

School of Pharmacy / School of Pharmacy (English)

2024 - 2025 Academic Year

PHARMACOGNOSY LAB. II

Syllabus

| Course Description | | | | | |
|---|--|--------------------------------|---------------------------------|---------------------------|------|
| Name | Code | Semester | T+A Hour | Credit | ECTS |
| PHARMACOGNOSY LAB. II | PHA3214156 | Spring Semester | 0+3 | 1,5 | 3 |
| Prerequisites Courses | | | | | |
| Recommended Elective Courses | | | | | |
| Language of Instruction | English | | | | |
| Course Level | First Cycle (Bachelor's Degree) | | | | |
| Course Type | Required | | | | |
| Course Coordinator | Assist.Prof. Şule Nur KARAVUŞ | | | | |
| Name of Lecturer(s) | Assist.Prof. Şule Nur KARAVUŞ | | | | |
| Assistant(s) | | | | | |
| Aim | To provide identification of plant drugs that contain alkaloids by microscopic examination, extraction, chemical identification, purification and quantitative determination of alkaloids from medicinal plants. | | | | |
| Course Content | This course contains; 1. Demonstration,2. Microscopic examination of pulverized drugs 1,3. Microscopic examination of pulverized drugs 2,4. Microscopic examination of pulverized drugs 3,5. Microscopic examination of pulverized drugs 4,6. Microscopic examination of pulverized unknown drugs,7. Microscopic examination of pulverized unknown drugs,8.Extraction and identification of alkaloids,9.Quantitative analysis of alkaloids (Volumetric),10. Identification of opium alkaloids,11.Extraction of caffeine and identification by Murexide reaction,12.HPLC analysis of caffeine,13. Quantitative determination of Solanaceae alkaloids (Colorimetric),14.Identification of Cinchona cortex alkaloids. | | | | |
| Course Learning Outcomes | | | Teaching Methods | Assessment Methods | |
| 1. Identify alkaloid containing drugs using microscope. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 1.1. Identify the source of alkaloid containing herbal drug material. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 1.2. Identify the source of alkaloid containing officinal herbal drug material. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 2. Identify basic structure of the alkaloid class found in herbal drugs using specific chemical identification reactions. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 2.1. Detect the presence of alkaloids in herbal drugs using general color reactions. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 2.2. Classify alkaloids using specific reactions such as Vitali-Morin and Murexide. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 3. Perform qualitative and quantitative analyses of alkaloids found in plant materials and/or botanical drugs using chromatographic and spectrophotometric techniques | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 3.1. Separate and identify alkaloids found in herbal drugs using Thin Layer Chromatography (TLC), specific spray reagents and references. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| 3.2 Isolate and quantify alkaloids from herbal drugs using special extraction techniques, gravimetric and/or colorimetric methods. | | | 10, 12, 14, 16, 17, 19, 5, 8, 9 | A, D, E | |
| Teaching Methods | 10: Discussion Method, 12: Problem Solving 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 | | | | |
| Assessment Methods | A: Traditional Written Exam, D: Oral Exam, E: Homework | | | | |
| Lecture Schedule | | | | | |
| Sequence | Topics | Preliminary Preparation | | | |
| 1 | 1. Demonstration | 1,2,3,4,5 | | | |
| 2 | 2. Microscopic examination of pulverized drugs 1 | 1,2,3,4,5 | | | |
| 3 | 3. Microscopic examination of pulverized drugs 2 | 1,2,3,4,5 | | | |
| 4 | 4. Microscopic examination of pulverized drugs 3 | 1,2,3,4,5 | | | |
| 5 | 5. Microscopic examination of pulverized drugs 4 | 1,2,3,4,5 | | | |
| 6 | 6. Microscopic examination of pulverized unknown drugs | 1,2,3,4,5 | | | |
| 7 | 7. Microscopic examination of pulverized unknown drugs | 1,2,3,4,5 | | | |
| 8 | 8.Extraction and identification of alkaloids | 1,5,6,7 | | | |
| 9 | 9.Quantitative analysis of alkaloids (Volumetric) | 1,5,6,7 | | | |
| 10 | 10. Identification of opium alkaloids | 1,5,6,7 | | | |
| 11 | 11.Extraction of caffeine and identification by Murexide reaction | 1,5,6,7 | | | |
| 12 | 12.HPLC analysis of caffeine | 1,5,6,7 | | | |
| 13 | 13. Quantitative determination of Solanaceae alkaloids (Colorimetric) | 1,5,6,7 | | | |
| 14 | 14.Identification of Cinchona cortex alkaloids | 1,5,6,7 | | | |
| Evaluation Methods | | Weight(%) | | | |
| Midterm Exam | | 60 | | | |
| General Exam | | 40 | | | |

Resources

1- Farmakognosi Uygulama II Laboratuvar Notları öğrencilere verilecektir. 2- Tanker, Nevin, Farmasötik Botanik: Bitkisel drogların makroskopik ve mikroskopik özellikleri, Ankara Üniversitesi Eczacılık Fakültesi, Ankara, 2016. 3- Baytop, Asuman, Bitkisel drogların anatomik yapısı, İstanbul Üniversitesi, İstanbul, 1987. 4 -Jackson, B. P., Snowdon, D. W. (2019) eBook Atlas of Microscopy of Medicinal Plants, Culinary Herbs and Spices CBS Publishers & Distributors. 5- Pharmacognosy, Phytochemistry, Medicinal Plants, Jean Bruneton, Intercept Ltd., 2nd Edition, 1999. 6- Trease and Evans Pharmacognosy, William C. Evans, Elsevier, 16th Edition, 2009.