STUDY OF ELECTROCHEMICAL TURNING OF THE TRIAZIDE DRUG BY VOLTAMPEROMETRIC METHODS AND MASS SPECTROSCOPY

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"Triazide" – 5-methyl-6-nitro-7-oxo-1,2,4-triazolo [1,5-a] pyrimidine-arginine monohydrate (Fig. 1a) is a new effective antiviral drug of the azolazazine class, which is currently undergoing clinical trials at the Research Institute of Influenza (St. Petersburg). According to published data, preparations containing a nitro group show antiviral activity due to its light reducing ability and the presence of intermediate metabolites of a radical nature, which, interacting with the RNA of the virus, destroy it. Therefore, the study of the recovery process of the drug is a great interest. Electrochemical methods have proven themselves in the study of redox transformations of organic compounds and, in some cases, in combination with other methods, allow the intermediate products of these transformations to be fixed.

We have previously shown [1] that this drug has an irreversible, single-wave process of reducing the nitro group at a potential of about -0.6 V with the addition of 6e in acidic media (pH = 2). The study of the nitro group reduction process using the combined method (electrochemistry / EPR spectrometry) showed the formation of a radical anion at a potential corresponding to the peak of the reduction of the preparation nitro group (Fig. 1b).

Since, aromatic nitro-derivatives, as a rule, are reduced in an acidic medium to the corresponding amines, preparative electrolysis was carried out at a direct current on a glassy carbon electrode in an acidic medium. 5-methyl-6-amine-7-oxo-1,2,4-triazolo [1,5-a] pyrimidine arginine predominates on the mass spectrum of the product recovery of the drug Triazid.

In accordance with the above data, it can be assumed that the reduction of triazide in an acidic medium occurs in one stage with the addition of 6e through the formation of a metabolite of radical nature to 5-methyl-6-hydroxylamine-7-oxo-1,2,4-triazolo [1.5-a] pyrimidine arginine according to the following scheme (Fig. 1c):

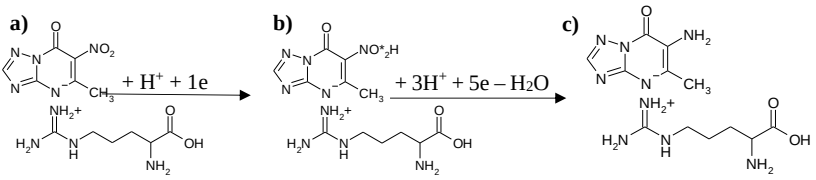

Fig. 1. The scheme recovery drug "Triazid"

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1. A.V. Bausheva, A.N. Tsmokalyuk, K.S. Savateev, E.K. Voinkov, E.N. Ulomsky, A.B. Ivanova, A.N. Kozitsina, V.L. Rusinov / Collection of articles on materials from the Intern. conf.MOBI-ChemPharma 2017. - "Pero", 2017. - 95 p.