Comparison of calcium and ultrasonic treatment on fruit firmness, pectin composition and cell wall-related enzymes of postharvest apricot during storage

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Abstract

This study was conducted to examine the effects of calcium treatment (2%, 20 min) and ultrasonic treatment (400 W, 20 min) on postharvest apricot fruit during storage. The results showed that after calcium and ultrasonic treatment, compared with the control, the firmness of apricot fruit increased by 41.53% and 3.83% at 16 d, but juice yield and water-soluble pectin (WSP) content decreased by 8.26% and 3.55%, 28.57% and 4.08%, respectively. Both calcium and ultrasonic treatment were more effective in reducing polygalacturonase (PG), β-Galactosidase (β-Gal), pectin methylesterase (PME), polyphenol oxidase (PPO) and peroxidase (POD) activity. Moreover, fruit firmness was significantly negatively correlated with juice yield, WSP and PPO, and positively correlated with PG and β-Gal, PPO and POD. In contrast, calcium treatment was more effective than ultrasonic treatment in delaying postharvest softening of apricot.