

INSTITUTE	FACULTY OF PHARMACY
PROGRAM	BACHELOR OF PHARMACY
SEMESTER	1
COURSE TITLE	INTRODUCTION TO PHARMACOGNOSY
COURSE CODE	13PH0110P
COURSE CREDITS	1

Objective:

- 1 Identify medicinal plants and crude drugs using morphological and microscopical characters.
- 2 Analyze powdered drugs and perform quantitative microscopy.
- 3 Evaluate crude drugs using physicochemical parameters.
- 4 Introduce standardization and quality control of herbal materials.
- 5 Collect medicinal plants and prepare voucher specimens.

Course Outcomes: After completion of this course, student will be able to:

- 1 Identify medicinal plants and crude drugs using morphological and microscopical characters.
- 2 Analyze powdered drugs microscopically to identify diagnostic cell contents.
- 3 Perform quantitative microscopy for stomatal and vein parameters.
- 4 Evaluate quality and purity of crude drugs using physicochemical parameters.
- 5 Collect medicinal plants and prepare voucher specimens during field visits.

Pre-requisite of course: 1. Basic knowledge of medicinal plants and natural products. 2. Understanding of elementary botany, especially plant morphology and anatomy. 3. Familiarity with common laboratory glassware and instruments. 4. Basic microscope handling skills and slide observation techniques.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	3	0	0	0	30	20
Contents : Unit	Topics						Contact Hours
Total Hours							

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	(Minimum 12 experiments must be performed) 1. Morphological study of medicinal plants (as mentioned in Unit V Theory). Practical	3
2	Organoleptic evaluation and powder microscopical characters of the following drugs: Tulsi and Ashwagandha. Practical	3
3	Organoleptic evaluation and powder microscopical characters of the following drugs: Amla and Arjuna. Practical	3
4	Organoleptic evaluation and powder microscopical characters of the following drugs: Turmeric and Psyllium husk. Practical	3
5	Organoleptic evaluation and powder microscopical characters of the following drugs: Brahmi and Fenugreek. Practical	3
6	Determination of moisture content of crude drugs. Practical	3
7	Determination of swelling index and foaming index of crude drugs. Practical	3
8	Determination of stomatal number and stomatal index of leaf. Practical	3
9	Determination of vein islet and vein termination number of leaf. Practical	3
10	Determination of ash value and extractive values of crude drugs. Practical	3
11	Determination of foreign organic matter of crude drugs. Practical	3
12	Determination of dimensions of calcium oxalate crystals and phloem fibers by eyepiece micrometry. Practical	3
13	Determination of dimensions of starch grains by eyepiece micrometer. Practical	3
14	Experiential learning-based experiments involving collection, identification of medicinal plant material, preparation of voucher specimens and excursion visits to medicinal plant garden. Practical	3
Total Hours		42

Textbook :

- 1 Practical Pharmacognosy, C.K. Kokate, A.P. Purohit, S.B. Gokhale, Nirali Prakashan, 2021
- 2 Trease and Evans Pharmacognosy, William C. Evans, Elsevier, 2009
- 3 Textbook of Pharmacognosy, T.E. Wallis, CBS Publishers, 2017
- 4 Pharmacognosy and Phytochemistry, Biren Shah, A.K. Seth, Elsevier, 2020
- 5 Pharmacognosy, V.E. Tyler, L.R. Brady, J.E. Robbers, Lea & Febiger, 1988

References:

- 1 Trease and Evans Pharmacognosy, Trease and Evans Pharmacognosy, W.C. Evans, Elsevier, 2009
- 2 Practical Pharmacognosy Techniques and Experiments, Practical Pharmacognosy Techniques and Experiments, Khandelwal K.R., Nirali Prakashan, 2020
- 3 Indian Herbal Pharmacopoeia, Indian Herbal Pharmacopoeia, Indian Drug Manufacturers' Association, IDMA, 2002
- 4 Quality Control Methods for Herbal Materials, Quality Control Methods for Herbal Materials, WHO, World Health Organization, 2011
- 5 Textbook of Pharmacognosy, Textbook of Pharmacognosy, T.E. Wallis, CBS Publishers, 2017

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
15.00	20.00	30.00	20.00	10.00	5.00

Instructional Method:

- 1 Demonstration of microscopy techniques
- 2 Hands-on training in crude drug evaluation
- 3 Field visits to medicinal plant gardens
- 4 Herbarium and voucher specimen preparation
- 5 Observation-based learning

Supplementary Resources:

- 1 Ministry of AYUSH: <https://www.ayush.gov.in>
- 2 WHO Guidelines for Herbal Medicines: <https://www.who.int>
- 3 National Medicinal Plants Board: <https://www.nmpb.nic.in>
- 4 Indian Pharmacopoeia Commission: <https://ipc.gov.in>
- 5 NISCAIR Medicinal Plants Resources (CSIR): <https://www.csir.res.in>