

FIELD HEAT REMOVAL BY HYDROCOOLING ON STORAGE LIFE OF WILLARD MANGO

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The experiment was conducted to find out the effect of field heat removal by hydrocooling in prolonging storage life of mango variety Willard. The experiment was conducted in two steps. The best hydrocooling temperature was determined by hydrocooling of fruits to 10 ± 1 to 14 ± 1 °C, and compared with fruits washed in water at ambient temperature (28.1 °C) as the control. The water used for the experiment was treated with CaCl₂ (6% w/w) and Chlorine (200 ppm). The temperature of fruit pulp was recorded at five minutes intervals to determine the half cooling time. Treated fruits were packed in crates and stored inside an evaporative cooling device at 25 °C (95 - 100% RH) for storage study. Physiological weight loss, firmness, peel and flesh color, TA, pH, TSS, and Disease Frequency were measured at three day intervals and sensory evaluation was conducted after seven days of storage period. The best hydrocooling temperature was 10 ± 1 °C which delayed ripening. Mangoes hydrocooled to 10 ± 1 °C were stored at 12 °C and 28-30 °C in combination with RH range of 65-75% and 65-85% respectively. Quality evaluation was determined by using physico-chemical parameters and Visual Quality in seven day intervals for period of 21 days and sensory evaluations were conducted after 5 and 21 days of storage period. The results revealed that the half cooling time of Willard mango variety hydrocooled to 10 ± 1 °C, 14 ± 1 °C and water at ambient temperature (28.1 °C) was 5.5 ± 1.3 , 12.8 ± 1.25 and 3.83 ± 0.49 min respectively. Ripening delayed by 21 days when stored at 12 °C compared to fruits stored under ambient conditions.

Key words: Half cooling time, Hydrocooling, Mango, Storage life, Willard