UFV
Teaching guide

IDENTIFICATION DETAILS

Degree:	Pharmacy

Scope	Pharmacy

Faculty/School:	Experimental Sciences

Course:	PHARMACOGNOSY

Type:	Compulsory	ECTS credits:	6

Year:	3	Code:	2527

Teaching period:	Fifth semester

Subject:	Biologics

Module:	Biologics

Teaching type:	Classroom-based

Language:	Spanish

Total number of student study hours:	150

SUBJECT DESCRIPTION

Pharmacognosy is included in the group of Pharmacological Sciences. Its objective is the study of

raw materials of biological origin (drugs), mainly vegetables, useful for the manufacture of medicines.

The theoretical contents of the course are divided into two main sections: first, a basis on the sources, management and quality control of drugs; and a second, more extensive part, which addresses the main active ingredients, their characteristics and the main associated drugs, classified according to a chemical-biogenetic criterion.

Pharmacognosy is a semester course corresponding to the third year of the degree in Pharmacy. This course is integrated into the Biology module. Natural sources provide a large number of extremely useful drugs that are difficult to produce commercially by synthesis or are more cost-effective to obtain from natural sources. Second, they can provide compounds susceptible to modification to become more effective or less toxic drugs. They make it possible to obtain useful molecules as prototypes or models for obtaining synthetic drugs with activity similar to the original molecule. They provide natural products with little or no pharmacological activity but can be modified by chemical or microbiological methods to produce potent drugs that are not easily obtained by other means.

GOAL

This course aims to introduce students to the knowledge of the main drugs of interest in pharmacy and their raw materials, providing them with the theoretical basis for their origin, their forms of obtaining, their chemical composition, pharmacological activity and applications, and focusing on the responsibility derived from the knowledge and use of medicinal plants and the health risks associated with their misuse.

PRIOR KNOWLEDGE

It is considered preferable that the student who accesses the subject has knowledge of plant biology, organic chemistry and pharmacology.

COURSE SYLLABUS

THEORETICAL SYLLABUS:
Block I Part I: Past, Present and Future Pharmacognosy

Part II: Obtaining active ingredients
Part III: Drug Quality Control
Part IV: Main biosynthetic pathways in plants

Block II

Part I: Carbohydrates and Polysaccharides
Part II: Lipids
Part III: Amino Acids, Peptides, Proteins and Enzymes

Block III

Part I: Mono-, sesqui- and diterpenes
Part II: Triterpenes and Steroids

Block IV

Part I: Phenols and Phenolic Acids
Part II: Mixed-origin phenols
Part III: Polyacetates

Part IV: Tannins

Block V

Part I: Alkaloids: introduction. Alkaloids derived from ornithine and lysine
Part II: Alkaloids derived from phenylalanine and tyrosine
Part III: Alkaloids derived from tryptophan
Part IV: Alkaloids of various origins

PRACTICAL SYLLABUS:

Phytochemical drug study: general qualitative tests
Comparative study of methods for extracting compounds from plant drugs
Chromatographic analysis of extracts for the separation of compounds

EDUCATION ACTIVITIES

The training activities of the subject with: Classroom classes: 1) Theory classes (AFP1): master classes taught by the teacher in which the theoretical foundations of the subject will be developed. 2) Classes of exercises and problems (AFP3). Preparation of papers (AFNP3). Practical classes (AFP2) Students will carry out experimental work in the teaching laboratory guided by the teacher. Tutoring (AFP5) Tutoring consists of a period of time (with a predetermined schedule) in which questions will be answered or questions raised by the student or teacher will be discussed in order to guide their learning of the subject. Tutoring may be optional and/or mandatory. The tutoring schedule can be consulted in the degree coordinator and will be informed by the teacher at the beginning of the course. Virtual Classroom For the development of these methodologies, the UFV Virtual Classroom tool is available, on the CANVAS platform. Access to this space is restricted to students enrolled in the subject. The student will carry out all the monitoring of the subject through this platform where they will find: The scheduling of the work The theoretical and practical teaching material The tasks and the space for their delivery The guide and the space for submitting the papers The feedback of the papers All the grades A space for notices

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
64 Horas	86 Horas

Cross Skills

To nurture an attitude of intellectual curiosity and a quest for truth in all areas of life.

To be able to approach a subject by means of rigorous, profound and comprehensive thought.

To be able to assess knowledge acquired.

To be able to apply the theoretical knowledge learnt in the of solving problems and practical cases linked to the various subjects.

LEARNING RESULTS

Learn about medicinal plants: botanical diversity, physiology, use and management.

