

BTY559:BIOTECHNOLOGY LABORATORY-II

L:0 T:0 P:4 Credits:2

Course Outcomes: Through this course students should be able to

- CO1 :: define the basic requirements for plant tissue culture and micropropagation
- CO2 :: describe major plant tissue culture media and its preparation
- CO3 :: demonstrate various methods of micropropagation and organogenesis
- CO4 :: deduce the methods for anther culture and protoplast isolation
- CO5 :: assess the process and methods of somatic hybrid production
- CO6 :: plan DNA isolation and marker analysis from plants

List of Practicals / Experiments:

Plant tissue culture laboratory layout

- to study the orientation and design of plant tissue culture laboratory

Preparation of plant tissue culture media

- prepare semi solid/liquid media with various supplements for plant tissue culture and its sterilization.

Aseptic culture establishment

- explant preparation, surface sterilization and its aseptic inoculation

In vitro propagation

- preparation of callus from various explants

Plant growth regulators

- effect of plant growth regulators on organogenesis (in vitro shooting and rooting)

Protoplast Isolation

- to isolate protoplast by mechanical/enzymatic method

Anther culture (Androgenesis)

- to isolate and inoculate anthers for haploid production

Protoplast fusion

- fusion of protoplast by PEG method for hybrid production

Genomic DNA isolation

- Isolation of Plant genomic DNA using CTAB method.

PCR & Molecular markers

- Molecular analysis of given plant DNA using DNA based markers.

Text Books:

1. PRACTICAL BOOK OF BIOTECHNOLOGY & PLANT TISSUE CULTURE by NAGAR SANTOSH AND ADHAV MADHAVI, S Chand Publishing

References:

1. INTRODUCTION TO PLANT BIOTECHNOLOGY by HS CHAWLA, OXFORD & IBH
2. INTRODUCTION TO PLANT TISSUE CULTURE by MK RAZDAN, OXFORD & IBH

