

**Title** Evaluation of different degree of ripeness and sun-drying process on triacylglycerols composition of *Pistacia vera* l. Oil

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#### **Abstract**

The composition of triacylglycerols (TGs) and the fatty acids (FAs) distribution of oil extracted from pistachio kernels alters as the nuts ripen. Sun-drying may also affect oil composition. TGs account for more than 90% of the total glycerolipids in pistachio oil. The main TGs found were: LLL, OLL, LLP, OLO, OLP, OOO, and OOP; these accounted for more than 80% of total TGs. The mean concentration of TGs with more polyunsaturated fatty acids (LLL<sub>n</sub>, LLL, OLL<sub>n</sub>, LnLP, OLL, and LLP) was lower in ripe (29.4%) and dried ripe (29.1%) than in unripe (32.9%) kernels. The FAs detected in the TGs were palmitic (P), margaroleic (Mo), stearic (S), oleic (O), linoleic (L), linolenic (Ln), and gadoleic (G). The saturated FAs, represented by P (C16:0) and S (C18:0), did not change significantly with ripeness and drying process, comprising 13.9% of the total fatty acids composition in unripe samples, 13.8% in ripe samples, and 14.0% in dried ripe samples. Monounsaturated FAs, represented by Mo (C17:1), O (C18:1), and G (C20:1), accounted for 49.5% of total FAs in unripe kernels, 52.7% in ripe kernels, and 52.6% in dried ripe kernels. Polyunsaturated FAs, represented by L (C18:2) and Ln (C18:3), accounted for 36.6% of total FAs in unripe kernels, 33.4% in ripe kernels, and 33.4% in dried ripe kernels. During seed maturation, the percentage of polyunsaturated FAs declined in favor of oleic acid because desaturase became less active in ripe seeds, permitting the accumulation of its substrate (C18:1) into the TGs. The concentrations of C18:2 and C18:3 declined during seed development, indicating decreased photosynthetic activity in ripe seeds because C18:3 is the major FA of photosynthetic biomembranes.