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|---|---|---|---|
| **Course ID:** HOA301 | **Course name: METHODS FOR DETERMINATION OF ANTIOXIDANT ACTIVITY** | | |
| **Cycle: FIRST** | **Year: THIRD** | **Semester: V** | **ECTS credits: 2** |
| **Course status: ELECTIVE** | | **Total course hours: 2**<br>Lectures: 15<br>Laboratory: 15 | |
| **Teaching participants:** | **Teachers and associates with expertise in the field to which the subject belongs** | | |
| **Prerequisite for enrollment:** | NO | | |
| **Course aims:** | Introduction to the structure of free radicals. Description of methods for determination of antioxidant activity and reaction mechanisms of free radicals and antioxidants | | |
| **Thematic course units:** | 1. Free radicals in chemistry, definition, classification and reactivity.<br>2. Antioxidants<br>3. Oxidative stress<br>4. Methods for determination of antioxidant activity by neutralizing free radicals - DPPH; ABTS; DMPD; Galvinoxyl; ORAC<br>5. Methods for determination of antioxidant activity by reduction of ions of transition metal - Fe (III); Mo (VI); Cu (II)<br>6. Methods for determination of antioxidant effect by chelation - Fe (II); Cu (I) | | |
| **Learning outcomes:** | Knowledge:<br>The student has acquired knowledge about the types of free radicals and methods for determining antioxidant activity<br>Skills:<br>The student can apply various methods for determining antioxidant activity.<br>Competences:<br>The student is able to independently apply the acquired knowledge in order to determine the antioxidant activity of compounds or heterogeneous samples by different methods. | | |
| **Teaching methodology:** | Classroom lectures and laboratory exercises | | |

**Assessment methods and grading system[1]:**

| Grading criteria | | |
|---|---|---|
| Criteria | Maximal score | Required score |
| 1. Class attendance | 5 | 3 |
| 2. Class activities | 10 | 5 |
| 3. Midterms | 45 | 25 |
| 4. Final exam | 40 | 22 |
| Total | 100 | 55 |

| Scores and grading | | |
|---|---|---|
| Score | Grade (B&H) | Grade (ECTS) |
| < 55 | 5 | F, FX |
| 55–64 | 6 | E |
| 65–74 | 7 | D |
| 75–84 | 8 | C |
| 85–94 | 9 | B |
| 95–100 | 10 | A |

**Literature[2]:**

Mandatory literature:

1. Cadenas, E., Packer, L., (2002) Handbook of Antioxidants, Marsel Dekker Inc., New York.

Supplementary literature:

1. Halliwel, B., Gutteridge, J., (2004) Free Radicals in Biology and Medicine, Oxford University press.

[1] The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

[2] The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton