

Title Effects of postharvest hot water treatment on physiological and biochemical properties of Eksotika papaya during ripening

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Keyword hot water treatment; Eksotika papaya; ripening

Abstract

Effects of postharvest hot water treatment (HWT) on the Eksotika papaya fruit quality during ripening were investigated. HWT is required as a fruit flies disinfestations method for quarantine requirement for export of papaya to distance market. The fruit were harvested at maturity stage Index 2 (green with a tinge of yellow). One group was treated with hot water at $46\pm 1^{\circ}\text{C}$ for 10 minutes and another group was untreated. Fruit were left to ripen at ambient temperature ($25\text{-}27^{\circ}\text{C}$) and were taken into experiment at Index 2 (Harvest Index), Index 4 and Index 5. Physiological changes including peel colour, weight loss, fruit firmness, total soluble solids (TSS) and pH were determined at the three different ripening indices. Biochemical changes including total sugar and total reducing sugar were also investigated. Results showed that there were no significant differences in weight loss, TSS and pH value between the untreated and treated fruit at the three ripening indices. However, the peel colour changes in untreated fruit were delayed by approximately 1-2 days. At Index 5, the treated fruit was firmer than the untreated fruit. The total sugar and total reducing sugar contents showed no significant difference between the two groups at the three different ripening indices. On ripening, both treated and untreated fruit showed normal ripening process. The reducing sugar content was increased and attained highest value at Index 4. Conversely, the non reducing sugar content was decreased during ripening. Although HWT hastens ripening, causes slightly firmer fruit when ripen, the fruit sweetness is still at a good quality. This suggests that postharvest hot water treatment at selected temperature can maintain postharvest quality of Eksotika papaya fruit and at the same time prevent it from insect infestation.