

Effect of recharging by immersing in water on moisture loss and tissue integrity during short term storage of sweet potato (*Ipomoea batatas* Poir)

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ABSTRACT

The effects of recharging (immersing in water) on moisture loss and tissue integrity during short-term storage of freshly harvested sweet potato were investigated. Freshly harvested potatoes from five genotypes were recharged by immersing in tap water for 0, 7 and 14 hours (h) and thereafter evaluated for weight change, relative solute leakage, total soluble solids and dry matter contents after storage ($23 \pm 2^\circ\text{C}$, $77.5 \pm 5.5\%$ relative humidity (RH)) for 18 days. After recharging for 14 h, increases in weight and decreases in subsequent rate of weight loss were typically in the range of 0.51 to 10.8% and 0.58 to 1.08% day⁻¹, respectively. Similarly relative solute leakage was reduced with a range of 24.6 to 49.5% for the 14 h recharging treatment compared to the control of the range 29.4 to 65.3%. Recharging for 14 h extended shelf life of the potato roots for up to 13 days. However, recharging did not have significant effects on total soluble solids, although a general decrease in total soluble solids content was observed with increase in recharging duration in experiment I only. Recharging had no effect on dry matter contents of the potato tubers. There was genotypic variation in dry matter contents. The beneficial effects of recharging sweet potato was due to addition of moisture, decrease in post harvest rate of moisture loss and good tissue integrity. Recharging would gain extension of shelf life of sweet potato roots for the open-air markets and retail stores.

Keywords: *Ipomoea batatas*, recharging, moisture loss, tissue integrity, shelf life