

Title Regulation of ethylene biosynthesis by nitric oxide in tomato (*Solanum lycopersicum* L.) fruit harvested at different ripening stages

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Abstract

The nitric oxide (NO) treatment on tomato (*Solanum lycopersicum* L. cv. 'Myrock') fruits delayed the burst of ethylene production and color development in both mature green (MG) and breaker (BR) stage fruits. However, no clear differences were observed in pink and full red stage fruits during storage. The gene expressions of 1-aminocyclopropane-1-carboxylic acid synthase (ACS) and 1-aminocyclopropane-1-carboxylic acid oxidase (ACO) were determined in both MG and BR stage fruits using the reverse transcription-polymerase chain reaction method. The analyzed ACS genes include *LeACS2*, *LeACS4*, *LeACS6*, *LeACSH6A*, and *LeACSH6B*. The gene expression of ACO was investigated on *LeACO1*, *LeACO2*, *LeACOH2*, *LeACO4*, and *LeACOH4*. The ACS genes in NO-treated and untreated fruits were expressed extensively over the storage period in both MG and BR stage fruits, and the expression patterns were similar. However, the expression of ACO genes was different at different ripening stages. In NO-treated fruit, expression of *LeACO1*, *LeACOH2*, and *LeACO4* was decreased and delayed. These results implicate that NO might control the postharvest metabolism of crops, dependent on either dose level or commodities.

<http://www.springerlink.com/content/w35004h181138pm0/fulltext.pdf>