

HYDROCOOLING AS A MEANS TO PROLONG ROCKMELON QUALITY DURING COLD STORAGE

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Rockmelon (*Cucumis melo*), a warm season crop and sensitive to cold temperature, is often produced under greenhouses that accumulate high temperature in fruit. Upon harvest, the rockmelon retains field heat, which subsequently accelerates the processes of deterioration and senescence. In order to slow down the metabolism, precooling is employed to transfer heat from a commodity to a cooling medium rapidly prior to transport or storage. There are several precooling techniques can be used to remove field heat of freshly harvested horticultural products. Hydrocooling is a means among precooling techniques by using water as cooling medium. Thus, a study was conducted to determine the effects of hydrocooling on the postharvest quality of freshly harvested rockmelon during cold storage. Freshly harvested rockmelon with initial core temperature of 25.5°C was submerged in 4°C water, and the hydrocooling process lasted until the temperature of the fruit core decreased to 14.8 and 9.4°C to achieve 1/2 and 3/4 cooling time (CT), respectively. Then, the fruit was stored at 13±2°C for 21 days. Hydrocooling with 1/2 CT slowed weight loss and increases in soluble solids concentration during storage, maintained higher chroma intensity of pulp color and turgor pressure of rind and pulp firmness, and the citric acid content compared with the other treatments. Light microscopy images and scanning electron micrographs confirmed that weight loss in non-hydrocooled (control) and 3/4 CT hydrocooled fruit was associated with loss of cell turgor, thereby influencing cell wall rigidity in the pericarp issue of fruit. The results suggest hydrocooling at 1/2 CT can preserve cell wall structure of rockmelon fruit and maintain its quality during cold storage.

Keywords: cell turgor, color, firmness, soluble solids concentration, weight loss