



Subject card

Subject name and code	Basic Pharmacognosy, PG_00054750						
Field of study	Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2028/2029		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Piotr Szweda				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		2.0		18.0	50
Subject objectives	The most important objectives of the course include: 1. Basic knowledge of pharmaceutical botany; 2. Presenting the most important groups of medicinal substances produced by plants; 3. Presenting students the technology of production of most important herbal medicines; 4. Presenting and characteristic of the most important herbal medicines.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_W03	1. The student knows the groups of chemical compounds – primary and secondary metabolites, which determine the biological and pharmacological activity of plant materials; 2. The student knows the chemical structures of active metabolites and molecular mechanisms of their biological activity.	[SW1] Assessment of factual knowledge
	K6_U08	The student knows the basic technological processes used to produce herbal medicines and is able to critically evaluate the possibilities of their use in both technical and economic terms.	[SU2] Assessment of ability to analyse information
	K6_U02	The student is able to use knowledge acquired during earlier stages of education to predict and verify the biological activity of natural products and their components.	[SU2] Assessment of ability to analyse information
	K6_W05	1. The student knows the metabolic pathways in which active substances are formed; 2. The student knows the methods of isolation of active substances from plant materials; 3. The student knows the methods of testing/determining of the pharmacological and biological activity of selected groups of plant metabolites (e.g. substances with antimicrobial, anticancer, antioxidant or sedative activity);	[SW1] Assessment of factual knowledge
Subject contents	Course content – lecture 1. Pharmacognosy definition, historical outline, contemporary trends.2. Basic plant raw materials with elements of plant physiology.3. Secondary metabolites of plants as active substances of plant drugs - chemical structure, pharmacological action, possibilities of application in medicine, toxic action.4. Metabolic pathways of synthesis of the most important secondary metabolites in plant cells.5. Bee products.6. Methods of isolation of active substances from plant raw materials and forms of plant drugs.7. Selected examples of plant drugs (botanical composition, chemical composition, pharmacological action).8. Modern biotechnological methods in pharmacognosy (genetic engineering, tissue engineering, plant tissue culture in bioreactors, purification of active ingredients).		
Prerequisites and co-requisites	Basic knowledge of cell biology, biochemistry, organic chemistry and chemical technology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	60.0%	100.0%
Recommended reading	Basic literature	Zarys botaniki farmaceutycznej; Boleslaw Broda; Wydawca: PZWŁ ; ISBN: 9788320041675 Farmakognozja; Stanislaw Kohlmunzer; Wydawca: PZWŁ ; ISBN: 9788320046519 Lek pochodzenia naturalnego; Anna Kiss; Wydawca: PZWŁ ; ISBN: 9788320064452	
	Supplementary literature	Trease and Evans' Pharmacognosy; William Charles Evans ; Brand: Saunders ; ISBN: 9780702029332	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Please provide a general structural formula for flavonoids. Please list plants used to obtain sedative drugs Polyketide pathway in the synthesis of metabolites of pharmacological importance.		

Practical activities within the subject	Not applicable
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