

Abstract

'Hayward' kiwifruit [*Actinidia deliciosa* (A. Chev.) C.F. Liang et A.R. Ferguson var *deliciosa*] were stored for 30 days at 0.5 °C and then treated with 0.5, 1 or 5 $\mu\text{l l}^{-1}$ 1-methylcyclopropene (1-MCP) for 16 h at 20 °C. Treated and control fruit were subsequently stored at 20 ± 1 °C to ripen. Control fruit displayed a typical climacteric pattern of ethylene production. Peak ethylene production was measured at 17th day. Ethylene production by treated fruit remained low and they did not show an ethylene climacteric during 32 days of storage at 20 °C. Control fruit softened rapidly to 11.8 N in 4 days but fruit treated with 0.5 $\mu\text{l l}^{-1}$ 1-MCP did not soften to a similar extent until after 18 days. Treated fruit did not soften as much as control fruit but firmness of treated fruit after 32 days was considered appropriate for their consumption. Core tissue of 1-MCP treated fruit softened more slowly than outer cortical tissue. 1-MCP severely retarded changes in lightness and chroma in the outer cortex. Soluble solid concentrations (SSC) remained low in 1-MCP treated fruit for about 14 days. Fruit treated with 0.5 $\mu\text{l l}^{-1}$ developed acceptable flavor and reached SSC similar to those in control fruit (15.3%) by 28 days. The increase of SSC in fruit treated with 5 $\mu\text{l l}^{-1}$ 1-MCP underwent further retardation. Activity of three glycosidases (β -D-galactosidase (β -Gal), α -L-arabinofuranosidase (α -Af), and β -D-xylosidase (β -Xyl)) increased in control fruit during ripening but only to a limited extent, or not at all, in fruit treated with 1 $\mu\text{l l}^{-1}$ 1-MCP.