Title Effect of 1-methylcyclopropene (1-MCP) on softening of fresh-cut kiwifruit, mango and persimmon slices

Author Eduardo V. de B. Vilas-Boas and Adel A. Kader

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Abstract

Ethylene production is enhanced by wounding during fresh-cut processing and the accumulation of this gas within the packages of fresh-cut fruit can be detrimental to their quality and shelf-life. The effect of 1-methylcyclopropene (1-MCP), an ethylene action blocker, applied before or after processing, on the quality of fresh-cut kiwifruit, mangoes and persimmons was evaluated during storage at 5 °C. Fresh-cut 'Hayward' kiwifruit slices softened at a slower rate and their ethylene production rate was decreased in response to 1-MCP application (1 $\mu L\ L^{-1}$ for 6 h at 10 °C) either before or after processing. A 2-min dip in 0.09 M (1%, w/v) $CaCl_2$ synergistically increased the effect of 1-MCP on firmness retention and 1-MCP did not affect the color (L* value) of fresh-cut kiwifruit slices. Softening and browning (decreasing L* value) were delayed when 1-MCP was applied directly on fresh-cut 'Kent' and 'Keitt' mango slices. Respiration rate of mango slices was not influenced by 1-MCP whereas the ethylene production was affected only towards the end of their shelf-life. Fresh-cut 'Fuyu' persimmons treated with 1-MCP after processing presented higher ethylene production rate, slower softening rate and slower darkening of color (decrease in L* value), whereas the respiration rate was not affected.