

**Title** Response of climacteric-type guava (*Psidium guajava* L.) to postharvest treatment with 1-MCP

**Author** S.P. Singh and R.K. Pal

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#### **Abstract**

Guava (*Psidium guajava* L. cv. 'Allahabad Safeda') fruit harvested at the mature light-green stage were exposed to 300 and 600 nL L<sup>-1</sup> 1-methylcyclopropene (1-MCP) for 6, 12 and 24 h at 20 ± 1 °C, and held in either cold storage (10 °C) for 25 days or ambient conditions (25–29 °C) for 9 days. Most of the physiological and biochemical changes during storage and ripening were affected by 1-MCP in a dose dependent manner. Ethylene production and respiratory rates were significantly suppressed during storage as well as ripening under both the storage conditions depending upon 1-MCP concentration and exposure duration. 1-MCP treatment had a pronounced effect on fruit firmness changes during storage under both the conditions. The reduced changes in the soluble solids contents (SSC), titratable acidity (TA) and vitamin C content showed the effectiveness of 1-MCP in retarding fruit ripening. Vitamin C content in 1-MCP-treated fruit was significantly higher than in non-treated fruit, and those treated with 300 nL L<sup>-1</sup> 1-MCP for 6 h. The development of chilling injury symptoms was ameliorated to a greater extent in 1-MCP-treated fruit during cold storage and ripening. A significant reduction in the decay incidence of 1-MCP-treated fruit was observed under both the storage conditions. 1-MCP at 600 nL L<sup>-1</sup> for 12 h, in combination with cold storage (10 °C) seems a promising way to extend the storage life of guava cv. 'Allahabad Safeda' while 1-MCP at 300 nL L<sup>-1</sup> for 12 and 24 h or 600 nL L<sup>-1</sup> for 6 h, may be used to provide 4–5 days extended marketability of fruit under ambient conditions.