GUJARAT TECHNOLOGICAL UNIVERSITY

M. Pharm

SEMESTER II

Subject Name: Phytopharmacy and Phytomedicine Practical II
Subject Code: MPM205P

Scope: This subject deals with the practical aspects of various analytical, extraction, separation and structure elucidation techniques useful for Phytochemicals.

Objectives: Upon completion of this course the student should be able to

1. Apply basic cell culture and molecular biology techniques in development of phytopharmaceuticals
2. Evaluate a traditional medicinal products based on pharmacopoeial standards
3. Design and apply techniques for standardization of herbal product
4. Apply preformulation techniques in formulation and development of phytomedicines
5. Design and evaluate a phytopharmaceutical product in context to traditional and novel drug delivery systems.

Practicals

1. *In vitro* hepatoprotective/anti inflammatory or other such activity on cell line of plant extract/phytochemical
2. *in silico* study of phytochemical for determining a binding energy for a given binding site.
3. Standardization study of Herbal drugs/Medicinal plant materials/formulations by following the 'WHO guidelines' and 'The Ayurvedic Pharmacopoeia of India' such as (indicative list)
    a. Determination of Ash content (acid insoluble, water soluble etc.)
    b. Determination of Extractives (water soluble, alcohol soluble, ether soluble)
    c. Determination of Moisture content
    d. Determination of Volatile oil
    e. Determination of Bitterness value, swelling index, foaming index, hemolytic activity etc.
    f. Determination Pesticide residue, heavy metal etc.
4. Standardization of a plant extract or herbal formulation using biomarker (e.g. curcumin, berberine, rutin etc.) using HPTLC technique
5. Standardization of a Plant extract or herbal formulation using biomarker (e.g. curcumin, berberine, rutin etc.) using HPLC technique
6. Standardization of volatile oil or herbal formulation thereof using biomarker (e.g. thymol, menthol etc.) using GC technique
7. Preformulation study of a herbal extract/powder for solid oral dosage form
8. Preparation of a tablet of plant powder/extract (e.g. triphala) and its evaluation
9. Preparation of a controlled drug delivery formulation of a given phytomedicine

10. Preparation of nanosuspension/emulsion of phytochemical e.g. curcumin, piperine etc.