

B.Sc. Biotechnology: Semester-V BST 506: Plant Biotechnology	
Teaching Scheme Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	Examination Scheme Class Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: - BST-Microbiology, BST503 Genomics and Proteomics, BST504

Course Objectives:

1. To give the basic knowledge of plant tissue culture.
2. To give complete knowledge of various types of plant tissue culture and involved in regeneration of plants in shorter period of time.
3. To understand the utility of plant tissue culture in genetic modified plant production.
4. To understand the role of plant tissue culture in haploid plant production.
5. To understand the concept abiotic stress tolerant plant through somaclonal variations.

Course Outcomes:

CO1: This course provides basic concepts of tissue culture.

CO2: Recall the basic concept of biotechnology and explain fundamental cellular events during the process of plant cell culture developments.

Detailed syllabus:

UNIT-1 Tissue Culture: Historical benchmarks of plant cell and tissue culture; Culture media components and modifications; Sterilization techniques; Various types of culture: callus, suspension, nurse, root.
UNIT-2 In vitro differentiation: In vitro differentiation: Organogenesis and somatic embryogenesis; Plant growth regulators, mode of action, effects on in vitro culture and regeneration. Synthetic seeds; In vitro fertilization; Embryo rescue in wide hybridization; Endosperm culture, cryopreservation
UNIT-3 Micropropagation

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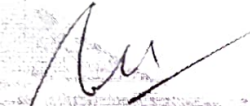
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Micropropagation; Anther and microspore culture; Somaclonal variation; In vitro mutagenesis; Production of secondary metabolites; Protoplast isolation, culture and regeneration; Somatic hybridization: cybrids, asymmetric hybrids; In vitro germplasm conservation

Text and Reference Books:

1. Bhojwani SS & Razdan MK. 1996. Plant Tissue Culture: Theory and Practice. Elsevier.
2. Debergh PC & Zimmerman RH. 1991. Micropropagation: Technology and Application. Kluwer Academic.
3. Chawla H.S. Introduction to Plant Biotechnology
4. Dey Kumar K. Plant Tissue Culture. New Central Book Agency (P) Ltd. Reference Books:
5. Dixon RA & Gonzales RA. Plant Cell Culture: A Practical Approach. Oxford University press.
5. George EF, Hall MA & Klerk GJD. 2007. Plant Propagation by Tissue Culture. 3rd Ed. Volume 1. Springer Science & Business Media Exercise No



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