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Nota di contenuto	The Molecular Biology and Biochemistry of Fruit Ripening; Contents; List of Contributors; Preface; 1 Biochemistry of Fruit Ripening; Introduction; Central Carbon Metabolism; Ethylene in Ripening; Polyamines; Volatiles; Cell Wall Metabolism; Concluding Remarks; References; 2 Fruit-An Angiosperm Innovation; Introduction; Fruit in the Fossil Record; Fruit Variation and Angiosperm Phylogeny; Fruit Development; Fruit as a Driver of Angiosperm Diversity; Acknowledgments; References; 3 Ethylene and the Control of Fruit Ripening; Introduction; Ethylene and Climacteric and Nonclimacteric Fruits A Molecular Explanation for System-1 and System-2 EthyleneEthylene and Ripening Gene Networks in Flower and Fruit Development; Ethylene Perception and Signaling; The Receptors; Interaction of Receptors with CTRs; Other Receptor-interacting Proteins; Signaling Downstream of CTR; Ethylene Response Factors; Ethylene and Ripening Gene Expression; Color; Texture; Flavor and Aroma Volatiles; Susceptibility to Pathogens; Conclusions; Acknowledgments; References; 4 Carotenoid Biosynthesis and Chlorophyll Degradation; Introduction; Distribution of

Carotenoids and Chlorophylls in Fruit

Chlorophyll Degradation and Recycling
Chlorophyll Degradation During Senescence and Fruit Ripening; Recycling of Chlorophyll Metabolites; Carotenoids and Carotenoid Metabolites; Structures and Functions in Higher Plants; Carotenoid and Apocarotenoid Biosynthesis; Regulation of Carotenoid Biosynthesis During Fruit Ripening; Future Perspectives; Acknowledgments; Bibliography; 5 Phenylpropanoid Metabolism and Biosynthesis of Anthocyanins; Introduction; Cinnamic Acids;

Monolignols, Lignans, and Lignin; Coumarins; Stilbenoids; Flavonoids Engineering Elevated Levels of Flavonoids and Other

Phenylpropanoids
Conclusion; References; 6 Biosynthesis of Volatile Compounds; Introduction; Metabolic Pathways; Fatty Acid Derivatives Pathways; Phenylpropanoids and other Benzenoids Pathways; Other Amino Acid-derived Volatile Pathways; Ester Volatile Pathways; Terpenoid Pathway; Apocarotenoid Pathways; Furanone Pathway; Conjugation and Emission of Volatiles; Identification of Quantitative Trait Loci for Volatiles; Metabolic Engineering of the Fruit Volatile Pathways; Future Perspectives; References

7 Cell Wall Architecture and Metabolism in Ripening Fruit and the Complex Relationship with Softening
Introduction; Building Blocks of Fruit Cell Walls; Cellulose; Hemicelluloses; Pectins; Structural Proteins; The Architecture of Fruit Cell Walls; Cell Wall Dynamics in Ripening Fruit; Ripening-related Disassembly of Cell Wall Polysaccharides; Mechanisms of Cell Wall Modification; Confirmation and characterization of in vivo enzyme activities; Comparative studies of cell-wall-texture associations in different fruit species

Evaluation of coordinated and synergistic mechanisms of cell wall disassembly

Sommario/riassunto

A comprehensive and mechanistic perspective on fruit ripening, emphasizing commonalities and differences between fruit groups and ripening processes. Fruits are an essential part of the human diet and contain important phytochemicals that provide protection against heart disease and cancers. Fruit ripening is of importance for human health and for industry-based strategies to harness natural variation, or genetic modification, for crop improvement. This book covers recent advances in the field of plant genomics and how these discoveries can be exploited to understand evolution.
