Univerza v Mariboru
University of Maribor

Medicinska fakulteta
Faculty of Medicine

OPIS PREDMETA / SUBJECT SPECIFICATION	
Predmet:	Nutracevtiki in tehnologija
Subject Title:	Nutraceuticals and technology

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Biomedicinska tehnologija Biomedical technology		2	**3 ali 4**

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	20		10		105	**5**

Nosilec predmeta / Lecturer: Prof.dr. Mojca Škerget

Jeziki / Languages:
Predavanja / Lecture: Slovenščina / Slovene
Vaje / Tutorial: Slovenščina / Slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Kandidat mora doseči 300 ECTS na predhodnem študiju.	Graduate degree 300 ECTS

Vsebina:	**Contents (Syllabus outline):**
Vrste, viri, pridobivanje, lastnosti in delovanje naravnih bioaktivnih komponent z antioksidativnim, antimikrobiološkim in farmakološkim delovanjem za uporabo v prehrambni, kozmetični, predvsem pa v farmacevtski oziroma fitofarmacevtski industriji. Vsebina: - identifikacija spojin z antioksidativnim, antimikotičnim ali farmakološkim učinkom (fenolne spojine, terpenoidi, steroidi, alkaloidi,...). - postopki izolacije in koncentriranja aktivnih učinkovin (ekstrakcija, kromatografija,...) - vpliv (zdravilne) substance na pojav boleznini in možnosti zdravljenja ter vrste testiranj (predklinični klinični testi) - predklinična testiranja: različni testi antioksidativne učinkovitosti npr. Rancimat test, peroksidno število, anizidinsko število, BCB test (¤-carotene bleaching test), DPPH test (free radical scavening capacity), testiranja antimikrobiološkega delovanja npr. z merjenjem radialne rasti plesni na PDA agarju in z merjenjem optične gostote bakterijskih suspenzij.	Type, source, separation methods, properties and activity of natural bioactive compounds with antioxidative, antimicrobiological and pharmacological activity for the use in food, cosmetic and especially in pharmaceutical or phytopharmaceutical industry. Content: - identification of substances with antioxidative, antimicotic or pharmacological activity (phenolic compounds, terpenoids, steroids, alkaloids,...) - influence of health substances on occurrence of sickness and healing possibilities and types of activity tests (pre-clinical and clinical tests). - Pre-clinical tests: various antioxidant activity tests: e.g. Rancimat test, peroxide value, anisidine value, BCB test (¤-carotene bleaching test) and DPPH test (free radical scavenging capacity), antimicrobiological capacity tests: e.g. measuring the radial growth on PDA plates and measuring the optical density of bacterial suspension by densitometry.

Temeljni študijski viri / Textbooks:

- J.Bruneton, Pharmacognosy. Phytochemistry. Medicinal Plants, 2nd ed., Lavoisier Publishing, Paris, 1999.
- A.Y.Leung, S. Foster, Encyclopedia of common natural ingredients used in food, drugs and cosmetics. 2nd ed., Wiley, New York, 1996.
- H.D. Belitz, Food Chemistry, Springer Verlag, Berlin, 1999.
- J. Buttriss, M. Saltmarsh, eds., Functional foods II: claims and evidence, Cambridge: Royal Society of Chemistry, 2000
- R.J. Lewis, Food additives handbook, Van Nostrand Reinhold, New York, 1989.
- S.W. Souci, W. Fachmann, H. Scherz, F. Senser, K. Heinrich, Food composition and nutrition tables. 6th ed., Stuttgart: Medpharm, Boca Raton, London: CRC, 2000.

Cilji:	**Objectives:**
Integracija načel kemije, biologije, medicine in inženirstva s ciljem spoznati naravne produkte, ki pozitivno vplivajo na človeško zdravje (nutracevtiki), metode njihove izolacije, področja uporabe, kot tudi njihove vplive na zdravje in testne metode.	Integration principles of chemistry, biology, medicine and engineering with the aim to recognize natural products, which have positive influence on human health (nutraceuticals), the isolation methods, possible areas of application, as well as their influence on the health and test methods.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Postopki izolacije in koncentriranja aktivnih učinkovin, vpliv zdravilnih substanc na pojav bolezni Prenesljive/ključne spretnosti in drugi atributi: Študent obvlada predklinična testiranja, npr. BCB test, merjenje optične gostote bakterijskih suspenzij.	Knowledge and Understanding: Procedures of isolation of active ingredients, impact of medicinal substances on phenomenon of disease Transferable/Key Skills and other attributes: Student restrains pre – clinical testing, e.g. BCB test, measuring of optical density bacteriological suspensions.
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Študijski primeri v zadnjem času razvitih nutracevtikov Laboratorijsko delo v okviru projektne naloge	Lectures Study examples of the recently developed nutraceuticals Laboratory work in the frame of project exercise

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) Ustno izpraševanje, projekt		Type (examination, oral, coursework, project): Oral, project

Materialni pogoji za izvedbo predmeta :	***Material conditions for subject realization***
Predavalnica, laboratorij	*Lecture room, laboratory*

Obveznosti študentov:	***Students' commitments:***
(pisni, ustni izpit, naloge, projekti)	*(written, oral examination, coursework, projects):*
Projektna naloga, ustni izpit	Project, oral examination