

Title Effect of storage conditions on quality attributes of fresh-cut mangosteen

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Abstract

Fresh-cut mangosteen (*Garcinia mangostana* L.) is highly susceptible to quality losses due to damaged cells and tissues and lack of protective skin. The appropriate use of storage condition has extensively been reported to be an effective approach to maintain quality of fresh-cut fruits. The objective of this study was to investigate changes in some quality attributes of fresh-cut mangosteens as affected by storage conditions. Mangosteens were peeled and dipped in a solution consisting of 2% sodium erythorbate + 0.2% calcium chloride for 30 min, and then drained prior to storage under three different conditions, including modified atmosphere packaging (MAP; 5% O₂ + 9% CO₂), vacuum packaging (VAC) and air (AIR). In all treatments, moisture content, total soluble solids, pH, titratable acidity, color, firmness and sensory acceptance of fresh-cut mangosteens were monitored at 2-day intervals during 14 days of storage at 4°C. During storage, total soluble solids of fresh-cut fruits stored in AIR sharply increased and were considerably higher than those stored in MAP and VAC. Losses of moisture content and firmness were retarded by storage in MAP and VAC, whereas a rapid decline of both quality attributes was found in fruits stored in AIR. Titratable acidity of MAP and VAC-treated fruits gradually decreased, compared with the slight change in AIR-treated fruits as a result of a greater extent of dehydration. However, pH of fruits in all treatments remained somewhat stable during storage. Lightness (L^*) decreased to a larger extent in VAC and AIR-stored fruits, whereas a small decrease in MAP-treated fruits were detected. Fresh-cut fruits with MAP treatment obtained the highest sensory scores, compared with other treatments, throughout the entire period of storage. MAP resulted in the best overall retention of quality attributes of fresh-cut mangosteens during postharvest storage.