

Biomarkers of mycotoxins in pigs

Description for the general public

Mycotoxins is an important group of secondary metabolites produced by certain types of mold. It is commonly found in the environment, and in particular in foods prepared from cereals. There are also **commonly found in animal feed.** Mycotoxins, depending on the compound, are known for their toxicity including **carcinogenic, estrogenic, mutagenic, teratogenic and immunotoxic effects.** Among the animals, the **pigs are particularly vulnerable to the effects** of mycotoxins. Mycotoxicoses have endangered the functioning of most organs of pigs and breeding. Therefore, many efforts have been made to reduce the effects of mycotoxins on animals m.in by controlling the levels of mycotoxins in feed and feed products. In recent years, the analysis of **mycotoxin biomarkers of exposure** has gained particular importance. In the case of exposure to mycotoxins, the biomarkers include parent compounds or their metabolites presented in tissues, body fluids and excreta of animals. Such studies conducted to date in a fairly narrow range included the analysis of mycotoxin biomarkers in the blood and urine of pigs.

The project aims are determination **toxicokinetic** of the two most common biomarkers of mycotoxins - **deoxynivalenol and zearalenone** and **exposure assessment of mycotoxins on pigs** by determining the levels of biomarkers of mycotoxins in their body fluids and excreta of experimental and farm animals. The important aim will be development of analytical method. **The new method** allows simultaneous analysis of more than **20 mycotoxins and their metabolites** on the basis of liquid chromatography coupled with tandem mass spectrometry (**LC-MS / MS**).

The results of the project will contribute **significantly to improving the diagnosis mycotoxicoses** in pigs through the creation of a modern diagnostic tool. The results of experiments with animals allow improving the **knowledge about the toxicokinetics of biomarkers** of two most common mycotoxins - deoxynivalenol and zearalenone. The results of the project will contribute to a better understanding of the mechanisms of influence of mycotoxins on animals, which will help to **reduce the negative impact of these compounds on animals, reducing losses in pig farming and improve economic performance.**