Title The effect of 1-MCP on the quality of ‘Conference’ and ‘Abbé Fétel’ pears

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Abstract

The ethylene antagonist 1-methylcyclopropene (1-MCP) counteracts ethylene action through binding to the ethylene receptors, so blocking ethylene actions, such as fruit ripening. Pears after harvest and storage must undergo some ripening before becoming ready to eat. Applying 1-MCP to pears requires careful dosage in order to retard ripening without preventing it. The effect of 1-MCP treatment (25 and 50 ppb), repeated every 2 months in storage, on ‘Conference’ and ‘Abbé Fétel’ pears stored for 5 months in normal (NA) and controlled atmosphere (CA) was studied. 1-MCP treated fruit remained greener than control fruit. Fruit treated with 25 ppb 1-MCP behaved similarly to control fruits, while softening during shelf life was delayed in fruit treated with 50 ppb and they produced less ethylene, especially if fruits were stored in CA. The effect of 1-MCP on firmness and ethylene production lasted for about one month in NA storage and three months in CA storage for ‘Conference’, and for a shorter period for Abbé Fétel. The repetition of 1-MCP treatment was not effective, perhaps due to the interval between treatments being too long. ‘Abbé Fétel’ pears showed a higher ethylene production rate during shelf life and were less sensitive to 1-MCP dose than ‘Conference’ pears. ‘Abbé Fétel’ fruit softened during shelf life regardless of the 1-MCP dose and the time. After 3 months in NA, the 1-MCP-treated fruit had a good flavour and a better texture than control fruit, which softened with a firm texture and a watery taste. 1-MCP treatment was effective in reducing superficial scald only in ‘Abbé Fétel’ pears, which had a higher α-farnesene content than ‘Conference’ fruits.