

Effect of alginate coating enriched with Shirazi thyme essential oil on quality of the fresh pistachio (*Pistacia vera* L.)

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Abstract

In this study, different concentrations of alginate (0%, 1% and 1.5% w/v) enriched with various concentrations of Shirazi thyme (*Zataria multiflora* Boiss) essential oil (0%, 0.3% and 0.5% w/v), were examined on postharvest characteristics of the fresh pistachio. The measurements (including total phenolic compounds, antioxidant capacity, free fatty acid, peroxide value, aerobic mesophilic bacteria, mold and yeast, saturated and unsaturated fatty acids) were performed after 0, 13, 26 and 39 days during storage (3 ± 1 °C, 80 ± 5 % RH). The results showed that alginate edible coating enriched with thyme's essential oil (EO), contributed to the maintenance of higher values of phenolic content and antioxidant activity in comparison with the control. Edible coating treatment of enriched alginate with thyme oil reduced mold and yeast growth compared to the control and the alginate without thyme oil. Peroxide value and free fatty acid content were significantly lower in fruits treated with alginate-thyme in comparison with the control. All fruits which had been treated with alginate-thyme EO showed lower changes in saturated and unsaturated fatty acids after 39 days of storage, and fruits coated with combination of 1% alginate and 0.3% EO showed the highest content of palmitic acid, palmitoleic acid, stearic acid, oleic acid, linoleic acid and linolenic acid, compared with other treatments.