

**Title** Effect of 1-methylcyclopropene on expression of genes for ethylene biosynthesis enzymes and ethylene receptors in post-harvest broccoli

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#### **Abstract**

The effects of 1-methylcyclopropene (1-MCP), an ethylene action inhibitor, on the senescence of broccoli (*Brassica oleracea*, L. var. *italica*) after harvest were studied, and its possible molecular mechanism was discussed. The results showed that 1-MCP treatment delayed the yellowing of broccoli florets, inhibited the activities of 1-aminocyclopropane-1-carboxylate acid (ACC) oxidase (ACO), and delayed the peaks in the ACC synthase (ACS) activity and ACC concentration. In addition, exogenous ethylene treatment did not accelerate yellowing in the florets pretreated with 1-MCP. The gene expression pattern of enzymes involved in ethylene biosynthesis and ethylene receptors in broccoli florets after harvest was investigated. 1-MCP treatment significantly decreased the expression of *BO-ACS1*, *BO-ACS2*, *BO-ACO1*, *BO-ERS*, *BO-ETR1* and *BO-ETR2*. 1-MCP delayed the senescing process of broccoli by inhibiting the activities of enzymes involved in ethylene biosynthesis and gene expression of these enzymes and of ethylene receptors at the transcript level.

<http://www.springerlink.com/content/n45j80138mm7h775/fulltext.pdf>