

Course Code	Course Name	Credits
26BY651	PLANT SCIENCE AND MICROBIOLOGY LAB	02

Objective

The laboratory course integrates practical skills in Plant Tissue Culture, Plant Physiology, Microbiology, Biochemistry and Biophysics. It aims to develop hands-on experience in aseptic techniques, physiological experiments and biochemical assays. Students learn to analyze plant functions, metabolic processes and physical principles underlying biological systems. The course also enhances experimental skills, data interpretation and research aptitude for advanced studies.

1. Preparation of nutrient medium – Murashige and Skoog medium (Demonstration only).
2. Familiarize the instruments included in the syllabus such as autoclave, laminar air flow chamber.
3. Sterilization and inoculation of explants.
4. Establishing Callus and meristem culture (Demonstration only).
5. Immobilization of whole cells or tissues in sodium alginate (Synthetic seed).
6. Determination of osmotic potential by gravimetric method.
7. Separation of photosynthetic pigments by TLC.
8. Separation of Plant pigments by paper chromatography.
9. Estimation of total chlorophyll in the plant tissue.
10. Estimation of Total Phenol in plant tissue.
11. Estimation of proline in plant tissues under various abiotic stresses.
12. Estimation of flavanoid in plant tissues affected by biotic stress.
13. Preparation of culture media: nutrient medium and PDA.
14. Gram staining of microorganisms.
15. Isolation of pure cultures of microorganisms by standard laboratory techniques.
16. Isolation, identification and enumeration of fungi from soil, water, sewage and air.
17. Isolation, identification and enumeration of bacteria from soil, water, sewage and air.

Students are required to perform and record at least eight experiments in the laboratory manual as part of the course requirements.