

Abstract

Aminoethoxyvinylglycine (AVG) and 1-methylcyclopropene (1-MCP) have potential as new tools in controlling ripening of three pear cultivars ('Anjou', 'Bartlett', and 'Bosc') harvested at commercial maturity. Preharvest AVG treatments 32 and 40 days prior to harvest delayed ripening only in 'Bartlett' fruit, but had no significant effects on ripening after cold storage. Immediately after harvest, fruit were exposed to 1-MCP ranging from 0 to 100 $\mu\text{l}\cdot\text{L}^{-1}$ for 20 hours at 20°C, then stored in air at 0°C and 90 to 95% relative humidity for up to 130 days. Following treatment, and after 30 days storage plus a 7- or 10-day post-storage ripening period, fruit softening and ethylene evolution were inhibited and fruit volatile evolution was reduced up to 99% by exposure to 1-MCP at or above 1.0 $\mu\text{l}\cdot\text{L}^{-1}$ in all 3 cultivars. Concentrations greater than 1.0 $\mu\text{l}\cdot\text{L}^{-1}$ were required to maintain initial firmness and inhibit ethylene production after 70 days of storage. Thus, AVG can be used successfully as a harvest management tool, and 1-MCP may be used to extend fruit storage life and optimize fruit quality, when application timing is correlated accurately to fruit development and maturation.