

Title Effect of salicylic acid treatment on alleviating postharvest chilling injury of ‘Qingnai’ plum fruit

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Abstract

The effects of salicylic acid (SA) treatment on chilling injury, disease incidence, electrolyte leakage, malondialdehyde (MDA) content, respiration rate and ethylene production, polyphenol oxidase (PPO) and peroxidase (POD) activities, and polyamine (PA) content of ‘Qingnai’ plum fruit were examined. Chilling injury, disease incidence, electrolyte leakage, MDA content, respiration and ethylene production of control fruit increased after about 15–30 days cold storage. Chilling injury promoted PPO and POD activities which were associated with fruit flesh browning. Accompanied by a polyamine content increase, chilling injury was positively correlated with putrescine and spermine contents in control fruit. Suppression of chilling injury by SA was associated with reducing leakage, MDA content, delayed activities of PPO and POD, and enhanced PA accumulation. SA treatment delayed the onset of the climacteric peak of respiration, and also inhibited respiration and ethylene production. The results suggest that SA treatment may be used commercially to control chilling injury in ‘Qingnai’ plum fruit during cold storage.