

Title Hydrogen peroxide is correlated with browning in peach fruit stored at low temperature
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Citation Frontiers of Chemical Engineering in China, 3, Number 4, 363-374, 2009
Keywords browning; chilling; hydrogen peroxide; membrane; peach (*Prunus persica* L.)

Abstract

The objective of this present research is to study the biological basis of browning in peach fruit during storage at low temperatures. After being immersed in 0 or 2mmol·L⁻¹ salicylic acid (SA) aqueous solution for 10 min, peach fruit (*Prunus persica* L. cv. Hongtao) were stored at 10°C, 5°C or 0°C with or without shelf life at 25°C. During storage, the progress of browning, lipid peroxidation, phenol content, activities of polyphenol oxidase (PPO, E.C. 1.14.18.1) and guaiacol peroxidase (POD, EC 1.11.1.7), redox state of ascorbate and glutathione, as well as the content, location and metabolism of hydrogen peroxide (H₂O₂) in the fruit were examined. The results indicated that a decrease in H₂O₂ content was correlated with browning, whereas phenol content and activities of PPO and POD were not correlated with the change in H₂O₂ content. Moreover, H₂O₂ content was influenced by different responses of antioxidants at different storage conditions. It was concluded that the main effect of H₂O₂ on browning was to regulate its appearance and development as a signal molecule, and lower H₂O₂ content was beneficial to browning.

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