

Title Changes in antioxidants and taste-related compounds content during cold storage of fresh-cut red sweet peppers

Author A. Raffo, I. Baiamonte and F. Paoletti

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Abstract

Changes in antioxidants (ascorbic acid, phenolic compounds and carotenoids) and in taste-related compounds (sugars and organic acids) content were monitored in fresh-cut red sweet peppers (*Capsicum annuum* L., local ecotype "Peperone Cornetto di Pontecorvo") during 9 days of cold storage. Pepper slices were placed in polystyrene trays, wrapped with a polyvinyl chloride film, and stored at 4 °C or at 8 °C; besides, to evaluate the effect of a pre storage hot water treatment, half of the slices were subjected to a dipping treatment in water at 53 °C for 4 min, before packaging and storage. During storage limited changes in O₂ and CO₂ concentrations were observed within all packages. Storage temperature strongly affected weight loss: at the end of the storage time it was <3 and >10% in fruits stored at 4 and 8 °C, respectively. Sugars (glucose and fructose) content showed a significant increase (+11%) only in fruits stored at 8 °C; this change was due to a concentration effect associated to water loss. A higher increase (+23 and +17% in fruits stored at 8 and 4 °C) was observed in organic acids (citric and malic) content. Minimal processing and storage produced only a quite limited degradation of ascorbic acid. Both hydroxycinnamic acid derivatives and flavonoids accumulated in fruits stored at 8 °C (and not heat treated), whereas at 4 °C phenolics accumulation appeared to be partially inhibited. All the main carotenoids (capsanthin, cucurbitaxanthin A, zeaxanthin, β-carotene and β-cryptoxanthin) markedly accumulated in fruits stored at 8 °C (not heat treated), and showed a general decrease at 4 °C. Hot water treatment did seem to affect organic acids metabolism, though it did not promote ascorbic acid degradation. In addition, it inhibited both phenolics and carotenoid accumulation in fruits stored at 8 °C.

<http://www.springerlink.com/content/nt7151565632785t/fulltext.pdf>