

Title Effect of ethylene inhibitors in apricot (*Prunus armeninaca* L.) ripening: action vs. biosynthesis

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Abstract

Apricot fruit is highly susceptible to flesh softening and loss of flavor, particularly during postharvest storage. Most of these changes are under ethylene regulation. During two seasons we studied the effect of 1-methylcyclopropene and aminoethoxyvinylglycine (an ethylene action and an ethylene synthesis inhibitor, respectively) on quality attributes of Modesto and Patterson apricot cultivars. Both ethylene inhibitors were effective in reducing ethylene production, fruit softening and color development. On the other hand, soluble solids concentration and titratable acidity have shown an ethylene-independent pattern. In order to understand the effect of both inhibitors in the ethylene biosynthetic pathway, we identified, cloned and characterized the expression of the key genes involved in ethylene synthesis and perception (*acs*, *aco*, *etr*, *ers* and *eil*). The expression pattern was characterized by qPCR as ripening progressed at 20°C after harvest. From the three *acs* genes characterized, the expression of *acs2* was highly reduced by ethylene inhibition, suggesting a key role in apricot ripening. On the other hand, changes in *aco*, *etr*, *ers* and *eil* genes did not show a consistent pattern by ethylene modulation (Fondecyt 1060179).