

QUANTIFICATION OF FUROSEMIDE BY THE METHOD OF SPECTROPHOTOMETRY

Orobia P., Taran K. A.

National University of Pharmacy, Kharkiv, Ukraine

kate.taran@gmail.com

Introduction. The investigations that are carried out at the Pharmaceutical Chemistry Department of National University of Pharmacy are targeted on the search of easy and least time consuming methods of analysis of pharmaceutical preparations. Furosemide (4-chloro-2-[(furan-2-ylmethyl)amino]-5-sulphamoyl-benzoic acid) is a most commonly used loop diuretic prescribed for the treatment of acute and chronic diseases of different etiology. The assay of furosemide by the European Pharmacopoeia, the Britain Pharmacopoeia, and the State Pharmacopoeia of Ukraine is carried out by the method of non-aqueous acid-base titration that needs the special equipment and usage of organic solvents.

Aim. The aim of our work was to check the possibility of usage of ultraviolet spectrophotometry for the quantification of furosemide and to develop a new practical procedure for its assay. The work was also targeted on the search of suitable solvents for the spectrophotometric determination.

Materials and methods. We used the analytical balance Axis ANG-200 and the measuring glass wear of class A. For the spectrophotometric investigations we used the spectrophotometer Evolution 60S. The statistical studies were carried out by the common procedure.

The electron absorption spectra of furosemide in different solvents were studied. It was found that its spectra in ethanol, sodium hydroxide solution and hydrochloric acid solution have three absorption maxima in the range 200-400 nm. The ratios of the values of absorbance in the second and the first maximum were calculated.

The specific absorbance of furosemide in alcoholic solution in the maximum at 283 nm was calculated. Its metrological characteristics were determined.

The procedures for the spectrophotometric quantification of furosemide by the methods of specific absorbance and the method of standard were developed. The validation characteristics that prove the possibility of the suggested methods for the assay of furosemide were obtained.

Results and conclusion. The simple UV spectrophotometric method for the assay of furosemide has been developed. It is proved to be easy enough and provides good accuracy of the results that is why it can be used in the pharmaceutical analysis for the quantitative analysis of furosemide.