



THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

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Dr. S. PUSHKALA, M.D.,
REGISTRAR i/c

Ref.No:ACII(4)/15528/2014

Date:28.04.2016

To
The Principals of all Pharmacy Colleges
affiliated to this University.

Sir / Madam,

Sub: Academic – The Tamil Nadu Dr.M.G.R. Medical University, Chennai
– Revised Syllabus for the subjects “Advanced Pharmacognosy” of
final year B.Pharm - Communicated– Reg.

- Ref:**1. Minutes of the meeting of the Board of Studies in Pharmacy held on
29.12.2015.
2. Minutes of the 51st meeting of the Standing Academic Board held on
21.01.2016.
3. Resolution No.32 passed at 243rd meeting of the Governing Council
held on 03.03.2016.

With reference to the above, I am to inform you that “it was resolved to implement the revised syllabus for “Advanced Pharmacognosy” to the final year B.Pharm students from the academic year 2014-2015 admission onwards. The copy of the same is enclosed for information and necessary action.

Kindly acknowledge the receipt of this letter.

Yours faithfully,

B. S. V. S.
for REGISTRAR i/c.

Encl: As above

Copy to:

1. The Controller of Examination i/c
2. The Course i/c.
3. The Section Officer (Pharmacy Section in Exam Wing) I II

FINAL YEAR B.PHARMACY
4.2 ADVANCED PHARMACOGNOSY

THEORY (Total 75 Hours)

1. a. Modern methods of extraction, application of latest techniques like Chromatography, Electrophoresis and spectroscopic methods in the isolation, purification and identification of crude drugs. 7 hours

b. Stability test for herbal extracts.

c. Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

2. Enzyme Biotechnology

6 hours

Introduction, General methods of isolation, purification, enzyme reactors and applications of immobilized enzymes in drug analysis.

Enzyme used in pharmacy; methods of preparation & isolation of

a. Papain b. Pepsin c. Pancreatin d. Pectinase e. streptokinase.

3. Plant tissue culture:

10 hours

a. Introduction, Historical development, types of cultures, nutritional requirements, application of plant tissue culture for the production of secondary metabolites.

b. Detailed study of callus culture, cell suspension culture, single cell culture, totipotency and application, clonal propagation, enzyme immobilization technique.

c. Role of plant growth regulators for the production of secondary metabolites.

4. Industrial production and pharmaceutical application of phytoconstituents such as

Sennosides, Cardiac glycosides, Vinca alkaloids, Quinoline alkaloids, Menthol, Citric acid, Podophyllotoxin, Diosgenin, Solasodine, and Tropane alkaloids. 7 hours

5. Natural allergens:

7 hours

Introduction, classification of allergens, preparation of allergenic extracts, Sensitivity testing and treatment of allergy, Hallucinogenic, teratogenic and other toxic plants.

6. Preparation and standardization of herbal formulations

6 hours

a. Preparation and uses of Tinctures, Herbal syrups, Herbal creams, Herbal shampoos

b. WHO guidelines for the assessment of herbal medicines.

c. Estimation of heavy metals in herbal preparations.

7. Alternative system of medicine.

8 hours

- a. Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy.
- b. Types of formulation used in alternative system of medicine.
- c. Preparation and standardization of Aristas, Asawas, Gutikas, Churnas, Lehyas and Bhasmas

8. a. A brief account of plant based industries and utilization involved in work on medicinal and aromatic plants in India.

b. Export potential of medicinal and aromatic plants of India.

4 hours

9. Antibiotics and Antiviral drugs

7 hours

Biosynthesis of Penicillin. Biosynthesis of Cephalosporin. Amino glycosides: Biosynthesis of streptomycin. Antiviral drugs, Glycyrrhizin, Gossypol, Hypericin, Inophyllum B, Calanotide A&B, Vidarabine. Plant constituents with Anti-HIV activity.

10.a) Basic metabolic pathways leading to the formation of plant secondary metabolites.

b) Biogenesis and pharmaceutical application of the following phytoconstituents Atropine, Morphine, digoxin, Reserpine, Ergometrine.

11. Studies of traditional drugs:

7 hours

Common vernacular names, botanical sources, morphology and chemical nature of chief constituents, pharmacology, common use and marketed formulations of the following indigenous drugs.

Amla, Satavari, Tylophora, Bhilawa, Kalijiri, Rasna, Punarnava, Chitrack, Apamarga, Gokhru, Shankapuspi, Brahmi, Arjuna, Ashoka, Methi, Lahsun, Guggul, Shilajit, Pyrethrum, Coleus forskolii.

PRACTICALS

1. Monograph exercise as per I.P.

a) Castor oil.

b) Shark liver oil.

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c) Honey.

2. Exercise involving isolation of active principles

a) Caffeine – from tea dust.

b) Quinine – from Cinchona bark.

c) Citric acid – from Lemon.

d) Casein – from Milk.

e) Starch – from Potato.

f) Pectin – from Orange peel

3. Nutraceuticals – Spirullina, Almond, Amla, Corn oil, Soyabean oil, Honey.

4. Chemical Assays

- Aldehyde content of volatile oil.

- Ester value of fixed oil.

- Phenol content of volatile oil.

- Alkaloidal assay of belladonna leaf.

- Eugenol content of clove oil.

- Cineole content of eucalyptus oil.

5. Physical evaluation of powdered drugs

- Determination of Moisture content (Loss of drying).

- Extractive values.

- Ash values.

- Swelling factors.

-Determination of foreign organic matter.

-Determination of crude fibre content. 6. Demonstration of experiments in plant tissue culture – callus culture.

7. Extraction of volatile oils – menthe oil, coriander oil, fennel oil.

8. Identification of natural products such as amino acids, alkaloids and glycosides using TLC and paper chromatographic profiles.
9. Preparation and standardization of Ayurvedic formulations -tailam.
10. Preparation and standardization of herbal extracts – garlic, turmeric, garcinia.
11. Preparation of herbal cosmetics –shampoos, creams and lipsticks.
12. Demonstration of experiments in column chromatography.
15. Isolation of a plant enzyme – papain and pectinase.

REFERENCES

1. The formulation and preparation of cosmetics, fragrances and flavours.
2. Pharmacognosy by Trease and Evans 15th Edition.
3. Biochemistry – Harold Varley.
4. Pharmacognosy by Trease and Evans – 14th edition.
5. Herbal Drug Industry R.D. Chowdary.
6. Remington's Pharmaceutical Sciences.
7. WHO Guidelines – Website. <http://www/who.int/druginformation>
8. Pharmacognosy and Pharmaco biotechnology – 10th edition, James Robbers Mary Lyn., K Speedy and Varro, E. Tylor.
9. Standardisation of Botanicals.
10. Quality control herbal drugs –Pulok K. Mukherjee.
1. Pharmacognosy and Phytochemistry Ist Edition, Vol I and II by Vinod. D. Rangari.
2. Practical Pharmacognosy, III rd Edition, C.K. Kokate.

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