

18BP059 PHARMACOLOGY AND PHYTOCHEMISTRY-II

Hours Per Week :

L	T	P	CP	CL
3	1	4	2	4

Total Hours :

L	T	P	WA/RA	SSH/SHS	CS	SA	S	BS
45	1	60						

SCOPE:

The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs	PSOs
1	To know the modern extraction techniques, Characterization and identification of the herbal drugs and phyto constituents	1,2	1,2
2	To understand the preparation and development of herbal formulation	1,2	1,2
3	To understand the herbal drug interactions	1,2	1,2
4	To carry out isolation and identification of phyto constituents	1,2	2

UNIT - I**7 HOURS****METABOLIC PATHWAYS IN HIGHER PLANTS AND THEIR DETERMINATION**

- a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways-Shikimic acid pathway, Acetate pathways and Aminoacid pathway.
- b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT - II**14 HOURS**

General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,

Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta

Steroids, Cardiac Glycosides & Triterpenoids: Liquorice, Dioscorea, Digitalis

Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,

Tannins: Catechu, Pterocarpus

Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony

Glycosides: Senna, Aloes, Bitter Almond

Iridoids, Other terpenoids & Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT - III**06 HOURS****ISOLATION, IDENTIFICATION AND ANALYSIS OF PHYTO CONSTITUENTS**

- a) Terpenoids: Menthol, Citral, Artemisin
- b) Glycosides: Glycyrrhetic acid & Rutin
- c) Alkaloids: Atropine, Quinine, Reserpine, Caffeine
- d) Resins: Podophyllotoxin, Curcumin

UNIT - IV**10 HOURS**

INDUSTRIAL PRODUCTION: Estimation and utilization of the following phyto constituents: Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine, Taxel, Vincristine and Vinblastine

UNIT - V**8 HOURS**

BASICS OF PHYTOCHEMISTRY: Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.

