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BOOK OF ABSTRACTS

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T4-P-17 Phytosterol composition of selected nuts and seeds from the Serbian market

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KEYWORDS: phytosterols; nuts; seeds; GC/MS

INTRODUCTION:

Edible nuts and seeds are nutrient-rich food, and also valuable source of various bioactive compounds. Among them are phytosterols, plant triterpenes with proven antioxidant, anti-inflammatory and antibacterial properties. Due to their similar structure with cholesterol, these plant sterols, when digested, compete with cholesterol for small intestine absorption leading to lowering of the cholesterol level in blood.

OBJECTIVES:

The aim of this work is to investigate phytosterol composition of selected nuts and seeds used in nutrition from the Serbian market.

METHOD / DESIGN:

Gas chromatography with flame ionization detector (GC-FID) and gas chromatography with mass spectrometry (GC-MS) analysis of the unsaponifiable fractions was performed on an Agilent 7890A GC equipped with 5975C (inert XL EI/CI) MSD and a FID detector connected by a capillary flow technology two way splitter with make-up (250 °C). A HP-5MS capillary column (Agilent, 30 m × 0.25 mm, 0.25 µm film thickness) was used. The identification of the compounds was based on the comparison of their retention indices (RI), Rt, and mass spectra from NIST/NBS 05, Wiley libraries 8th edition and NIST Chemistry WebBook.29.

RESULTS:

Phytosterols were analyzed as volatile derivatives obtained by the silanization of residual unsaponifiable fractions. Cholesterol standard was used for quantification. Among them, the most abundant was β-sitosterol, followed by stigmasterol, isofucosterol and campesterol (*Figure 1*).

CONCLUSIONS:

Our results indicate that the seeds (sesame, black sesame, chia seed) contain higher amount of phytosterols in comparison to the nuts. These results are in correlation with literature data. The product quality on Serbian market is appropriate according to phytosterols content.

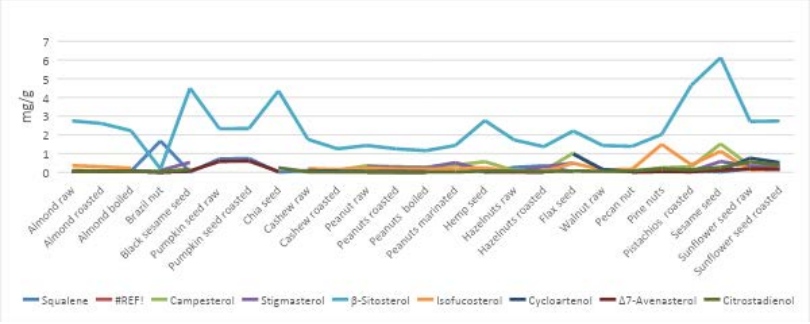

Figure 1. Phytosterols composition (mg/g oil).

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