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Occupational exposure to mycotoxins in swineries

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Occupational exposure to aflatoxin B1 (AFB1) in swine farms was already reported (Viegas et al., 2013) and showed positive findings for AFB1 by ELISA in urine samples from workers that work in those farms. However, data regarding fungal contamination showed that exposure to other mycotoxins could be expected. A study was developed to analyze if exposure to further mycotoxins was occurring. Occupational exposure assessment to mycotoxins was done with a LC-MS/MS urinary multi-analyte approach. Besides urine samples, litter (n = 5), feed (10) and air samples (23) from swine farms were also analyzed by LC-MS/MS.

Deoxynivalenol (DON), zearalenone, 15-Acetyldeoxynivalenol, 3-Acetyldeoxynivalenol, fumonisins (FB1, FB2 and FB3), mycophenolic acid and sterigmatocystin (STE) were the most prevalent mycotoxins on litter and feed samples. All litter samples presented contamination by STE. Regarding air samples, only two samples have quantifiable values of STE. Twenty-five workers and nineteen control individuals participated in the study. Workers showed quantifiable results for deoxynivalenol-glucoside (DON-GlcA) (52%), ochratoxin (OTA) (4%), Aflatoxin M1 (AFM1) (16%) and citrinin (CT) (4%). For the control group, only CIT presented a quantifiable result.

Environmental samples analyzed presented multiple contamination and are probably related with workers exposure. Mycotoxins should be considered an occupational risk factor and risk management measures should be define and apply.

S. Viegas, L. Veiga, C. Verissimo, R. Sabino, P. Figueiredo, A. Almeida, E. Carolino, C. Viegas. (2013). Occupational Exposure to Aflatoxin B1 in Swine Production and Possible Contamination Sources, *Journal of Toxicology and Environmental Health, Part A: Current Issues*, 76:15, 944-951, DOI: 10.1080/15287394.2013.826569.

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