

GUJARAT TECHNOLOGICAL UNIVERSITY

Pharm.D. 2nd year

Subject Name: Pharmacognosy & Phytopharmaceuticals

Subject Code: 828803

Scope: This subject has been introduced for the pharmacy course in order to make the student aware of medicinal uses of various naturally occurring drugs its history, sources, distribution, method of cultivation, active constituents, medicinal uses, identification tests, preservation methods, substitutes and adulterants.

Objectives: Upon completion of the subject student shall be able to –

- under stand the basic principles of cultivation, collection and storage of crude drugs;
- know the source, active constituents and uses of crude drugs; and
- appreciate the applications of primary and secondary metabolites of the plant.

Theory (3 Hours/ Week, Total: 90 Hours)

| Teaching Scheme (Hours) | | | | Evaluation Scheme (Marks) | | | | Total Marks |
|-------------------------|----------|-----------|-------|---------------------------|----------|-----------|----------|-------------|
| Theory | Tutorial | Practical | Total | Theory | | Practical | | |
| | | | | External | Internal | External | Internal | |
| 3 | 1 | 3 | 7 | 70 | 30 | 70 | 30 | 200 |

| Sr. No. | Course Contents | Hours | Module Weightage |
|---------|--|-------|------------------|
| 1 | Introduction. | 1 | 1% |
| 2 | Definition, history and scope of Pharmacognosy. | 3 | 3% |
| 3 | Classification of crude drugs. | 4 | 4.5% |
| 4 | Cultivation, collection, processing and storage of crude drugs. | 9 | 10% |
| 5 | Detailed method of cultivation of crude drugs. | 3 | 3% |
| 6 | Study of cell wall constituents and cell inclusions. | 3 | 3% |
| 7 | Microscopical and powder microscopical study of crude drugs. | 10 | 11% |
| 8 | Study of natural pesticides. | 4 | 4.5% |
| 9 | Detailed study of various cell constituents | 15 | 17% |
| 10 | Carbohydrates and related products. | 3 | 3% |
| 11 | Detailed study carbohydrates containing drugs.(11 drugs) | 9 | 10% |
| 12 | Definition sources, method extraction, chemistry and method of analysis of lipids. | 8 | 9% |
| 13 | Detailed study of oils. | 8 | 9% |
| 14 | Definition, classification, chemistry and method of analysis of protein. | 4 | 4.5% |
| 15 | Study of plants fibers used in surgical dressings and related products. | 4 | 4.5% |
| 16 | Different methods of adulteration of crude drugs. | 2 | 2% |

Course Materials:

Text books (Theory)

- a. Pharmacognosy by G.E. Trease & W.C.Evans. Latest Edition
- b. Pharmacognosy by C.K.Kokate,Gokhale & A.C.Purohit. Latest Edition

Text books (Practical)

- a. Practical Pharmacognosy -Techniques and Experiments. Dr. K R Khandelwal and Dr. Vrunda Sethi. Nirali Prakashan. Latest Edition.
- b. Experimental Phytopharmacognosy- A comprehensive guide. Dr. S S Khadabadi, Dr. S L Deore and B A Baviskar. Nirali Prakashan. Latest Edition.

Reference books

- a. Pharmacognosy by Brady &Tyler.E. Latest Edition
- b. Pharmacognosy by T.E.Wallis. Latest Edition
- c. Pharmacognosy by C.S. Shah & Qadery. Latest Edition
- d. Pharmacognosy by M.A. Iyengar. Latest Edition

Practical (3 Hours/ Week, Total: 90 Hours)

| Sr. No. | Experiments |
|----------------|---|
| 1 | Introduction of Pharmacognosy laboratory and experiments. |
| 2 | Study of cell wall constituents and cell inclusions. |
| 3 | Macro, powder and microscopic study of Datura. |
| 4 | Macro, powder and microscopic study of Senna. |
| 5 | Macro, powder and microscopic study of Cassia.cinnamon. |
| 6 | Macro, powder and microscopic study of Cinchona. |
| 7 | Macro, powder and microscopic study of Ephedra. |
| 8 | Macro, powder and microscopic study of Quassia. |
| 9 | Macro, powder and microscopic study of Clove. |
| 10 | Macro, powder and microscopic study of Fennel. |
| 11 | Macro, powder and microscopic study of Coriander. |
| 12 | Macro, powder and microscopic study of Isapgol. |
| 13 | Macro, powder and microscopic study of Nux vomica. |
| 14 | Macro, powder and microscopic study of Rauwolfia. |
| 15 | Macro, powder and microscopic study of Liquorice. |
| 16 | Macro, powder and microscopic study of Ginger. |
| 17 | Macro, powder and microscopic study of Podophyllum. |

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| 18 | Determination of Iodine value. |
| 19 | Determination of Saponification value and unsaponifiable matter. |
| 20 | Determination of ester value. |
| 21 | Determination of Acid value. |
| 22 | Chemical tests for Acacia. |

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| 23 | Chemical tests for Tragacanth. |
| 24 | Chemical tests for Agar. |
| 25 | Chemical tests for Starch. |
| 26 | Chemical tests for Lipids.(castor oil, sesame oil, shark liver oil, bees wax) |
| 27 | Chemical tests for Gelatin. |

Scheme of Practical Examination

| | Internal/ Sessional | External |
|-------------------|----------------------------|-----------------|
| Identification | 04 | 10 |
| Synopsis | 04 | 10 |
| Major Experiment | 07 | 20 |
| Minor Experiment | 03 | 15 |
| Viva | 02 | 15 |
| Max. marks | 20 | 70 |
| Duration | 3 hours | 4 hours |

Note: Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance)

