INSTITUTE	**FACULTY OF PHARMACY**
PROGRAM	**BACHELOR OF PHARMACY**
SEMESTER	**1**
COURSE TITLE	**INTRODUCTION TO PHARMACOGNOSY**
COURSE CODE	**13PH0105T**
COURSE CREDITS	**3**

Objective:

1. Explain the origin, history, and classification of natural drugs.
2. Understand cultivation and conservation methods for medicinal plants.
3. Study quality control and evaluation of crude drugs.
4. Study primary and secondary metabolites with their therapeutic relevance.
5. Introduce traditional systems of medicine and phyto-therapeutic agents.

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

1. Describe the historical development, classification, and scope of Pharmacognosy.
2. Explain cultivation, processing, and conservation techniques for medicinal plants.
3. Apply quality evaluation methods to crude drugs using organoleptic, microscopic, and chemical parameters.
4. Identify primary and secondary metabolites with their therapeutic relevance.
5. Recognize traditional systems of medicine and commonly used phyto-therapeutic agents.

Pre-requisite of course:1. Basic understanding of Biology and Botany, 2. Familiarity with medicinal plants and natural products, 3. Ability to observe, classify, and identify plant materials, 4. Ability to understand scientific names and terminology, 5. Basic computer and internet skills for literature search and documentation.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	45	15	15	0	0

DR. ASHISHKUMAR VRAJLAL KYADA
Digitally signed by (Name of HOD)

DR. LALJI HAKUBHAI BALDANIYA
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
1	**Fundamentals of Pharmacognosy** Definition, history, present status, scope, and development of pharmacognosy., Sources of drugs: Plants, animals, microbial, marine, mineral, and plant tissue culture., Historical milestones in drug discovery: Morphine, quinine, aspirin, warfarin, penicillin, cephalosporin, Taxol, and artemisinin., Introduction to different herbal/traditional pharmacopoeias: Indian Pharmacopoeia, British Herbal Pharmacopoeia, United States Pharmacopoeia – Herbal Medicines and Dietary Supplements, Ayurvedic Pharmacopoeia of India, Unani Pharmacopoeia of India, and American Herbal Pharmacopoeia., Official and non-official; codified and non-codified drugs. Classification of crude drugs: alphabetical, morphological, taxonomical, chemical, pharmacological, and chemotaxonomic classification, along with their merits and limitations.	10
2	**Cultivation, Collection, Processing and Storage of Drugs of Natural Origin** Methods of plant cultivation and Good Agricultural and Collection Practices (WHO / GAP / GCP guidelines) for medicinal plants. Factors influencing cultivation, collection, and storage of medicinal plants., Plant hormones and their applications in the cultivation of medicinal plants. Application of polyploidy, mutation, and hybridization concepts with reference to secondary metabolites. Ex-situ and in-situ conservation and strategies for value addition of medicinal plants. Role of eco-pharmacognosy in sustainable conservation of endangered medicinal plants such as kutki and chirata.	8
3	**Quality Control of Drugs of Natural Origin (WHO Guidelines)** Adulteration of drugs of natural origin. Evaluation of drugs using organoleptic, microscopic (qualitative and quantitative), physical, chemical, and biological methods. Physicochemical parameters: extractive values, moisture content, foreign organic matter, ash values, bitterness value, foaming index, haemolytic potential, swelling index, viscosity, optical rotation, refractive index, acid value, and saponification value. DNA barcoding.	8
4	**Introduction to Metabolites of Plant Origin** Definition and general properties of plant metabolites. Primary and secondary metabolites such as carbohydrates, proteins, lipids, alkaloids, glycosides, flavonoids, tannins, terpenoids, volatile oils, and resins., Traditional Systems of Medicine: Basic principles of treatment of diseases in different systems of medicine, including AYUSH and TCM. Types of dosage forms in AYUSH medicines. Role of pharmacognosy in allopathy and traditional systems of medicine such as AYUSH and TCM.	12

