Title Effect of 1-methylcyclopropene (1-MCP) treatment on the quality characteristics and pigmentation of tomato fruit (*Lycopersicon esculentum* mill.)

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Abstract

The quality attributes of tomato fruit (*Lycopersicon Esculentum* Mill.) to treatments with 1-methylcyclopropene (1-MCP) were studied. Harvested tomato fruit was treated one time at the initiation of storage or once-a-day during storage with 1 μL/L 1-MCP at different storage temperatures, 12, 17, and 23℃. The results showed that both lower temperature and duration of 1-MCP treatment played an important role in ripening of tomato fruit. The once-a-day 1-MCP treatment was presented to be very effective in delaying quality changes of tomato fruit. The amount of chlorophyll and lycopene were measured to assess the impact of 1-MCP and temperature treatments on ripening, using a specific extinction coefficient absorbance technique. Storing tomato fruit at 12℃ resulted in a longer ripening period (color change) than tomato fruit stored at 17℃ and 23℃. 1-MCP treatment was very effective in retarding chlorophyll degradation and lycopene formation in the pericarp tissue of the tomato fruit at the different storage temperatures. The 1-MCP treatments affected the total chlorophyll content in different fruit tissues of the pericarp and placenta. Exposure of tomato fruit to 1-MCP gas at 12℃, using the once-a-day treatment, was highly effective in delaying pigment and color change.