



# SILVER OAK UNIVERSITY

Silver Oak College of Pharmacy (067)

Programme Name: D. Pharm (18)

Subject Name: Pharmacognosy

Subject Code: 1180672103

Year: I

## Prerequisite:

1. This course is designed to impart knowledge on the medicinal uses of various drugs of natural origin. Also, the course emphasizes the fundamental concepts in the evaluation of crude drugs, alternative systems of medicine, nutraceuticals and herbal cosmetics.

## Objective: Upon completion of the course student shall be able to

1. Occurrence, distribution, isolation, identification tests of common phytoconstituents
2. Therapeutic activity and pharmaceutical applications of various natural drug substances and phytoconstituents
3. Biological source, chemical constituents of selected crude drugs and their therapeutic efficacy in common diseases and ailments
4. Basic concepts in quality control of crude drugs and various system of medicines
5. Applications of herbs in health foods and cosmetics

## Teaching Scheme

| Teaching Scheme |   |   |               |        |
|-----------------|---|---|---------------|--------|
| L               | T | P | Contact Hours | Credit |
| 4               | 1 | 3 | 8             | 8      |

## Content:

| Unit No. | Contents  | Teaching Hours | Weightage % |
|----------|---|----------------|-------------|
| 1        | Definition, history, present status and scope of Pharmacognosy  | 2              | 3           |
| 2        | <b>Classification of drugs:</b> <ul style="list-style-type: none"><li>● Alphabetical</li><li>● Taxonomical</li><li>● Morphological</li><li>● Pharmacological</li><li>● Chemical</li><li>● Chemo-taxonomical</li></ul> | 4              | 5           |
| 3        | <b>Quality control of crude drugs:</b> <ul style="list-style-type: none"><li>● Different methods of adulteration of crude Drugs Evaluation of crude drugs</li></ul>   | 6              | 9           |
| 4        | Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of   | 4              | 5           |

|                     |   |    |    |  |
|---------------------|---|----|----|--|
|                     | alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.   |    |    |  |
| 5                   | <b>Biological source, chemical constituents and therapeutic efficacy of the following categories of crude drugs.</b>  | 34 | 46 |  |
|                     | Laxatives   |    |    | Aloe, Castor oil, Ispaghula, Senna   |
|                     | Cardiotonic   |    |    | Digitalis, Arjuna  |
|                     | Carminatives and G.I. regulators  |    |    | Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon |
|                     | Astringents   |    |    | Myrobalan, Black Catechu   |
|                     | Drugs acting on nervous system  |    |    | Hyoscyamus, Belladonna, Ephedra, Opium, Tea leaves, Coffee seeds, Coca                 |
|                     | Anti-hypertensive   |    |    | Rauwolfia  |
|                     | Anti-tussive  |    |    | Vasaka, Tolu Balsam  |
|                     | Anti-rheumatics   |    |    | Colchicum seed   |
|                     | Anti-tumour   |    |    | Vinca, Podophyllum   |
|                     | Antidiabetics   |    |    | Pterocarpus, Gymnem  |
|                     | Diuretics   |    |    | Gokhru, Punarnava  |
|                     | Anti-dysenteric   |    |    | Ipecacuanha  |
|                     | Antiseptics and disinfectants   |    |    | Benzoin, Myrrh, Neem, Turmeric   |
|                     | Antimalarials   |    |    | Cinchona, Artemisia  |
|                     | Oxytocic  |    |    | Ergot  |
|                     | Vitamins  |    |    | Cod liver oil, Shark liver oil   |
| Enzymes             | Papaya, Diastase, Pancreatin, Yeast   |    |    |  |
| Pharmaceutical Aids | Kaolin, Lanolin, Beeswax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatine   |    |    |  |
| Miscellaneous       | Squill, Galls, Pale catechu, Ashwagandha, Vasaka, Tulsi, Guggul   |    |    |  |
| 6                   | Plant fibres used as surgical dressings: Cotton, silk, wool and regenerated fibres Sutures – Surgical Catgut and Ligatures  | 3  | 4  |  |
| 7                   | <b>Basic principles involved in the traditional systems of medicine like:</b> Ayurveda, Siddha, Unani and Homeopathy<br><b>Method of preparation of Ayurvedic formulations like:</b> Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma | 8  | 12 |  |
| 8                   | Role of medicinal and aromatic plants in national economy and   | 2  | 3  |  |

|    |  |   |   |
|----|--|---|---|
|    | their export potential   |   |   |
| 9  | Herbs as health food: Brief introduction and therapeutic applications of: Nutraceuticals, Antioxidants, Pro-biotics, Pre-biotics, Dietary fibres, Omega-3-fatty acids, Spirulina, Carotenoids, Soya and Garlic | 4 | 5 |
| 10 | Herbal cosmetics: Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil                 | 4 | 5 |
| 11 | Phytochemical investigation of drugs   | 2 | 3 |

### Course Outcome:

| Sr. No. | CO statement  |
|---------|---|
| CO-1    | Identify the important/common crude drugs of natural origin           |
| CO-2    | Describe the uses of herbs in nutraceuticals and cosmeceuticals       |
| CO-3    | Discuss the principles of alternative system of medicines             |
| CO-4    | Describe the importance of quality control of drugs of natural origin |

### Teaching & Learning Methodology: -

The various methods or tools follows by the faculties to teach the above subject are:

1. Student-centred learning.
2. Experiential learning.
3. Power Point Presentation

### List of Tutorials/Experiments:

Students will perform following Experiments OR

The students will have to solve at least five examples and related theory from each topic as an assignment/tutorial.

#### 1. Morphological Identification of the following drugs:

Ispaghula, Senna, Coriander, Fennel, Cardamom, Ginger, Nutmeg, Black Pepper, Cinnamon, Clove, Ephedra, Rauwolfia, Gokhru, Punarnava, Cinchona, Agar.

#### 2. Gross anatomical studies (Transverse Section) of the following drugs:

Ajwain, Datura, Cinnamon, Cinchona, Coriander, Ashwagandha, Liquorice, Clove, Curcuma, Nuxvomica, Vasaka

#### 3. Physical and chemical tests for evaluation of any FIVE of the following drugs:

Asafoetida, Benzoin, Pale catechu, Black catechu, Castor oil, Acacia, Tragacanth, Agar, Guar gum, Gelatine.

**Books Recommended: - (minimum 3 books)**

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Tyler, V.E., Brady, L.R. and Robbers, J.E., Pharmacognosy, 9th Edn., Lea and Febiger, Philadelphia, 1988.
3. Text Book of Pharmacognosy by T.E. Wallis
4. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
5. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (2007), 37th Edition, Nirali Prakashan, New Delhi.
6. Herbal drug industry by R.D. Choudhary (1996), Ist Edn, Eastern Publisher, New Delhi.
7. Essentials of Pharmacognosy, Dr.SH.Ansari, IInd edition, Birla publications, New Delhi, 2007
8. Practical Pharmacognosy: C.K. Kokate, Purohit, Gokhlae
9. Anatomy of Crude Drugs by M.A. Iyengar List of

**Open-Source Software/learning website:**

- <http://silveroakuni.ac.in/video-lecture>
- <https://nptel.ac.in/>
- <https://nptel.ac.in/courses/112/105/112105124/>