

Effects of Coating Materials on Postharvest Quality of Mangosteen (*Garcinia mangostana* L.)

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Abstract

The effects of chitosan, sucrose fatty acid esters and sta-fresh coating and PVC film wrapping on post harvest quality of mangosteen stored at 13°C were examined. The acetic acid 0.5% and low and high molecular weight chitosan at the concentrations of 0.5, 1.0 and 1.5% were studied in the first experiment. The high molecular weight chitosan at 1.5% was found to be the most effective to maintained eating quality and appearance compared to 0.5%, 1.0% chitosan of the same molecular weight, all concentrations of low molecular weight chitosan, concentration of 0.5% of acetic acid and control. Effects of sucrose fatty acid esters (S1670) at concentration of 10, 15 and 20%, and sta-fresh (7055) at concentration of 10, 30 and 50% were observed in second experiment. Quality of mangosteen coated with sta-fresh (7055) was better than those fruit coated with sucrose fatty acid esters (S1670). However, at 20% sucrose fatty acid esters and sta-fresh 30%, the storage life of mangosteen were prolonged up to 20 days. The last experiment, PVC 42 µm film wrapping was compared to the 1.5% high molecular weight chitosan and 50% sta-fresh which the best treatment in the first and the second experiment was investigated. It was found that PVC film wrapping and other coating materials had beneficial effects on postharvest quality of mangosteen during storage at 13°C. Sta-fresh at concentration 50% and PVC 42 µm film extended storage life and maintained the quality of mangosteen up to 24 days while the high molecular weight chitosan at concentration at 1.5% maintained the quality and storage life only 20 days. Edible coating and PVC wrapping reduced weight loss, firmness, colour change, respiration rate, ethylene production, chlorophyll degradation of calyx and maintained total anthocyanins content in pericarp mangosteen compared to un-treated mangosteen. PVC 42 µm film indicated the most effective in maintaining the postharvest quality of mangosteen.

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