Title Change in the cell wall hydrolytic enzyme activities during ripening and storage in sour cherries

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Abstract

A study was conducted to investigate the cell wall breakdown (pectin decomposition) in sour cherry [*Prunus cerasus*] cultivars (Erdi bo"termo", Kantorjanosi and Pandy 279). The activities of beta-galactosidase and polygalacturonase enzymes causing cell wall breakdown were determined as a function of fruit ripeness and storage time. The colour of the samples was also measured. The fruits were stored at 4-6 deg C and 80-90% relative humidity. Green (I), breaker/pit hardening (II), light red (a, b) (III, IV), red (V) and dark red (VI) fruits from Kantorjanosi were not stored. The red colour compounds developed in fruits during ripening. The L* and b* values decreased as a function of ripeness, indicating the coloration of fruits. The a* values showed a great increase between green and breaker stages. The L*, a*, b* values of Pandy 279 changed in storage time. The L* values of fruits decreased after 15 days of storage. The a* and b* values of fruits slightly increased. In this cultivar, intensive chemical changes were found as a function of storage. Green fruit (I) had high beta -galactosidase activity, which declined suddenly at breaker stage (II), then increased up to red fruit (V) stage (Kantorjanosi). The activity of beta -galactosidase stabilized at this level. Remarkable differences in the polygalacturonase activity during ripening were not observed. The activity of beta -galactosidase was changed as a function of cultivar and storage time. Just after harvest, Kantorjanosi and Pandy 279 showed remarkable enzyme activity. During the first part of storage to 12-14 days the activity of beta -galactosidase decreased, then sharply increased. There was no change in enzyme activity found in the case of overripe Erdi bo"termo". The activity of polygalacturonase varied as a function of storage time, but in the second half of storage slightly increased mostly in Kantorjanosi. The enzyme activity was less in Kantorjanosi than in Pandy 279.