

Title Inhibition of browning on the surface of peach slices by short-term exposure to nitric oxide and ascorbic acid

Author Zhu Li-Qin, Zhou Jie, Zhu Shu-Hua and Guo Lai-Hui

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Abstract

The effect of 0.2% ascorbic acid (AA), 5 μM nitric oxide (NO), and the simultaneous use of 0.2% AA and 5 μM NO solutions on inhibiting surface browning of fresh-cut peach slices stored at 10 °C and RH 95% was investigated. The browning index, relative leakage rate, microstructure, total phenol content, and activity of the phenol metabolism-associated enzymes phenylalanine ammonia lyase (PAL), polyphenol oxidase (PPO) and peroxidase (POD) were evaluated. The results indicate that treatment with 0.2% AA, 5 μM NO and simultaneous use of 0.2% AA and 5 μM NO resulted in higher total phenol content, inhibition of PPO and POD activity, reduced membrane permeability and protection of cell microstructure to maintain compartmentation between enzymes and their substrates. In addition, NO increased PAL activity. The causes of inhibition in the browning of peach slices by NO are discussed.