

# Course Outline (Syllabus)

**BPH 122 Pharmacognosy-II**

**3 credits**

(Pre-requisite: Pharmacognosy-I)

## For Mid-Term Examination

1. Phytochemistry and pharmaceutical / pharmacological uses of the following plant constituents along with considerations of some important local and foreign drugs of each group.
    - A. **Glycosides and glycoside-containing drugs:** Introduction, classifications & biosynthesis of glycosides. The details of the following classes of glycosides and glycoside-containing drugs:
      - I. Cardiac: Digitalis, Strophanthus, Squill, Nerium.
      - II. Anthraquinones: Cascara sagrada, Aloe, Senna, Rhubarb.
      - III. Saponins: Sarsaparilla, Glycyrrhiza, Dioscorea.
      - IV. Cyanogenic: Wild Cherry.
      - V. Isothiocyanate: Mustard (Black mustard and White mustard).
      - VI. Other glycosides like alcohol, phenol, aldehyde, flavonoid, lactone, etc. and neutral principles: Gentian, Quassia, Saffron.
    - B. **Alkaloids:** The details of the following:
      - I. Tropane: Belladonna, Stramonium, Hyoscyamus, etc.
      - II. Quinoline: Cinchona, Cusparia.
      - III. Isoquinoline: Ipecac, Opium, Sanguinaria, Curare.
      - IV. Indole: Rauwolfia, Nux vomica, Ergot, Catharanthus.
      - V. Imidazole: Pilocarpine.
      - VI. Steroidal: Veretrum viride, Aconite.
      - VII. Lupinea: Lupinus spp.
      - VIII. Purine base-Coffee, Tea.
- Biosynthesis of tropane, quinoline, isoquinoline and indole alkaloids.

## For Final Examination

- C. **Volatile oils and related terpenoids:** Methods of obtaining volatile oils, chemistry, their medicinal and commercial uses, biosynthesis of some important volatile constituents used as drugs. The details of the following classes of volatile oils:
  - I. Terpenes or sesquiterpenes: Pinus, Juniper, Cade.
  - II. Alcohols: Coriander, Sandalwood.
  - III. Ester: Peppermint, Lavender, Rosemary.
  - IV. Aldehydes: Cinnamon, Eucalyptus, Lemon, Lemon grass.
  - V. Ketons: Spearmint, Caraway, Dill, Camphor.
  - VI. Phenols: Clove, Cinnamon, Ajowan.

VII. Ethers: Fennel, Nutmeg, Eucalyptus, Anise, Cajuput.

VIII. Peroxides: Chenopodium.

IX. Others: Mustard, Wintergreen, Bitter almond.

**D. Phenolic compounds and tannins:** Chemical nature and tests for tannins and some tannin-containing drugs such as Nutgall and Catechu.

**E. Resin and resin combinations:** General consideration, classification and study of resin, oleo resin, oleo-gum resin, tolu balsam and benzoin.

2. **Herb as health foods:** Alfa alfa, Apricot, Pits, Arnica, Garlic, Onion, Ginseng, Spirulina, Fenugreek, Sassafras, Honey, Nigella etc.
3. **Poisonous plants and natural pesticides:** Datura, Poison hemlock, Water hemlock, Foxglove (digitalis), Ipornoca, Tobacco, Poppy, Pyrethrum flower, Derris & Lanchoarpus, Red squill, Strychnine, etc.

### **Recommended Books:**

1. Pharmacognosy- Varro E. Tyler, Lynn R. Brady & James E. Robbers, 9<sup>th</sup> edition, Lea & Febiger, Philadelphia.
2. Pharmacognosy- Trease & Evans.
3. Pharmacognosy- Edward P. Claus, Varro E. Tyler, 5<sup>th</sup> edition, Lea & Febiger, Philadelphia
4. Textbook of Pharmacognosy- T. E. Wallis, 5<sup>th</sup> edition, J & A Churchill.
5. Practical Pharmacognosy- Rasheeduz Zafar, 1<sup>st</sup> edition, CBS Publishers.
6. Natural Products, A Laboratory Guide - Raphael Ikan, Acadec Press, Inc., London.