

Title Post-cutting quality changes of fresh-cut artichokes treated with different anti-browning agents as evaluated by image analysis

Author M.L. Amodio, A.B. Cabezas-Serrano, G. Peri and G. Colelli

Citation Postharvest Biology and Technology, Volume 62, Issue 2, November 2011, Pages 213-220

Keywords *Cynara scolimus* L.; Appearance; Cysteine; Browning; Computer vision system; Dipping

Abstract

Fresh-cut processing can add convenience to artichoke consumption, although post-cutting browning is still a major problem. Different compounds (ascorbic acid, citric acid, cysteine, and their combination, ethanol, sodium chloride, 4-hexylresorcinol) were tested at different concentrations in two experiments. An algorithm for rapid colour measurements by means of image analysis was implemented, and allowed measurement of L*, a*, and b* values from the whole quarter surface and from the browned areas, while the external appearance of artichoke quarters was evaluated using an anchored subjective scale. Cysteine (0.5%) was the most effective treatment to prevent browning as evaluated by colour attributes and appearance score. Its effectiveness was improved by increasing the pH of the solution from the natural pH (2.1) to pH 3, resulting in L* values of browned areas about 30% higher than controls (27.4 and 21.5 respectively). The mean values of appearance scores for cysteine treated samples were all above the limit of marketability (score 3), significantly higher than in control samples which had mean values below this limit. All colour parameters were significantly correlated with appearance scores, and L* of the whole quarter surface had the highest correlation. The results represent a step forward in research on anti-browning treatments for fresh-cut artichokes, also providing an objective tool for colour evaluation.