LIQUID CHROMATOGRAPHIC METHOD FOR DETERMINATION OF PICLOXYDINE DIHYDROCHLORIDE IN EYE DROPS

Almasri Husaifa[1], Kryvanych O.V.[2]
Scientific supervisor: A. I. Abu Sharkh[1]
[1]National University of Pharmacy, Kharkiv, Ukraine
[2]SHEI "Uzhhorod National University", Uzhhorod, Ukraine
amjad1977a@gmail.com

Introduction. Treatment and prevention of infection in ophthalmic practice are based on the use of eye drops with antimicrobial effect, such as antibiotics, sulfacetamides, antiseptics and other. It should be noted, there is the problem of antibacterial therapy in ophthalmology, that is relevant due to the increasing resistance of microorganisms of the conjunctival cavity to the antibacterial agents used. And advantage of eye antiseptics over antibiotics is that the former practically do not cause allergies, do not have a systemic effect on the human body, while the latter often give allergic-toxic reactions and other side effects.

Picloxydine is a broad-spectrum antiseptic of the biguanide group, used in ophthalmic practice for the treatment of infectious and inflammatory eye diseases of various etiologies (bacterial, fungal and viral conjunctivitis and blepharoconjunctivitis), as well as for the prevention of infectious complications of the eyes in the postoperative period and with eye trauma.

Despite the broad pharmacological effect, the number of drugs with picloxydine dihydrochloride, but today there aren't monographs in the Pharmacopoeias of the world.

Aim. Aimof this work is to develop method for the determination of picloxydine dihydrochloride in dosage forms.

Materials and methods. Object of research was Picloxydine eye drops 0.5%. For determination of picloxydine dihydrochloride the pharmacopoeial method of liquid chromatography was chosen. Standard solution and drug solutions were prepared by dissolving samples in the mobile phase (mix of 300 ml of acetonitrile and 700 ml of buffer solution pH 3,0). For analysis used column: Luna 5 μm C18 (2) 100 Å, size 250 x 4.6 mm, filled with octadecylsilyl endkeped silica gel for chromatography with a particle size of 5 μm and temperature 40 ^{o}C, flot rate was 1.0 ml / min, detection at a wavelength of 254 nm.

Results and discussion. The selected conditions helped to determine picloxydine dihydrochloride in the dosage form. It has been proven that other components of the dosage form do not interfere with the determination; it can be identified by the retention time, which is 6-7 minutes and coincides with the retention time of the standard sample. To determine the possibility of quantitative assessment

of picloxydine dihydrochloride, the validation characteristic was studied – linearity for the given method, which is observed in the concentration range of the active substance from 20 mg/ml to 30 mg/ml, the systematic error (0,24≤0.40%) and precision were also calculated (1.2057≤maxΔas,%=1.60), the data of which confirmed the correctness of the method.

Conclusions. The method is characterized by linearity, accuracy and precision and can be used to quantify picloxydine dihydrochloride in a dosage form. The results obtained indicate that the dosage forms have been prepared satisfactorily, and the proposed method can be used to assess the quality of the substance and the eye drops with picloxydine dihydrochloride.

DETERMINATION OF POTASSIUM HYDROGEN PEROXOMONOSULPHATE IN DISINFECTANT BY VOLTAMMETRY

Arhbal Ayoub
Scientific supervisor: Mozgova O.O.
National Pharmaceutical University, Kharkiv, Ukraine
elena.mozgovaya25@gmail.com

Introduction. Disinfectant “HYGISEPT" (Farmos Oy, Finland), the active ingredient of which is potassium hydrogen peroxomonosulfate ($KHSO_5$), has bactericidal (sporocidal), virucidal and fungicidal activity. It is widely used in medicine, economics and veterinary medicine as a disinfectant, sterilizer and antiseptic agent.

Aim. The aim of the study was to elucidate the possibility of quantification of potassium hydrogen peroxomonosulfate in the “HYGISEPT” by cathode voltammetry using a rotating carbocital electrode.

Materials and methods. In the experimental work, voltammetric measurements were performed on an AVS–1.1 analyzer (Volta, St. Petersburg) according to the three-electrode scheme in alternating current mode with square-wave modulation of potential in the range +1.0… –1.2 V, W = 1000 rotation/min, amplitude 40 mV, ν = 65 Hz. A carbositall electrode was used as the working and auxiliary one. An electrode of Ag, AgCl/saturated KCl type EVL-1M4 was used as reference one; background was 0.2 mol/L solution of $KHSO_4$ (pH ≈ 2).

Results and discussion. It is shown that the reduction of potassium hydrogen peroxomonosulfate on the indicator electrode (E_p = +0.25V) occurs according to the equation:

$$HSO_5^- + 2e + 2\,H^+ = HSO_4^- + H_2O.$$