

Title Relations between lignification and phenols metabolism or their relative enzymes in peel of postharvest winter jujube fruit (*Ziziphus Jujuba* Mill)

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Abstract

Postharvest white-mature Winter jujube (*Ziziphus jujuba* Mill.cv. Winter jujube) was stored at 0°C and the contents of lignin or phenol compounds, and the activities of their relative enzymes, including phenylalanine lyase (PAL), cinnamyl alcohol dehydrogenase (CAD) and polyphenol oxidase (PPO) in peel of stored fruits, were measured for investigating the relation between lignification and phenols metabolism. The results showed that the content of total phenol compounds decreases gradually and the contents of lignin increased during cold storage. There was a significant negative correlation ($r = -0.84$) between them. Protocatechic, chlorogenic acid, caffeic acid, catechin, epicatechin, p-coumaric acid, rutin, cinnamic acid, and quercetin were detected by high performance liquid chromatography and mass spectrometry (HPLC-MS). The contents of catechin, epicatechin, p-coumaric acid changed obviously during storage, and the others showed mild changes. There were significant positive correlations between lignification and activities of PAL ($r = 0.819$) or PPO ($r = 0.85$), which implicated the promotion of lignification by PAL and PPO. CAD activity had little effect on changes of lignin ($r = -0.067$).