

Effect of Citric Acid on Browning of Fresh-cut Potatoes and on Texture after Frying

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Fresh-cut potato (*Solanum tuberosum* L.) is a product widely consumed, but the susceptibility of this tuber to browning is a drawback and limiting factor for its shelf life. This study aimed to evaluate the predisposition of different potato cultivars for being minimally processed, the effect of citric acid in inhibiting browning and the quality of the fried potato during the product shelf-life. For this purpose, potatoes of cultivars Agata, Agria and Caesar were acquired from a local producer, selected, washed in tap water, manually peeled, cut into strips and immersed in citric acid (3%) for 5 minutes. Strips were centrifuged and vacuum packed in polyethylene bags and stored at $3\pm 1^\circ\text{C}$ for 17 days. Color (Croma), dry matter content and pH were analyzed every 2 days in fresh-cut samples. On days 2, 9 and 16 of storage, samples were fried in oil at 180°C for 5 minutes for Agata and 7 minutes for Agria and Caesar. In fried potatoes, texture was also analyzed. The use of citric acid decreased the pH of all samples and kept this trend during the entire period of storage. Fresh cut and fried samples of Agata had lower values of dry matter content. The other cultivars showed slight variations, increasing the values of these attributes, as well for values of Chroma for the fried potatoes, that were lower for Agata regardless the use of citric acid during the storage. There was an increase in the texture of fried potatoes in all samples during the storage, although this increase was lower in Agata. Agria and Caesar showed greater susceptibility to frying because they had higher dry matter content. The color, pH, dry matter content and texture allowed discrimination between Agata and the other cultivars.

Keywords: *Solanum tuberosum* L., browning, minimal processing, refrigeration, package, french fries.

Physical Sanitization Methods as Alternative to Sodium Hypochlorite for Minimally Processed Melon

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The commercial success of minimally processed products depends on the maintenance of its fresh state, slowing the loss of nutritional quality, ensuring the microbiological safety and shelf life enough to make feasible its consumption by consumers. The method most used in Brazil in the sanitization of minimally processed fruits and vegetables is the chemical method through the use of sodium hypochlorite, but due to the formation of chlorinated compounds, which have carcinogenic potential, alternative methods have been used to replace it. This study aimed at evaluating the effectiveness of ozonated water and ultraviolet C radiation in reducing microbial load and the possible replacement of sodium hypochlorite in the sanitization of minimally processed melon. The following treatments were applied: ozonated water ($1.6 \text{ mg L}^{-1} / 1 \text{ min}$), UV-C radiation (11.3 kJ m^{-2}), sodium hypochlorite ($100 \text{ mg L}^{-1} / 1 \text{ min}$) and drinking water. Previously cooled melons were minimally processed undergoing a selection, washing in tap water, drainage, cut into slices, sanitation, drainage (1 min), package and storage at $5^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 10 days. Three samples were taken: immediately after cutting, after sanitization and during storage (3, 6, 8 and 10 days) for microbiological analysis (total coliforms and *E.coli*, *Salmonella*, psychrotrophic and mesophilic aerobic bacteria, yeasts and molds). The use of UV-C radiation and ozonated water reduced the initial contamination of the minimally processed melon. The shelf life was shorter for slices sanitized with ozonated water than for slices sanitized with sodium hypochlorite and UV-C radiation. Either the ozonated water or the UV-C radiation may be a substitute for sodium hypochlorite in the sanitization of the minimally processed yellow melon.

Keywords: sanitization methods, packaging, microbial contamination, shelf life, minimal processing.