

Short-term Evaporative Cooling Extends Shelf Life of Two Sweet Pepper Cultivars, 'Sweet Cayene' and 'Sultan'

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Abstract

In the Philippines, postharvest losses for vegetables are estimated to reach 40%, which can be attributed to improper handling and lack of adequate storage facilities. Although refrigeration is the best storage option, it is expensive and energy extensive. An alternative short-term non-refrigerated storage option is through the use of evaporative coolers. A 60 × 40 × 29-inch wood cabinet with outer framing and three shelves made of aluminum and two layers of jute sack for walls served as evaporative cooler for this study. Water flowed from a container placed on top of the cabinet wetting the walls. Two sweet pepper cultivars ('Sweet Cayenne' and 'Sultan') at mature green stage were stored under ambient (28.74±0.94 °C, 65.68±7.43% RH) and evaporative cooling (23.91±3.85 °C, 93.84±9.33% RH) conditions to assess their effects on the physico-chemical properties of the produce. Both cultivars stored in the evaporative cooler significantly showed reduced weight loss, slower decline in moisture content, longer retention of firmness, and better visual quality rating. On the other hand, rapid changes were observed in titratable acidity, total soluble solids, and ascorbic acid in both cultivars stored at ambient condition indicating a faster rate of ripening. Very slight decay with longer shelf life were observed in both cultivars stored in the evaporative cooler as 'Smooth Cayenne' and 'Sultan' reached its end of shelf life at days 18 and 15, respectively, while this was only at days 9 and 6 for those that were stored in ambient conditions.