

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm
SEMESTER: VIII

Subject Name: Pharmacognosy-VI

Subject Code: 2280005

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	3	6	80	20	80	20

Sr. No	Course Content	Total Hrs.
1.	Preparation of Herbal Extracts and their standardization: Introduction to different methods of preparation of plant extracts. Preparation of standardized plant extracts and principles of Garcenia, Garlic, Turmeric, Aswagandha and Amla.	7
2.	Evaluation of Phytopharmaceuticals: Phytopharmaceutical evaluation and modern analytical techniques for analysis of herbal drugs.	6
3	Isolation, identification and analysis of phytoconstituents: a. Terpenoids: β - carotenoids, Menthol, Citral, Artemisin, Vitamin A b. Glycosides: Sennosides, Diosgenin, Glycyrrhetic acid and Rutin c. Alkaloids: Atropine, Quinine, Reserpine, Morphine, Ephedrine, Caffeine d. Resin: Podophyllotoxin, Curcumin e. Antibiotic: Penicillin, Streptomycin	18
4	Herbal Drug Industry: Scope, Study of infrastructure, Staff requirement, Project profiles, Plant and equipment, Processing, Research and development and pilot scale up techniques. Quality assurance and concept of Schedule T, GMP and ISO-9000 in herbal drug industry.	7
5	Phytopharmacovigilance	2
6	Herbal drugs for modern diseases: Recent developments of natural products used as Anticancer agents, Antidiabetics, Hepatoprotectives, Antiasthmatic, Hypolipidemic, lythotryptic, Immunomodulators, Tranquilisers, Memory enhancer, Hypnotics	5

Practical – 22800P5

1. Isolation of Diosgenin from Fenugreek by preparative TLC and identification by TLC
2. Isolation of Diosgenin from Fenugreek by column chromatography.
3. Estimation of Diosgenin by quantitative TLC.

4. Estimation of Diosgenin by colorimetric method.
5. Isolation of Ephedrine and identification by TLC.
6. Estimation of Glycyrrhizinic acid by colorimetric method.
7. Isolation of Triammonium Glycyrrhizinate from Glycyrrhiza.
8. Estimation of carbohydrates in crude drugs/ extracts
9. TLC study of flavonoids of lemon peel, estimation of total flavonoids and isolation hesperidin.
10. Estimation of Total Phenolics and tannins from Harde.
11. Estimation of Total Phenolics and tannins in Trifala.
12. Preparation and evaluation of Amla extract.
13. Preparation and evaluation of Curcuma extract

References Books:

1. Pharmacognosy: C. K. Kokate, A. P. Purohit, S. B. Gokhale, Nirali Prakashan Pune, 42nd edition, 2008.
2. Trease and Evans Pharmacognosy. 16th Edition, William Charles Evans, W. Saunders, Edinburg, London, New York, Philadelphia, St. Louis, Sydney, Toronto, 2013.
3. Textbook of Industrial Pharmacognosy, A. N.Kalia, CBS Publishers & Distributors Pvt. Ltd., 1st Rev. Edition, 2011.
4. Herbal Drug Industry, R. D Chaudhry, Eastern Publications, New Delhi.
5. Natural Products as Medicinal Agents, Ed. J. L. Beal and E. Reinhard, Hippocratos Verlag Stuttgart; 1982
6. Chemistry of Natural products. S. V. Bhat, B. A. Nagasampagi, S. Meenakshi, Narosa Publishing House, New Delhi, 2005.
7. Medicinal plants glycosides, Sims, Toronto.
8. Natural Products, Vol I & II, O.P. Agrawal, Goel Publishing House, Meerut, 28th Edition, 2004.
9. Modern Methods of Plant Analysis, K. Peach and M. V. Tracey, Vol.1-4, Narosa Publisher House, New Delhi
10. Practical Pharmacognosy, Technique and Experiment, C. K. Kokate and S. B. Gokhale, Nirali Prakashan, Pune, 8th edition, 2005.
11. The Organic Constituents of Higher Plants. Their chemistry and interrelationships, Trevor Robinson, Burges Publishing Company, Minneapolis, USA, 1963.
12. Pharmacognosy: Phytochemistry Medicinal Plants, Jean Bruneton, 2nd Edition, Intercept Publications, Ltd., Editions TEC & DOC Paris, 1999.
13. Quality Control, Herbal Drugs, An approach to evaluation of Botanicals, P. K. Mukherjee, Business Horizons Pharmaceutical Publishers; 2002

14. The Practical Evaluation of Phytopharmaceutics, K. R. Brain and R. D. Turner, Wright-Scientechnics, Bristol.
15. Plant Drug Analysis: A Thin Layer Chromatography Atlas, H. Wagner, S. Bladt, Springer, New York, 2nd Edition, 2007.
16. Thin Layer Chromatography – A Laboratory Hand Book, E. Stahl, Springer (I) Pvt. Ltd., 2nd Edition, 2007.
17. WHO Publication.
18. The Wealth of India (Raw Material & Industrial Product), Council of Scientific Research, New Delhi, 1st Edition, 2005.
19. Indian Medicinal Plants, Kirtikar and Basu, 1st Edition, volume I to IV International Book Distributors, Dehradun, 1999.
20. The Ayurvedic Pharmacopoeia of India, Part I, (Vol. I–V), part II (I & II) Govt. of India, Ministry of Health and Family Welfare, Dept. of Indian Systems of Medicine and Homeopathy, New Delhi 2008.
21. The Ayurvedic Formulary of India, Vol. I, II and III, Published by Government of India, New Delhi, 1st Edition, 2000.
22. Indian Herbal Pharmacopoeia, 1st revised Edition, Published by RRL, Jammu and IDMA, Mumbai, 2002.
23. Quality Standards of Indian Medicinal Plants, Volume I to XI (2003 to 2013) Editor: Neeraj Tandon & Parul Sharma; By: Medicinal Plant Unit, ICMR, New Delhi.
24. Clark, E.C.G., Isolation and Identification of Drugs, The Pharmaceutics Press, London, 2nd Edition, 1986.
25. Laboratory Handbook for the fractionation of Natural extracts, Peter Houghton and Amala Raman, Chapman & Hall, Madras, 1st Edition, 1998.
26. British Herbal Pharmacopoeia, Published by British Herbal Medicines Association, 4th Edition, 1996.
27. Phytochemical reference standards of selected Indian Medicinal Plants, Vol I & II (2010 to 2012) Editor: Neeraj Tandon & Parul Sharma By: Indian Council of Medical Research, New Delhi.
28. Compendium of Indian Medicinal Plant Vol. 1 to 6, by Rastogi Ram P., Mehrotra B. N., CDRI & NISCOM, 1st Edition, New Delhi, 1998.