

# GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm  
SEMESTER: VI

**Subject Name: Pharmacognosy-IV**  
**Subject Code: 2260006**

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

## Theory

Sr No	Course Contents	Total Hrs
1	<b>Alkaloids:</b> Definition, classification, physico-chemical properties, general methods for isolation, biological sources, agronomy (cultivation, collection), processing, commercial varieties, chemical constituents, substitutes, adulterants, uses, diagnostic macroscopic, microscopic features and specific chemical tests of following alkaloid containing drugs a) <b>Pyridine – Piperidine:</b> Tobacco, Lobelia, Pomegranate, Piper, Areca nut b) <b>Tropane:</b> Datura, Belladonna, Hyocyamus, Scopolia, Withania, Dubosia, Cocca c) <b>Quinoline &amp; Isoquinoline:</b> Cinchona, Ipecac, Opium, Camptotheca d) <b>Indole:</b> Ergot, Rauwolfia, Catharanthus, Nuxvomica, Physostigma e) <b>Imidazole:</b> Pilocarpus f) <b>Steroidal:</b> Veratrum, Kurchi, Kantakari g) <b>Alkaloidal Amine:</b> Ephedra, Colchicum h) <b>Purines:</b> Coffee, Tea, Cola i) <b>Quinazoline:</b> Vasaka j) <b>Diterpene Alkaloids:</b> Aconite, Taxus k) <b>Others:</b> Tylophora	31
2	<b>Enzymes:</b> Biological sources, preparation, identification test and uses of Diastase, Papain, Pepsin, Trypsin, Pancreatin, Bromalein, Ficin, Penicillinase, Hyalluronidase, Streptokinase, Urokinase.	6
3	<b>Pharmaceutical Aids:</b> Talc, Diatomite, Fibres and Natural colours.	4
4	<b>Marine Pharmacognosy:</b> Novel medicinal agents from marine sources	4

## Practical – 22600P6

- Study of Morphology, Microscopy and TLC of crude drugs: (T.S., Powder and TLC of underlined drugs):
  - Datura, Tobacco, Pomegranate, *Piper longum*, *Piper nigrum*
  - Withania (Root), Belladonna, Hyocyamus, Dubosia, Lobelia, Areca

- c. Cinchona, Ipecac, Campotheca
  - d. Rauwolfia, Ergot
  - e. Nuxvomica, Catharanthus, Physostigma
  - f. Kurchi, Kantakari (Leaf & Stem)
  - g. Ephedra, Colchicum, (Seed & Corm)
  - h. Vasaka, Coffee, Tea, Cola
  - i. Tylophora, Aconite, Taxus
2. Study of Morphology and chemical tests of Talc, Diatomite, Fibres and Natural colour containing drugs. Microscopy of raw and absorbent Cotton, Wool, Jute, Silk and Rayon.
  3. Isolation of Quinine from Cinchona.
  4. Isolation of Caffeine from Tea
  5. Isolation of Piperine from Black Piper.
  6. Estimation of Total Alkaloids from Datura by Titrimetric method.
  7. Estimation of Quinine by UV Spectroscopy.

#### References Books:

1. Cultivation and Utilization of Medicinal Plants, Atal C. K. and Kapur B. M., RRL Jammu, 1st Edition, 1989.
2. Supplement to Cultivation and Utilization of Medicinal Plants, Handa, S.S. and Kaul, M.K., 1996. RRL, CSIR Publication, Jammu Tawi.
3. A Text book of Pharmacognosy: Shah C. S., Quadry J. S., B. S. Shah Prakashan, Ahmadabad. 15<sup>th</sup> Edition, 2009.
4. Pharmacognosy: Kokate C. K., Purohit A. P., Gokhale S. B., Nirali Prakashan Pune, 42nd edition, 2008.
5. Textbook of Pharmacognosy: Wallis T. E., CBS Publishers and Distributors, New Delhi, 5th Edition, reprinted, 2009.
6. Trease and Evans Pharmacognosy. 16h Edition, William Charles Evans, W. Saunders, Edinburg London New York Philadelphia St. Louis Sydney Toronto 2009.
7. Natural Products, Vol I & II, by Agrawal O. P., Goel Publishing House, Meerut, 28th Edition, 2004.
8. Chemistry of Natural products. Bhat SV, Nagasampagi BA, Meenakshi S. Narosa Publishing house, New Delhi, 2005.
9. Medicinal Natural Products a Biosynthetic Approach, Dewick Paul M. John Wiley and Sons, West Sussex, 2009.
10. Natural Products as Medicinal Agents, Ed. Beal J. L. and Reinhard.E , Hippocratos Verlag Stuttgart; 1982
11. Natural products by Ikan R., Academic Press, California, 1st Edition, 2005.
12. Pharmacognosy and Pharmacobiotechnology by Ashutosh Kar, 2nd Edition, New Age International Pvt. Ltd.; New Delhi, 2007.
13. Pharmacognosy and Pharmacobiotechnology. James E. Robbers, Marilyn K. Speedie, Varro E. Tyler, Baltimore: Williams & Wilkins, 1996; a Wavery Company, USA.

- 14.** Pharmacognosy: Phytochemistry Medicinal Plants by Bruneton Jean, 2nd Edition, Intercept Publications, Ltd., TEC & DOC Paris, 1999.
- 15.** The Organic Constituents of Higher Plants. Their chemistry and interrelationships. Robinson Trevor, Burges Publishing Company, Minneapolis, USA, 1963.
- 16.** Practical Pharmacognosy, Technique and Experiment by Kokate C. K. and Gokhale S. B., Nirali Prakashan, Pune, 8<sup>th</sup> edition, 2005.
- 17.** The Wealth of India (Raw Material & Industrial Product), Published by Council of Scientific Industrial Research, New Delhi, 1st Edition, (1950-2014).
- 18.** Indian Medicinal Plants by Kirtikar and Basu, 1st Edition, International Book Distributors, Dehradun, 1999.
- 19.** Compendium of Indian Medicinal Plant Vol. 1 to 6, by Rastogi Ram P., Mehrotra B. N., CDRI & NISCOM, 1st Edition, New Delhi, 1998.
- 20.** Review on Indian Medicinal Plants, Vol I to XI (2004 to 2014) Editor: Gupta A K & Tundon Neeraj. By: Indian Council of Medicinal Research (ICMR), New Delhi.
- 21.** Powdered Vegetable Drugs by Jackson B. P. & Snewden D. W..
- 22.** Chanhani M. G & Pillai A. P.G, Microscopic profile of powdered drugs used in Indian system of medicine, Volume I, Bark drugs 2005, Institute of Ayurvedic medicinal plant science, Gujarat Ayurved University, Jamnagar.
- 23.** Chauhan M. G & Pillai A.P.G, "Microscopic profile of powdered drugs used in Indian systems of Medicine, Leaf Drugs, Vol 2, 2007, Institute of P.G Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar.
- 24.** Chauhan M. G & Pillai A.P.G, "Microscopic profile of Drugs used in Indian system of Medicine, Seed drugs, Volume- 3, part- 1, 2011; Publisher: Prof Malati G Chauhan, P.G T- S.F C cell, I.P. G T. & R.A, Gujarat Ayurved University, Jamnagar.