

## ANALYSIS OF THE FATTY OIL OF *Pistacia eurycarpa* NUTS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

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Pistachio nuts contain many bioactive compounds that may also play a protective cardiovascular role [1]. Pistacia kernels are a good source of essential unsaturated fatty acids [2].

Demirci et al. [3] studied the composition of microdistilled and hydrodistilled essential oils of the mastic gum of *Pistacia eurycarpa* by GC/MS. The same authors detected  $\alpha$ - and  $\beta$ -pinenes as the major constituents. The antimicrobial activity of the hydrodistilled oil was determined for ethnomedical uses of the oleo-gum resin on skin diseases.

Satil et al. [4] reported fatty acid compositions in the kernels of two varieties (Uzun and Siirt) of pistachio grown in different regions of Turkey using Soxhlet extraction with petroleum ether. The kernels of *P. eurycarpa* were harvested from Siirt province in the eastern part of Turkey. Kernels were crushed in a mortar and were extracted with *n*-hexane for 6 h in a 25 mL flask using a Soxhlet apparatus. The solvent was then evaporated under reduced pressure using a rotary evaporator at 40°C, and the residue was refluxed with 5 mL of 0.5 N sodium hydroxide solution in methanol for 10 min. Then 5 mL of 14% BF<sub>3</sub> in methanol solution was added through the condenser and the mixture was boiled for 2 min. *n*-Heptane (5 mL) was then added through the condenser, and the mixture was boiled for 1 min longer. The solution was cooled, 5 mL of saturated NaCl solution was added, and the flask was rotated very gently several times. Additional saturated NaCl solution was added to float the *n*-heptane solution into the neck of the flask. One milliliter of the upper *n*-heptane solution was transferred into a test tube and dried over anhydrous Na<sub>2</sub>SO<sub>4</sub> [5]. Here, we report on the fatty acid composition of *P. eurycarpa* kernels from Siirt province.

**The FA Compositions were Determined by GC/MS.** A Shimadzu GCMS-QP5050A system, with a CP-Sil 5CB column (25 m × 0.25 mm Ø), was used with helium as carrier gas. GC oven temperature was kept at 60°C and programmed to 260°C for at a rate of 5°C/min, and then kept constant at 260°C for 40 min. Split flow was adjusted at 50 mL/min. The injector temperature was at 250°C. MS were taken at 70 eV. Mass range was between *m/z* 30 to 425. Library search was carried out using Wiley GC/MS Library and BASER Library of Essential Oil Constituents. The mass spectra were also compared with those of reference compounds and confirmed with the aid of retention indices from published sources. Relative percentage amounts of the separated compounds were calculated from total ion chromatograms by the computerized integrator. The components identified in the oil are as follows: the major compounds were identified as 18:2 (9, 12; 52.2%) methyl oleate (17.7%) and methyl palmitate (16.7%), methyl stearate (4.3%), methyl palmitoleate (2.0%), 11-eicosenic acid methyl ester (1.4%), and heptadecene-(8)-carbonic acid (1.3%). In addition, 13:0 (0.3%); 17:1 (9, 10; 0.2%); 17:0 (0.1%), 20:0 (0.4%), 22:1 (13, 0.1%); 22:0 (0.2%) methyl ricinoleate, methyl arachidate, methyl myristate, methyl 9, 10-methylene hexadecanoate, methyl behenate, methyl erucate, 2-ethyl hexanoate were detected in amounts less than 1%, whereas the compounds methyl octanoate, methyl decanoate, methyl laurate, and methyl pentadecanoate were detected in trace amounts.

In another study, Ozcan [6], studied effects of sampling for epigenetic variations of oils in terms of different nutrient sources and physical properties of terebinth (*Pistacia terebinthus* L) fruits from Icel province of Turkey for potential usage aspects. The main fatty acids identified by gas chromatography were oleic (52.3%), palmitic (21.3%), and linoleic (19.7%) acids.

In conclusion, very little studies have been carried out on the chemical composition of *Pistacia* species. However, no studies have been found in the literature relating to the composition of the oil obtained with either hexane in a Soxhlet apparatus or any other techniques in *P. eurycarpa*. So, in this study we determined 12 fatty acids for the specific *P. eurycarpa*, and three dominant constituents were detected as 18:2 (52.2%), 18:1 (9) (17.7%), and 16:0 (16.7%).

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