

Semester II - Post Graduate Pharmacy

Standardization and Stabilization Method of Herbal Formulation

EVALUATION OF HERBAL DRUGS AND FORMULATIONS (CG)

THEORY

1. Development of Ayurvedic and Herbal formulations and their evaluation by physical methods, chemical methods and microscopical techniques.
2. Application of various chromatographic methods in separation and identification of marker compounds in the formulations. Fingerprinting techniques and its importance.
3. Development of analytical techniques for the estimation of markers present in the Herbal and classical formulations.
4. Evaluation of Herbal drugs and formulations by Biological methods. General animal models for screening of Herbal drugs and formulations.
5. Toxicological evaluations of herbal drugs and formulations. Methods and materials for Acute, sub acute and chronic toxicity studies. Teratogenicity, mutagenicity and carcinogenicity studies. WHO and other regulatory requirements for toxicological evaluations.
6. WHO and Indian regulatory requirements of Clinical trials for herbal formulations.
7. Techniques in estimation of enzymes and endogenous substances in body fluids in physiological and pathological conditions.
8. Schedule T requirements and other regulatory requirements for the manufacturing of Herbal and Ayurvedic products.

PRACTICAL

Laboratory examination including oral and Practical examination in general course illustrative of Theory section in the syllabus.

BOOKS RECOMMENDED:

1. Biological standardization by J.N.Barn, D.J.Finley and L.G. Goodwin
2. Indian pharmacopoea, Indian Herbal Pharmacopoea and other pharmacopoea.
3. Ayurvedic Formulary of India.
4. Screening methods of Pharmacology By Robert Turner
5. Evaluation of drug activities by Laurant and Bachrach.
6. Methods in Pharmacology by Arnold Schwartz.
7. Fundamentals of experimental pharmacology by. M. N. Ghosh
8. Text book of invitro Practical pharmacology by Ian Kitchen
9. Peach - Tracey - Modern Methods of Plant Analysis
10. WHO guide lines for the quality control of Herbal plant materials
11. Wagner, Plant drug analysis.
12. The Practical evaluation of Phytopharmaceuticals by Brain and Turner.
13. Thin layer chromatography by Egon Stahl.
14. Drug Discovery & Evaluation by H.Gerhard Vogel
15. Quality Standards of Indian Medicinal Plants Vol-I, ICMR, New Delhi

BIOTECHNOLOGY & CULTIVATION OF MEDICINAL PLANTS (CG)

THEORY

1. Factors affecting plants and their constituents such as hybridization, polyploidy, mutation, gene selection, allelopathy, chemical races, plant growth regulators, geographical sources, altitude, rainfall, Ontogenic variations, soil and soil fertility.
2. Plant insecticides and Pesticides, Biofertilizers and Biopesticides.
3. Recent developments in cultivation of some important medicinal and aromatic plants such as Senna, Digitalis, Ergot, Isabgol, Glycyrrhiza, Dioscorea, Mentha, Cardamom, Pinus, Ginger, Musli, Texas baccata, Ginseng, Guggal, Artemisia, Cinchona, Hyocyamus, Dubosia, Opium poppy, Jatropha curcus
4. Plant tissue culture techniques: including types, media, methodology, micropropagation, hairy root culture, protoplast culture, biotransformation, immobilization, Role of elicitors, artificial seeds, transgenic plants and commercial applications.

BOOKS RECOMMENDED:

1. Ramstad - Modern Pharmacognosy.
2. Herskowitz - Principles of Genetics
3. Stricknerger - Genetics
4. Hess - Plant Physiology.
5. William - Genetical Principles and Plant Breeding
6. Kruse - Patterson - Tissue Culture - Methods and Applications.
7. Bartz - Reinhard - Zenk - Plant Tissue Culture and its
8. Biotechnical Applications.
9. John - Dodds - Lorin - Experiments in Plant Tissue Culture.
10. Handa S.S. & Kaul. K.L. Supplement to cultivation & utilization of medicinal plants.
11. Gamborg, O.L. and Wetter, L.R., Plant Tissue Culture Methods, National Research Council of Canada, Saskatchewan.
12. HE Street Plant Tissue and Cell Culture, Blackwell Scientific Publication.
13. P.Prave, U.Fause, W. Sittig, and D.A. Sukatsch; Fundamentals of Biotechnology, VCH Publisher.
14. Alan T Bull, Howard Dalton and Murray Mao-Young, Comprehensive Biotechnology. The principles, Application & Regulation of Biotechnology in Industry, Agriculture & Medicine; Vol. 1 to 4
15. Medicinal plants: Alkaloids and Glycosides By Toronto
16. CSIR- Cultivation and Utilization of Medicinal Plants
17. CSIR - Wealth of India, Raw Materials