

Level: PhD				
Course title: Biochemistry and pharmacology of medicinal plants (DSB703)				
Status: elective				
ECTS: 15				
Requirements: none				
Learning objectives The aim of this course is to: (1) provide integrated knowledge of biochemical processes related to certain classes of biologically active compounds in medicinal plants, regulation mechanisms of their biosynthesis and their pharmacological effects, (2) introduce students to the latest achievements in the field of medicinal plants research and the most advanced techniques and methods used in structural analysis and biochemical and pharmacological studies of complex plant extracts.				
Learning outcomes After completing the course, the student is able to: (1) demonstrate knowledge of the structure, metabolism and biological activities and pharmacological importance of plant secondary biomolecules, (2) predict the possible biological activity of plants and their products on the basis of chemical composition, (3) critically evaluate scientific papers in the field of medicinal plants research, on the basis of acquired knowledge, (4) create original experiment and present the results in the way that they can be published in peer-reviewed scientific journals.				
Syllabus <i>Theoretical instruction</i> Current trends in phytotherapy. Secondary biomolecules as bioactive principles of medicinal plants. Relations between primary and secondary metabolism in plants. Regulation of secondary metabolism. Physiological, ecological and taxonomic importance of secondary plant biomolecules. The main biosynthetic pathways and building blocks of secondary biomolecules. Phenols: shikimates and polyketides, terpenoids: mono- and sesquiterpenes, essential oils, diterpenes, triterpenes (steroids and saponins), polyterpenes; alkaloids formed from ornithine and lysine, nicotinic acid, phenylalanine and tyrosine, tryptophan, etc.. Pharmacological effects and toxicity of bioactive molecules. Modern clinical and pharmacological studies of herbal medicines. The interest of the developed countries in the traditional medicine of the Third World.				
Weekly teaching load				Other: /
Lectures: 5	Exercises: /	Other forms of teaching: /	Student research: 5	