

Abstract

The rapidly ripening summer apple cultivar 'Anna' was treated with 0.1 and 1 $\mu\text{l l}^{-1}$ 1-methylcyclopropene (1-MCP) at harvest and held at 20 °C for 12 days, or stored for 5 weeks at 0 °C and then transferred to 20 °C for 10 days. Fruit quality parameters of firmness, soluble solids and titratable acidity were measured instrumentally at different times during the 20 °C ripening periods, and compared to the sensory ratings of a trained panel and hedonic scores of untrained tasters. 1-MCP prevented softening and acidity loss in the treated apples and this was reflected in the sensory ratings of the panel and the preference of the untrained tasters. Nine descriptors which showed a sample effect were overall odor, fruit odor, sweet, sour, ripe, firm, crisp, juicy and mealy. The sensory assessment of 1 $\mu\text{l l}^{-1}$ 1-MCP-treated apples remained similar to that of harvested fruit, being assessed high in firmness, crispiness and juiciness, while the control fruit after 6 days or longer at 20 °C showed the sensory characteristics of ripe fruit. Fruit treated with 0.1 $\mu\text{l l}^{-1}$ 1-MCP retained the characteristics of harvested fruit for 6 days at 20 °C, but after 12 days there were no differences between its profile and that of control fruit. The hedonic scores showed that the highest preference was for 1 $\mu\text{l l}^{-1}$ 1-MCP-treated apples after 12 days at 20 °C. This study indicates that there is a high value placed on apple fruit texture, and that 1-MCP can enable rapidly ripening summer apples to maintain the texture characteristics that are preferred by consumers.