

Title Influences of 1-methylcyclopropene on quality of persimmon fruit cv. 'Fuyu' after cold storage

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Abstract

The present study estimated how 1-MCP treatment can affect quality of 'Fuyu' persimmon fruit after cold storage. Fruit were harvested at three different stages of maturity in two seasons, treated with 0.1, 0.5 or 1.0 $\mu\text{L L}^{-1}$ of 1-MCP one day after harvest, and then stored for 30, 40, 60 or 80 days at 1°C plus 7 days at 23°C. Storage life of fruit was limited by development of two disorders: 1) rapid fruit softening not associated with normal development of reddish color after removal from cold storage, and 2) development of skin black spots after 60 and 80 days of storage. Treatment with 1-MCP improved storage life reducing chilling injury expressed as flesh softening, but did not prevent development of skin black spots. Chilling injury manifested as flesh softening and failure of color development was visually more evident on early harvested fruit. Incidence of skin black spots was not affected by fruit maturity at harvest, but varied with season. Soluble solids content was not consistently affected by 1-MCP treatment while the development of fruit color was delayed by 1-MCP only after 30 days of storage. An increase of respiration rate and ethylene production, expressed as a peak, occurred with 2 days of post-storage ripening at 23 °C. The post-storage peak of ethylene production was reduced (after short-term storage) or enhanced (after long-term storage) by 1-MCP treatment. Post-storage respiration of 1-MCP treated fruit was lower than that of control fruit stored for 40 and 60 days, and similar to that of control fruit stored for 80 days. In general, the responses induced by 1-MCP were not concentration-dependent.