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Nota di contenuto	Chapter 1. Plant Tissue Culture and DNA Delivery Methods -- Chapter 2. Cell Cultures and Hairy Roots as Platform for Production of High Value Metabolites: Current Approaches, Limitations and Future Prospects -- Chapter 3. Integrating Bioinformatics and Omics tools for systems analysis of abiotic stress tolerance in Oryza sativa (L.) -- Chapter 4. Green Biotechnology: A brief update on Plastid Genome Engineering -- Chapter 5. New Generation Transformation Vectors -- 6

Recent Developments in Generation of Marker Free Transgenic Plants -- Chapter 7. Applications of Genome Engineering/Editing Tools in Plants -- Chapter 8. High Throughput Analytical Techniques to Screen Plant Transgenics -- Chapter 9. Transgenic Technologies and their Potential Application in Horticultural Crop Improvement -- Chapter 10. Commercial Application of Transgenic Plants in Virus Management -- Chapter 11. Application of Reed Beds in Wastewater Treatment: Scope for Transgenic Plants -- Chapter 12. Inspection of Crop Wild Relative (*Cicer microphyllum*) as Potential Genetic Resource in Transgenic Development -- Chapter 13. Genome Modification Approaches to Improve Performance, Quality and Stress Tolerance of Mediterranean Fruit Species -- Chapter 14. Key Challenges in Developing Products from Transgenic Plants -- Chapter 15. Enhanced Production of Therapeutic Proteins in Plants: Novel Expression Strategies -- Chapter 16. Transcriptional Engineering for Enhancing Valuable Metabolites in Photosynthetic Microalgae.

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#### Sommario/riassunto

The green revolution led to the development of improved varieties of crops, especially cereals, and since then, classical or molecular breeding has resulted in the creation of economically valuable species. Thanks to recent developments in genetic engineering, it has become possible to introduce genes from different sources, such as bacteria, fungi, viruses, mice and humans, to plants. This technology has made the scientific community aware of the critical role of transgenics, not only as a means of producing stress tolerant crops but also as a platform for the production of therapeutics through molecular farming. This book discusses the commercial applications of plant transgenic technologies, including the use of transgenic cell culture approaches to improve the production of metabolites and high-value therapeutics as well as transgenic plants in pest management. It also explores generation of novel vectors, protein production using chloroplast engineering and the latest developments in this area, such as genome editing in plants. Featuring general discussions and research papers by leading international experts, it is a valuable resource for scientists, teachers, students and industrialists working in the field.

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