DETERMINATION OF THE QUANTITY OF COBALT-30 IN THE CAPSULE "KOASK-30" BY THE MASS SPECTROMETRIC METHOD

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Relevance: An analysis of the pricing and assortment policy in the market of antianemic drugs has shown that it is necessary to take measures to develop and introduce into production domestic substances and dosage forms,as well as diversification of regional local production through the development of product varieties and the introduction of import-substituting products.Standardization and quality control of drugs based on coordination compounds is the development and implementation of those methods that would most fully reflect the chemical essence of the complex, namely its chemical structure, The valence state of the complexing metal and the identity of the drug. One of the important indicators in the development of new dosage forms of drugs is the quantitative determination of the active ingredients.

The aim of the study was to develop a method for the quantitative determination of «Koask-30» in capsules using inductively coupled mass spectrometry.

Materials and methods: «Coask-30» in capsules: about 0.3000±0.0002 g of powder from ground Kobalt-30 tablets was ashed in a platinum crucible in a muffle furnace at 450-5000C. The residue was treated with 10 ml of concentrated hydrochloric acid, evaporated to dryness, 10 ml of 2 M HCl was added, filtered into a 25 ml measuring flask, the crucible was washed with water, the washings were combined with the filtrate and the volume was brought to the mark with water.The amount of cobalt was determined by mass spectrometry. The characteristic concentration Cx = 0.15 μg/ml; the detection limit Cdn = 0.01 μg/ml.

Results: The assessment of the relative safety for humans, potential activity and nature of action of a new drug are determined as a result of pharmacological tests and toxicological tests on animals. Acute toxicity of the drug cobalt-30 was determined by oral administration; due to the low solubility of the drug (~0.1%), it was not possible to establish LD50 for subcutaneous and intraperitoneal administration. It was established that with oral administration of the drug LD50 = 1017 mg/kg, whereas for cobalt chloride LD50 = 473 mg/kg.

Under the influence of the drug at doses of 6.0 mg/kg and 12 mg/kg, the hemoglobin content in peripheral blood increases by 12.5-13.5%. The increase in erythrocytes under the influence of the same doses of «Koask-30» was 1.1-1.2 million per 1 mm3 of blood. It was noted that the drug has a very effective effect on leukopoiesis, the number of leukocytes increases by 5-7 thousand compared to the control.Thus, it has been established that the drug cobalt-30 has a pronounced blood-stimulating effect, is particularly effective in stimulating leukopoiesis and promotes accelerated restoration of the number of leukocytes in the peripheral blood. References: restoration of the number of leukocytes in the peripheral blood.

Conclusions. The results of the conducted studies indicate that the developed methods for mass spectrometric determination of cobalt-30 in tablets exhibit relatively high sensitivity and accuracy and can be used to evaluate drugs based on the following parameters: "Dissolution", "Uniformity of dosing" and "Quantitative determination" Based on the experimental studies conducted, it was

established that the drug «Koask-30» is safe, well tolerated by patients, easy to use, and effectively stimulates leukopoiesis.