Postharvest dipping with 3,5,6-trichloro-2-pyridiloxyacetic acid solutions delays calyx senescence and loss of other postharvest quality factors of ‘Afourer’ mandarins, Navel and Valencia oranges

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Abstract

The effects of postharvest treatment of three citrus fruit types with 3,5,6-trichloro-2-pyridyloxyacetic acid (TPA) on the deterioration of calyx quality, decay incidence and internal quality parameters in long-term storage were investigated. Navel oranges and ‘Afourer’ mandarins were treated with TPA concentrations of 0, 2, 4, 8, 16 and 32 μM, while Valencia oranges were treated at concentrations of 0, 15, 30, 60 and 120 μM. Fruit were stored in air at 20°C for 32 and 28 days, respectively. TPA treatment exhibited a concentration-dependent effect on fruit quality, with higher concentrations resulting in a reduced incidence of calyx deterioration and decay, a lowering of respiration rate, ethylene production and ethanol accumulation, and inhibition of change in TSS and TA levels and hence maintaining the TSS/TA ratio. The results show that postharvest TPA treatment can be used to alleviate calyx senescence and maintain postharvest quality in citrus fruits.