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DETERMINATION OF DROTAVERINE HYDROCHLORIDE AT HANGING MERCURY DROP ELECTRODE BY VOLTAMMETRY

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The modern pharmaceutical market is developing rapidly. One of the most popular drugs is considered to be a drug that has an antispasmodic effect. One of the most effctive drugs on the world market is drotaverine hydrochloride – (1- (3,4-diethoxybenzylidene)-6,7-diethoxy-1,2,3,4-tetrahydroisoquinoline) – a drug that has an antispasmodic, myotropic, vasodilator, hypotensive action.

This work presents the conditions for the electrochemical determination of drotaverine hydrochloride for the further development of a method for its quantitative determination in drugs by voltammetry.

In appearance, it is a fine-crystalline powder of light yellow or greenish-yellow color, almost odorless, which is easily soluble in chloroform, soluble in alcohol 96 %, moderately soluble in water.

For experimental studies, a TA-2 voltammetric analyzer (RPE «Tom'analit»,Tomsk, Russia) was used. The electrochemical cell consisted of quartz cups with a volume of 20 cm^3, which were installed in a special hole on the platform of the voltammetric analyzer. used 0.04 M Britton – Robinson buffer pH 2.0. [1] The solvent for the substance was chosen in accordance with the Pharmacopoeia – ethyl alcohol.

In order to find the electrochemical signal of drotaverine hydrochloride, voltammograms were obtained in the potential range from –1.4 to –0.5 V (Fig. 1). According to the results, drotaverine hydrochloride exhibits electrochemical activity only in the cathode region.

The electrochemical signal of drotaverine hydrochloride is sufficiently stable under the given experimental conditions and is suitable for further development of a method for determining the substance.

To determine the authenticity of the substance, the IR spectrum was recorded on an Agilent Technologies Cary 600 instrument in disks with KBr in the range from 4000 to 400 cm – 1 and the position of the absorption bands completely coincided with the spectrum presented in the pharmacopoeial monograph (Fig. 2).

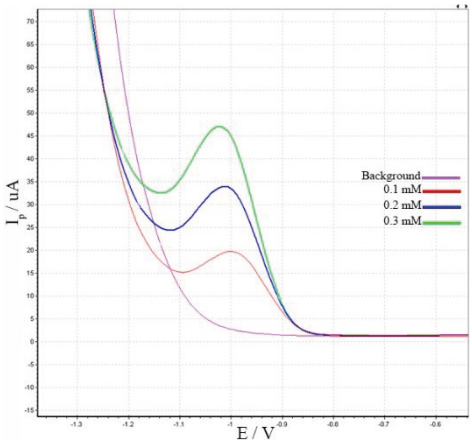

Fig. 1. *Voltammograms of drotaverine hydrochloride reduction on HMDE 0.04 M buffer B-R pH 2.0, W = 100 mV/s*

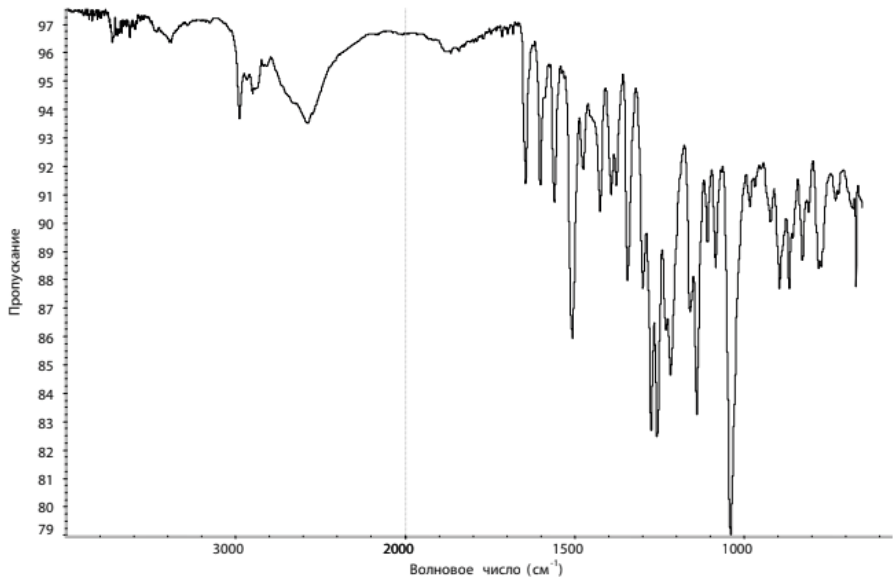

Fig. 2. *IR transmission spectrum of drotaverine hydrochloride*

The proposed method for the determination of drotaverine hydrochloride will be used to develop a method for the quantitative determination of the substance in medicinal preparations.

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DEVELOPMENT AND IMPLEMENTATION OF A PROGRAM OF ACTIONS TO IMPROVE THE QUALITY OF PIPE BRAND POLYPROPYLENE

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Improving the quality of products and productivity of technological lines is one of the main directions for increasing the profitability of the enterprise. In the period from 2017 to 2019, at the propylene polymerization unit, when producing a polymer grade of the PP R003EX brand, negative feedback was received from processors about the fragility of products made from polymer obtained on line B, such as the formation of cavities during production by casting, the formation of a rough surface of products. While in the production of polymers Borealis RA130E, Topilene R200P, Sabic Vestolen 9421 (benchmark), these defects are absent [1].

It was decided to develop and implement a program of measures to improve the quality of the produced random copolymer of ethylene and propylene, PP R003EX. An action plan was implemented to achieve the impact strength indicator above 400 J/cm^2 while maintaining the specified performance parameters and confirmation of the MRS100 certificate [2].