

LESSON PLAN PHARMACOGNOSY – THEORY

Course Code: 212112 (ER20-13T)

75 Hours +25 Hour Tutorial (4 Hours/week)

Name of Tutor/Teacher: Dr. Pooja Saini, Lecturer in Pharmacy

Schedule of Classes: Theory: Monday: 09.00 – 10.00 AM, Wednesday: 09.00 – 10.00 AM,
Thursday: 09.00-10.00 AM, Thursday: 10.00-11.00 AM (Tutorial), Friday: 11.00-12.00 PM (Tutorial)

Scope: This course is designed to impart knowledge on the medicinal uses of various drugs of natural origin. Also, the course emphasizes the fundamental concepts in the evaluation of crude drugs, alternative systems of medicine, nutraceuticals, and herbal cosmetics.

Course Objectives: This course will discuss the following aspects of drug substances derived from natural resources.

1. Occurrence, distribution, isolation, identification tests of common phytoconstituents
2. Therapeutic activity and pharmaceutical applications of various natural drug substances and phytoconstituents
3. Biological source, chemical constituents of selected crude drugs and their therapeutic efficacy in common diseases and ailments
4. Basic concepts in quality control of crude drugs and various system of medicines
5. Applications of herbs in health foods and cosmetics

Course Outcomes: Upon successful completion of this course, the students will be able to

C01.1 Identify the important/common crude drugs of natural origin

C01.2 Describe the uses of herbs in nutraceuticals and cosmeceuticals

C01.3 Discuss the principles of alternative system of medicines

C01.4 Describe the importance of quality control of drugs of natural origin

Chapter	Topic	Date	Hour	CO	PO	Coverage	Reason for discrepancy	Plans for compensation in backlog	Taught by	Verified by
1	Definition, and history of Pharmacognosy		1							
	Present status and scope of Pharmacognosy		2							
2	Classification of drugs: Introduction		1							
	Alphabetical, Taxonomical, Morphological classification		2							
	Pharmacological Classification		3							
	Chemical, Chemo-taxonomical classification		4							
3	Quality control of crude drugs: Introduction		1							
	Different methods of Adulteration of drugs		2							
	Morphological and Microscopic evaluation		3							
	Chemical evaluation		4							
	Physical evaluation		5							
	Biological Evaluation		6							
4	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids		1							
	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids		2							
	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of terpenoids		3							

	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of glycosides		4						
	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of Tannins and resins		5						
	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of volatile oils		6						
5	Biological source, chemical constituents and therapeutic efficacy of								
	Laxatives: Aloe, Castor oil		1						
	Laxatives: Ispaghula, Senna		2						
	Cardiotonic Digitalis, Arjuna		3						
	Carminatives and G.I. regulators: Coriander, Fennel, Cardamom		4						
	Carminatives and G.I. regulators: Ginger, Clove, Black Pepper		5						
	Carminatives and G.I. regulators: Asafoetida, Nutmeg, Cinnamon		6						
	Astringents: Myrobalan, Black Catechu, Pale Catechu		7						
	Drugs acting on nervous system: Hyoscyamus, Belladonna, Ephedra		8						
	Drugs acting on nervous system: Opium, Tea leaves, Coffee seeds, Coca		9						
	Anti-hypertensive: Rauwolfia		10						
	Anti-tussive: Vasaka, Tolu Balsam		11						
Anti-rheumatics: Colchicum seed		12							

	Anti-tumour: Vinca, Podophyllum		13						
	Antidiabetics: Pterocarpus, Gymnema		14						
	Diuretics: Gokhru, Punarnava		15						
	Anti-dysenteric: Ipecacuanha		16						
	Antiseptics and disinfectants: Benzoin, Myrrh		17						
	Antiseptics and disinfectants: Neem, Turmeric		18						
	Antimalarials: Cinchona, Artemisia		19						
	Oxytocic: Ergot		20,21						
	Vitamins: Cod liver oil, Shark liver oil		22						
	Enzymes: Papaya, Diastase		23						
	Enzymes: Pancreatin, Yeast		24						
	Pharmaceutical Aids: Kaolin, Lanolin, Beeswax		25						
	Pharmaceutical Aids: Acacia, Tragacanth, Sodium alginate		26						
	Pharmaceutical Aids: Agar, Guar gum, Gelatine		27						
	Miscellaneous: Squill, Galls		28						
	Miscellaneous: Ashwagandha, Tulsi, Guggul		29'30						
6	Plant fibres used as surgical dressings: Cotton, silk		1						
	Plant fibres used as surgical dressings: wool and regenerated fibres		2						
	Sutures – Surgical Catgut and Ligatures		3						
7	Basic principles involved in the traditional systems of medicine like: Ayurveda, Siddha		1						

