

Title Effect of methyl jasmonate treatment on fruit decay and quality in peaches during storage at ambient temperature

Authors P. Jin, Y.H. Zheng, C.M. Cheng, H.Y. Gao, W.X. Chen and H.J. Chen

Citation ISHS Acta Horticulturae 712: 711-716. 2006.

Keywords *Prunus persica* Batsch; decay index; total soluble solids; total titratable acidity; malondialdehyde; electrolyte leakage

Abstract

The effect of a postharvest application of methyl jasmonate (MeJA) on fruit decay and quality in peaches stored at 25 °C were investigated. Peach fruit (*Prunus persica* Batsch cv Hujing) were harvested at firm-mature stage and treated with 1, 10, 100 or 500 µmol/L MeJA vapor at 20 °C for 24 h before stored at 25 °C for 8 days. Changes in fruit decay rate, decay index, firmness, vitamin C, total soluble solids (TSS), total titratable acidity (TA) contents, electrolyte leakage and malondialdehyde (MDA) content were monitored during storage. The results indicated that peach fruit showed fruit decay on day 2 during storage at 25 °C. Treatment with low concentrations of MeJA (1-100 µmol/L) significantly inhibited fruit decay and 1µmol/L MeJA was the most effective, while high concentration of MeJA (500 µmol/L) promoted fruit decay. After 8 days of storage at 25 °C, the decay rate and decay index of control fruit were 30% and 23%, while those of 1 and 500µmol/L MeJA treated fruit were 7%, 2% and 40%, 32%, respectively. Fruit firmness, vitamin C, TSS and TA contents decreased rapidly during storage. No significant differences in fruit firmness were observed among all the treatments at the end of the storage. Treatment with low concentrations of MeJA (1 or 10 µmol/L) prevented the declines in vitamin C, TSS and TA contents, while high concentrations of MeJA (100 or 500 µmol/L) had little effect on their contents. Electrolyte leakage and MDA content increased gradually during storage. 1-100 µmol/L MeJA treatment significantly inhibited the increase in electrolyte leakage and MDA content, while their increases were significantly promoted by 500 µmol/L MeJA. These results suggest that low concentrations of MeJA treatment may of commercial use to reduce fruit decay and maintain fruit quality in peaches during postharvest distribution at ambient temperature.