

Title Application of soy protein-beeswax edible coating with antioxidant on reducing enzymatic browning of fresh eggplants

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Abstract

Fresh-cut eggplants are one of the most perishable vegetable. Once the product is cut, quick enzymatic browning appears due to the oxidation of the phenolic compounds. The combination of edible coatings with antioxidants helps reducing respiration rate, weight loss and enzymatic browning of the fresh-cut tissue. The objective of this work was to study the effect of a new edible coating combined with different antioxidants controlling enzymatic browning of fresh-cut eggplants. Edible composite coatings were prepared from soy protein isolate (SPI) and beeswax. Ascorbic acid (AA) at 1 %, or cysteine (Cys) at 0.5 % and 1 % content were incorporated in the coating formulations as antioxidant. Fresh-cut eggplants were dip-coated in either the SPI-BW-antioxidant coating or the aqueous antioxidant solution. Samples were packed in trays sealed with microperforated polypropylene films, to ensure no modification of the surrounding atmosphere, and stored at 5 °C for 9 days. Color (CIE L*a*b*), visual quality, texture and weight loss were evaluated during storage. Cys-treated samples, incorporated in the coating solution or as an aqueous solution, showed the highest L * and lowest a* values, and prevented softening of the tissues compared to control samples. Increasing Cys concentration increased the effectiveness reducing browning of the tissue. 1 % AA was not effective reducing enzymatic browning of fresh-cut eggplants, showing similar appearance to control samples. Differences on weight loss among treatments were not observed, and losses were always below 1 %. Samples coated with SPI coating with 1 % Cys were evaluated by the judges with the lowest degree of browning and reached the limit of marketability after 9 days of storage, which showed the potential of SPI-Cys-based edible coatings controlling enzymatic browning of fresh-cut eggplants.