

(Table 5.2) Course unit description

Study program: Chemistry			
Type and level of studies: Doctoral academic studies in Chemistry			
Course unit: Plant biochemistry			
Teacher in charge: Vladimir Mihailović, PhD, Assistant Professor			
Language of instruction: English			
ECTS: 10			
Prerequisites: Students should be enrolled in the doctoral academic studies in Chemistry			
Semester: Optional (Winter or Summer semester)			
Course unit objective The course is based on the fact that our living world is based on the existence and biochemistry of plants. In this sense, the course will familiarize the student with the organization of the cell, the biochemical reactions of plants, the energy metabolism and the secondary metabolism of plants.			
Learning outcomes of Course unit Use of plants as food resources. Application of plants as sources of various physiologically active compounds. Application of plants as an indicator of the state of the environment. Application of plants in the processes of revitalization of disturbed ecosystems. Ability to form topics and content for independent scientific and professional work in this field. Application of plants in multidisciplinary research with a special emphasis on the importance of their quality and quantity in human nutrition from the aspect of knowledge of biochemical composition and biochemical reactions of plants.			
Course unit contents <i>Theoretical classes:</i> Structure and functions of plant cell. Biochemical systematics of plants. Macromolecules in plants systematics. Secondary metabolites of plants. Plant biosynthesis pathways of: fatty acids, alkanes, polyacetylenes, terpenes, aromatic and aliphatic volatile compounds, iridoids, sesquiterpenes lactones, sulfur compounds, alkaloids, cyanogenic glycosides, shikimate pathway, aromatic amino acids, phenolic compounds, flavonoids. Photosynthesis. Respiration. Phytohormones. <i>Practical classes:</i> /			
Literature			
<ol style="list-style-type: none"> 1. P.M. Dewick, <i>Medicinal Natural Products: A Biosynthetic Approach</i>, 3rd ed., John Wiley & Sons, UK, 2009. 2. T.W. Goodwin, E.I. Mercer, <i>Introduction to plant biochemistry</i>, Pergamon press, 1983. 3. W. Vermerris, R. Nicholson, <i>Phenolic compound biochemistry</i>, Springer, Dordrecht, The Netherlands. 2006. 4. L. J. Cseke, A. Kirakosyan, P. B. Kaufman, S. L. Warber, J. A. Duke, H. L. Brielmann, <i>Natural Products from Plants</i>, CRC Press Taylor & Francis Group, 2006 			
Number of active teaching hours			Other classes:
Lectures:5	Practice: 0	Other forms of classes: Independent work:	
Teaching methods			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points	Final exam	No. of points
Practical classes	/	Written examination	20

Tests	/	Oral examination	30
Homework	/	Other	/
Seminars	20		
Project	30		
Grading system			
Grade	No. of points		Description
10	≥ 91		Excellent
9	81-90		Exceptionally good
8	71-80		Very good
7	61-70		Good
6	51-60		Passing
5	≤ 50		Failing