

Title Effects of methyl jasmonate treatment on quality and decay in cold-stored loquat fruit
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Abstract

The effects of 10 $\mu\text{mol/L}$ methyl jasmonate (MeJA) treatment on decay incidence and quality-related parameters in loquat fruit stored at 1°C for 35 days were investigated. The results showed that fruit firmness, internal browning index, decay index, weight loss and ion leakage increased while extractable juice rate and concentrations of total soluble solids (TSS) and total titratable acidity (TA) decreased during cold storage. After 21 days of storage at 1°C, the non-MeJA-treated (control) fruit exhibited chilling injury symptoms including stuck peel, firm and juiceless flesh, and internal browning, which were collectively referred as flesh leatheriness. The development of flesh leatheriness reduced the edible quality of the fruit, thus limiting the storage life. Treatment with 10 $\mu\text{mol/L}$ MeJA inhibited the increases in fruit firmness, internal browning index, weight loss and ion leakage and maintained higher extractable juice rate and TSS and TA contents, thereby delaying the development of flesh leatheriness. Meanwhile, MeJA treatment significantly inhibited fruit decay incidence during storage. After 35 days of storage at 1°C, the decay index of MeJA-treated fruit was only 7.3%, while that of the control fruit reached 18.6%. These results suggest that the application of 10 $\mu\text{mol/L}$ MeJA was not only effective in inhibiting fruit decay, but also beneficial to quality maintenance and storage life extension of cold-stored loquat fruit. However, the mechanisms by which MeJA inhibits fruit decay and flesh leatheriness development remain unclear and deserve further investigation.