Title Acetylsalicylic acid alleviates chilling injury of postharvest loquat (*Eriobotrya japonica* Lindl.) fruit

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Abstract

Loquat (*Eriobotrya japonica* Lindl. cv. Luoyangqing) is a chilling-sensitive fruit and therefore has a limited postharvest life. While fruit stored at 5 °C retained its acceptable quality after 39 days, fruit stored at 0 °C had chilling injury with the symptoms of tissue browning and lignification, decrease in percentage juice, increase in superoxide free radical production, electric conductivity and lignification enzyme activities, including phenylalanine ammonia lyase (PAL), cinnamyl alcohol dehydrogenase (CAD), and guaiacol-peroxidase (G-POD). Such chilling injury symptoms became more severe after fruit were moved to 20 °C shelf life. A postharvest application of 1 mmol/L aqueous acetylsalicylic acid (ASA, a derivative of salicylic acid) to loquat fruit significantly alleviated chilling injury symptoms, inhibited accumulation of superoxide free radical, and reduced PAL, CAD, and G-POD activities. ASA treatment impairing the accumulation of superoxide free radical may prevent chilling injury and lignification in loquat.