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production in vanilla beans

Vanillin biosynthetic pathway in V. planifoliaProduction of vanillin by biotechnology; Introduction; Use of microorganisms; Use of plant tissue culture; Use of enzymes; Use of physical and mild chemistry; Synthetic vanillin; Vanillin from vanilla beans; Regulations; Conclusions and future outlook; References; Chapter 4Plant cell culture as a source of valuablechemicalsChee-Kok Chin; Introduction; Establishment of callus culture; Initiation and maintenance of cell culture; Production of valuable chemicals by cultured plant cells; Concluding remarks; References

Chapter 5Tomato aroma: Biochemistry and biotechnologyRachel Davidovich-Rikanati, Yaniv Azulay, Yaron Sitrit,Yaakov Tadmor and Efraim LewinsohnThe major aroma impact volatiles in tomato andtheir biosynthetic pathways; Biosynthesis of tomato volatiles; Degradation of fatty acids; Volatiles derived from amino acids; Terpenes; Carotenoid pigmentation affects the flavor andvolatile composition of tomato fruit; Genetic engineering of tomato aroma; Conclusion; References; Chapter 6Flavor development in riceLouis M.T. Bradbury, Robert J. Henry and Daniel L.E. Waters; Introduction; Old flavors of rice

Rice textureFragrant rice; The chemistry of rice fragrance; The genetics of rice fragrance; BAD enzymes and 2AP synthesis; The future; References; Chapter 7Breeding and biotechnology for flavordevelopment in apple (Malus domestica Borkh.)Susan K. Brown; Quality; Apple volatiles; Ester compounds and ester biosynthesis; Measurement techniques; Varietal and developmental differences; Effect of storage; Effect of processing; Effect of 1-methylcyclopropene treatment; Hypoxia; Gene isolation; Genetic studies, linkage maps and marker-assisted selection; ESTs; Transgenic approaches

Ethylene production and softening (ACS-ACO)

Sommario/riassunto

Biotechnology can deliver complex flavors both as fermentation products and single constituents. Recent developments in transgenic research have spawned numerous studies in the use of metabolic engineering of biosynthetic pathways to produce high-value secondary metabolites that can enhance the flavors of food products. Biotechnology is also playing an increasingly important role in the breeding of food crops for enhanced flavor. This book provides a unique overview of the current state of the art of flavor production through biotechnology, examining the principles and current met