

Title Effect of disinfection, packaging, and storage environment on the shelf life of mango
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Abstract

The effect of disinfection treatments, packaging, and storage environment on the quality of mango fruits (*Mangifera indica* L.) was studied at Dire Dawa, Ethiopia over a storage period of 28 days. Mango fruits were assessed for physiological weight loss (PWL), total soluble solids (TSS), titratable acidity (TA), ascorbic acid (AA), and marketability. The evaporative cooling maintained the temperature between 14.33 and 19.26 °C and the relative humidity between 70.15% and 82.4% during the storage period. The shelf life of mangoes kept in the evaporative cooling unit was increased from 3 to 28 days, compared to storage at ambient conditions. The Storage temperature greatly (probability, $P < 0.001$) affected all postharvest quality parameters tested in mangoes during storage. Higher temperatures rapidly deteriorated the physiological and chemical quality of mangoes. Similarly, modified atmosphere packaging positively affected the physiological and chemical quality of mangoes during storage. It also reduced the PWL and maintained better quality in terms of pH, AA, and marketability, compared to the quality of unpackaged mangoes throughout the storage period. Disinfecting mangoes significantly maintained the better appearance quality of mangoes compared to the control treatment. The two-way interaction between disinfection and storage conditions significantly ($P < 0.05$) affected the physiological and chemical quality of mangoes. Similarly, the three-way interaction between disinfection, modified atmosphere packaging and storage conditions had a significant effect ($P < 0.01$) on the quality parameters of mangoes. The benefits of the combined effects of postharvest treatments on mangoes included reduction in PWL, maintenance of better chemical quality and improvement in the shelf life of mangoes.