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Nota di contenuto	Downstream Processes for Plant Cell and Tissue Culture -- Agrobacterium rhizogenes mediated transformation in medicinal plants: Prospects and challenges -- Scutellaria: Biotechnology, Phytochemistry and its Potential as a Commercial Medicinal Crop -- Microbial Endophytes: Progress and Challenges -- Cannabis sativa L.: Propagation for phytocannabinoids and biotechnology -- Epilobium Sp. (Willow Herb): Micropropagation and Production of Secondary Metabolites -- Photoelicitation of bioactive secondary metabolites by ultraviolet radiation: mechanisms, strategies and applications -- Advances in Microspore culture technology: A biotechnological tool for the improvement of medicinal plants -- Implication of Cellular Heterogeneity on Plant Cell Culture Performance -- Biosynthetic Potential of hairy roots for production of new natural products --

Molecular biology and biotechnology of quinolizidine alkaloid biosynthesis in Leguminosae plants -- Metabolomics in medicinal plant research -- Antioxidants in Medicinal plants -- Metabolic Engineering and Synthetic Biology for the Production of Isoquinoline Alkaloids -- Jasmonate-responsive transcription factors: new tools for metabolic engineering and gene discovery -- Metabolic Engineering of Plant Cellular Metabolism: Methodologies, Advances and Future Directions -- Use of Metabolomics and Transcriptomics to Gain Insights into the Regulation and Biosynthesis of Medicinal Compounds: Hypericum as a Model -- Multivariate Analysis of Analytical Chemistry Data and Utility of the KNApSAcK Family Database to Understand Metabolic Diversity in Medicinal Plants -- Genomic and Transcriptomic Profiling: Tools for the Quality Production of Plant-Based Medicines.

Sommario/riassunto

Plant-based medicines play an important role in all cultures, and have been indispensable in maintaining health and combating diseases. The identification of active principles and their molecular targets from traditional medicine provides an enormous opportunity for drug development. Using modern biotechnology, plants with specific chemical compositions can be mass propagated and genetically improved for the extraction of bulk active pharmaceuticals. Although there has been significant progress in the use of biotechnology, using tissue cultures and genetic transformation to investigate and alter pathways for the biosynthesis of target metabolites, there are many challenges involved in bringing plants from the laboratory to successful commercial cultivation. This book presents the latest advances in the development of medicinal drugs, including topics such as plant tissue cultures, secondary metabolite production, metabolomics, metabolic engineering, bioinformatics and future biotechnological directions. .