

Title Relationship between ABA and chilling injury in mangosteen fruit treated with spermine
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Abstract

The effects of spermine on abscisic acid (ABA), hardening, and browning in stored mangosteen fruit were investigated. The hardening and browning, which are associated with chilling injury (CI), were observed in only the skin of fruit stored at 7 °C. However, the hardening of skin was not accompanied by moisture loss. The spermine treatment decreased the browning and hardening of the skin and extended storage time. Carbon dioxide(CO₂)production from stored fruit gradually increased with d in storage(DIS). The increase of CO₂ may be associated with the moisture loss because these levels coincided. ABA concentrations in the skin were highest in fruit stored at 7 °C, followed by spermine treatment at 7°C, and the lowest at 13 °C. That is, the spermine treatment inhibited the increase of ABA in the skin of stored fruit. ABA concentrations in the skin may be associated with the degree of CI because their fluctuations coincided. ABA metabolism in fruit stored at 7°C or 13 °C was also examined. The PA-DPA pathway may not be the primary pathway of ABA metabolism because the concentrations of PA and DPA were very low compared with those of ABA. ABA concentrations in the aril were not significantly different between 7°C and 13 °C. This may be related to the lack of CI observed in the aril. ABA metabolism was different at each temperature. The decrease of ABA and the increase of DPA correlated at 13°C, however this correlation was not observed at 7°C. ABA metabolism may be influenced by temperature.