



SZKOŁA GŁÓWNA  
GOSPODARSTWA  
WIEJSKIEGO

## Quality evaluation of plant products

### Educational subject description sheet

#### Basic information

<b>Field of study</b> Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes) <b>Speciality</b> - <b>Organizational unit</b> Course Offer for exchange students <b>Study level</b> second cycle studies, including uniform master studies (MA programmes) <b>Study form</b> full-time studies <b>Education profile</b> General academic		<b>Didactic cycle</b> 2024/25 <b>Subject code</b> PWMPWM2S_D.B100000K.00810.24 <b>Lecture languages</b> english <b>Mandatory</b> Elective subjects <b>Block</b> Major subjects <b>Disciplines</b> Agriculture and horticulture
<b>Coordinator</b>	Anna Geszprych	
<b>Teacher</b>	Anna Geszprych	
<b>Period</b> Winter semester	<b>Examination</b> Pass with grade  <b>Activities and hours</b> Laboratory exercises: 30	<b>Number of ECTS points</b> 3

#### Goals

Code	Goal
C1	Presentation of chosen methods used for quality evaluation of plant products, including microscopic and analytical methods, with special regard to modern instrumental techniques of determination of plant biologically active substances, as well as sensory analysis of plant products.

## Entry requirements

Basic knowledge in botany and chemistry.

## Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	methods of quality evaluation of plant products		Report
W2	physicochemical traits of some phytochemicals, useful for their determination in plant products		Report
<b>Skills - Student can:</b>			
U1	detect/determine some biologically active compounds in plant products		Assessment of work in the laboratory
U2	use the scientific literature for choosing proper methods of quality evaluation of plant products, finding data useful for interpretation of the results of analyses		Report
<b>Social competences - Student is ready to:</b>			
K1	understand the importance of quality evaluation of plant products for the safety and health of the consumer		Report, Assessment of work in the laboratory

## Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Quality parameters of vegetables and seasonings. Factors affecting the quality of plant products. Principles of microscopic evaluation of plant materials; anatomical diagnostic traits of plants. Characteristics of chosen groups of biologically active plant constituents and methods of their determination (incl. spectrophotometry and chromatography). Characteristics of the methods of sensory evaluation of plant products.	W1, W2, K1	Laboratory exercises
2.	Microscopic evaluation of powdered plant raw materials (e.g. spices). Checking the presence of some groups of biologically active compounds in plant raw materials. Determination of some biologically active compounds in vegetables and herbs with chemical and instrumental methods. Sensory evaluation of plant materials/products: difference tests, scaling methods.	W1, W2, U1, U2, K1	Laboratory exercises

## Course advanced

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

Activities	Examination method	Percentage
Laboratory exercises	Assessment of work in the laboratory	60%
Laboratory exercises	Report	40%

Activities	Credit conditions
Laboratory exercises	Student work during the laboratory exercised will be evaluated. Student must submit a report on a given topic, based on the scientific literature.

## Literature

### Obligatory

1. Ali A.H. 2022. High-Performance Liquid Chromatography (HPLC): A review. Ann. Adv. Chem. 6: 010-020. doi: 10.29328/journal.aac.1001026.
2. Kemp S.E., Hollowood T., Hort J. 2009. Sensory Evaluation: A practical handbook. Wiley-Blackwell. doi: 10.1002/9781118688076.
3. Scientific papers recommended at the lectures.

### Optional

1. Kowalska T., Sajewicz M. 2022. Thin-Layer Chromatography (TLC) in the screening of botanicals - its versatile potential and selected applications. Molecules 27: 6607. doi: 10.3390/molecules27196607.
2. Modupalli N. et al. 2021. Emerging non-destructive methods for quality and safety monitoring of spices. Trends Food Sci. Technol. 108: 133-147. doi: 10.1016/j.tifs.2020.12.021.
3. van Asselt E.D., Banach J.L., van der Fels-Klerx H.J. 2018. Prioritization of chemical hazards in spices and herbs for European monitoring programs. Food Control 83: 7-17. doi: 10.1016/j.foodcont.2016.12.023.
4. Xu Y., Zhang J., Wang Y. 2023. Recent trends of multi-source and non-destructive information for quality authentication of herbs and spices. Food Chem. 398: 133939. doi: 10.1016/j.foodchem.2022.133939.
5. Other scientific papers concerning the subject of the course.

## Calculation of ECTS points

Activity form	Activity hours*
Laboratory exercises	30
Preparing a report	30
Preparation for the test	15
<b>Student workload</b>	<b>Hours</b> 75
<b>Number of ECTS points</b>	<b>ECTS</b> 3

\* hour means 45 minutes