

DETERMINATION OF THE EFFICIENCY OF SORTING OF STANDARD MICOTOXIN SOLUTIONS BY THE BETASORB DRUG

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The purpose of the work. Determination of the effectiveness of the sorption of the preparation "BetaSorb" in relation to standard solutions of mycotoxins, which can be considered as meeting the principles of environmental friendliness of livestock.

Materials and methods of research. The research was carried out on the basis of the laboratory of mycotoxicology of the Institute of Veterinary Medicine of the National Academy of Sciences of Ukraine in accordance with "Methods for determining the sorption activity of the means of preventing mycotoxicosis". Standard solutions of mycotoxins were used: aflatoxin B1 (10 mg / cm³), zearalenone (100 mg / cm³), T-2 toxin (100 mg / cm³). Sortativity of the drug "BetaSorb" was compared with the organic sorbent based on mannan oligosaccharides. Into a 100 cm³ flask, 30 cm³ of aqueous-saline solution was added in 30 cm³ of water, 10 µl of alcoholic solution of mycotoxin was added at the appropriate concentration (aflatoxin B1 (10 mg / cm³), zearalenone (100 mg / cm³), T-2 toxin (100 mg / cm³) and introduced samples of sorbents in a ratio of 1: 1000. Breathing was performed at exposure of 30 minutes, 12 hours, 24 hours at 37 °C and pH of a medium of 5.5. Curtains of sorbents with mycotoxins were centrifuged at 3000 rpm - 5 min. After that, the solution was evaporated in conical flasks (V = 50 cm³) using a rotary evaporator at a water bath temperature of 45 °C. The dry residues were redissolved in chloroform three times with 20 cm³. The extracts were combined and again evaporated to dryness on a rotary evaporator. To determine the qualitative and quantitative content of the toxin, the thin layer chromatography method was used. The amount of mycotoxins in the studied samples was determined by comparing the fluorescence intensity of the mycotoxin spots in the studied and standard samples.

Research results and their discussion. As a result of the conducted studies it was found that sample 1 of activated charcoal sorbent after exposure for 30 minutes exhibited 100% sorption in relation to standard solutions of mycotoxins and maintained this index for 24 hours. This indicates a high rate of sorption in the first minutes of

contaminated feed into the gastrointestinal tract of the animal and the absence of subsequent desorption, which contributes to the irreversible fixation of toxins in the pores of the sorbent and excretion from the body. Sample number 2 based on mannan oligosaccharides showed low sorption capacity in the first 30 minutes of incubation not exceeding 10% for zearalenone and 25% for T-2 toxin. After 12 hours of incubation, this figure increased to 25% and 80% respectively. This indicates the low effectiveness of the drug during the period of intense intestinal absorption. The 100% efficacy of this sorbent in relation to aflatoxin B1 was quite logical and predictable and reaffirmed the literature data on the selectivity of some sorbents.

Keywords: T-2 TOXIN, ACTIVATED CARBON, SORPTION, «BETASORB».