Title MeJA regulates enzymes involved in ascorbic acid and glutathione metabolism and improves chilling tolerance in loquat fruit

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Abstract

This study investigated the regulation of ascorbate acid (AsA) and glutathione metabolism and chilling tolerance by methyl jamonate (MeJA) in loquat fruit. The results showed that application of MeJA to loquat fruit inhibited the incidence of chilling injury manifested as internal browning (IB) and increased AsA and reduced glutathione (GSH) contents due to the inhibition of ascorbate oxidase activity and enhancement of monodehydroascorbate reductase, dehydroascorbate reductase and glutathione reductase activities. Meanwhile, MeJA also enhanced activities of ascorbate peroxidase, glutathione peroxidase and glutathione-S-transferase. Our results suggested that MeJA can regulate the ascorbate and glutathione metabolism and has important roles in alleviating oxidative damage and enhancing chilling tolerance in loquat fruit.