TITLE: LEVELS OF CORN CONTAMINATION BY MYCOTOXINS IN POULTRY INDUSTRY

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ABSTRACT:

Mycotoxins are secondary metabolites, produced by filamentous fungi, associated with various toxic effects on poultry, as well as, synergistic interactions with other infectious agents, which can no longer be removed during the industrial processing. Furthermore, the chronic exposure to mycotoxins causes serious economic losses to the poultry sector. When metabolized by the animals, these substances can be found in meat, eggs and derivatives, which also represents a risk to public health. The most relevant mycotoxins for the sector are: Aflatoxin, mainly produced by *Aspergillus flavus* and *A. parasiticus*; Fumonisin, whose main producers are *Fusarium verticillioides* and *F. proliferatum* and toxin T-2, mycotoxin belonging to the trichothecenes group, that is a by-product of the genus *Fusarium*. Therefore, the objective of this study was to evaluate the levels of contamination by Aflatoxin, Fumonisin and T-2 toxin, in corn used in the composition of rations in the poultry industry. The methodology consisted of a Competitive Enzymatic Immunoabsorption Assay (ELISA), with the commercial kit from Romer Labs®, in accordance to the manufacturer protocol. A total of 112 corn samples were analyzed for aflatoxin and fumonisin, and 109 for T-2 toxin. Aflatoxin was detected in 75 samples (66.9%); when considering the maximum limits of mycotoxin recommended by the Laboratory of Mycotoxicological Analyzes (LAMIC), 66.9% samples were above the tolerated maximum limit of 0µ/kg for broiler chicken in starter phase, 38.3% above 2µ/kg for broiler chicken in the growth phase, 29.4% above 5µ/kg for broilers in the final phase and 25.8% above 10µ/kg for commercial laying hens and matrices. Fumonisin was detected in 112 samples (100.0%). When considering the samples above the recommended maximum limits for fumonisin, 97.3% were above 100µ/kg for broiler chickens in starter phase and 93.7% were above 500µ/broilers in the in the growth phase, final phase, commercial laying hens and matrices. The T-2 toxin was detected in 83 samples (76.1%), all samples were above the tolerated maximum limit of 0µ/kg for broilers in the initial phase and none of the samples exceeded 200µ/kg. The high levels of mycotoxins show the need for continuous monitoring and preventive actions to avoid fungal contamination of the grains, to increase the productivity, ensure the quality of the final product and minimize risks to human health.

Keywords: aflatoxin, fumonisin, fungi, public health, trichothecenes

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