	Unani and Homeopathy system of medicine		2						
	Method of preparation of Ayurvedic formulations like: Arista, Asava,		3						
	Method of preparation of Ayurvedic formulations like Gutika, Taila		4						
	Method of preparation of Ayurvedic formulations like Churna, Lehya		5						
	Method of preparation of Ayurvedic formulations like Bhasma		6						
8	Role of medicinal and aromatic plants in national economy		1						
	Export potential of medicinal and aromatic plants		2						
9	Herbs as health food: introduction		1						
	Brief introduction and therapeutic applications of: Nutraceuticals, Antioxidants		2						
	Pro-biotics, Pre-biotics, Dietary fibres		3						
	Omega-3-fatty acids, Spirulina, Carotenoids, Soya and Garlic		4						
10	Introduction to herbal formulations		1						
	Different types of herbal formulations available in the market		2						
	Traditional herbal dosage forms		3						
	Novel dosage forms		4						
11	Herbal cosmetics: Introduction		1						
	Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil		2						
	Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Lavender oil, Olive oil		3						

	Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Rosemary oil, Sandal Wood oil		4							
12	Phytochemical investigation of drugs: Introduction		1							
	Different chemical tests for identification of phytoconstituents		2							

PHARMACOGNOSY – PRACTICAL

Course Code: 212112 (ER20-13T)

75 Hours (3 Hours/week/Batch)

Name of Tutor/Teacher: Dr. Pooja Saini, Lecturer in Pharmacy

Schedule of Classes:

Practical: *Batch A*: Wednesday (02.00 – 05.00 PM)

Practical: *Batch B*: Thursday (02.00 – 05.00 PM)

Practical: *Batch C*: Monday (02.00 – 05.00 PM)

Scope: This course is designed to train the students in physical identification, morphological characterization, physical and chemical characterization, and evaluation of commonly used herbal drugs.

Course Objectives: This course will provide hands-on experiences to the students in

1. Identification of the crude drugs based on their morphological characteristics
2. Various characteristic anatomical characteristics of the herbal drugs studied through transverse section
3. Physical and chemical tests to evaluate the crude drugs

Course Outcomes: Upon successful completion of this course, the students will be able to

CO1.2P.1. Identify the given crude drugs based on the morphological characteristics

CO1.2P.2. Take a transverse section of the given crude drugs

CO1.2P.3. Describe the anatomical characteristics of the given crude drug under microscopical conditions

CO1.2P.4. Carry out the physical and chemical tests to evaluate the given crude drugs

Exp. No.	Experiment	Batch	Date	CO	PO	Coverage	Reason for discrepancy	Plans for compensation in backlog	Taught by	Verified by
1	Morphological Identification of Ispaghula, Senna	A								
		B								
		C								
2	Morphological Identification of Coriander, Fennel	A								
		B								
		C								
3	Morphological Identification of Cardamom, Ginger	A								
		B								
		C								
4	Morphological Identification of Nutmeg, Black Pepper	A								
		B								
		C								
5	Morphological Identification of Cinnamon, Clove	A								
		B								
		C								
6	Morphological Identification of Ephedra, Rauwolfia	A								
		B								
		C								
7	Morphological Identification of Gokhru, Punarnava	A								
		B								
		C								
8	Morphological Identification of Cinchona, Agar	A								
		B								
		C								
9	Transverse Section of Ajowain	A								
		B								
		C								
10	Transverse Section of Datura	A								
		B								
		C								
11	Transverse Section of Cinnamon	A								
		B								
		C								
12	Transverse Section of Cinchona,	A								
		B								
		C								
13	Transverse Section of Coriander	A								
		B								
		C								

14	Transverse Section of Ashwagandha	A								
		B								
		C								
15	Transverse Section of Liquorice	A								
		B								
		C								
16	Transverse Section of Clove	A								
		B								
		C								
17	Transverse Section of Curcuma	A								
		B								
		C								
18	Transverse Section of Nux vomica	A								
		B								
		C								
19	Transverse Section of Vasaka	A								
		B								
		C								
20	Physical and chemical tests for evaluation of Asafoetida	A								
		B								
		C								
21	Physical and chemical tests for evaluation of Benzoin	A								
		B								
		C								
22	Physical and chemical tests for evaluation of Pale catechu	A								
		B								
		C								
23	Physical and chemical tests for evaluation of Black catechu	A								
		B								
		C								
24	Physical and chemical tests for evaluation of Castor oil	A								
		B								
		C								
25	Physical and chemical tests for evaluation of Acacia	A								
		B								
		C								

ASSIGNMENTS

The students shall be asked to submit the written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Market preparations of various dosage forms of Ayurvedic, Unani, Siddha, Homeopathic (Classical and Proprietary), indications, and their labelling requirements
2. Market preparations of various herbal formulations and herbal cosmetics, indications, and their labelling requirements
3. Herb-Drug interactions documented in the literature and their clinical significances

SUGGESTED READINGS

1. Text book of Pharmacognosy by C. K. Kokate, S. B. Gokhale, A.P. Purohit, Nirali Prakashan Practical Organic Chemistry by Mann and Saunders.
2. Text book of Pharmacognosy by C.S. Shah and J. S. Qadry, CBS Publishers & Distributors Pvt. Ltd.
3. Text Book of Pharmacognosy by T. E. Wallis. CBS Publishers & Distributors Pvt. Ltd.
4. Study of crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
5. Powder crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
6. Anatomy of crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
7. Augmented Text Book of Homeopathic Pharmacy by Dr. D D Banerjee, B Jain Publishers (P) Ltd
