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Occupational exposure to Aflatoxin B₁ in swine production and possible contamination sources

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Abstract

Although the adverse health consequences of ingestion of food contaminated with aflatoxin B₁ (AFB₁) are known, relatively few studies are available on the adverse effects of exposure in occupational settings. Taking this into consideration, our study was developed aiming to elucidate the possible effects of occupational exposure to AFB₁ in Portuguese swine production facilities using a specific biomarker to assess exposure to AFB₁. In total, 28 workers participated in this study, providing blood samples, and a control group ($n = 30$) was composed of subjects without any type of agricultural activity. Fungal contamination was also studied by conventional methods through air, surfaces, and new and used floor coverage. Twenty-one workers (75%) showed detectable levels of AFB₁ with values ranging from <1 ng/ml to 8.94 ng/ml and with a mean value of 1.91 ± 1.68 ng/ml. In the control group, the AFB₁ values were all below 1 ng/ml. Twelve different *Aspergillus* species were identified. *Aspergillus*

versicolor presented the highest airborne spore counts (3210 CFU/m³) and was also detected in higher values in surfaces (>300 CFU/cm²). Data indicate that exposure to AFB₁ occurs in swine barns, and this site serves as a contamination source in an occupational setting.

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