

Joint effect of the mycotoxins T-2 toxin, deoxynivalenol and zearalenone on the weaner pigs against a background of the infection load

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Abstract

Currently, among more than 100 000 known species of fungi about 250 species produce mycotoxins, secondary metabolites which are dangerous to human and animal health. Most of these toxins are highly resistant to physical and chemical factors, and are not destroyed even after prolonged heating of feed contaminated with mycotoxins. The aim of the present study was to investigate the joint effects of T-2 toxin, zearalenone, deoxynivalenol and infectious agents on pigs. The study was conducted in the Federal Center for Toxicological, Radiation and Biological Safety. Studies have shown that the joint dietary intake T-2 toxin at a dose of 70 mg/kg, zearalenone at a dose of 50 mg/kg and deoxynivalenol at a dose of 1000 mg/kg for 30 days against a background of the simulated *Clostridium* infection load causes symptomatic mycotoxicosis which is accompanied by activation of lipoperoxidation, decrease in hematological, biochemical and immunological parameters: a reduction in the number of T and B lymphocytes, titers of specific protective antibodies and the development of pathological processes in the tissues and organs of weaner pigs, slow weight gain, increase in feed conversion ratio and the development of infectious disease, confirmed with laboratory tests. The result was different in the group of animals with the same infection load but without introducing mycotoxins into the animal diet. The findings provide strong evidence that chronic intake of fusariotoxins even at the level of permissible concentrations against a background of infection load predisposes to infectious diseases.

Keywords

A mycotoxin combination of T-2 toxin, *Clostridium* microorganisms, Deoxynivalenol, Immunity, Zearalenone