

M.PH2F.6: ADVANCED PHARMACOGNOSY-II (MEDICINAL PLANT BIOTECHNOLOGY)

THEORY

3 Hrs/Week

UNIT-I

1. Historical perspectives, prospects for development of plant biotechnology as source of medical agents. Applications in pharmacy and allied fields.
2. Types, techniques, nutritional requirements and growth of plant tissue cultures, Organogenesis and embryogenesis. Protoplast fusion and cultures, artificial seeds, micropropagation of medicinal and aromatic plants, Genetic stability of tissue cultures.

UNIT-II

3. Secondary metabolism in tissue cultures with emphasis on production of medicinal agents and its impact in pharmacy. Screening and selection of high yielding cell lines. Effect of cultural practices, precursors and elicitors on production of biomedicinals.

UNIT-III

4. Biotransformation, bioreactors, industrially potential tissue culture systems for pilot and large scale cultures of plant cells, cellular totipotency, cryopreservation and retention of biosynthetic potential in cell cultures.
5. Immobilised plant cells culture systems, immobilization techniques, effect of immobilization on secondary metabolism and realization of chemosynthetic potential in immobilized cells.

UNIT-IV

6. Techniques employed in elucidation of biosynthetic pathway, biogenesis of tropane, quinoline, imidazole, isoquinoline and indole alkaloids, sterols, anthraquinone and saponin glycosides, flavanoids and isoprenoid compounds of pharmaceutical significance.

REFERENCES:

1. Pharmaceutical Biotechnology- Vyas and Dixit
2. Industrial Microbiology- Prescott & Dumm
3. Text Book of Pharmacognosy – Trese and Evans