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 blood samples from workers that work in those farms. However, data regarding fungal contamination showed that exposure to other mycotoxins could be expected.

STUDY DESIGN
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 (Gerding et al., 2014). Besides urine samples (25 workers and 19 controls), litter (n = 5), feed (10) and air samples (23) from swine farms were also analyzed by LC-MS/MS.

RESULTS
- Deoxynivalenol, 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.
- All feed samples showed contamination by several mycotoxins (between 9 to 17 mycotoxins in the same sample).
- Regarding air samples, only two samples have quantifiable values of STE.
- Workers urine samples showed quantifiable results for deoxynivalenol-glucoside (DON-GlcA) (52%), ochratoxin A (4%), Aflatoxin M1 (16%) and citrinin (CT) (4%). For the control group, only CIT presented one quantifiable result.

CONCLUSIONS
- Litter and feed samples presented multiple contamination and are probably responsible for workers exposure.
- Workers are exposed to several mycotoxins simultaneously.
- Further studies should be developed to identify possible contamination trends in this workplace environment and to determine the variables that can influence contamination and workers exposure.
- Mycotoxins should be considered an occupational risk factor in this setting and risk management measures should be defined.
- Occupational Health surveillance programs should be implemented.


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