

## ADVANCED PHARMACOGNOSY - I (MPG 102T)

### SCOPE

To learn and understand the advances in the field of cultivation and isolation of drugs of natural origin, various phytopharmaceuticals, nutraceuticals and their medicinal use and health benefits.

### OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- advances in the cultivation and production of drugs
- various phyto-pharmaceuticals and their source, its utilization and medicinal value.
- various nutraceuticals/herbs and their health benefits
- Drugs of marine origin
- Pharmacovigilance of drugs of natural origin

### THEORY

60 Hrs

1. Plant drug cultivation: General introduction to the importance of 12  
Pharmacognosy in herbal drug industry, Indian Council of Hrs  
Agricultural Research, Current Good Agricultural Practices,  
Current Good Cultivation Practices, Current Good Collection  
Practices, Conservation of medicinal plants- Ex-situ and In-  
situ conservation of medicinal plants.
- 2 Marine natural products: General methods of isolation and 12  
purification, Study of Marine toxins, Recent advances in research Hrs  
in marine drugs, Problems faced in research on marine drugs  
such as taxonomical identification, chemical screening and their  
solution.
- 3 Nutraceuticals: Current trends and future scope, Inorganic 12  
mineral supplements, Vitamin supplements, Digestive enzymes, Hrs  
Dietary fibres, Cereals and grains, Health drinks of natural origin,  
Antioxidants, Polyunsaturated fatty acids, Herbs as functional  
foods, Formulation and standardization of nutraceuticals,  
Regulatory aspects, FSSAI guidelines, Sources, name of marker  
compounds and their chemical nature, medicinal uses and health  
benefits of following  
i) Spirulina ii) Soya bean iii) Ginseng iv) Garlic v) Broccoli vi)  
Green and Herbal Tea vii) Flax seeds viii) Black cohosh ix)  
Turmeric.

- 4 Phytopharmaceuticals: Occurrence, isolation and characteristic features (Chemical nature, uses in pharmacy, medicinal and health benefits) of following. 12 Hrs
- a) Carotenoids – i)  $\alpha$  and  $\beta$  - Carotene ii) Xanthophyll (Lutein)
  - b) Limonoids – i) d-Limonene ii)  $\alpha$  - Terpineol
  - c) Saponins – i) Shatavarins
  - d) Flavonoids – i) Resveratrol ii) Rutin iii) Hesperidin iv) Naringin v) Quercetin
  - e) Phenolic acids- Ellagic acid
  - f) Vitamins
  - g) Tocotrienols and Tocopherols
  - h) Andrographolide, Glycolipids, Gugulipids, Withanolides, Vascine, Taxol
  - i) Miscellaneous
- 5 Pharmacovigilance of drugs of natural origin: WHO and AYUSH guidelines for safety monitoring of natural medicine, Spontaneous reporting schemes for biodrug adverse reactions, bio drug-drug and bio drug-food interactions with suitable examples. 12 Hrs

#### REFERENCES (Latest Editions of)

1. Pharmacognosy - G. E. Trease and W.C. Evans. Saunders Edinburgh, New York.
2. Pharmacognosy-Tyler, Brady, Robbers
3. Modern Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I&II
4. Text Book of Pharmacognosy by T.E. Wallis
5. Marine Natural Products-Vol.I to IV.
6. Natural products: A lab guide by Raphael Ikan , Academic Press 1991.
7. Glimpses of Indian Ethano Pharmacology, P. Pushpangadam. Ulf Nyman. V.George Tropical Botanic Garden & Research Institute, 1995.
8. Medicinal natural products (a biosynthetic approach), Paul M. Dewick, John Wiley & Sons Ltd., England, 1998.
9. Chemistry of Marine Natural Products- Paul J. Schewer 1973.
10. Herbal Drug Industry by RD. Choudhary, Eastern Publisher, New Delhi, 1996.
11. Cultivation of Medicinal Plants by C.K. Atal & B.M. Kapoor.
12. Cultivation and Utilization of Aromatic Plants, C.K. Atal & B.M. Kapoor
13. Cultivation of medicinal and aromatic crops, AA Farooqui and B.S. Sreeramu. University Press, 2001.

14. Natural Products from Plants, 1st edition, by Peter B. Kaufman, CRC Press, New York, 1998
15. Recent Advances in Phytochemistry- Vol. 1&4: Scikel Runeckles- Appleton Century crofts.
16. Text book of Pharmacognosy, C.K.Kokate, Purohit, Ghokhale, Nirali Prakasshan, 1996.
17. Pharmacognosy and Pharmacobiotechnology, Ashutoshkar, New Age Publications, New Delhi.