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Nota di contenuto	Chapter 1. Introduction to Plant Secondary Metabolites -- Chapter 2. An Overview of In Vitro Secondary Metabolite Production -- Chapter 3. Laboratory Design and Functionality -- Chapter 4. Practical Plant Tissue Culture: Techniques and Protocols -- Chapter 5. Callus and Cell Suspension Cultures for Secondary Metabolite Production -- Chapter 6. Practical Protocols of Callus and Cell Suspension Cultures -- Chapter 7. Root Cultures and In Vitro Secondary Metabolite Production -- Chapter 8. Practical Techniques for Establishing Root Cultures -- Chapter 9. Shoot Cultures and In Vitro Secondary Metabolite Production -- Chapter 10. Practical Techniques for Shoot Cultures -- Chapter 11. Factors Impacting the Accumulation of Bioactive Compounds in Cultured Plant cells and Hairy roots -- Chapter 12. Metabolic

Engineering for Plant Secondary Metabolites Production -- Chapter 13. Practical Approaches for Metabolic Engineering -- Chapter 14. In Vitro Strategies for Enhanced Secondary Metabolite Synthesis -- Chapter 15. Practical Techniques for Enhanced Secondary Metabolite Production In Vitro -- Chapter 16. Bioreactors -- Chapter 17. Practical protocol for Production of Secondary Metabolites using Bioreactors -- Chapter 18. In Vitro Production of Colors and Pigments -- Chapter 19. Production Of Carotenoid Pigments through Callus Culture -- Chapter 20. Elicitation -- Chapter 21. Practical Protocol for Biotic Elicitation -- Chapter 22. Biotransformation of Compounds Catalyzed by Plant Cells, Hairy Roots and Enzymes -- Chapter 23. Analytical Methods for Screening High Yielding In Vitro Cultures -- Chapter 24. Protocols for Analytical Techniques used in In Vitro Culture Systems -- Chapter 25. Commercial In Vitro Secondary Metabolite Production - Challenges And Opportunities.

Sommario/riassunto

This book addresses the literature gap by providing both theoretical foundations and practical insights into in vitro plant secondary metabolite production. It emphasizes the urgency to address the strategies and scientific methods for producing the secondary metabolites in the laboratory conditions. This book includes chapters on various production strategies, case studies, success stories and methodologies crucial for understanding and implementing techniques in this applied field. It equips the readers with the knowledge essential for contributions to pharmaceuticals, agriculture and various industries, thus filling a critical void currently present in the literature and practical applications in this field. This book is structured to cater to a diverse audience, including graduate students and researchers. This book is specifically tailored to address the key aspects of plant cell, tissue and organ culture, and aligns seamlessly with the curriculum requirements for the courses offered in plant biotechnology. The modules on cell cultures, secondary metabolite production, and metabolic engineering are also integral components for these courses.
