

- Handbook of Experimental Pharmacology by Kulkarni S.K., Vallabh Prakashan.

BP405T. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)

45 Hours

Course Content:

Unit-I

10 Hours

Introduction to Pharmacognosy:

Definition, history, scope and development of Pharmacognosy.

Sources of Drugs – Plants, Animals, Marine & Tissue culture.

Organized drugs, unorganized drugs (dried latex, dried juices, dried extracts, gums and mucilage, oleoresins and oleo- gum -resins).

Classification of drugs:

Alphabetical, morphological, taxonomical, chemical, pharmacological, chemo and sero taxonomical classification of drugs.

Quality control of Drugs of Natural Origin:

Adulteration of drugs of natural origin. Evaluation by organoleptic, microscopic, physical, chemical and biological methods and properties.

Quantitative microscopy of crude drugs including lycopodium spore method, leaf constant, camera lucida and diagrams of microscopic objects to scale with camera lucida.

Unit-II

10 Hours

Cultivation, Collection, Processing and storage of drugs of natural origin: Cultivation and Collection of drugs of natural origin. Factors influencing cultivation of medicinal plants. Plant hormones and their applications.

Polyploidy, mutation and hybridization with reference to medicinal plants.

Conservation of medicinal plants.

Unit-III

07 Hours

Plant tissue culture:

Historical development of plant tissue culture, types of cultures, Nutritional requirements, growth and their maintenance.

Applications of plant tissue culture in pharmacognosy.

Edible vaccines.

Unit-IV

10 Hours

Pharmacognosy in various systems of medicine:

Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine.

Introduction to secondary metabolites:

Definition, classification, properties and test for identification of Alkaloids, Glycosides, Flavonoids, Tannins, Volatile oil and Resins.

Unit-V**08 Hours**

Study of biological source, chemical nature and uses of drugs of natural origin containing following drugs.

Plant Products:

Fibers - Cotton, Jute, Hemp.

Hallucinogens, Teratogens, Natural allergens.

Primary metabolites:

General introduction, detailed study with respect to chemistry, sources, preparation, evaluation, preservation, storage, therapeutic used and commercial utility as Pharmaceutical Aids and/or Medicines for the following primary metabolites:

Carbohydrates: Acacia, Agar, Tragacanth, Honey.

Proteins and Enzymes: Gelatin, casein, proteolytic enzymes (Papain, bromelain, serratiopeptidase, urokinase, streptokinase, pepsin).

Lipids (Waxes, fats, fixed oils): Castor oil, Chaulmoogra oil, Wool Fat, Bees Wax.

Marine Drugs: Novel medicinal agents from marine sources.

BP408P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical)

4 Hours/Week

1. Analysis of crude drugs by chemical tests:
 - (i) Tragacanth.
 - (ii) Acacia.
 - (iii) Gelatin.
 - (iv) Starch.
 - (v) Honey.
 - (vi) Castor oil.
 - (vii) Agar.
2. Determination of stomatal number and index.
3. Determination of vein islet number, vein islet termination and palisade ratio.
4. Determination of size of starch grains, calcium oxalate crystals by eye piece micrometer.
5. Determination of Fiber length and width.
6. Determination of number of starch grains by Lycopodium spore method.
7. Determination of Ash value.
8. Determination of Extractive values of crude drugs.
9. Determination of moisture content of crude drugs.
10. Determination of swelling index and foaming.

Recommended Books: (Latest Editions)

- Trease and Evans Pharmacognosy by W.C. Evans, 16th edition, W.B. Saunders & Co., London.
- Pharmacognosy by Tyler V.E., Brady L.R. and Robbers J.E., 9th Ed., Lea and Febiger, Philadelphia.
- Textbook of Pharmacognosy by Wallis T.E., CBS Publishers & Distributers Pvt. Ltd., New Delhi.
- Pharmacognosy and Phytochemistry by Mohammad Ali, CBS Publishers & Distribution, New Delhi.
- Textbook of Pharmacognosy by C.K. Kokate, Purohit, Gokhale (2007), 37th Edition, Nirali Prakashan, New Delhi.
- Herbal Drug Industry by R.D. Choudhary (1996), 1st Ed., Eastern Publisher, New Delhi.
- Essentials of Pharmacognosy, Dr. S.H. Ansari, 2nd Ed., Birla publications, New Delhi.
- Practical Pharmacognosy: C.K. Kokate, Purohit, Gokhale, Vallabh Prakashan, Delhi.
- Pharmacognosy of Powdered Crude Drugs by M.A. Iyengar, PharmaMed Press, Hyderabad.