

**Title** Quality changes of pre-peeled mangosteen in modified atmosphere package as affected by chemical treatments

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#### **Abstract**

Quality deterioration of pre-peeled mangosteen (*Garcinia mangostana* L.) due to browning and softening after processing is crucial problem affecting the acceptance of consumer. This research was conducted to investigate quality changes during storage of pre-peeled mangosteen treated with chemical preservatives before packaging. Unripe mangosteen was peeled and dipped for 30 min in various mixed solutions including 1% aluminium sulphate (Alum) + 1% sodium chloride (NaCl), 2% sodium erythorbate+ 0.2% calcium chloride (CaCl<sub>2</sub>), 1% ascorbic acid (AA) + 1% NaCl + 1% CaCl<sub>2</sub> and 1% citric acid + 1% NaCl + 1% CaCl<sub>2</sub>. Thereafter, the fruit was packed in low density polyethylene bag with initial gas composition at 5% O<sub>2</sub> + 9% CO<sub>2</sub>, prior to storage at 4°C for 12 days. Dipping fruit in 1% AA + 1% NaCl + 1% CaCl<sub>2</sub> effectively retarded discoloration throughout storage, whereas fruit treated with 1 % Alum + 1 % NaCl exhibited the greatest extent of browning from day 6 until the end of storage. Immersing fruit in the solutions containing 1% CaCl<sub>2</sub> resulted in better firmness retention, in addition to delaying exudation and weight loss of the fruit during storage. Sensory evaluation revealed that fruit dipped in 1% AA + 1% NaCl + 1% CaCl<sub>2</sub> obtained the highest sensory score with acceptable sensory quality for 10 days. However, in-package atmospheric compositions of investigated treatments were similar throughout storage. The drastic decrease of O<sub>2</sub> was detected during 2-day storage, while the progressive increase of CO<sub>2</sub> was observed until the end of storage.