Title Effect of methyl jasmonate on cell wall modification of loquat fruit in relation to chilling injury after harvest

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Abstract

Loquat fruit were pretreated with 10 μM methyl jasmonate (MeJA) for 24 h at 20 °C, and then stored at 1 °C for 35 days to investigate the effect of MeJA treatment on cell wall modification in relation to chilling injury. Loquat fruit developed chilling injury, manifested as increased fruit firmness and internal browning, decreased extractable juice during storage. These chilling injury symptoms were significantly reduced by MeJA treatment. MeJA also markedly delayed the increases in lignin, alcohol insoluble residues, hemicellulose and cellulose. Meanwhile, the MeJA-treated fruit exhibited significantly lower activities of phenylalanine ammonia lyase, peroxidase, polyphenol oxidase and higher polygalacturonase activity than the control during storage. The levels of water- and CDTA-soluble pectins in MeJA-treated fruit were also significantly higher than that in the control. These results suggest that the reduction in chilling injury by MeJA may be due to inhibited lignin accumulation and enhanced cell wall polysaccharides solubilisation.