COMPARATIVE CHARACTERISTICS OF METHODICS FOR THE QUANTITATIVE DETERMINATION OF SMALL CONCENTRATIONS OF CITRIC ACID

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The proposed work continues to research conducted at the Department of Analytical Chemistry for the development of methodics of quantitative determination of low concentrations of drug substances and intermediates for their synthesis. The purpose of this study was a comparative evaluation of the previously proposed methodics of a quantitative determination of low concentrations of citric acid photometric method of analysis.

Field of use of citric acid (CA) in medical practice in low concentrations (0.2%) is varied: CA is part of the drug as the correlation of taste, as a mandatory supplement along with the enzymes (0.5 to 20%) is introduced into composition of oral, parenteral, rectal dosage form for the treatment of diseases of the circulatory system and digestive system - diabetes, nephritis, hepatitis, pancreatitis, hypertension and others. CA and sodium citrate is used as anticoagulant for preservation of blood, and is a part of beauty.

CA is one well-studied compounds. In high concentrations State Pharmacopoeia of Ukraine regulates Alkalimetric determination of citric acid monohydrate (titrant - a solution of sodium hydroxide, phenolphthalein indicator). We will be of interest to reproduce the proposed methodics of the direct and indirect determination of low concentrations of CA photometric method of analysis, statistical process of the results, check for meaningful bias (by Student), to compare the reproducibility of two photometric methodics by Fisher.

For comparative evaluation techniques it was selected direct photometric determination with CA Ferum(III)-ions at a wavelength $\lambda max = 420 \pm 10$ nm, and the indirect determination CA, based on the interaction of excess ions Ferum(III), not reacted with citrate ions from solution ammonium thiocyanate at $\lambda max = 490 \pm 10$ nm (calibration curve method, the correlation coefficients r = - 0,9850, r = 0,9931, respectively). According to the results of the calculation of the Student both techniques are burdened by systematic error, and methodic of direct photometric determination by Fischer is more reproducible.