

Title Chilling injury during storage affects respiration rate and fruit quality in Kensington pride mango fruit

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Abstract

Mango (*Mangifera indica* L.) fruit is very sensitive to low temperature. Chilling injury occurs when mango fruit is stored below 13°C. Therefore, the present investigation focused on the development of various levels of chilling injury in 'Kensington Pride' mango and its relationship to respiration, ethylene production and fruit quality. Mature green mangoes were stored at 0, 5, 10, 15 and 20°C for 1, 3, 7, 14, 21 and 28 days to induce different levels of chilling injury. Fruit were removed from storage and respiration rate as CO₂ production and ethylene production were measured after stabilisation for 24 hrs at 22°C. The fruits were then allowed to ripen at 22°C and ripe fruit was assessed for chilling injury, fruit colour development, β -carotene, fruit firmness, acidity, TSS, TSS/acid ratio and total sugars. Chilling injury symptoms developed during ripening in fruit stored below the optimum temperature (13°C) and no symptoms for the fruit stored above the optimum temperature. The severity of chilling injury depended both on the storage temperature and storage period. CI seems to suppress the fruit respiration rate, retard fruit colour development, β -carotene synthesis, TSS, TSS/acid ratio and total sugars and increase the fruit firmness and acidity. Our experimental data suggest that prolonged storage of mango fruit at lower temperature suppressed respiration rate and adversely affect the quality of ripe mango fruit.