

Title Alleviation of chilling injury and extension of storage life of papaya cv Red Lady by post harvest application of antioxidants

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Abstract

Low temperature storage is one of the methods of extending the storage life of tropical fruits. Unripe papaya when stored at or below 10° C exhibits chilling injury making it unnameable for low temperature storage. Chilling injury symptoms are accompanied by the appearance of dark olive spots on the skin which on severe injury, coalesced and form areas of scaled-like areas in mature green fruit of Papaya. The effect of antioxidants (Benzyl adenine 50, 100 ppm, Sodium benzoate and Ascorbic acid of 500, 1000 ppm) on chilling injury and storage life of papaya cv. Red Lady stored at $10 \pm 1^{\circ}$ C was conducted at Fruit Research Station, Sangareddy, Medak District, Andhra Pradesh. Various physical parameters like PLW (%), fruit firmness (kg.cm²), chilling injury (rotting, skin scald), shelflife (in days), ripening (in days), organoleptic evaluation and color of the fruit and biochemical parameters like TSS (OBrix), titrable acidity (%), ascorbic acid (mg/100g), electrolyte leakage (%), brix-acid ratio and respiration rate (ml CO₂ kg⁻¹hr⁻¹) were estimated at an interval of 5 days during storage period. Chilling injury was significantly reduced in the fruits treated with benzyl adenine 50 ppm and correspondingly increased the shelflife up to 25 days. Electrolyte leakage, an internal measure of chilling injury was significantly reduced by the benzyl adenine @ 50 ppm. Fruits treated with benzyl adenine 50 ppm recorded significantly lowest PLW, ripening and highest fruit firmness, organoleptic evaluation and color. The fruits kept under control recorded the shelflife up to 15.72 days only. Biochemical parameters like titrable acidity, electrolyte leakage and respiration rate were significantly lower and significantly highest in the TSS values and brix-acid ratio as recorded in fruits treated with benzyl adenine 50 ppm. Significantly highest in the ascorbic acid was recorded to the fruits treated either with benzyl adenine 50 ppm or ascorbic acid 1000 ppm.