Develop skills related to the use of the beneficial effects of medicinal plants and understand the health risks associated with their misuse.

SPECIFIC LEARNING RESULTS

Memorize the main medicinal plants, their biodiversity, phylogeny, taxonomy and nomenclature.

Differentiate plant species with therapeutic utility (chemistry of their active substance/pharmacological actions/mechanisms of action/therapeutic indications/side effects/contraindications/interactions/dosage)

Select between the different techniques for obtaining, characterizing and evaluating active substance

Discriminate between the different existing sources of information.

Resolve a quality control of a vegetable drug.

Identify problems derived from the misuse of plant medicines.

LEARNING APPRAISAL SYSTEM

ORDINARY EVALUATION SYSTEM This is the priority evaluation system for the subject. This system is based on continuous evaluation, taking into account that attendance at all classes, regardless of their nature, is mandatory. The course is passed when a FINAL GRADE of 5.0 is reached. To carry out the weighting of the grade and obtain the final grade, the following requirements must be met: Attend all practical sessions. Attendance at all practical sessions (regardless of where they take place) is mandatory. The unjustified absence of any of these sessions leads to the loss of the right to an internship evaluation in the ordinary call and a suspension of the course. Students in this situation should immediately contact the teacher. Get a minimum score of 5.0 on items SE1 and SE8. The FINAL GRADE of the subject will be the result of averaging the grades obtained from the evaluations of: SE1. WRITTEN OR ORAL, DEVELOPMENTAL, SHORT ANSWER OR TEST-TYPE TESTS: this represents 50% of the final grade. EVALUATION SYSTEM: written test where the student must reflect the degree of knowledge acquired during the course. IF 2. DAILY ACTIVITIES AND EXERCISES: constitutes 10% of the final grade. Rating obtained for the set of proposed activities. EVALUATION SYSTEM: grading of exercises and questionnaires. IF 3. INDIVIDUAL AND/OR GROUP WORKS: constitutes 15% of the final grade. Qualification obtained in the set of

works. EVALUATION SYSTEM: it will be evaluated using the corresponding rubrics. IF 4. ATTENDANCE AND PARTICIPATION IN FACE-TO-FACE CLASSROOM ACTIVITIES: constitutes 5% of the final grade. The attitude will be evaluated as well as the tests carried out in class. EVALUATION SYSTEM: grading of exercises and questionnaires. SE8. ATTENDANCE AND PARTICIPATION IN FACE-TO-FACE LABORATORY ACTIVITIES: represents 20% of the final grade. Evaluation of practical competencies. EVALUATION SYSTEM: report of the analysis of the practices and their results, in relation to the methodologies used. It will be evaluated using the corresponding rubric. If you do not pass the subject, the SE2 and SE4 grades are maintained until the extraordinary call. SE3 grades are maintained as long as the papers have been submitted. The SE1 and SE8 scores are maintained as long as a minimum of 5.0 has been obtained. ALTERNATIVE EVALUATION SYSTEM: This system is intended for repeat students who do not take advantage of the ordinary evaluation system because they are unable to attend classes on a regular basis. Students in second or subsequent enrollment must contact the teacher to request to take advantage of this system. In this case, the evaluation systems and their weighting will be as follows: WRITTEN OR ORAL, DEVELOPMENTAL, SHORT ANSWER OR TEST TYPE TESTS: it represents 50% of the final grade. ATTENDANCE AT TUTORING AND EXERCISES: constitutes 15% of the final grade. INDIVIDUAL AND/OR GROUP WORK: constitutes 15% of the final grade. PRACTICES: represents 20% of the final grade. IMPORTANT NOTES: Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with those established in the Evaluation Regulations and the University's Coexistence Regulations.

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:

a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.

b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.

c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(https://www.ufv.es/gestion-de-la-informacion_biblioteca/).

d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.

2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the Guide for the Responsible Use of Artificial Intelligence in Studies at UFV. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.

3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

Bruneton, Jean. Pharmacognosy: phytochemistry: medicinal plants/2nd ed. Zaragonza:Acribia, 2001.

Ángel M.ª Villar del Fresno (ed.). General Pharmacognosy/Madrid:Synthesis, 999.

Royal Spanish Pharmacopoeia. 5th ed. Madrid: Spanish Agency for Medicines and Health Products, 2010.

Additional

Luis Bravo Diaz. Pharmacognosy/Barcelona: Elsevier, 2011.

editors Bernat Vanaclocha Vanaclocha, Salvador Cañigueral Folcará. Phytotherapy: Prescription Vademecum/4th ed. Barcelona: Elsevier Spain, 2010.