

1.2 Pharmacognosy-II

1. General methods of extraction, isolation, identification, characterization of various groups of photoconstituents, viz. Carbohydrates, Glycosides, Phenolic compounds, fixed oils, Volatile oils, Resins, Steroids, Alkaloids.
2. Isolation, analysis in natural sources and chemotaxonomic distribution of the following phytoconstituents of medicinal and industrial significance.
 - (i) Alkaloids: Atropine, Hyoscyne, Colchicine, Ergometrine, Morphine, Papaverine, Quinine, Strychnine, Reserpine, Ephedrine, Caffeine.
 - (ii) Glycosides: Aloin, Sennoside, Digoxin, Digoxin, Diosgenin.
 - (iii) Flavonoids and coumarins: Rutin, Psoralen, Xanthotoxin.
 - (iv) Terpenes: Menthol, Thymol.
3. Biological sources, preparation, identification tests and uses of the following enzymes: Diastase, Hyluronidase, Penicillinase, Pepsin, Papain, Trypsin, Pancreatin, Streptokinase.
4. Study of natural allergins/ allergenic substances, hallucinogens and antitumor drugs.
5. Biogenesis of medicinally important secondary plant metabolites.
6. Preparation and standardization of Ayurvedic formulation, Avavas, Arishthas, Avleha, Churna & Bhasma.
7. Study of Indigenous Traditional drugs: Botanical sources including alternative, controversial sources, clinical uses, chemical constituents, Pharmacological actions and authentication of the following Ayurvedic drugs:
 - Amla (*Phyllanthus emblica*)
 - Baheda (*Terminalia balerica*)
 - Kantkari (*Solanum xanthocarpum*)
 - Malkaghi (*Celstrus paniculatus*)
 - Tylophora (*Tylophora indica*)
 - Satavar (*Asparagus racemosus*)
 - Bhilawa (*Semecarpus anacardium*)
 - Kalijiri (*Vernonia anthelminatica*)
 - Kaner (*Nerium indicum*)
 - Bach (*Acorus calamus*)
 - Rasna (*Pluchia lanceolata*)
 - Punarnava (*Boerhavia diffusa*)
 - Chitrak (*Plumbago zeylanica*)
 - Apamarg (*Achyranthus aspera*)
 - Gokhru (*Tribulus terrestris*)
 - Shankhpushpi (*Convolvulus microphyllus*)
 - Gaduchi (*Tinospora cordifolia*)
 - Nirgundi (*Vitex negundo*)

Brahmi (*Cemntella asiatica*)
Lahsun (*Allium sativum*)
Palash (*Butla monosperma*)
Majith (*Rubia cordifolia*)
Guggal (*Commiphora mukul*)
Vasaka (*Adhatoda vasica*)

PRACTICALS

1. Identification of sources, chemical analysis and isolation of some phytopharmaceuticals mentioned in theory.
2. Study of morphological sensory characters, chemical, and microchemical tests and TLC pattern of some selected indigenous drugs mentioned in theory.
3. Standardization of drugs/ plants/ indigenous preparations by determination of total solids, alcohol contents, TLC pattern of active principles and chemical analysis.
4. Histological study of powdered drugs found ac component of churna and mixture as churna.

Books Recommended:

1. Cultivation and utilization of medicinal plants. Eds. C.K. Atal & B.M. Kapoor, CSIR, New Delhi.
2. Biosynthetic products for cancer chemotherapy by George Pattit Vol. I, II, III, Plenum Press, New York.
3. Natural products as medicinal agents, Ed., J.L. Beal and Reinhard Hippocrates Verleg.
4. New Natural products and Plant Drugs with Pharmacological, biological as therapeutic activity, Ed. H. Wagner and P. Woff springer, Verleg.
5. Medicinal Plant glycosides- Sim, Toronto.
6. Medicinal Plant Alkaloids- Sim, Toronto.
7. Wealth of India, CSIR Publication, New Delhi.
8. Modern methods of plant analysis, Peach & Tracey.
9. Indian Pharmacopoeia and European Pharmacopoeia.
10. Phytochemical methods – A Guide to modern techniques of plant Analysis by J.B. Harborn, IInd Ed., London.
11. Biochemistry of Alkaloids by Mothes, Schitte and M. Luckner.
12. Ayurvedic Pharmacopoeia.