921/B/Poster

Extending the post-harvest shelf life of giant guava with thin edible coating

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Guava *(Psidium guajava* L) is a tropical, climacteric fruit that ripens rapidly and is highly perishable. post-harvest loss of giant guava in Sri Lanka is about 46% and its shelf-life ranges from 3 to 4 days at room temperature (31±2 °C). The aim of the present study was to discover the best treatment to be used to coat the fruits from three treatments, with the combination of tamarind seed powder 0.05% (w/v), sunflower oil 3.5, 4.5, 5.5% (v/v) and 1% (w/v) beeswax. Shortest dipping time 2 seconds (2s) was used to produce thin coating around the fruit with water based mixture. Coated fruits were stored under ambient condition (31±2 °C). Effectiveness and properties of the coating were evaluated for 10 days by examining coating pickup, weight loss percentage, physical appearance, height loss percentage, width loss percentage, pH, titratable acidity, total soluble solids, moisture content and organoleptic changes. Effectiveness of coating in retardation of yeast and mold growth was also proven. There was no significant difference in the thickness of coating that indicated by the coating pickup, among each treatment ($p<0.05$). Results showed that weight loss percentage, height loss percentage, width loss percentage, total soluble solids and moisture content of coated guava significantly differed ($p<0.05$) from uncoated guava with 9 days of storage. The lowest weight loss (20.46 ± 1.38 %),height loss (8.25 ± 2.44 %),width loss (9.69 ± 0.67 %),yeast and mold counts (5.97 ± 0.046 log CFU/g of peel) and highest consumer preference ($p<0.05$) were obtained for guava treated with tamarind seed powder 0.05% (w/v), sunflower oil 5.5% (v/v) and 1% (w/v) beeswax. Results concluded that post-harvest shelf life of giant guava can be extended up to 9 days by applying thin edible coating of the natural water based emulsion mixture of tamarind seed powder, sunflower oil and beeswax.

Keywords: Beeswax, Thin edible coating, Guava (*Psidium guajava* L), sunflower oil, tamarind seed powder

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