Title Changes in antioxidant activity and physical-chemical parameters in minimally processed 'Primosole' mandarins

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Abstract

The potential of ‘Primosole’ (‘Miho’ × ‘Carvalhais’) mandarins as minimally processed products prepared either by mechanical peeling and slicing or by manual peeling and separation of fruit segments was studied. Slices or segments were placed in rigid polypropylen trays, sealed with a polyolefinic film and stored for 3, 7 or 9 d at 5°C. Several physical-chemical parameters (texture, flavonoids, antioxidant activity, pH, titratable acidity, total soluble solids, ascorbic acid, total phenols, sugar content) as well taste characteristics and in-package atmosphere composition were monitored over the storage period. ‘Primosole’ mandarins showed an interesting potential as minimally processed fruit regardless preparation method. However, some juice components, such as ascorbic acid, sugars (glucose, fructose and sucrose), as well as antioxidant activity decreased at a higher rate in mechanically peeled fruit. In contrast, total polyphenols and narirutin increased more in mechanically peeled fruit. The taste analysis revealed a better maintenance of the sensory quality in fruit manually peeled than in those mechanically processed, with the former having at least three more days (9 d) of shelf-life than the latter (7 d).