Title The effect of hydrocooling on ripening related quality attributes and cell wall physicochemical properties of sweet cherry fruit (*Prunus avium* L.)

Author G.A. Manganaris, I.F. Ilias, M. Vasilakakis and I. Mignani

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Abstract

The aim of this study was to evaluate the effect of hydrocooling, as a precooling treatment, on ripening related parameters of two sweet cherry cultivars (*Prunus avium* L. cvs. 'Tragana Edessis', 'Mpakirtzeika') after 1-week cold storage (0 °C, 95% R.H.). Results indicated that hydrocooling delayed the deterioration and senescence of cherry fruit, maintaining a higher quality, as indicated by reduced stem browning and surface shrivelling. In particular, hydrocooled 'Tragana Edessis' fruit showed considerably less stem browning (14.6–29.6%), while the benefits of hydrocooling were less pronounced in 'Mpakirtzeika' fruit. Other quality attributes, such as cracking, decay, external color and soluble solids content were not affected by hydrocooling. Furthermore cell wall properties, as indicated by uronic acid and neutral sugars content in cell wall material extracted from the cherry fruits, were slightly or not affected by the hydrocooling process. Overall, the present study showed that cherry fruit subjected to hydrocooling followed by 1 week's storage at 0 °C and 95% R.H. retained their quality for a further 3 days at room temperature, but after 5 days at room temperature many of the fruit were of unacceptable quality.