

Microbiological and physicochemical quality of strawberries (*Fragaria × ananassa*) coated with *Lactobacillus rhamnosus* and inulin enriched gelatin films

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Abstract

The consumption of probiotic foods has increased in recent years due to consumer concerns related to healthy diets. In this study, strawberries were used as an alternative product to deliver probiotics and the study aimed to investigate the effect of *Lactobacillus rhamnosus* on microbial and physicochemical quality of strawberries during refrigerated storage. For this purpose, probiotic *Lactobacillus rhamnosus* and inulin were added to gelatin-based coatings and applied to fresh strawberries. Probiotic survivability, microbial and physicochemical quality parameters of strawberries were monitored during 16 d of refrigerated storage. According to the results, gelatin-probiotic coatings and gelatin-probiotic-inulin coatings increased the shelf-life of strawberries compared to the control. These coatings significantly decreased the weight loss in strawberries and did not change the quality parameters (pH, titratable acidity, and total soluble solids) during storage. Gelatin-probiotic coatings slowed down fungal growth and total aerobic mesophilic counts in strawberries. While the initial count of *Lb. rhamnosus* was 11 log CFU g⁻¹, it was found as 8.9 log CFU g⁻¹ and 7 log CFU g⁻¹ on the 10th and last day of the storage, respectively. These results revealed that probiotic incorporated gelatin films can be an alternative way to deliver probiotics and improve the shelf-life of perishable fruits.