

<b>Study Programme:</b> Doctoral Academic Studies in Biochemistry
<b>Course Unit Title:</b> Biochemistry of natural polyphenolic compounds
<b>Course Unit Code:</b> DSB-609
<b>Name of Lecturer(s):</b> full professor, Neda Mimica-Dukić, assistant professor Emilija Svirčev
<b>Type and Level of Studies:</b> PhD degree
<b>Course Status (compulsory/elective):</b> elective
<b>Semester (winter/summer):</b> winter
<b>Language of instruction:</b> English
<b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face
<b>Number of ECTS Allocated:</b> 15
<b>Prerequisites:</b> None
<p><b>Course Aims:</b></p> <p>The aim of this course is to provide integrated knowledge of the metabolic fate, chemical structure and pharmacological and biological significance of phenolic compounds from plants. Introducing students to the latest laboratory and instrumental techniques used in chemical and biochemical studies of this class of secondary biomolecules.</p>
<p><b>Learning Outcomes:</b></p> <p>Upon completion of the course, students are expected to demonstrate broad knowledge of chemical diversity, metabolic fate, distribution and role of phenolic compounds in the metabolism of plants and their pharmacological activities, biological availability and use in modern medicine. In addition, students will be able to use complex instrumental methods for biochemical and chemical analysis of complex mixtures of phenolic compounds.</p>
<p><b>Syllabus:</b></p> <p><i>Theory</i></p> <p>Biosynthesis of phenolic compounds and secondary transformation (hydroxylation, glycosylation, methylation, acetylating et al.). Catabolism of phenolics in plants, animals and microorganisms. Distribution and biological functions of polyphenols in plants. Pharmacological activities of plant phenolics and application in modern phytotherapy. Dietary polyphenols. The antioxidant properties of plant phenolics. Methods for isolation and separation of phenolics compounds. Instrumental techniques in analysis of phenolic compounds.</p> <p><i>Practice</i></p> <p>Independent student's laboratory work in the frame of scientific research project related to the study of the composition and biological activities of polyphenolic compounds in plants.</p>
<p><b>Required Reading:</b></p> <ol style="list-style-type: none"> <li>1. Dewick.,P.M.: Medicinal Natural Products: A Biosynthetic Approach. 3rd Edition. Wiley, 2009.</li> <li>2. Flavonoids and Other Polyphenols. In Methods in Enzymology. Volume 335. Edt.Lester Packer. Academic press. 2001.</li> <li>3. Samuelsson, G: Drugs of natural Origin. 6<sup>th</sup> Edition Swedesh Pharmaceutical Press. 2009.</li> <li>4. Markham, K.: Techniques of flavonoids identification. Academic Press, 1982.</li> <li>5. Wagner H., Blatt S. Plant Drug Analysis. 2nd Edition. Springer-Verlag, Berlin, 2009</li> <li>6.</li> </ol>

<b>Weekly Contact Hours:</b> 10 (150)	<b>Lectures:</b> 5 (75)	<b>Practical work:</b> 5 (75)	
<b>Teaching Methods:</b> consultative teaching, research project, seminars, journal club			
<b>Knowledge Assessment (maximum of 100 points):</b> 100			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation		written exam	
Research project	50	oral exam	50
Preliminary exam(s)		.....	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			