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Altri autori (Persone)	BharadvajaNavneeta SinghRam AnandRaksha
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Nota di contenuto	Chapter 1. Biologically active compounds from medicinal aromatic plants: herbicides, insecticides, fungicides, and pharmaceuticals (Muazzez Gürkan) -- Chapter 2. Progress in Biotechnological Applications via In Vitro Propagation Techniques: As A Source of Secondary Metabolites Production (Kanti Kiran) -- Chapter 3. Response of cultivated industrial crops to abiotic stresses through enhancement of Secondary Metabolites (Mrinalini Kannan) -- Chapter 4. Unlocking the potential of nanoparticles in regulation of antioxidant defense in medicinal plants under abiotic stress conditions (Praveen Gupta) -- Chapter 5. Biologically Synthesized Nanoparticles for Enhancing Secondary Metabolites in Plant Tissue Cultures (Athira Sajeev) --

Chapter 6. *Piper nigrum* and piperine phytochemistry, traditional uses, preclinical studies, and clinical trials (Arefeh Mollazadeh) -- Chapter 7. Nano-carrier systems for berberine delivery: A literature review of nano-formulations and their applications (Vahideh Mohammadzadeh) -- Chapter 8. Biologically active compounds from medicinal and aromatic plants and their applications in agriculture (Simran Dani) -- Chapter 9. Ethnobotany, Phytochemistry and Medicinal Properties of Plants Containing Manna in Iran (Zahra Ayati) -- Chapter 10. Scent molecules as mediators of optimal defence in algae and non-flowering plants (Ishita Paul) -- Chapter 11. Integration of omics tools for enhancing secondary metabolite content in medicinal and aromatic plants (Gunjan Tiwari) -- Chapter 12. Recent advances in phytochemical based cost-effective metal oxide nanoparticles towards wastewater treatment (Nisha Saini) -- Chapter 13. Utilizing Residual Biomass from Medicinal and Aromatic Plants: Scope for Value Enhancement (Indrajeet Kumar) -- Chapter 14. Recent Trends and Applications of Biochar and Nanoparticles from Plant Biomass (Sumona Garg) -- Chapter 15. Pineapple Residues: Sustainable Feedstock for Chemicals and Value-Added Products (Eshita Pasreja) -- Chapter 16. Cultivation of Medicinal and Aromatic Plants for Specialty Industrial Materials (Shweta Singh).

Sommario/riassunto

Due to complex phytochemical components and associated beneficial properties, numerous medicinal and aromatic plants, in whole or parts, have been used for nutritional purposes or the treatment of various diseases and disorders in humans and animals. Essential oils from medicinal and aromatic plants (MAPs) have been exploited for product formulations of pharmaceuticals, cosmetics, food and beverage, colorants, biopesticides, and several other utility chemicals of industrial importance. There is scientific evidence of many medicinal plant extracts possessing immunomodulatory, immunostimulatory, antidiabetic, anticarcinogenic, antimicrobial, and antioxidant properties, thus demonstrating their traditional use in popular medicine. With the advent of modern technology, the exploitation of natural resources has exponentially increased in order to fulfill the demand of an increased human population with improved quality of life. The traditional agriculture and production-based supply of commodities is inadequate to meet the current demand. Biotechnological approaches are gaining importance to bridge the gaps in demand and supply. In the proposed book, medicinal and aromatic plant-based secondary metabolites have been discussed in terms of their therapeutic potential and industrial relevance. To discuss the qualitative and quantitative analysis of a range of medicinal and aromatic plants-based secondary metabolites (SMs), bioprocess development for their extraction and bioseparation, a brief overview of their industrial relevance, various tissue culturing strategies, biotechnological approaches to enhance production, scale-up strategies, management of residual biomass post extraction of target SMs is central to the idea of the proposed book. A section will explore the verticals mentioned above. In the next section, the book addresses the approaches for conserving and improving medicinal and aromatic plant genetic resources. In the third section, approaches to managing the post-harvest crop residue and secondary metabolites extracted plant biomass will be thoroughly discussed. The recent integration of artificial intelligence to improve medicinal and aromatic plant research at several levels, including the development and employment of computational approaches to enhance secondary metabolite production, tissue culture, drug design and discovery, and disease treatment, will be included in the fourth section. The book summarizes

current research status, gaps in knowledge, agro-industrial potential, waste or residual plant biomass management, conservation strategies, and computational approaches in the area of medicinal and aromatic plants with an aim to translate biotechnological interventions into reality.
