

PHARMACOGNOSY I

Code number: NP18-36

Cycle: Undergraduate

Semester: 5th semester

Course type

	Background/General knowledge
X	Scientific area (pharmacy)

Credit Units (ECTS): 6

Lectures (hours/week): 3

Tutorial (hours/week): -

Laboratory work (hours/week): 2

Course coordinator: Tsiftoglou Olga

Tutor (s): Tsiftoglou Olga

Room 310 3rd floor Biology/Pharmacy building.

Collaboration with students: Monday 13:00-14:00.

Communication: e-mail (olgatsif@pharm.auth.gr)

Assisting personnel:

Aims of the course:

Understanding by the students of the general content of Pharmacognosy and especially of substances belonging to groups of carbohydrates, lipids, and phenols and their derivatives. In order to achieve these objectives, the physical, chemical and biological properties of these substances are presented, as well as their chemical classification, their biosynthesis and medicinal plants containing them. It will also be discussed uses of medicinal plants whose main active ingredients belong in these categories of natural products. Moreover, in the laboratory work the students will know and will analyze herbal medicines included in the European Pharmacopoeia 5, using the appropriate analytical methods (microscopic and phytochemical).

Skills: Familiarity with basic knowledge of Pharmacognosy. Also, knowledge of phytochemical groups of carbohydrates, lipids and phenols as well as of herbal medicines containing them. **Teaching methods:** Lectures & laboratory work.

Contents of the course:

CARBOHYDRATES, LIPIDS, AND PHENOL DERIVATIVES

Introduction: Generally, control specifications of herbal medicines and herbal medicinal products of the European Pharmacopoeia (Phytochemical, microscopic, etc.) General scheme of biosynthetic pathways of primary and secondary metabolites.

Carbohydrates: Simple sugars, Oligosaccharides, Polysaccharides. Homogeneous polysaccharides, Heterogeneous polysaccharides (Mucilage, gums), Cyanogenic glycosides, Mustard oils, Nutritional fiber

Plant lipids: Triglycerides, fatty acids, oils, essential fatty acids and biosynthesis of leukotrienes, prostaglandins, thromboxanes

Phenols and their derivatives: Generally, groups of natural structures, reactions of phenols. General reagents for the detection of phenolic structures. Simple phenolic compounds: benzoic acids and cinnamic acids derivatives, coumarins, lignans, neolignans and their derivatives, flavonoids, tannins, quinines, pyrones.

Educational activities: Lectures, laboratory work and optional scientific presentation, discussion with the students in every lecture.

Evaluation process and methods: Examination is performed at the end of the semester. The examination at the end of the semester is performed at dates, time and place arranged by the department. The duration of the examination is 2 hours.

Use of TIC / Electronic distribution of the lectures

Lectures, notes, statements etc are presented in the corresponding place of the website of the School of Pharmacy.

Teaching: Teaching of this course is accomplished through lectures

Lecture	Title	Tutor
1	Introduction. General, control specifications of herbal drugs and herbal drug ingredients of the European Pharmacopoeia 5	Tsiftoglou Olga
2	Biosynthetic pathways. Primary, secondary metabolites	Tsiftoglou Olga
3	Sugars (Simple sugars, Oligosaccharides, Polysaccharides)	Tsiftoglou Olga
4	Triglycerides, fatty acids, oils, vegetable oil, mustard oil, other sulfur compounds Acetogenins, Glycoetins of Convolvulaceae, Cyanogenic glycosides, Unusual toxic amino acids, Lectins Antibiotics	Tsiftoglou Olga
5	Antibiotics	Tsiftoglou Olga
6	Phenols and their derivatives Cinnamic acids, aryl- propenyl-phenols.	Tsiftoglou Olga
7	Quinones, Naphthoquinones, anthracyclines, Naphthodianthrones, Miltionones (abietaquinones), Anthrones, Anthranoles, Anthraquinones, Homo- and Hetero-Dianthrones	Tsiftoglou Olga
8	Coumarins	Tsiftoglou Olga
9	Lignans, Neolignans and their derivatives	Tsiftoglou Olga
10	Styrylpyrones, Stilbens	Tsiftoglou Olga
11	Flavonoids, Rotenoids, Neoflavonoids, Flavonolignans	Tsiftoglou Olga
12	Anthocyanosides, Tannins	Tsiftoglou Olga
13	Orcinols and Phloroglucinols	Tsiftoglou Olga

A) **Lectures.** Lectures (13 of 3 hours each) are given in the lecture room D12 (main building of the School of Natural Sciences) or in special cases using program skype for business.

B) Laboratory work: Microscopic and Phytochemical control of herbal drugs containing carbohydrates used in pharmaceutical industry and phenols and/or phenol derivatives of the European Pharmacopoeia.

Microscopic control: Starches (*Amylum Solani*, *Amylum Oryzae*, *Amylum Maydis*, *Amylum Tritici*, *Amylum Marantae*), Fibers (Cotton, Flax, Silk, Wool), Flores *Malvae*, Flores *Tiliae*, Folia *Sennae*, Rhizoma *Rhei*, Herba *Hyperici*, Fructus *Anisi vulgaris*, Fructus *Foeniculi*, Semina *Psyllii*, Folia *Gingo biloba*

Phytochemical control: Extraction of phenolic compounds qualitative determination of anthraquinones