DR. ASHISHKUMAR VRAJLAL KYADA
Digitally signed by (Name of HOD)

DR. LALJI HAKUBHAI BALDANIYA
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
5	**Phyto-therapeutic Agents** Biological source, major constituents and uses of the following classes of drugs: • Adaptogens and Immunomodulators: Ashwagandha, Tulsi, Amla • Hepatoprotectives: Milk thistle, Kutki • Cardiovascular drugs: Garlic, Arjuna • Antidiabetics: Gymnema, Fenugreek • Anti-inflammatory and analgesics: Turmeric, Boswellia • CNS drugs: Brahmi • Antimicrobial and antivirals: Giloy, Neem, Andrographis • Gastrointestinal drugs: Psyllium • Dermatological agents: Aloe • Drugs used in women's health: Chasteberry, Shatavari • Respiratory drugs: Vasaka.	7
Total Hours		**45**

Textbook :

1 Trease and Evans Pharmacognosy, William C. Evans, Elsevier, 2022

2 Textbook of Pharmacognosy, T.E. Wallis, CBS Publishers / Churchill, 2018

3 Pharmacognosy, Tyler, Brady, Robbers, Lea & Febiger, 1991

4 Kokate's Pharmacognosy, C.K. Kokate, A.P. Purohit, S.B. Gokhale, Nirali Prakashan, 2022

5 Practical Pharmacognosy, C.K. Kokate, Vallabh Prakashan, 2021

6 Textbook of Pharmacognosy and Phytochemistry, Biren Shah, A.K. Seth, Elsevier / Reed Elsevier India, 2023

7 Pharmacognosy and Phytochemistry, V.D. Rangari, Career Publications, 2021

References:

1 WHO Quality Control Methods for Medicinal Plant Materials, WHO Quality Control Methods for Medicinal Plant Materials, World Health Organization, WHO, 1998

2 WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants, WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants, World Health Organization, WHO, 2003

3 WHO Traditional Medicine Strategy, WHO Traditional Medicine Strategy, World Health Organization, WHO, 2013

4 Indian Pharmacopoeia, Indian Pharmacopoeia, Indian Pharmacopoeia Commission, IPC, Ghaziabad, 2026

5 Ayurvedic Pharmacopoeia of India, Ayurvedic Pharmacopoeia of India, Government of India, Ministry of AYUSH, 2024

6 Herbal Drugs and Phytopharmaceuticals, Herbal Drugs and Phytopharmaceuticals, Max Wichtl, CRC Press, 2020

7 Quality Control of Herbal Drugs, Quality Control of Herbal Drugs, Pulok K. Mukherjee, Business Horizons, 2019

8 Textbook of Pharmacognosy and Natural Products, Textbook of Pharmacognosy and Natural Products, Shah & Seth, Elsevier, 2023

DR. ASHISHKUMAR VRAJLAL KYADA
Digitally signed by (Name of HOD)

DR. LALJI HAKUBHAI BALDANIYA
Digitally signed by (Name of Dean/ Principal)

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**
24.00	30.00	20.00	14.00	8.00	4.00

Instructional Method:

1 Demonstration of crude drug samples
2 Herbarium specimen study
3 Case-based learning on herbal drug use
4 Field visit to medicinal plant garden / herbal industry

Supplementary Resources:

1 Ministry of AYUSH, India: https://www.ayush.gov.in
2 Indian Pharmacopoeia Commission: https://ipc.gov.in
3 World Health Organization Traditional Medicine: https://www.who.int
4 National Medicinal Plants Board: https://nmpb.nic.in
5 Pharmacopoeia Commission for Indian Medicine & Homoeopathy: https://pcimh.gov.in

DR. ASHISHKUMAR VRAJLAL KYADA
Digitally signed by (Name of HOD)

DR. LALJI HAKUBHAI BALDANIYA
Digitally signed by (Name of Dean/ Principal)