

Title Effects of acid dips on pericarp browning and fruit quality of longan fruit during cold storage

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Citation Book of Abstracts, Southeast Asia Symposium Quality and Safety of Fresh and Fresh Cut Produce Greater Mekong Subregion Conference on Postharvest Quality Management in Chains, August 3-5, 2009, Radisson Hotel, Bangkok, Thailand.

Keyword browning; longan fruit; acid dips

Abstract

The efficacy of acid dip treatments on quality evaluation in the longan fruit was evaluated as an alternative to SO₂ fumigation in Thailand. For this purpose, HCl, citric acid, ascorbic acid and oxalic acid were used to inhibit the pericarp browning control at different concentrations. It was found that HCl was the most potent antibrowning agent (HCl > oxalic acid > citric acid > ascorbic acid). The efficacy of HCl for prolonging storage life and fruit quality was investigated. The experiment was conducted by dipping longan fruit in 1.5 N HCl solutions (pH 0.21) for 20 min, drained and followed by rinsing in water. The untreated fruit and SO₂ fumigated fruit were used as controls. The treated fruits at about 1 kg in each replication were then packaged in a commercial perforated plastic basket and stored at 3±1°C, 85% RH for 60 days. Results revealed that dipping the fruits in HCl as well as SO₂ demonstrated the best treatment in controlling pericarp browning which was indicated by low browning index and high L* value, chroma and hue angle for 60 days. The untreated fruits could control pericarp browning for only 5 days. Pericarp pH had a positive correlation with the browning index. The fruit bleached with HCl treatment exhibited higher efficacy in maintaining low pericarp pH and excellent fruit pericarp structure, compared with the untreated fruit. Use of 1.5 N HCl, followed by rinsing could be considered for commercial application in extending shelf life of longan fruit, decreasing fruit decay and maintaining fruit quality.