

Title Synergistic effect of heat treatment and salicylic acid on alleviating internal browning in cold-stored peach fruit

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Abstract

The effect of heat treatment (38 °C, 12 h in air) and salicylic acid (SA, 1 mM) either separately or combined, on internal browning (IB) in cold-stored peach fruit (*Prunus persica* Batsch) was investigated. The results showed that heat combined with SA treatment was the most effective method of alleviating IB in peach fruit during cold storage at 0 °C. The activities of antioxidant enzymes such as superoxide dismutase, catalase, ascorbate peroxidase and glutathione reductase were significantly induced, while lipoxygenase activity was decreased by heat combined with an SA treatment. In addition, the combined treatment increased the levels of polyamines including putrescine, spermidine and spermine. These results suggest that the combination of heat and SA treatment may be a useful technique to alleviate IB in cold-stored peach fruit and the reduction in IB by the combined treatment may be due to the induction of antioxidant enzymes and increase in polyamine levels.