

## P74

**Sterigmatocystin presence in swine farms – the need of suitable biomarkers to assess workers exposure**

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Occupational exposure to aflatoxin B<sub>1</sub> (AFB<sub>1</sub>) in Portuguese swine production farms has already been reported and exposure to other mycotoxins can be expected in this setting. Sterigmatocystin (STERIG)-producing fungi are frequently isolated from different matrices, consequently STERIG is regularly detected in food and feed. STERIG was classified by IARC in group 2B, being carcinogenic to animals and possibly carcinogenic to humans.

The present study aimed to characterize the occupational exposure to multiple mycotoxins of swine production workers. A more detailed analysis of STERIG contamination and workers exposure was performed. To accomplish this, environmental (air, litter and feed) and biological (urine) samples from workers were collected. In each area of five swine farms (pig gestation site, maternity, stalls, pig fattening area and quarantine confinement) were collected air samples, in a total of 23 air samples. Five litter samples (one from each swine farm) were collected from the maternity area and ten feed samples (two from each swine farm) from different areas were collected.

Detection of STERIG in environmental, feed and urine samples was carried out using high performance liquid chromatograph (HPLC) coupled to mass spectrometry detection. Limits of detection and quantification were 0.20 µg/Kg and 0.60 µg/Kg for environmental and feed samples and 0.45 µg/L and 0.90 µg/L for urine samples, respectively.

STERIG was detected in the air samples (n=3, <LOQ – 1.42 µg/Kg), in litter samples (n=5, 1.14– 2.69 µg/Kg) and in feed samples of two swine farms (< LOQ – 0.72 µg/Kg). STERIG was not detected in urine samples.

STERIG is extensively metabolized essentially by glucuronidation but the identification of the glucuronidated forms in human biological samples has not been accomplished until now. This might explain why STERIG was not detected in the workers urine samples when is present intensively in the swine environment. More studies should be developed to allow determining the most suitable STERIG biomarkers of exposure.

Keywords: Sterigmatocystin, occupational exposure, swine farms, exposure biomarkers

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