

LJ UNIVERSITY

LJ INSTITUTE OF PHARMACY

SEMESTER: VI

Subject Name: HERBAL DRUG TECHNOLOGY

Subject Code: BP605TP

Scope: The main purpose of subject is to give the students the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs

Objectives: Upon completion of the course student shall be able to

1. Acquire knowledge of Herbal and medicinal plants. Understand Basic principles involved in Indian Systems of Medicines
2. Summarize about Nutraceuticals. Understand Herbal-Drug, their possible side effects and Herb-Food Interactions with respect to few herbal drugs.
3. Summarize about herbal cosmetics and understand Significance of natural excipients. Familiarize with Conventional herbal formulations.
4. Acquire knowledge of Drugs WHO & ICH guidelines for herbal products. Understand guidelines -ASU DTAB, ASU DCC, Schedule Z of Drugs.
5. Familiarize about herbal drug industry and traditional Indian system of medicine. Acquire knowledge about plant based industries and institutions involved in work on medicinal and aromatic plants in India.

Teaching scheme and examination scheme:

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	1	4	6	75	25	35	15

Sr. No.	Course Contents	Hours
1	1.1 Herbs as raw materials Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation Source of Herbs Selection, identification and authentication of herbal materials Processing of herbal raw material 1.2 Study of various herbal monographs mentioned in different official books 1.3 Preparation and standardized plant extracts and principles of Garcenia, Garlic, Ashwagandha, Amla 1.4 Herbal drugs for modern diseases: Recent developments of natural products used as Anticancer agents, Antidiabetics, Hepatoprotectives, Hypolipidemic, Immunomodulators, Memory enhancer	12
2	2.1 Nutraceuticals General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases. Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina 2.2 Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.	7
3	3.1 Herbal Cosmetics Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums,	9

	<p>protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.</p> <p>3.2 Herbal excipients: Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.</p> <p>3.3 Herbal formulations : Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes</p>	
4	<p>Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs Stability testing of herbal drugs.</p> <p>Patenting and Regulatory requirements of natural products: a) Definition of the terms: Patent, IPR, Farmers right, Breeder’s right, Bioprospecting and Biopiracy b) Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.</p> <p>Regulatory Issues - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs</p>	9
5	<p>5.1 General Introduction to Herbal Industry Herbal drugs industry: Present scope and future prospects. A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.</p> <p>Schedule T – Good Manufacturing Practice of Indian systems of medicine Components of GMP (Schedule – T) and its objectives Infrastructural requirements, working space, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records.</p>	8
Total Hours		45

Practical

Morphological and microscopical investigation of crude drugs. Understand and apply the concepts of Isolation of phytoconstituents. Detection of phytoconstituents in herbal extract using Chromatographic techniques and chemical tests.

1. To perform preliminary phytochemical screening of crude drugs.
2. Evaluation of excipients of natural origin
3. Incorporation of prepared and standardized extract in cosmetic formulations like creams and shampoos and their evaluation.
4. Incorporation of prepared and standardized extract in cosmetic formulations like lotions and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Incorporation of prepared and standardized extract in formulations like tablets and their evaluation as per Pharmacopoeial requirements.
7. Monograph analysis of herbal drugs from recent Pharmacopoeias
8. Determination of Aldehyde content
9. Determination of Phenol content
10. Determination of total alkaloids
11. Estimation of carbohydrates in crude drugs/ extracts

Recommended Books (Latest Editions)

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale

4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy & Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in
7. Indian Medicine & Homeopathy)
8. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.