Postharvest application of methyl jasmonate, 1-methylcyclopropene and salicylic acid extends the cold storage life and maintain the quality of 'Kinnow' mandarin (*Citrus nobilis* L. X *C. deliciosa* L.) fruit

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Postharvest Biology and Technology, Volume 161, March 2020, 111064

Abstract

The objective of the present investigation was to evaluate the effects of different concentrations of 1-methylcyclopropene (1-MCP; 0.5, 1.0 and 1.5 μL L^{-1}), methyl jasmonate (MeJa; 0.001, 0.002 and 0.003 μmol L^{-1}) and salicylic acid (SA; 0.001, 0.002 and 0.003 μmol L^{-1}) on cold storage life and fruit quality of 'Kinnow' mandarin for up to 75 d. Weight loss, spoilage loss, firmness, juice percentage, soluble solids content, titratable acidity, pectin content, total carotenoids and ascorbic acid content, organoleptic sensory attributes, pectin methylesterase and cellulase activity were determined. MeJa (0.001 μmol L^{-1}), 1-MCP (1.5 μL L^{-1}) and SA (0.002 μmol L^{-1}) were the most effective in decreasing the weight loss, spoilage, firmness, juice content, and were retarding the activities of pectin methylesterase and cellulase compared to control. Treated fruit also had higher contents of ascorbic acid, pectin, total carotenoids and sensory attributes for 75 d of cold storage. In conclusion postharvest treatment of 'Kinnow' mandarin with MeJa (0.001 μmol L^{-1}), 1-MCP (1.5 μL L^{-1}) fumigation and SA (0.002 μmol L^{-1}) extended cold storage life and maintained quality.