

## **Oil and fatty acids profile of fresh and stored Walnut (*Juglans regia* L) from Greek and US population seedlings.**

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### **ABSTRACT**

Walnut samples (*Juglans regia* L) were collected at the harvesting period during two successive years 2004 and 2005 from fifteen different cultivars and Greek native walnut trees grown in a replicated trial germplasm. Five commercial cultivars, one French and four U.S. (Franquette, Sunland, Vina, Hartey and Chandler) as well as ten selections from Greek population seedlings (native trees) were evaluated. The oil extracted from fresh nuts and individual fatty acids were analyzed and compared at harvesting time (fresh nuts) and after four months storage. Results showed that the total oil content of nuts ranged from 67 to 69.8%. The acidity of oil from nuts ranged from 0.050 to 0.058 in fresh nuts and 0.070 to 0.10 in stored nuts. The peroxide value (MeqO<sub>2</sub>/kg oil) of fresh nuts oil had a range from 0 to 0.49 and the peroxide value of stored nuts oil ranged from 0.49 to 0.98. The oleic acid content of the extracted oil from fresh nuts ranged from 14.2 to 21.2% of the total fatty acids whereas the linoleic acid content ranged from 67.45 to 72.43%. Moreover, the linolenic content ranged from 4.09 to 9.95%. The percentage of oleic acid, linoleic and linolenic acid varied in oil compared to stored nuts.

The results showed that some varieties from Greek population seedlings are promising because their nuts presented a distinctive fatty acids profile. The fatty acid composition of Greek walnut varieties is more close to today's dietary demands (rich food in omega-3 essential fatty acids with health benefits) without any problem during storage for a short period of time.