TOPICAL ISSUES OF NEW MEDICINES DEVELOPMENT

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4.   The analysis of model solutions showed that the proposed method is capable of detecting hundreds of particles of micrograms of inhibitors to 1 ml.

DEVELOPMENT OF UV-SPECTROPHOTOMETRIC METHOD
OF QUANTITATIVE DETERMINATION OF ANTIDEPRESSANT MOCLOBEMIDE

Buronov F., Baiurka S. V., Karpushyna S. A.
Scientific supervisor: assoc. prof. Baiurka S. V.
National University of Pharmacy, Kharkiv, Ukraine
svitkrp@gmail.com

Introduction. Moclobemide (4-chloro-*N*-[2-(4 morpholinyl)ethyl]benzamide) is a bicyclic antidepressant related to a reversible inhibitor of monoamine oxidase. The drug primarily used to treat depression and social anxiety. Some cases of acute and lethal intoxications caused by moclobemide overdose were reported. Postmortem fluid and tissue distribution of moclobemide were within the range for various cases: blood – 5.62 and 137 mg/L, urine – 204 mg/L, liver – 432 mg/kg. The most of bioanalytical methods for moclobemide determination are based on using HPLC and GLC.

Aim. To develop the simple and sensitive method for moclobemide quantitative determination using UV-spectrophotometry suitable for the chemical and toxicological analysis.

Materials and methods. The UV-spectrum of moclobemide in 0.1 M hydrochloric acid solution was measured over 215–380 nm wavelength range, 10 mm light pathway cuvette was used. The reference solution was 0.1 M hydrochloric acid. Absorption maximum was detected at 238 nm. Stock solution (SS) (20 μg/mL) and 8 working standard solutions (WSS) (2.0; 4.0; 6.0; 8.0; 10.0; 12.0; 16.0 and 18.0 μg/mL) of the drug were prepared.

Results and discussion. The absorption values obtained for the SS and 8 WSS were processed by linear regression method, its general form is described by the following equation: $y=bx+a$. The equation of the regression line was the following: $y=(0.0534\pm0.0009)x-(0.03\pm0.01)\cdot(r=0.9993)$, LOD and LOQ values were of 0.3 μg/mL and 1.1 μg/mL, respectively. They were calculated from the standard deviation of the intercept of the regression (Sa) accordance with the relevant equations: $LOD=3.3Sa/b$ and $LOQ=10Sa/b$. The linearity of the calibration curve was within the range of moclobemide concentrations from 2.0 to 20 μg/mL. The "intra day" and "inter day" accuracy and precision were respectively 101.54 and 101.47% (RSD 2.19 and 2.18%) at the low concentration level of the analyte, 100.30 and 100.04% (RSD 1.47 and 1.23%) at the middle concentration level, 99.62 and 99.87% (RSD 1.47 and 1.46%) at the high concentration level.

Conclusions. Thus, the UV-spectrophotometric method developed satisfies the requirements of the chemical and toxicological analysis by the sensitivity and can be used in toxicological study of the biological samples for presence of moclobemide.

DEVELOPMENT OF THE METHODS
OF AMISULPRIDE DETECTION AND QUANTITATIVE DETERMINATION SUITABLE
FOR THE CHEMICOTOXICOLOGICAL ANALYSIS

Dumanov S. A., Baiurka S. V., Karpushyna S. A.
Scientific supervisor: assoc. prof. Baiurka S. V.
National University of Pharmacy, Kharkiv, Ukraine
stas.dum@gmail.com

Introduction. Amisulpride (4-amino-*N*-[(1-ethylpyrrolidin-2-yl)methyl]-5-ethylsulfonyl-2-methoxybenzamide) is an antipsychotic drug. Numerous cases of lethal intoxications caused by amisulpride overdose were reported in the literature.

Aim. To develop sensitive and accessible methods for amisulpride detection and quantitative determination with help of colour reactions, thin layer chromatography (TLC) and UV-spectrophotometry.