nanomaterials are applied as plant growth regulators to improve plantlet quality by enhancing the quality of in vitro shoots, their growth, and development at both in vitro and ex vitro stages. Since then, the application of nanomaterials in micropropagation has paved the way for replacing previous culture mediums with new nanoparticle mediums, bringing better efficiency and simplicity to plant propagation operations. The book discusses mechanisms, explant surface disinfection, media sterilization, abnormal phenomena, morphogenesis, physiological-biochemical processes, and the accumulation of economically valuable crop compounds in culture mediums supplemented or replaced by metal ions with metal nanoparticles. This book will interest teachers, researchers, scientists, capacity builders, and policymakers. Additionally, it serves as additional reading for undergraduate and graduate students in agriculture, forestry, ecology, soil science, and environmental science.
