

Differences in Cell-wall Polysaccharide Degradation during Softening Process in Two Cultivars of Japanese Apricot Fruits

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Abstract

Japanese apricot (*Prunus mume* Siebold & zucc.) fruits of ‘Nanko’ have softer flesh than those of ‘Gojiro’. Therefore, there are differences in the processability of these cultivars. We investigated the characteristics of cell-wall polysaccharide degradation that significantly affects fruit firmness in these 2 cultivars at unripe, ripe, and drop stages. Fruit firmness of ‘Gojiro’ was maintained during unripe and ripe stages and decreased after the ripe stage, while that of ‘Nanko’ decreased constantly and was lower than that of ‘Gojiro’ at ripe and drop stages. Amount of the pectin and the hemicellulose substances decreased commonly in ‘Gojiro’ and ‘Nanko’ in the process of fruit softening, in addition, decrease in mol wt of these polysaccharides significantly synchronized with decrease in fruit firmness, suggesting that degradation of the pectin and the hemicellulose cause the softening of Japanese apricot fruits. The amount of neutral sugar (NS) and uronic acid (UA) in the pectin fraction and NS in the hemicellulose fraction in ‘Nanko’ decreased more than in ‘Gojiro’. Moreover, the cellulose content of ‘Nanko’ decreased during the fruit-softening process. These results suggest that higher degradation of pectin, hemicellulose, and cellulose in ‘Nanko’ fruits would result in softer fruits than ‘Gojiro’.