

Title Effects of hot water treatment on the storage stability of satsuma mandarin as a postharvest decay control

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Abstract

Satsuma mandarins (*Citrus unshiu* Marc., cv. Gungchun) of an early harvesting cultivar were treated by hot water dipping at 52 °C for 2 min, 55 °C for 1 min, and 60 °C for 20 s, and then stored at 5 °C for 3 weeks and subsequently at 18 °C for 1 week (simulated shelf-life) to examine the possible use of hot water treatment (HWT) as an environmentally benign method to maintain mandarin quality characteristics during postharvest storage and sale. The initial respiration rate, just after heat treatment, was significantly higher in the treated fruit than in the untreated controls. During storage, however, the respiration rate was at a similar level in all treatments. HWT also had no adverse effects on quality attributes, including pH, titratable acidity, soluble solids contents, weight loss, firmness and peel color. The development of stem-end rots, mold decay, and black rots was manifestly lower in heat-treated fruit than in untreated controls. Sensory evaluation showed that HWT at 60 °C for 20 s markedly improved fruit appearance, making them cleaner and glossier. The results confirmed that hot water dipping could be applied to satsuma mandarin as an effective pretreatment to maintain postharvest quality during storage and marketing.