

## Phytosterols as a Bioactive Compounds in Argan Oil

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Argan oil is characterized by high levels of linoleic and oleic acids and is rich in polyphenols and tocopherols. The presence of phytosterols in argan oils is important to its healthy properties. Squalene protects against cancer and increases xenobiotic excretion. Phytosterols decreased total cholesterol level in human blood, especially LDL fraction.

The goal of this work was identification and quantification analysis of sterol fraction in argan seeds before and after roasting, press cake and eight argan oils.

The content of phytosterols was determined according to AOCS Official Method Ch 6-91. The method involved was the saponification of sample by KOH in methanol and extraction unsaponifiable fraction by hexane:MTBE (1:1, v/v). Then the samples were silylated by sylon BTZ and they were analyzed by gas chromatography (GC). Agilent Technologies 7890A gas chromatograph with splitless, FID detector and capillary column DB-35MS (25m x 0,20mm x 0,33  $\mu$ m, J & W Scientific Inc., Folsom, CA, USA) was used for the quantity analyses. 5 $\alpha$ -Cholestane was used as internal standard. Identification of sterols was confirmed on Agilent Technologies 7890A gas chromatograph coupled to an MS 5975C VL MSD Triple Axis detector using the same parameters of analysis and column as those used in GC analysis.

Six phytosterols (spinasterol,  $\Delta$ 5- and  $\Delta$ 7-avenasterol, schottenol, cycloartenol, 24methylene-cycloartenol) and squalene were identified in all argan samples. Only 1 – 3% of sitosterol, a typical plant sterol, were detected in argan seeds before and after roasting and in press cake. The total phytosterol content in these samples were 3.9, 3.6 and 3.5 mg/g of oils, in which squalene constitute 50, 51 and 55%, respectively. Argan oils content from 3.6 to 4.3 mg of phytosterols in 1 g of oil, where squalene constitute 51 – 58%. The content of phytosterols and squalene in argan oils is significant and it can play important role in healthy diet.

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