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FACULTY OF VETERINARY MEDICINE - SKOPJE

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P44 MYCOTOXIN CONTAMINATION IN COMPLETE FEEDINGSTUFFS FOR DAIRY CATTLE

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Introduction: Mycotoxins are toxic secondary metabolites produced by fungi that cause an undesirable effect (mycotoxicosis) when animals are exposed. Among them, because of mycotoxin degradation in the rumen, dairy cattle are more resistant to mycotoxins than are monogastrics. But, because of greater feed consumption and production stresses, they may be more susceptible to mycotoxins than are beef cattle. It is more likely that the effects are chronic, caused by low-level consumption over time. Mycotoxins affect dairy cows by reducing feed consumption, reducing nutrient utilization, altering rumen fermentation, suppressing immunity, altering reproduction. Aflatoxins are the most problematic in dairy due to its derivative aflatoxin M_1 present in milk and its potential health hazard for human consumption.

Material and Methods: Total of 55 complete feedingstuffs for dairy cattle were analyzed for presence of aflatoxins, 11 samples for ochratoxin A and 30 feed samples for zearalenone. Method of choice for determination of all three mycotoxins was HPLC-FLD with immunoaffinity column clean-up according to several modified AOAC and ISO methods. The results were evaluated according to Macedonian legislation (Official Gazette 47/2012; 149/2012; 53/2013) which are in accordance with European regulations (2002/32/EC; 2003/100/EC; 2006/576/EC).

Results: Thirty two (32) samples out of 55 analyzed for aflatoxins were with concentration below LOD (58,18%). Ten (10) feed samples were positive on aflatoxins in accordance with legislation (MRL is set on 5 μg/kg for dairy cattle) in concentration range of 6,68 – 32,08 μg/kg. Most of the samples (10 out of 11) were with OTA concentration below LOD. There is no MRL for OTA in dairy cattle feed in the current legislation. Seven (7) out of 30 feedingstuffs shown presence of zearalenone (70%); 21 samples were with ZEA concentration below LOD. Only 2 samples were positive on ZEA (MRL is set on 500 μg/kg for calves and dairy cattle).

Conclusion: Although only 2 feedingstuffs for dairy cattle exceeding the

MRL's for ZEA and none of the analyzed samples shown OTA concentration above LOD, it should be taken into account the percentage of positive aflatoxin feed samples (18,8%). The overall presence of aflatoxins in feedingstuffs for dairy cattle can hit animal producers hard accompanied by loss of productivity, reduced milk production, altered milk composition or producing toxins in milk (AFM_1). No matter how strong the nutrition and health program are, if dairies are not able to control mycotoxins, they will never achieve the greatest genetic potential from the animal and make the greatest profit. Therefore, controlling mycotoxins is the key in managing in the dairy business.

Key words: aflatoxins, ochratoxin A, zearalenone, dairy cattle feed