The Effect of Waxing Options on Shelf Life and Postharvest Quality of “ngowe” Mango Fruits under Different Storage Conditions

ABSTRACT

Mango is an economically important fruit crop but with a very short shelf life of about 4–9 days in ambient and between 2 and 3 weeks in cold storage. Extending the shelf life and marketing period of mango fruit requires application of quality preservation technologies. This study aimed at evaluating the effect of innovative waxing options on shelf life and postharvest quality of “ngowe” mango fruits stored under different storage conditions. A homogenous sample of mango fruits, variety “ngowe” harvested at mature green stage were subjected to two waxing treatments, namely Shellac or Decco wax™. The waxes were applied by dipping the fruits in wax for five seconds followed by air drying. The waxed fruits were then packed in carton boxes and stored either at ambient room temperature (25°C) or cold room (12°C). Random samples of three fruits from each treatment and storage conditions were taken for measurement of attributes associated with ripening after every 3 and 7 days for ambient and cold storage, respectively. These included cumulative weight loss, respiration, peel firmness, total soluble solids (TSS), total titratable acidity (TTA) and beta carotene content. Results from the study showed that waxing with either Shellac or Decco wax was effective in prolonging shelf life of “ngowe” mango fruits by 3 and 6 days in ambient and cold storage respectively. Untreated fruits in ambient storage lost 5.3% of the initial weight by day 7 compared to an average of 4.5% for the waxed fruit (day 10). Waxed fruits in ambient had low CO 2 concentration (59.53 ml/kg hr) compared to a high (88.11 ml/kg hr) CO 2 concentration for the untreated fruits. Similarly, other ripening related changes including brix, color, and firmness were significantly slowed down by waxing, especially under cold storage. Findings from this study show the effectiveness of waxing in delaying mango fruit ripening. Waxing can therefore be used to extend the shelf life and marketing period for mango fruit.