

Title Effect of formulation of edible coating based on whey protein and *Zataria Multiflora* *Bioss* extract on the shelf life of peach (*Prunus Persica* Cv.Anjiri)

Author Majid Javanmard

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords peach; edible coating

Abstract

Edible concentrated whey protein-based (85% protein content) natural polymer substituted synthetic polymer was used in this study. Final number of coatings, according to response surface statistical method, was measured on 20 treatments repeated 6 times in the center point and effects of the three factors including whey protein (2.5 to 5 gr), *Zataria multiflora* Bioss extract (0 to 500 μ lit) and glycerol (0.375 to 2.25 g) on the organoleptic (taste, juiciness, overall acceptability and degradability evaluation) and physicochemical (weight loss, texture toughness, colour changes, soluble solids and titratable acidity) characteristics of peach, were investigated at 4 °C during 21 days of storage. Peach was coated by immersion at 20°C and after the coating was dried, it was put into a disposable dish without a cap.

The results were investigated in the form of central complex pattern and were modeled and analyzed by response surface methodology. According to the results produced, by increasing *Zataria multiflora* Bioss extract concentration and whey protein of the coating, microbial decay of the fruit was reduced and hardness of its texture and percent soluble solids was maintained and weight loss was decreased. Colour changes of the coated fruit peel was rarely seen and the samples had a light and bright colour. By increasing extract content in the coating colour changes decreased. Coating peach with this kind of edible coating resulted in natural ripening of the fruit and the coated fruits were softer and juicier than the fruits without any coating. From variance dissociation table, it was recognized that whey protein is the effective factor in coating process and influence of *Zataria multiflora* Bioss extract and glycerol is less than whey. Coefficient of determination for acceptable regression models of texture, percent soluble solids, titratable acidity, percent weight loss and colour changes at the end of period of storage were 0.912, 0.958, 0.921, 0.981 and 0.930 respectively. Meanwhile, lack of fit factor for all the properties above 90% level, was not expressive, correctness of the model for acceptability of data was confirmed. Optimum points of variables for achieving a coating with the maximum effect on durability improvement of peach (*Prunus Persica* cv.anjiri) are: whey protein 4.7475 gr, *Zataria multiflora* Bioss extract 498.00 μ lit and glycerol 0.6212 gr.