

**School of Pharmacy / School of Pharmacy (English)**

**2024 - 2025 Academic Year**

**PHARMACOGNOSY LAB. I**

**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
PHARMACOGNOSY LAB. I	PHA3114148	Fall Semester	0+3	1,5	3
<b>Prerequisites Courses</b>	FARMASÖTİK BOTANİK; FARMASÖTİK BOTANİK UYGULAMA				
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Assist.Prof. Şule Nur KARAVUŞ				
<b>Name of Lecturer(s)</b>	Assist.Prof. Şule Nur KARAVUŞ				
<b>Assistant(s)</b>					
<b>Aim</b>	To provide identification of botanical drugs with glycosidic and phenolic active substances by microscopic examination, and chemical identification of biologically active phenolic compounds and quantitative determination of glycosides in medicinal plants.				
<b>Course Content</b>	This course contains; Demonstration, Microscopic examination of pulverized drugs 1, Microscopic examination of pulverized drugs 2, Microscopic examination of pulverized drugs 3, Microscopic examination of pulverized drugs 4, Microscopic examination of pulverized drugs 5, Demonstration, Identification of oses and polyholosides, Identification of tannins and anthraquinones, Identification of flavonoids and application of Thin Layer Chromatography, Quantitative determination of saponins, Identification of cyanogenetic glycosides, Identification of cardiotoxic glycosides, Determination of Total Ash.				
<b>Course Learning Outcomes</b>		<b>Teaching Methods</b>		<b>Assessment Methods</b>	
1. Proficiently use microscope to identify botanical drugs.		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
1.1. Recognize drugs using characteristic microscopical elements such as druses, plant tissues, glandular trichomes, etc .		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
1.2. Identify the presence of any adulteration in the identified drug material		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
2. Identify biologically active substances of medicinal plants and/or botanical drugs using special chemical reactions		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
2.1. Classify and identify various categories of biological active substances using oxido-reduction, derivatization reactions and/or acid-base treatment		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
2.2. Detect the presence of cardiotoxic glycosides in plant material and/or botanical drugs using various deoxysugar identification reactions		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
3. Perform qualitative and quantitative analyses of biologically active substances in plant materials and/or botanical drugs using chromatographic and other similar techniques.		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
3.1. Separate and identify biologically active compounds of botanical drugs using Thin Layer Chromatography (TLC) and special reagents		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
3.2. Isolate and quantify biologically active substances from botanical drugs using special extraction and separation techniques.		10, 14, 16, 17, 19, 5, 8, 9		A, D, E	
<b>Teaching Methods</b>	10: Discussion Method, 14: Self Study Method, 16: Question - Answer Technique, 17: Experimental Technique, 19: Brainstorming Technique, 5: Cooperative Learning, 8: Flipped Classroom Learning, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam, D: Oral Exam, E: Homework				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Demonstration	1,2,3,4			
2	Microscopic examination of pulverized drugs 1	1,2,3,4			
3	Microscopic examination of pulverized drugs 2	1,2,3,4			
4	Microscopic examination of pulverized drugs 3	1,2,3,4			
5	Microscopic examination of pulverized drugs 4	1,2,3,4			
6	Microscopic examination of pulverized drugs 5	1,2,3,4			
7	Demonstration	1,2,3,4			
8	Identification of oses and polyholosides	1, 3			
9	Identification of tannins and anthraquinones	1, 3			
10	Identification of flavonoids and application of Thin Layer Chromatography	1, 3, 5			
11	Quantitative determination of saponins	1, 3			
12	Identification of cyanogenetic glycosides	1, 3			
13	Identification of cardiotoxic glycosides	1, 3			
14	Determination of Total Ash	1, 3			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		60			
General Exam		40			

Resources	
1- Pharmacognosy 1 Laboratory lecture notes will be provided to students.	
2- Upton, R., Graff, A., Jolliffe, G., Williamson, E. (2011) American Herbal Pharmacopoeia Botanical Pharmacognosy - Microscopic Characterization of Botanical Medicines, CRC Press Taylor&Francis Group	
3- Jackson, B. P., Snowdon, D. W. (2019) eBook Atlas of Microscopy of Medicinal Plants, Culinary Herbs and Spices CBS Publishers & Distributors	
4- Heinrich, M. (2012) Fundamentals of Pharmacognosy and Phytotherapy 2Ed. Elsevier Health Sciences.	
5- Wagner, H. And Bladt, S. (2009) Plant Drug Analysis: A Thin Layer Chromatography Atlas 2nd Ed. Springer	