Title Relationships between jasmonates and chilling injury in mangosteens are affected by spermine.

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Citation HortScience Vol: 39 (2004); 1346-1348

Abstract

Effects of low temperature and chilling injury (CI) on jasmonic acid (JA) and methyl jasmonate concentrations were investigated in mangosteens (*Garcinia mangostana*). JA concentrations in the skin of fruit stored at 7 deg C increased significantly compared with that of those stored at 13 deg C, but JA decreased with the occurrence of visible symptoms of CI. Neither an increase in JA nor CI was detected in pulp of fruit stored at 7 deg C. JA concentrations in the skin of fruit treated with spermine (Spm) and stored at 7 deg C also increased, but at a lesser extent than in untreated fruit. Thus, the response of JA to low temperatures appears to be limited to chill-susceptible parts of the fruit. The decrease of JA and the onset of CI was delayed in fruit treated with Spm kept at 7 deg C compared with untreated control fruit. Exogenous application of n-propyl dihydrojasmonate, which is a jasmonic acid derivative, effectively decreased CI. These results suggest that low temperature-induced JA accumulation may play a protective role against CI. The application of jasmonates may increase chill-resistance in fruit.