Veterinary World Vol.3(7): 305-311 RESEARCH

A Survey of occurrence of toxogenic fungi and mycotoxins in pig feed samples-Use in evaluation of risk assessment

Dragan Milicevic[1]*, Miomir Nikšic[2], Tatjana Baltić [2], Danijela Vranic[1], Srdan Stefanovic[1] and Saša janković [2]

1. Institute of meat hygiene and technology, Kacanskog 13, 11000 Belgrade, Serbia,
2. University of Belgrade, Faculty of Agriculture, Institute of Food Technology and Biochemistry, Nemanjina 6, 11080 Zemun, Serbia
*Corresponding author email : dragan@inmesbgd.com

Abstract

In order to assess of risk assessment, the aim of this paper was to provide good and detailed insight into the level of contamination of complete feedmixes intended for fattening swine from mycotoxin-producing fungi and mycotoxins (n=18). Isolation and quantitative enumeration of fungal propagules were done on solid media using the standard microbiological procedure. These plates were incubated the number of colonies was determined and thent on the basis of characteristic colonies and microscopic analysis was performed to identify genera and species of moulds. Isolates identified as *Aspergillus* and *Penicillium species* were subjected to molecular characterization of the presence of genes responsible for the synthesis of OTA (polyketide synthase gene-PKS). Total fungal counts (CFU/g) ranged from 0,5x105 do 4x106. From a total samples analysed, seven samples had fungal counts higher than the limit established by Serbian regulations (3x105). During a mycological analysis of complete feedmixes intended for fattening swine, a total of six genera and 14 species of moulds were identified of which the most frequent one was of the genus Penicillium (94,4%) while the moulds from Fusarium genere isolated in 55,5% and Paecilomyces in 44,4% of the samples from investigated localities. Other fungi from the genera Aspergillus (22%), Mycor (11,1%) and Alternaria (5,5%) were represented in a less amount. Polymerase chain reaction (PCR) is a set of 18 isolates of the DNA belonging to families Penicillium and Aspergillus. The sequences of PCR reaction products in three samples were compared with nucleotide sequences of genes for poliketid synthase (PKS) from Penicillium species and found that the samples possess PKS sequence. The traditional methods for identification of ochratoxin-producing fungi are time-consuming and labor-intensive. Rapid and specific detection of ochratoxin-producing fungi is important for ensuring microbiological quality and safety of feed and food.

Key words: Moulds, Mycotoxin, Feed Stuff, PCR, Risk assessment, Porcine, Occurrence, Toxogenic