Abstract

'Bomb apple' jujubes stored at 4 and 10 °C had a storage life of 21 days while jujubes kept at 25°C had only 9 days storage life. Jujubes stored at 4 and 10 °C showed little chilling injury (CI) symptoms at 9 days and became more severe as storage continued. Chilling injury symptoms of stored fruit at 4°C included wilting and wrinkling of fruit as well as fruit pitting and browning. Jujubes stored at 4°C had higher superoxide dismutase (SOD) enzyme activity than the other treatments and had higher lipoxygenase (LOX) activity in the last storage period. The effect of 0.1 and 1.0 µM methyl jasmonate (MeJA) treatment on chilling injury symptoms under storage at 10 °C was studied. Jujube were fumigated with MeJA for 8 hr at 20°C, and then stored at 10°C. The physical and biochemical changes were observed every 3 days. The results showed that the color of MeJA-treated fruit changed more than in untreated fruit with decreasing hue valuesduring storage time. That MeJA treatments delayed CI occurrence in jujubes by showing CI symptom at 12 days of storage. MeJA-untreated fruit showed CI symptom at 9 days of storage. Moreover, MeJA-untreated fruit had higher LOX enzyme activity than MeJA-treated fruit at 9 days of storage; after that, its activity declined till the end of storage. MeJA-treated jujubes had higher SOD activity than untreated fruit during storage. Untreated fruit had no significant difference of POD activity during storage.Jujube fruit were pre-treated with 0 (control) and 2.0 mM salicylic acid (SA) dipping for 3 min and then stored at 10 and 25°C for 21 days to investigate the effect of SA treatment and cold temperatures on the chilling injuries and changes in the quality of jujubes. Jujube fruit developed chilling injuries manifested as increased fruit pitting and browning during storage. These chilling injury symptoms were significantly reduced by SA treatment and cold temperatures. The L values of jujube fruit treated with 2.0 mM SA and untreated jujubes stored at 25°C were higher than the samples stored at 10°C. The a values of jujube fruits treated with 2.0 mM SA and untreated jujubes stored at 10°C were lower than the samples stored at 25°C. SA-treated fruit revealed the decline of the hue value more than in untreated fruit. Meanwhile, both SA-treated and untreated fruit showed non-significant peroxidase (POD) activity at 12 days of storage; after that, SA-treated fruit had higher POD activity than in the control until the end of the storage period. Jujubes kept at 20 °C had higher LOX activity than in fruit kept at 10 °C. No significant differences were found in SA-treated fruit and untreated fruit kept at 10 °C. SA-treated fruit had higher SOD activity and no difference in POD than in the control during storage.