POLAROGRAPHIC DETERMINATION OF METRONIDASOLE IN VETERINARY DRUG "NOZEMAT"

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Metronidazole (2-methyl-5-nitroimidazole-1-ethanol) is an antibacterial and antiprotozoal drug. The conditions that this drug may be prescribed to treat are trichomoniasis, anaerobic bacterial infections, bacterial vaginosis, Helicobacter pylori and antibiotic-associated diarrhea and colitis. Preparations of metronidazole have been used with some success in treating the skin inflammations and eruptions caused by rosacea.

Metronidazole is used for the prevention and treatment of anaerobic infections of poultry, cattle, pigs, as well as nosematosis of bees, caused by spores of Nosema Apis. Nitroimidazoles and their metabolites can cause a negative impact on the human body, cause disturbances in the balance of the intestinal microflora, and allergic reactions getting into the body with food of animal origin, in particular, with honey. However, there is a suggestion that nitroimidazoles, as well as their hydroxy metabolites, containing the original nitroimidazole ring, are genotoxic, carcinogenic, and mutagenic. The problem of food control for the presence of various medicines is very urgent nowadays. Therefore, the developing of new techniques for food analysis, as well as the adapting of known techniques to analyze complex matrices, is an actual task for analysts.

The method of polarographic determination of metronidazole in veterinary drug "Nozemat" (manufacturer "API-SAN", Russia) is developed. This method is based on the reduction of metronidazoles nitro group on the mercury drop indicator electrode.

Polarographic measurements were carried out on digital device MTech OVA-410 and temperature-controlled three-electrode cell with a volume. A static mercury drop indicator electrode, a saturated calomel reference electrode and platinum wire auxiliary electrode were used. The accuracy of potential measurement is 1 mV. The uncertainty of current measurement is 0.1 %.

We have researched that metronidazole is recovering with creating specific peak at -0.64 V. Polarograms were discovered in the Britton-Robinson buffer at pH = 9.5.

Influence of the compounds of veterinary drug on polarographic determination of metronidazole was researched. We investigated that glucose and ascorbic acid does not influence on the polarographic recovery of metronidazole. However, oxytetracycline hydrochloride influences on metronidazole recovery. Oxytetracycline hydrochloride is recovering with creating specific peak at -1.45 V.

We developed technic of determination of metronidazole and oxytetracycline hydrochloride in veterinary drug "Nozemat" using method of many additives.

Significant advantages of our developed method voltammetric analysis are the possibility of determination of two active substances in one sample without first separating, very simple sample preparation, fast procedure of analysis, low cost, not necessary use of organic solvents.