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FACULTY OF VETERINARY MEDICINE - SKOPJE

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S7 DETERMINATION OF OCHRATOXIN-A OCCURRENCE IN ANIMAL TISSUES IN REGIONS OF REPUBLIC OF MACEDONIA

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Introduction: Ochratoxin-A (OTA) is a mycotoxin which is produced by *Aspergillus* and *Penicillium* species. OTA can naturally contaminate several food commodities and can be found in animal products. After the consumption of OTA contaminated food, the toxin accumulates in tissues (kidney> liver>muscle>fat). OTA is nephrotoxic, carcinogenic, teratogenic, mutagenic, genotoxic for human and animal. In this study OTA occurrence was investigated in several animal tissues in regions of Republic of Macedonia.

Material and Methods: Animal tissue samples which were collected during 2014, 2015 years and between February and March in 2016. Before the analysis, all the samples were stored in specimen containers at -18°C. Waters Allience HPLC system e2695 Separation module with 2475 Waters Multi λ fluorescence detector (λ_{ex}= 333nm and λ_{em}= 460 nm) and analytical column from Supelco (RP C18 150 mm, 4.6 I.D., 5 µm) was used for OTA detection. OCHRAPREP® wide format immunoaffinity columns were obtained from R-Biopharm Rhône Ltd. OTA determination was done according to the study of Jorgensen and Petersen 2002. Kolmogorov-Smirnov and Lilliefors test, Levene's test and non-parametric tests were used for statistical analyses.

Results: In 2014, 2015 years and between February and March in 2016, obtained number of animals and tissues were: Swine n=62, lamb n=40, calve n=9, cattle n=12, sheep n= 5, chicken n=3, fish n =8, liver n=103, kidney n= 79 and muscle =4. Total number of collected tissue amount by regions were like Eastern n=20, Northeastern n=13, Pelagonia n=14, Polog n=24, Skopje n=5, Southeastern n=38, Southwestern n=2 and Vardar n=70. Mean OTA concentrations for calve, cattle, lamb, swine and sheep samples were found as 0.23µg/kg±0.04, 0.97µg/kg, 0.24±0.03µg/kg, 0.24±0.04µg/kg and 0.11µg/kg, respectively. There was significant statistical difference between kidney and liver samples (p=0.000086). The highest contamination level was from Southeastern region (0.097µg/kg, cattle, liver) and lowest were in Vardar and

Eastern regions (0.09μg/kg, swine, kidney).

Conclusion: Results showed that in regions of Macedonia OTA levels in kidney samples were lower than liver. Our findings don't show that OTA contamination is common and possess a danger in Republic of Macedonia.

Key words: Ochratoxin-A, animal, tissue, Macedonia