

Title The polymorphism of the genes involved in ethylene biosynthesis and perception in apple
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Abstract

Apple (*Malus × domestica* Borkh.) is a climacteric fruit whose ripening is associated with a burst of autocatalytic production of hormone ethylene. Although the ethylene biosynthetic pathway is well characterised, understanding of the molecular mechanisms underlying ethylene perception and signal transduction pathway is limited. Little information is available about the functional relevance of allelic polymorphism of the genes involved in ethylene biosynthesis and perception. We have studied polymorphism in the *ACSI*, *ACO1* and *ETR1* genes, encoding for ACC synthase, ACC oxidase and ethylene receptor respectively, in apple cultivars characterised by different ripening time and storage capability. Two alleles of *ACSI* (*ACSI-1* and *ACSI-2*), five alleles of *ACO1* (*a*, *b*, *c*, *d* and *n*) and five alleles of *ETR1* gene (*a*, *b*, *c*, *d* and *e*) were detected. The position of all three genes on the apple genetic map was determined.