

Title The effect of cultivar, maturity stage and storage environment on quality of tomatoes
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Citation Journal of Food Engineering, Volume 87, Issue 4, August 2008, Pages 467-478
Keywords Cultivar; Maturity stage; Evaporative cooling; Multi-layer cooling pad; Storage; Quality

Abstract

Storability of two tomato varieties harvested at different maturity stages was studied under ambient and in a multi-layer pads evaporative cooler in semi-arid eastern part of Ethiopia. The treatments consisted a $2 \times 3 \times 2$ factorial combination of variety, maturity stage and storage environment. The experiment was conducted using Randomized Complete Block Design with three replications. The average differences in relative humidity and dry bulb temperature between ambient and inside the cooler were 54.8% and 15.1 °C, respectively. The evaporative cooler reduced dry bulb temperature by 5 °C and raised the relative humidity by 18% compared to single pad evaporative cooler. Furthermore, the temperature and relative humidity in the cooler were maintained relatively constant compared to the ambient conditions. The cooling efficiency of the multi-layer pad evaporative cooler also varied from 68.3% to 84.0%. Thus, the shelf life of tomatoes kept in the unit was substantially increased. Roma VF tomato harvested at mature green stage maintained better chemical quality and marketability during storage. Under arid and semi-arid conditions, where postharvest loss under ambient conditions is high, the multi-layer evaporative cooler could improve shelf life of tomatoes and other fruits and vegetables by reducing temperature and increasing relative humidity.