

<b>Study Programme:</b> Doctoral Academic Studies in Biochemistry
<b>Course Unit Title:</b> Biochemistry and pharmacology of medicinal plants
<b>Course Unit Code:</b> DSB-703
<b>Name of Lecturer(s):</b> full professor, Neda Mimica-Dukić, assistant professor Nataša Simin.
<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: (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.</p>
<p><b>Learning Outcomes:</b></p> <p>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.</p>
<p><b>Syllabus:</b></p> <p><i>Theory</i></p> <p>Secondary biomolecules as bioactive principles of medicinal plants. Relationship between primary and secondary metabolism in plants. Regulation of secondary metabolism. The main biosynthetic pathways of secondary biomolecules: alkaloids, phenols and polyphenols, and terpenoids. Pharmacologically active primary biomolecules. 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.</p> <p><i>Practice</i></p> <p>Comprises student's independent experimental work in the frame of the research project in the field of phytochemistry and biochemistry of medicinal plants.</p>
<p><b>Required Reading:</b></p> <ol style="list-style-type: none"> <li>1. Triangali C (Edt.) Bioactive compounds from natural sources. Taylor and Francis, London, Ne York, 2001. Austin, 1999.</li> <li>2. N.G. Bisset, M. Wichtl: Herbal Drugs and Phytopharmaceuticals. CRC Press, Boca Raton, London, New York, Washington D.C., 2001</li> </ol>

3. WHO Monographs, Vol. 1 и Vol. 2. World Health Organization, Geneva,
4. P.M. Dewick. Medicinal Natural Products. A Biosynthetic Approach. John Wiley & Sons, 2009.
5. M. Heinrich, J. Barnes, S. Gibbons, E. Williamson: Fundamentals of Pharmacognosy and Phytotherapy. Elsevier, Churchill Livingstone, Edinburgh, London, 2012.
6. Aboul-Enein Hassan: Analytical and preparative methods of Biomacromolecules. Marcel Dekker In.1999. Manuchair Ebady: Pharmacodynamic Basis of Herbal Medicine (Hardcover) 2nd Edition: By Manuchair Ebadi PhD FACCP. Published by CRC Press, 2002.

<b>Weekly Contact Hours:</b> 10 (150)	<b>Lectures:</b> 5 (75)	<b>Practical work:</b> 5 (75)
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**Teaching Methods:** consultative teaching, research project, seminars, journal club

**Knowledge Assessment (maximum of 100 points):** 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.