

Title Effects of fruit dipping in hydrochloric acid then rinsing in water on fruit decay and browning of longan fruit

Author Wittaya Apai

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Abstract

The objective of this study was to find alternative methods for the control of pericarp browning in longan fruits (*Dimocarpus longan* Lour.) cv. Daw in order to replace the use of sulfur dioxide (SO₂). Experiments were conducted by dipping fruits in 1.5 N HCl solution (pH 0.21) for 20 min followed by draining. The effects of subsequent rinsing in water were also investigated. Untreated fruits and SO₂ fumigated fruits were used as controls. Fruits from each treatment were then packaged in commercial perforated plastic baskets and stored at 3 ± 1 °C, 85% RH for 60 days. It was found that dipping the fruits in HCl controlled disease development compared with the untreated fruits. In addition, dipping the fruits in HCl as well as fumigating with SO₂ gave the best control of pericarp browning. After 5 days, the pericarp of untreated fruits became brown. Dipping fruits in HCl without rinsing reduced pericarp and juice pH and increased titratable acidity which lowered eating quality. Sensory analysis was carried out to determine aril color as well as appearance, firmness, flavor and taste. Dipping in 1.5 N HCl for 20 min and rinsing exhibited higher efficacy than dipping for 0, 10 or 15 min in controlling fruit decay and maintaining fruit color and eating qualities during 7 days storage at 25 °C following 45 days storage at 5 ± 1 °C. Therefore, dipping in 1.5 N HCl for 20 min, followed by rinsing in water can be considered for commercial application in extending shelf life, decreasing fruit decay and maintaining fruit quality of longan fruits.