



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Plants in human diet

Educational subject description sheet

Basic information

Field of study Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes)		Didactic cycle 2024/25	
Speciality -		Subject code PWMPWM2S_D.B100000.00802.24	
Organizational unit Course Offer for exchange students		Lecture languages english	
Study level second cycle studies, including uniform master studies (MA programmes)		Mandatory Elective subjects	
Study form full-time studies		Block Major subjects	
Education profile General academic		Disciplines Agriculture and horticulture	
Coordinator	Anna Geszprych		
Teacher	Anna Geszprych		
Period Winter semester	Examination Pass with grade	Number of ECTS points 3	
	Activities and hours Laboratory exercises: 30		

Goals

Code	Goal
C1	The aim of the course is to increase students' awareness of the effect of the diet rich in products of plant origin (esp. vegetables, fruits, spices) on health maintenance, including the reduction of the risk of lifestyle diseases. Special attention will be called to plant substances known as antioxidants, which are expected to play an important role in the prevention of majority of these diseases. Other mechanisms of health-promoting effects of plant components of the diet will also be discussed. The undesirable effects of some plant constituents will be mentioned.

Entry requirements

Student knows main species of fruit, vegetable and medicinal plants, and possesses basic knowledge on plant active substances.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	health-promoting properties of plant products and their active substances.		Presentation, Test (written or computer based), Assessment of activity during classes
W2	mechanisms of action of plant antioxidants and their potential role in reducing the risk of lifestyle diseases.		Test (written or computer based)
Skills - Student can:			
U1	critically analyse source texts concerning health-promoting properties of plant substances and products, and prepare a presentation on this subject.		Presentation
U2	determine some nutritive and non-nutritive plant substances.		Assessment of activity during classes
Social competences - Student is ready to:			
K1	understand the responsibility of plant and food producers for the quality and safety of plant products for the consumer.		Presentation, Test (written or computer based), Assessment of activity during classes

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Forms of plant products used in human diet. Factors affecting the influence of plant products on human health. Plant products as sources of nutritive components of diet. Dietary value of plant oils. Risk factors and prevention of some lifestyle diseases, including dietary recommendations. Role of free radicals in the pathogenesis of lifestyle diseases. Endogenous antioxidant systems. Nutritive and non-nutritive plant substances with antioxidant activity: chemical structure, mechanism of action, importance in reducing the risk of lifestyle diseases, main plant sources of these compounds in the diet. Potential risk related to the consumption of plant products.	W1, W2, K1	Laboratory exercises
2.	Preliminary test checking students' knowledge about healthy diet, lifestyle diseases, and biologically active substances occurring in the plants used in the daily diet. Students' presentations concerning chosen health-promoting plants or groups of plant products, with special regard to the presence of nutritive and non-nutritive substances, their role in the reduction of the risk of lifestyle diseases, and forms of consumption. Discussion based on the presentations and aimed at verification and enhancement of knowledge. Determination of selected nutritive and non-nutritive substances in plant products.	W1, U1, U2, K1	Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Laboratory exercises	Discussion, Presentation, Analysis of source materials, Interpreting the results, Laboratory (experiment), learning by experiment

Activities	Examination method	Percentage
Laboratory exercises	Presentation	40%
Laboratory exercises	Test (written or computer based)	40%
Laboratory exercises	Assessment of activity during classes	20%

Activities	Credit conditions
Laboratory exercises	Student must obtain at least 51% of the maximum score to pass the test. The written test will contain single and multiple choice questions, and descriptive questions. Student has to make the presentation concerning the role of chosen plant or group of plant products in human diet. Student activity at the laboratory classes and during discussion will be evaluated.

Literature

Obligatory

1. WHO recommendations related to healthy diet, including: WHO 2021. Plant-based diets and their impact on health, sustainability and the environment: a review of the evidence. WHO European Office for the Prevention and Control of Noncommunicable Diseases. WHO Regional Office for Europe, Copenhagen.
2. Jideani A.I.O. et al. 2021. Antioxidant-rich natural fruit and vegetable products and human health. Int. J. Food Prop. 24(1): 41-67. doi: 10.1080/10942912.2020.1866597.
3. Scientific publications recommended at the lectures.

Optional

1. Handbooks on human nutrition and dietetics.
2. EFSA (European Food Safety Authority). 2017. Dietary reference values for nutrients: Summary report. EFSA Supporting publication 2017: e15121. doi: 10.2903/sp.efsa.2017.e15121.
3. Xu D.P. 2017. Natural antioxidants in foods and medicinal plants: extraction, assessment and resources. Int. J. Mol. Sci. 18: 96. doi: 10.3390/ijms18010096.
4. Wu Q. et al. 2022. Dietary regulation in health and disease. Signal Transduct. Target. Ther. 7: 252. doi: 10.1038/s41392-022-01104-w.
5. Other original and review papers related to nutritive and non-nutritive plant substances, and the role of plant products in human health.

Calculation of ECTS points

Activity form	Activity hours*
Laboratory exercises	30
Self-study on the content covered in class	15
Preparation of a multimedia presentation	15
Preparation for the test	15
Student workload	Hours 75
Number of ECTS points	ECTS 3

* hour means 45 minutes