



TEACHING PLAN: HERBAL DRUG TECHNOLOGY

SCHOOL: (SOP) SCHOOL OF PHARMACY		ACADEMIC SESSION: 2023 – 2024		FOR STUDENTS’: B. Pharmacy Semester-VIth	
1	Course No.	BP 603 T			
2	Course Title	Herbal Drug Technology			
3	Credits	4			
4	Learning Hours	Contact Hours 45			
5	Course Objective	This subject gives the student 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			
6	Course Outcomes	Upon completion of this course the student should be able to: 1. understand raw material as source of herbal drugs from cultivation to herbal drug product 2. know the WHO and ICH guidelines for evaluation of herbal drugs 3. know the herbal cosmetics, natural sweeteners, nutraceuticals 4. Appreciate patenting of herbal drugs, GMP.			
7	Outline syllabus:				
7.01	Paper Code	Unit	Introduction	Page Numbers¹	Lectures
7.02	BP 603T Unit I	(a)	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	Textbook of Pharmacognosy by Trease & Evans Pharmacognosy by Kokate, Purohit and Gokhale	4
		(b)	Biodynamic Agriculture Good agricultural practices in cultivation of medicinal plants including Organic farming. Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.	Textbook of Pharmacognosy by Trease & Evans Pharmacognosy by Kokate, Purohit and Gokhale	3
		(c)	Indian Systems of Medicine a) Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy b) Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma.	Textbook of Pharmacognosy by Trease & Evans Pharmacognosy by Kokate, Purohit and Gokhale	6

7.03	BP 602T Unit II	(a)	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	Pharmacognosy by Kokate, Purohit and Gokhale, 18.1-18.16	4
		(b)	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.	Pharmacognosy by Kokate, Purohit and Gokhale, 18.1-18.16	3
		(a)	Herbal Cosmetics Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums colours, perfumes, protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.	Pharmacognosy by Kokate, Purohit and Gokhale, 20.01-20.11	4
		(b)	Herbal excipients: Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.	Pharmacognosy by Kokate, Purohit and Gokhale, 20.01-20.11	3
		(c)	Herbal formulations : Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes	Pharmacognosy by Kokate, Purohit and Gokhale, 20.01-20.11	3
7.04	BP 603T Unit III	a)	Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs.	Pharmacognosy by Kokate, Purohit and Gokhale 16.01-16.08	2
			Stability testing of herbal drugs	Pharmacognosy by Kokate, Purohit and Gokhale 16.01-16.08	1
			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	Pharmacognosy by Kokate, Purohit and Gokhale 16.01-16.08	6
	UNIT IV				

		and Natural Products. Case study of Curcuma & Neem.		
		Regulatory Issues – Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs Cosmetics Act for ASU drugs.	Pharmacognosy by Kokate, Purohit and Gokhale 16.01- 16.08	3
	a)	General Introduction to Herbal Industry Herbal drugs industry: Present scope and future prospects.	Textbook of Pharmacognosy by Trease & Evans	2
		A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.	Pharmacognosy by Kokate, Purohit and Gokhale	2
		Schedule T – Good Manufacturing Practice of Indian systems of medicine	Pharmacognosy by Kokate, Purohit and Gokhale	2
		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.	Textbook of Pharmacognosy by Trease & Evans	3
8	Course Evaluation			
8.1	Internal Assessment: Continuous Mode			
8.11	Attendance	4 Marks		
8.12	Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	3 Marks		
8.13	Student- Teacher Interaction	3 Marks		
9	Text Books & References			
9.1	Text book	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		
9.2	References	1.W.C.Evans, Trease and Evans Pharmacognosy, 16 th edition, W.B. Saunders & Co., London, 2009.		

		2. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
9.3	Video References	

QUESTION BANK

UNIT I

1. Define Herbal Medicine. Mention in detail about various sources of Herbs.
2. Write an descriptive note on processing of Herbal drugs
3. Explain Alternative system of Medicine. Write in detail about Tridosha and PanchTatva theory involved in Ayurveda system of medicine
4. Write about Good Agricultural Practices (GAP) in cultivation of medicinal plants briefly.
5. What is Pest? Give various types of Pesticides. Explain in detail about Bio - insecticides.

UNIT II

1. Mention the role of Fenugreek herb and Spirulina as Health Food
2. Define Nutraceuticals. Mention benefits of Nutraceuticals in various CVS disorders.
3. Write about Herbal -Drug interaction. Explain in detail one example each of Herb -drug and herb -food interaction.
4. Write in detail about role of Black Pepper as Bioavailability Enhancer
5. Explain types of Nutraceuticals available in market
6. What is probiotic and prebiotic products, give their health benefits.

UNIT III

1. Write a short note on Herbal excipients.
2. Explain advantages and significance of uses of herbal excipients
3. Define and classify the herbal cosmetics. Write down pharmacognosy of any plant used for skin cosmetics.
4. Write a note on herbal shampoo.
5. Enlist various herbal excipients and describe in detail about flavours and perfumes
6. Explain in detail about herbal phytosomes.

UNIT IV

1. Write short note on various guidelines for assessment of herbal drugs.
2. Explain in detail the procedures involved in stability testing of herbal drugs.
3. Define IPRs. Add a note on patents.
4. Write in detail on breeders rights and farmers rights as per the PPV and FR act, 2001

5. Give a few examples of biopiracy case related to curcuma and neem in India.
6. Write short notes on the composition and functions of ASU DTAB and ASU DCC.
7. Write a note on regulation of manufacture of ASU drugs according to D & C act.
8. Explain Schedule Z.

UNIT V

1. Describe the need of herbs and their present status in medicine and drug industry.
 2. Write briefly on herbal drug research in India.
 3. Why plant-based industries are in demand? Name some Indian institutions involved in plant based industries.
 4. How are medicinal plant based industries classified?
 5. Explain in detail the division of schedule T and add a note on its objectives.
 6. Mention the SOPs to be followed during the processing of pharmaceutical preparations.
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Subject Incharge-

Ms. Sarwati