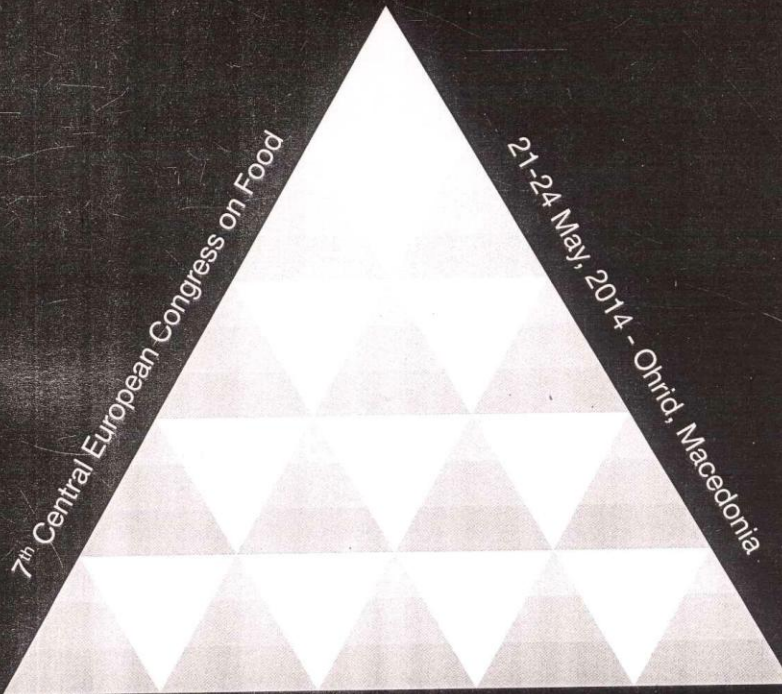


# CEFood Congress



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## OCCURRENCE OF AFLATOXINES IN RAW PEANUTS AND PEANUT PRODUCTS DETERMINED BY FLUOROMETRY AND LIQUID CHROMATOGRAPHY WITH FLUORESCENCE DETECTION

Vesna Kostik<sup>1\*</sup>, Boban Gorgievski<sup>1</sup>,  
Biljana Stojanovska-Dimzoska<sup>2</sup>, Biljana Bauer<sup>3</sup>

<sup>1</sup>Institute of Public Health of Republic of Macedonia,  
50 Divizija 6, 1000 Skopje, Republic of Macedonia

<sup>2</sup>Food Institute, Faculty of Veterinary Medicine, Ss. Cyril and Methodius  
University, Lazar Pop Trajkov 5-7, 1000 Skopje, Republic of Macedonia

<sup>3</sup>Institute of Pharmacognosy, Faculty of Pharmacy, Ss. Cyril and Methodius  
University, Vodnjanska 17, 1000 Skopje, Republic of Macedonia

\*e-mail: vesna2mk@yahoo.com

### Abstract

Aflatoxins are toxic secondary metabolites produced mostly by *Aspergillus flavus* and *A. parasiticus*. The International Agency for Research on Cancer (IARC) classified naturally occurring aflatoxin B<sub>1</sub> as carcinogenic to humans (Group 1). Peanut has proved to be a good substrate for the growth of *Aspergillus* sp. and for the production of aflatoxins. Peanuts and peanut based products are considered as popular food among all age groups, especially peanut snacks and peanut flips.

The main objective of this research was to quantify sum of total aflatoxines (AFB<sub>1</sub> + AFB<sub>2</sub> + AFG<sub>1</sub> + AFG<sub>2</sub>) and the content of aflatoxin B<sub>1</sub> (AFB<sub>1</sub>) in row peanuts and some peanut based products as: peanut snacks, peanut flips and peanut butter. For that purpose, thirty five samples of row peanut and peanut based products were analyzed. Determination of the content of sum of total aflatoxins was performed by fluorometry and the determination of AFB<sub>1</sub> was performed by liquid chromatography with fluorescence detection. Immunoaffinity column clean-up was applied as a purification technique in both methods.

The obtained results showed that in 20 row peanut samples (80%), sum of total aflatoxins was below maximum residue level (MRL) of 4 µg/kg for total aflatoxins. Five raw peanut samples had content of total aflatoxins over MRL, ranging from 5.5 - 10.2 µg/kg. Two samples of peanut snacks had maximum content of total aflatoxins of 15.8 µg/kg and 12.4 µg/kg, respectively, which was over the permitted MRL value. The content of total aflatoxins in all tested samples of peanut butter was found to be below permitted MRL value.

Factors responsible for the high incidence of aflatoxin contamination of peanuts include poor agricultural practices during planting, harvesting, drying, transportation and storage of the product. Therefore, there is a need for permanent monitoring of the content of aflatoxins in peanut and peanut based products, which are present on the market.

*Key words: Peanut, Peanut based product, Aflatoxins (AFB<sub>1</sub>, AFB<sub>2</sub>, AFG<sub>1</sub>, AFG<sub>2</sub>), Fluorometry, Liquid chromatography, MRL.*