

## PS603: HERBAL DRUG TECHNOLOGY

B.Pharm. III Year II Sem.

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**Course Objectives:** This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs

**Course Outcomes:** Upon completion of this course the student should be able to:

1. understand raw material as source of herbal drugs from cultivation to herbal drug product
2. know the WHO and ICH guidelines for evaluation of herbal drugs
3. know the herbal cosmetics, natural sweeteners, nutraceuticals
4. appreciate patenting of herbal drugs, GMP .

### UNIT – I

6 Hours

#### 1. Herbs as raw materials

Definition of herb, herbal medicine, herbal drug preparation Source of Herbs  
Selection, identification and authentication of herbal materials Processing of herbal raw material

#### 2. Biodynamic Agriculture

Good agricultural practices in cultivation of medicinal plants including Organic farming.  
Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

#### 3. General Introduction to Herbal Industry

Herbal drugs industry: Present scope and future prospects.  
A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.

### UNIT – II

7 Hours

#### 1. Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.

Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina

2. **Herbal-Drug and Herb-Food Interactions:** General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.

### UNIT - III

10 Hours

#### 1. Herbal Cosmetics

Principles and preparation of herbal cosmetics formulations- Shampoos, Dyes, face creams, tooth pastes and Bleaching agents.

#### 2. Herbal excipients:

Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.

#### 3. Herbal formulations :

Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes

**UNIT – IV****10 Hours**

1. **Evaluation of Drugs** WHO & ICH guidelines for the assessment of herbal drugs Stability testing of herbal drugs.
2. **Patenting and Regulatory requirements of natural products:**
  - a. Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy
  - b. Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.
3. **Regulatory Issues** - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs.

**UNIT – V****07 Hours**

**Schedule T – Good Manufacturing Practice of Indian systems of medicine** Components of GMP (Schedule – T) and its objectives

Infrastructural requirements, working space, storage area, machinery and equipment, standard operating procedures, health and hygiene, documentation and records.

**Recommended Books: (Latest Editions)**

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr. S.H. Ansari
5. Pharmacognosy & Phytochemistry by V.D. Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.
8. Herbal drug Technology. By SS Agrawal and M Paridhavi
9. Indian Medicinal Plants A compendium of 500 species Vol 1, 11, 111, 1V & V By Arya vaidys sala , Universities Press