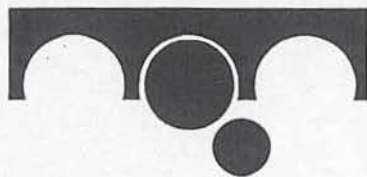


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"The Role of Analytical Chemistry in the Protection of the Citizens"

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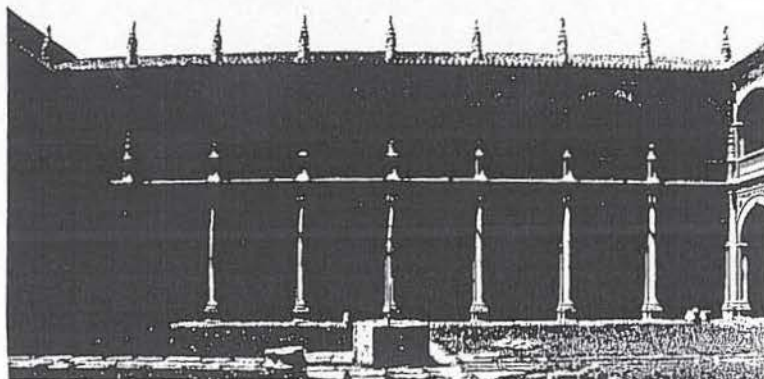
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Sterol composition of hazelnuts from different Portuguese cultivars

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The consumption of the typical Mediterranean diet is associated with lower mortality rates from coronary heart disease (CHD) and cancer (1). This diet is low in meat and higher in fish, fruits and vegetables, also having nuts as valuable components. There is a growing interest in evaluating nut's role in a heart-healthy diet and several studies have been made supporting a role for nuts in reducing CHD (1). Among nut species, hazelnuts are widely appreciated. They are consumed as a fruit but are also used as an ingredient in confectionery products. Hazelnuts are rich in phytosterols, which due to their structural similarity with cholesterol, inhibit its intestinal absorption, thereby reducing blood cholesterol. Besides, sterol composition is an important tool in the assessment of identity and quality of vegetable oils (2). In this work, the sterol composition of oils extracted from different cultivars of hazelnuts grown in Portugal was evaluated by gas-liquid chromatography coupled to a flame ionization detector (GLC/FID). The oil was saponified and the unsaponifiable fraction was isolated by solid-phase extraction on an aluminium column. The steroid fraction was obtained after thin-layer chromatography and analysed as trimethylsilyl ethers using the mixture of 1-methylimidazole and *N*-methyl-*N*-(trimethylsilyl)-heptafluorobutyramide as derivatizing agent. Betulin was used as internal standard and identification was achieved comparing the relative retention times with those obtained with standards. Total sterol content ranged from 1365 mg/kg in cv. Fertile de Coutard and 2325 mg/kg in cv. Gunsibert. Nine sterols were identified and quantified. β -sitosterol, Δ^5 -avenasterol and campesterol were the major sterols found in all samples. Δ^7 -stigmasterol was only found in some cultivars.

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