

Pharmacobotany 1 - Practice

Code: MEA-OG1G

Department: Department of Pharmacognosy

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Short Course Description:

Pharmacobotany covers all pharmaceutical aspects of botany, including cytology, histology, morphology and taxonomy of plants. Plant systematics discusses the geographical origin of plant species, the possibilities of their cultivation and protection. A special emphasis is laid on chemotaxonomic aspects, since the medicinal effect of a plant is often related to its taxonomic classification and chemical characteristics. Practical instruction focuses on the knowledge of medicinal plants, including the confident use of plant identification keys. Based on their knowledge of histology and morphology students are required to apply proper anatomical terms, and finally identify plant species (taxa). The thorough knowledge of both general and specific pharmacobotany is a prerequisite of studying pharmacognosy.

Course requirements:

Absences:

Maximum of 25 % absence allowed (2 practices!).

Midterm tests:

Students have to pass (min. 60%) two written exams based on the practice materials. The exams will be held on the 7th and 13th week of the semester. For each test, maximum two other chances (B and C chance) will be offered for students who do not pass the exam on the first occasion (A chance). In the practice, students have to take notes and prepare drawings based on microscopic examinations. Students have to show their lab notebook to the practice leader, who acknowledges fulfilment of the practice by his/her signature. The grades of the 2 written practical tests and the lab notebook serve as the basis of the practical grade.

Possibility for making up for missed practices:

Participation is compulsory in lab practices; up to 2 absences are allowed. Missed practices can be made up either by joining the other groups or taking extra time at the following lab practice. In all cases, students must make arrangements with their lab instructors in advance.

Textbooks:

Compulsory literature:

- Á. Farkas: Pharmacobotany 1, University of Pécs, Institute of Pharmacognosy, Pécs, 2010
- N. Papp: Pharmacobotany Practices, University of Pécs, Institute of Pharmacognosy, Pécs, 2011

Recommended literature:

- Farkas Á., Papp N., Bencsik T., Horváth Gy.: Digital Herbarium and Drug Atlas, electronic learning material, 2014 TÁMOP-4.1.2.A/1-11/1-2011-0016
- D.F. Cutler, T. Botha, D.W. Stevenson: Plant Anatomy. An Applied Approach, Wiley-Blackwell, 2008

Practice topics:

1. Microscopic techniques and preparations (leaf clearing, cross sections, epidermal tissues). Plastids of the plant cell. Inclusions and crystals.
2. Chemical substances of the cell wall (cellulose, lignin). Mucilage content of the cell wall and the cytoplasm. Investigation of vacuolar content (inulin, alkaloids, tannins, anthocyanins).
3. The root and shoot tip; meristematic tissues.
4. Leaf epidermis; cross sections and cleared preparations.
5. Microscopic study of stem cross sections: vascular tissues and mechanical tissues.
6. Ground tissues. Plant secretory systems (schizogenous, lysigenous cavities, laticifers, glandular trichomes, glandular scales, nectaries).
7. Perianth, androecium, gynoecium. Tissue structure of the fruit and seed.
8. Morphological analysis of the root and its modifications.
9. Shoot system types, shoot modifications.
10. Leaf types, leaf arrangement, parts of the leaf. Shape, margin and venation of leaves, leaf modifications.
11. Morphological analysis of the flower: perianth, androecium, gynoecium. Floral formula, floral diagram.
12. Morphological investigation of inflorescences.
13. Fruit morphology: Dry dehiscent and indehiscent fruits.
14. Fruit morphology: Fleshy fruits, compound fruits and false fruits.