

The Possibility of Edible Coating Applications on Apple Pieces: Case Study with Colour Changes

Simona Jancikova

VFU Brno, USA

The aim of the study was to monitor color changes of apple pieces after application of different coatings. The material for the study were Granny Smith apples (bought in retail shop: Tesco s.r.o.).

The experimentally produced coatings consisted out of distilled water, pectin and hemp flour extract (HFE). The samples were following: CONTROL (without packaging), PHFE1 (1% pectin and 5% HFE), PHFE3 (3% pectin and HFE) and PHFE5 (5% pectin and 5% HFE). Pectin and hemp flour were bought from retail shops Gresik and DM drogerie, respectively.

The color measuring was done by personal camera EOS600D (Canon, JPN). The sample scanning was completed under standard light conditions with 2 lamps Delux L – 1 x 18 W lamps (OSRAM, GER). The shooting was done by the manual: exposure time 1/80, aperture F 5.0, image size L, sensitivity ISO 100.

The color measuring (RGB – red, green, blue; Mean Intensity and Hue Typical) was done at the beginning of the experiment and after time intervals of 2, 7 and 14 days. The samples were stored under two storage conditions: room temperature (+25°C) and also in the refrigerator (+4°C).

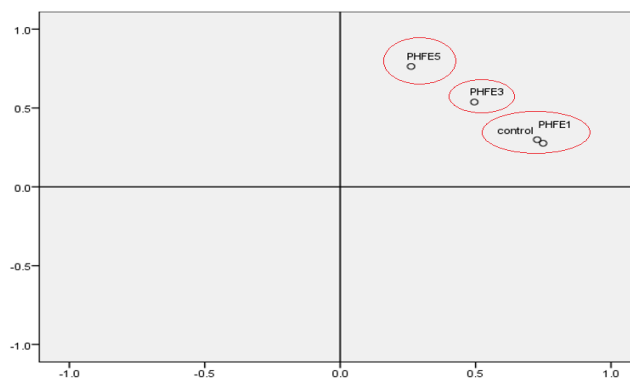


Figure 1: The principle component analyses for cut apple pieces
Legend: control-samples without packaging, PHFE1 – 1%pectin with HFE, PHFE3 – 3%pectin with HFE, PHFE5 – 5%pectin with HFE]

The color of apples' surface and inner tissue were monitored. The storage conditions had impact on all samples, because all measured properties were significantly different ($p < 0.05$). When the mean intensity is compared the samples are not so different the differences are among measuring of RGB. The results revealed that the highest impact on samples color changes had PHEF5 coating. The lower impact coatings had on inner tissue than on surfaces. The principal component analysis (PCA) showed significant ($p < 0.05$) differences, forming separate groups: group I (CONTROL and PHFE1), group II (PHFE3) and group III (PHFE5). It can be said that used 3% and 5% pectin with hemp flour extract had impact on the color changes.