217/B

Effect of pre-cooling and oxalic acid application on post-harvest quality of mango (*Mangifera indica*)

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Mango (*Mangifera indica*) is one of the six major fruit crops in the world. Mangoes are produced in over 90 countries worldwide and Asia accounts for approximately 77% of the global mango production. In 2005, world production of mango was estimated at 28.51 million metric tons. Though the demand of mango is high in the local and export market, there is a limited supply mainly due to the lack of established technologies on post harvest handling operations. This study was undertaken to determine low cost treatments that may be readily adoptable by local producers and exporters to extend the storage life of mango.

The experiment was conducted for the var. 'Karuthacolomban'. The fruits were harvested 13 weeks after flowering and immediately after harvesting half of the selected fruits were subjected to pre-cooling by using hydro-pre-cooling (water temperature 15^0C) till the fruit temperature reached 13-15 ^{0}C and the remaining fruits were kept without pre-cooling. The pre-cooled and non pre-cooled fruits were dipped in 5% sodium bicarbonate solution for 10 min followed by 6 and 8 ppm oxalic acid solution for 10 min., air dried and the treated fruits were stored at ambient (28-30 ^{0}C, 65–70%) and low temperature (13 ± 2 ^{0}C, 55 - 60 % RH) conditions. The fruits from each treatment were observed to evaluate the physiological weight loss, fruit firmness, total soluble solids, titratable acidity and pH.

The results revealed that dipping in 5% sodium bicarbonate solution followed by 8ppm oxalic acid application along with pre-cooling was the most effective for extension of storage life of fresh mango up to 12 , 24 days under ambient (28-30^{0}C, 65-70% RH) and low temperature storage (13±2^{0}C, 55-60%RH), respectively. Fruits stored under low temperature exhibited better retention of all physiological and biochemical characteristics than the same treatments during ambient storage.

Keywords: pre-cooling, oxalic acid, sodium bicarbonate, mango, storage