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| Course: | *Plant biochemistry* |
| Course id: *različit na svakom smeru* |
| Number of ECTS: 6 |
| Teacher: | Prof. dr Đorđe Malenčić |
| Course status | Mandatory |
| Number of active teaching classes (weekly) |
| Lectures: 3 | Practical classes: 3 | Other teaching types: student`s papers (seminar) | Study research work: yes | Other classes: - |
| Precondition courses | None |
| 1. Educational goal

To gain knowledge on molecular aspects of biochemical processes and interactions in plants. Study on primary and secondary biomolecules in plants and their metabolism.  |
| 1. Educational outcomes

The contribution of new knowledge in the field of Plant biochemistry. |
| 1. Course content

Theory: Chemical composition of plant organs and tissues. Primary biomolecules – properties, structures and function in plants (amino acids, peptides and proteins, enzymes, coenzymes, vitamines, phytohormones, carbohydrates, lipids and nucleic acids). Metabolism of primary biomolecules and bioenergetics (metabolism of amino acids and proteins, metabolism of carbohydrates, lipids and nucleic acids). Plant membranes and transport of metabolites. Respiratory electron-transport chain and oxidative phosphorilation. Secondary biomolecules - properties, structures, function and metabolism in plants. Practical classes: Proteins (qualitative reactions, determination of isoelectrical point of amino acids and proteins); Enzymes (effect of temperature, pH, substrate and enzyme concentration on enzyme activity, kinetics of enzyme reactions, antioxidant enzymes activity); Carbohydrates (qualitative reactions, determination of aldoses in plant material); Оrganic acids (determination of total acidity in apple fruit); Lipids (detemination of saponification and iodine number of plant oils); Vitamins and provitamins (determination of vitamin C in kiwi and paprika fruits, and carotenoids in carrot roots); Isolation of essential oils from plant herba and separation of compounds using thin-layer chromatography, TLC); Glycolysis and alcoholic fermentation. |
| 1. Teaching methods

Lectures, Practical classes, Consultations, research work (optional) |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam | Mandatory | Points |
| Lecture attendance | Yes | 5 | Oral part of the exam-tasks and theory | Yes | 60 |
| Exercise attendance | Yes | 5 |  |
| Test, Term paper | Yes | 30 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Dr Milan Popović | Biohemija biljaka(Plant biochemistry) | Poljoprivredni fakultet, Novi Sad(Faculty of agriculture, Novi Sad) | 2008. |
|  | Dr Đorđe Malenčić, dr Milan Popović | Praktikum iz Biohemije biljaka (Plant biochemistry handbook) | Poljoprivredni fakultet, Novi Sad(Faculty of agriculture, Novi Sad) | 2011. |
|  | P.M. Dey & J.B. Harborne | Plant biochemistry | Academic Press, London | 1997. |

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| Znak univerziteta | UNIVERSITY OF NOVI SADFACULTY OF AGRICULTURE 21000 NOVI SAD, TRG DOSITEJA OBRADOVIĆA 8 | Znak fakulteta2 |
| Study Programme AccreditationUNDERGRADUATE ACADEMIC STUDIES Crop science, Fruit science and viticulture, Horticulture, Phytomedicine, Аgricultural ecology and environment protection and Organic agriculture |
| Table 5.2 Course specification |
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