# Extraction-photometric analysis in a laboratory experiments of chemical disciplines

V.U. Zhylko, N.V. Nekhan
Belarusian State University, Minsk, Belarus, e-mail: *zhylko@tut.by*

In the state standards of higher education of natural science and technical areas of training, as well as in a number of relevant professional standards, competence in the field of analytical chemistry is indicated as one of the main qualification characteristics of a university graduate of the corresponding profile. This is due to the interdisciplinarity of analytical chemistry and a wide range of applications of analysis methods, which are used not only directly in chemical production, but also in energy, construction, metallurgy, materials science, standardization, certification and many other areas.

One of the popular methods of chemical analysis in industrial and scientific laboratories is the extraction-photometric method of quantitative analysis, for example of higher carboxylic acids. We have developed a new rapid, accurate and inexpensive method for the determination of such acids with the cationic dye pyronine G.

Based on our experimental data, we have developed laboratory experiments that will allow students to get acquainted with the extraction, learn how to work with a UV spectrophotometer, decode spectra, build calibration plots, and determine higher carboxylic acids in real samples.

The main advantages of using extraction-photometric analysis in the educational process are immediately visible. It makes it possible to simultaneously study and apply in practice both methods of extraction and concentration - extraction, and optical methods of analysis - molecular photometry. After completing the work, students gain experience in combining various methods to obtain the final result, which allows them to expand their horizons and move to a qualitatively new level of research and analysis. The laboratory experiments developed by us have been introduced into the laboratory practice in the disciplines "Analytical chemistry", "Modern methods of obtaining and research of substances" for students of a pedagogical profile (BSPU named after M. Tank), it is also possible to use it for students of agricultural, medical and technical profiles.