Title Effect of storage time and temperature before cutting on quality and shelf-life of fresh-cut artichokes (*Cynara Scolymus* L.)

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Abstract

The effect of pre-processing storage time and temperature on post-cutting quality of two artichoke cultivars ('*Catanese*' and '*Violet du Provence'*) was studied. Artichokes were harvested in January 2010 for *'Catanese'* and in March 2011 for' *Violet du Provence'* from commercial orchards. Freshly harvested artichoke heads were stored at 0, 5 and 12°C and 95% RH. Initially and after 3 and 7 days of storage for *'Catanese'* and after 4 and 8 days for '*Violet du Provence',* respiration rate, weight loss, and electrolytic leakage were monitored. Moreover, at each sampling, artichokes were cut in quarters and stored for 3 days at 5°C. On cut artichokes, soon after cutting and after storage, visual appearance (using a subjective scale), colour attributes (outer bract surface, cut-bract surface, and cut receptacle) and phenol content were determined. Time and temperature of storage influenced quality attributes of cut artichokes, but to a different extent depending on the cultivar; in fact while' *Violet du Provence'* artichokes benefited of low storage temperature (0°C), *'Catanese'* showed chilling injuries on outer bract surfaces, where brown spots occurred. In both cases low temperatures of pre-cutting storage (5 and 0°C) reduced the browning rate of the cut surface which maintained a higher L* value, compared to artichokes stored at 12°C. Moreover, pre-cutting storage at l2°C resulted in a reduction of quality of artichokes due to growth of floral primordia in the form of reddish hairy tissue at the base of receptacles for both cultivars, having a more pronounced effect on *'Catanese'* and after 7 days of storage. Management of storage conditions before cutting is therefore critical in the fresh-cut processing operations of artichokes.