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Nota di contenuto	Chapter 1. Bioactive Peptides: Role in Plant Growth and Defense -- Chapter 2. Linking Omics Approaches to Medicinal Plants and Human Health -- Chapter 3. Application of Biotechnology in Producing Plant Bio-active Compounds -- Chapter 4. Transgenic plant cell cultures: A promising approach for secondary metabolites production -- Chapter 5. An Insight into Biotechnological Approaches Used for Improvement and Secondary Metabolites for Medicinal Aquatic Plant Water hyssop (Bacopa monnieri L.) -- Chapter 6. Prospects for the Use of Plant cell culture as alternatives to produce secondary metabolites -- Chapter 7. Biotechnological exercises in the production of secondary metabolites and its significance in health care practices -- Chapter 8. Salient biotechnological interventions in saffron (Crocus sativus L.), a major source of bioactive apocarotenoids -- Chapter 9. Recent advances in extraction, characterization and potential use of Citral -- Chapter 10.

Hairy root cultures as an alternative source for the production of high-value secondary metabolites -- Chapter 11. Plant Cell Culture as Alternatives to Produce Secondary Metabolites -- Chapter 12. Metabolic Engineering Strategies for Enhancing the Production of Bioactive Compounds from Medicinal Plants -- Chapter 13. Enhancement of Rosmarinic Acid Content by Biotechnological Approaches and Metabolic Engineering.

Sommario/riassunto

Natural bioactive compounds have become an integral part of plant-microbe interactions geared toward adaptation to environmental changes. They regulate symbiosis, induce seed germination, and manifest allelopathic effects, i.e., they inhibit the growth of competing plant species in their vicinity. In addition, the use of natural bioactive compounds and their products is considered to be suitable and safe in e.g. alternative medicine. Thus, there is an unprecedented need to meet the increasing demand for plant secondary metabolites in the flavor and fragrance, food, and pharmaceutical industries. However, it is difficult to obtain a constant quantity of compounds from the cultivated plants, as their yield fluctuates due to several factors including genotypic variations, the geography, edaphic conditions, harvesting and processing methods. Yet familiarity with these substances and the exploration of various approaches could open new avenues in their production. This book describes the basis of bioactive plant compounds, their mechanisms and molecular actions with regard to various human diseases, and their applications in the drug, cosmetic and herbal industries. Accordingly, it offers a valuable resource for students, educators, researchers, and healthcare experts involved in agronomy, ecology, crop science, molecular biology, stress physiology, and natural products. .