Title Physiological response of cold-stored loquat fruit to cool temperature pre-treatments

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Abstract

The effects of cool temperature pre-treatment on postharvest physiology of fruit of loquat (*Eriobotrya japonica* Lindl. 'Jiefangzhong') were studied. In the cool temperature pre-treatment, fruit were first put in 18°C for 1 day and then stored in 5°C, while in the control, fruit were stored in 5°C directly after harvest. Fruit respiration rate, ethylene production, total soluble solids (TSS), ascorbic acid (AsA), titratable acids (TA), pH, peel color, membrane leakage and the activities of polyphenol oxidase (PPO), peroxidase (POD), and phenylalanine ammonia-lyase (PAL) were measured during storage. Cool temperature pre-treatment stimulated respiration but inhibited ethylene production. The treatment also slowed the decline in TSS and AsA, accelerated the decline in TA, and increased the pH value of the pulp. It also affected fruit color as reflected by declines in brightness (L*) and hue (h°) of the peel, and slowed fruit turning red (a*), but had no significant influence on chroma (C*) value. Pre-cooling increased the hardness of fruit during later storage period, but decreased the membrane leakage both in the peel and in the pulp. The treatment increased the PPO activity slightly, but had no effect on POD activity. Results show that cool temperature pre-treatment has positive effects in maintaining the visual and edible quality of loquat.