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Материалы
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THE EFFECT OF HARVEST TIMES ON MINERAL CONTENTS OF ALMOND AND WALNUT KERNELS

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Introduction. Almond (*Prunus amygdalus* L.) and Walnut (*Juglans regia* L) belong to the Rosaceae and Juglandaceae family, respectively and *Prunus* genus grows in temperate zones in most countries of the world (Moayedi et al. 2011; Izaddost et al. 2013). The consumption and demand for nuts are high due to their impact on human health (Sánchez-Bel et al. 2008; Tiwari et al. 2010). The aim of this study was to determine the effect of harvest times on mineral contents of almond and walnut types naturally grown in Gülnar district of Mersin in Turkey.

Material and Methods. Almond and walnut kernel samples were collected in a field of the South of Turkey (Antalya) at intervals of about 10 days during five harvest periods. For almond and walnut kernel, three trees were determined as replicates. 25 kg were collected from each tree. The fruits were placed on steel trays for drying, and they were dried (70 °C) until reaching determined dry weight. Then an kernels were ground to form a homogeneous, and collected in color bottle.

Mineral contents were determined by ICP AES (Varian-Vista, Australia). Measurements of mineral concentrations were checked using the certified values of related minerals in the reference samples

received from the National Institute of Standards and Technology (NIST; Gaithersburg, MD, USA) (Skujins, 1998).

A complete randomized split plot block design was used analysis of variance (ANOVA) was performed by using JMP version 9.0 (SAS Inst. Inc., Cary, N.C.U.S.A).

Results and Discussion. In this study, the effects of harvest time on mineral contents of almond and walnut kernels were researched. While Ca, Fe, K, Mg, P and Zn contents of almond kernels in all harvest times were found higher compared with results of walnut kernels, Ca contents of almond and walnut kernels changed between 924.51 (4.Harvest) and 1970.86 (1.H), and 13.43 (1.H) and 26.51 (4.H) mg/Kg, respectively. While K contents of almond kernels range from 4817.31 (2.H) to 7218.58 (1.H), K contents of walnut kernels varied between 2707.33 (3.H) and 11091.16 (1.H) mg/Kg ($p < 0.05$). P contents of almond kernels were found between 3774.42 (2.H) and 5488.25 (1.H) mg/Kg. In addition, P contents of walnut kernels ranged from 2329.10 (3.H) to 2977.60 (1.H) mg/Kg ($p < 0.05$). While Zn contents of almond kernel change between 29.29 (2.H) and 42.15 (3.H) mg/Kg, Zn contents of walnut kernels varied between 16.82 (4.H) and 21.25 (1.H) mg/kg. Generally, Ca, Cu, K, Mg, Mn, Na P and S contents of almond kernels at the first harvest time were found at the high level. In addition, Cu, K, Mg, Na, P, S and Zn contents of walnut kernels were determined higher than those of results of other four harvest times at the first time. The study showed that the almond and walnut kernels were well supplied with essential elements. The mineral elements contained in nuts are very important in human nutrition. The high levels of these elements (K, P, Mg) show that nut kernels could provide alternative source of potassium and magnesium in diet. Generally, most of elements in almond and walnut kernels were found at the first harvest time.