

## **Methods of analysis of carbohydrates, nitrogen- and phosphorus-containing compounds**

1. Lecturer: Tymoshenko Volodymyr Fedorovych, associate professor of the department of plant and microorganism physiology and biochemistry.
2. Status: optional for bachelors.
3. Course, semester: 4th academic year, 7th semester.
4. Number of credits – 4, general academic hours – 144, labs – 90; self-study – 54.
5. Preliminary requirements: basics of Biochemistry, Plant Physiology and Biochemistry
6. Description of the course: special lab practice provides knowledge and skills of biochemical and physiological methods of plant investigation; after the course students should learn how to carry out research work, gain practical skills in analysis of carbohydrate, nitrogen and phosphorus compounds, and the study of physiological and biochemical processes in plant organs, tissues and cells.

Parts: 1) analysis of carbohydrates; 2) analysis of nitrogen-containing compounds, electrophoresis; 3) analysis of phosphorus compounds.

### Knowledge and skills:

- knowledge of carrying out a laboratory work;
  - knowledge of methods of carbohydrate content analysis, analysis of nitrogen and phosphorus compounds;
  - knowledge of principles of electrophoretic separation techniques of protein mixtures;
  - skills to organize work in the laboratory: choose the best method to prepare and carry out an experiment and to analyze the results.
7. Course organization, forms of control: writing tests, laboratory classes, writing final test.
  8. Educational and methodological support: program, work plan, educational and scientific literature, laboratory equipment and reagents.
  9. Language of teaching: Ukrainian.

### References:

1. *Молекулярно-генетические и биохимические методы в современной биологии растений* / под ред. Вл.В. Кузнецова, Г.А. Романова. – М.: БИНОМ. Лаборатория знаний, 2012. – 487 с.
2. *Чиркин А.А.* Практикум по биохимии. – Минск: Новое знание, 2002. – 512 с.
3. *Пустовалова Л.М.* Практикум по биохимии. – Ростов-на-Дону: Феникс, 1999. – 541 с.
4. *Землянухин А.А.* Большой практикум по физиологии и биохимии растений. – Воронеж: Изд-во Воронежского ун-та, 1996. – 186 с.
5. *Починок Х.И.* Методы биохимического анализа растений. – Л.: Колос, 1976. – 234 с.