

Title Sensory evaluation of calcium-dipped ‘Fuji Kiku-8’ and ‘Golden Reinder’ apples
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Abstract

Calcium treatment of apples (*Malus domestica* Borkh.) is helpful for the preservation of fruit firmness, as well as for the reduction of the incidence of some physiological disorders and pathogen-induced decay. Such treatments also meet the increasing awareness of consumers on the benefits of incorporating calcium in the diet. Nevertheless, since the main factor for ensuring repeated purchases is sensory rather than nutritional quality of produce, it is pertinent to widen the current knowledge on the modifications driven by postharvest procedures on those factors contributing to sensory acceptance of fruit. In this work, ‘Fuji Kiku-8’ and ‘Golden Reinders’ apples, harvested at commercial maturity, were dipped in calcium chloride (2% w/v) and stored under air at 1 °C and 92% RH for 4 or 7 months. Calcium concentration was higher in treated fruit, showing that the treatment was effective in introducing calcium into the tissues. A number of sensory attributes were assessed by a panel of 9 trained judges after cold storage plus 7 days at 20°C. Simultaneously, a consumer panel comprised of 45 judges was asked to evaluate overall acceptance of samples according to a hedonic scale (0-9). Firmness, soluble solids content and titratable acidity were determined instrumentally in all fruit samples used for sensory evaluation. For both cultivars, calcium treatment resulted in higher crispness and hardness. Multivariate analysis of data revealed that perception of crispness was the parameter most related to consumer acceptability. Besides, perception of mealiness, reduced by calcium applications, appeared to be detrimental for overall consumer acceptability. Thus results indicate that calcium treatments have the potential to enhance sensory quality of cold-stored apples. Weak correlations were found between sensory and instrumental quality attributes, which suggest sensory evaluations allow a better knowledge of the effects of post-harvest procedures on fruit quality than usual instrumental determinations.