

<b>Study Programme: Landscape architecture</b>			
<b>Course Unit Title: Active principles of ornamental plants</b>			
<b>Course Unit Code: 3OPA1O03</b>			
<b>Name of Lecturer(s): Prof. dr Djordje Malenčić, Assist. Prof. dr Jovana Šučur</b>			
<b>Type and Level of Studies: Undergraduate academic studies</b>			
<b>Course Status (compulsory/elective): compulsory</b>			
<b>Semester (winter/summer): winter</b>			
<b>Language of instruction: english</b>			
<b>Mode of course unit delivery (face-to-face/distance learning): face-to-face</b>			
<b>Number of ECTS Allocated: 6</b>			
<b>Prerequisites: none</b>			
<b>Course Aims:</b> To gain knowledge on molecular aspects and ecological of aesthetic characteristics of plants. Study on secondary biomolecules in ornamental plants of interest to their visual attractiveness and aromatic and toxic properties.			
<b>Learning Outcomes:</b> The contribution of new knowledge in the field of plant biomolecules of interest to ornamental plants.			
<b>Syllabus:</b> <i>Theory</i> Plant pigments and their significance in Landscape architecture. Biochemical and ecological role of the flower color and scent. Plant plastids. Chlorophylls and carotenoids. Phycobillins. Senescence of pigments. Secondary biomolecules of the plants (natural products). Plant phenolics (phenolic acids and phenylpropanoids, coumarines, flavonoids (anthocyanins); Terpenoids – iridoids, mono- and sesquiterpenes (essential oils). Plant toxins: alkaloids, cyanogenic glycosides, glucosinolates, cardenolids, aflatoxins. <i>Practice</i> Determination of essential oil content and composition in different coniferous species. Methods of identification of essential oils. Isolation and determination of total alkaloids in <i>Mahonia</i> fruits. Determination of carotenoids using column chromatography. Isolation and determination of total phenolics and tannins in plant material. Determination of flavonoids using metal complex with AlCl <sub>3</sub> . Separation of chloroplast pigments and spectrophotometrical measurement of content. Anthocyanins content in flowers of ornamental <i>Salvia</i> species. Field trip (collection of plant material for experimental work, visit to flower market).			
<b>Required Reading:</b> 1. Dr Milan Popović , Dr Đorđe Malenčić: Aktivni principi ukrasnog bilja (Active principles of ornamental plants), Faculty of Agriculture, Novi Sad, 2006. 2. Jeffrey B. Harborne : Introduction to Ecological biochemistry, 4 <sup>th</sup> edition, Elsevier, London, 1994			
<b>Weekly Contact Hours: 4</b>	<b>Lectures: 2</b>	<b>Practical work: 2</b>	
<b>Teaching Methods:</b> Lectures, practical classes, consultations, field trip, research work (optional)			
<b>Knowledge Assessment (maximum of 100 points): 100</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class	5	written exam	30

participation			
Practical work	5	oral exam	50
Preliminary exam(s)		.....	
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			