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P45 TWO-YEAR POST-INCIDENCE SURVEY ON THE AFLATOXIN M1 OCCURRENCE IN RAW MILK FROM THE REPUBLIC OF MACEDONIA

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Introduction: Considering the fact that aflatoxin M_1 (AFM_1) was included in the first group of contaminants that may increase the risk of human and that milk and dairy products are consumed on daily basis, the presence of this substance in food is of great concern worldwide. Having on mind that the previous investigations have proven the increased AFM_1 presence in raw milk during the 2013, a continuous survey was conducted in the next following years. Therefore, in this paper we present the results from the AFM_1 testing in raw milk performed during 2014 and 2015.

Material and Methods: During 2014 and 2015, including all seasons, 2342 raw milk samples (1394 for 2014 and 948 for 2015) were analyzed for AFM_1 contamination. As a testing method ELISA was used for screening and HPLC-FD for confirmation of assumable non-compliant samples. The procedures were validated according to the EU requirements for mycotoxin testing methods. Statistical data analysis was performed by OriginPro 8 SR4 v8.0951 software package. The differences in concentrations between sample groups and between seasons were assessed using the Kruskal-Wallis ANOVA test, a non-parametric method for analysis of two or more non-equal by number data series.

Results: The results revealed AFM_1 positivity (over the method detection limit) of 5.88 and 5.80 %, for 2014 and 2015 respectively. The determined non-compliancy (over the maximum permitted level of 0.050 μg/kg) for the two investigated years was 1.00 and 0.21 %, indicating a significant decline during the 2015 ($p<0.05$). Between-season variations were observed, with higher AFM_1 average concentrations during the winter-spring in comparison to the summer-autumn period. Due to the daily consumption of milk and dairy products, it is important to emphasize that the revealed AFM_1 contamination

indicated no threat from significant impact on consumer's health. The obtained results are comparable to those reported by European Food Safety Authority, notifying 0.70 % non-compliancy for Southern European countries. However, the revealed positivity for this region was 22.1 % that is significantly higher than the one reported within this study.

Conclusion: The results presented confirm that strict monitoring on feeding stuffs for aflatoxin B_1 contamination and raw milk production provides sufficient protection towards undesirable AFM_1 content in milk. Nevertheless, it has to be emphasized that the climate conditions in the past few years were rather unfavorable for *Aspergilus* growth and mycotoxin production in the crops.

Key words: aflatoxin M_1, raw milk, ELISA, incidence, statistical analysis