

The Presence of Ochratoxin a in Breast-Milk, Urine and Serum of Lactating Women

Authors : Magdalena Twaruzek, Karolina Ropejko

Abstract : Mycotoxins are secondary metabolites of molds. Ochratoxin A (OTA) is the most common in the Polish climate. It is produced by fungi of the genera *Aspergillus* and *Penicillium*. It is produced as a result of improper food storage. It is present in many products that are consumed both by humans and animals: cereals, wheat gluten, coffee, dried fruit, wine, grape juice, spices, beer, and products based on them. OTA is nephrotoxic, hepatotoxic, potentially carcinogenic, and teratogenic. OTA mainly enters an organism by oral intake. The aim of the study was to detect the presence of OTA in milk, urine, and serum of lactating women. A survey was also conducted regarding the daily diet of women. The research group consisted of 32 lactating women (11 were the donors from the Milk Bank in Toruń, the other 21 were recruited for this study). Results of the analysis showed the occurrence of OTA only in 3 milk samples (9.38%). The minimum level was 0.01 ng/ml, while the maximum 0.018 ng/ml and the mean 0.0013 ng/ml. Twenty-six urine samples (81.25%) were OTA positive, with minimum level 0.013 ng/ml, maximum level 0.117 ng/ml and mean 0.0192 ng/ml. Also, all 32 serum samples (100%) were contaminated by OTA, with a minimum level of 0.099 ng/ml, a maximum level of 2.38 ng/ml, and a mean of 0.4649 ng/ml. In the case of 3 women, OTA was present in all tested body fluids. Based on the results, the following conclusions can be drawn: the breast-milk of women in the study group is slightly contaminated with ochratoxin A. Ten samples of urine contained ochratoxin A above its average content in tested samples. Moreover, serum of 8 women contains ochratoxin A at a level above the average content of this mycotoxin in tested samples. The average ochratoxin A level in serum in the presented studies was 0.4649 ng/ml, which is much lower than the average serum ochratoxin A level established in several countries in the world, i.e., 0.7 ng/ml. Acknowledgment: This study was supported by the Polish Minister of Science and Higher Education under the program 'Regional Initiative of Excellence' in 2019 - 2022 (Grant No. 008/RID/2018/19).

Keywords : breast-milk, urine, serum, contamination, ochratoxin A

Conference Title : ICM 2021 : International Conference on Mycotoxins

Conference Location : Athens, Greece

Conference Dates : April 08-09, 2021