VERIFICATION OF THE SPECTROPHOTOMETRIC QUANTITATIVE DETERMINATION METHOD OF RIBOFLAVIN IN SUBSTENCE

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Riboflavin (Vitamin B2) takes an important part in the process of carbohydrate, protein and fat metabolism, also plays an important role in maintaining normal visual function of the eye and in the synthesis of hemoglobin. The chemical structure of riboflavin (6,7-dimethyl-9-(D-1-rybityl)-izoalloksazyn) allows to quantitatively determine the substance by the following methods: spectrophotometry, photocolorimetry, fluorymetry, alkalimetry.

The literature review revealed the fact that today new methods of quality control for riboflavin methods have been developing: HPLC, electrophoretic extraction, voltammetric. In pharmacopoeial analysis for quantitative determination of riboflavin in substance European Pharmacopoeia, The State Pharmacopoeia of Ukraine (SPhU), the British Pharmacopoeia proposes absorption spectrophotometry method according to the specific absorbance. According to the SPhU, quantitative determination of riboflavin in substance is produced by the spectrophotometry method according to the specific absorbance in a buffer solution at a wavelength of 444 nm. Riboflavin content is calculated using the specific absorption, which is equal to 328. The aim of our work is verification of the spectrophotometric quantitative determination method of riboflavin by specific absorbance.

Characteristics and criteria of acceptability of quantitative determination method of riboflavin such as nominal concentration of the substance in solution by the method, nominal absorbance and requirements for its minimum value, maximum uncertainty of analysis techniques have been theoretically calculated. The linearity parameter was studied at 9 points. The linear dependence graph was constructed in normalized coordinates. Values of b, s_b, a, s_a, RSD_0 and r comply with the parameters of the linear dependence. In the study of the accuracy of parameter systematic error made δ=0,72%, which meets $\delta \leq 1{,}00\%$. The study of convergence of the relative confidence interval Δ_{As}=0,83% does not exceed the critical value for of convergence results Δ_{As}=0,96%.

Validational characteristics of the methods do not exceed the critical value of the error and are characterized by qualitative analytical indicators. This method can be correctly reproduced in the laboratory.