

Course Code	Course Name	Credits
26BY652	ADVANCED PLANT BIOLOGY LAB	02

Objective

To provide postgraduate students with hands-on training in advanced plant biology techniques covering cell biology, anatomy, embryology, molecular biology, ecology, ecotoxicology, immunology, and mushroom cultivation. The practical course is intended to build skills in experimental analysis, sample handling, microscopy, environmental assessment, and scientific interpretation.

1. Karyotype analysis in plant chromosomes.
2. Preparation of karyograms from plant chromosome plates.
3. Extraction of plant DNA using SDS method.
4. Study of mitosis in onion root tip.
5. Study of cell types in plants: guard cells, cystoliths, trichomes, and sclereids.
6. Determination of stomatal index.
7. Study of ovule types: anatropous, orthotropous, circinotropous, and amphitropous/campylotropous.
8. Study of *Polygonum* type embryo sac development using permanent slides/photographs.
9. Analysis of water quality parameters: dissolved CO₂, dissolved oxygen, COD, and chloride ions.
10. Identification of human blood groups using standard serological methods.
11. Quadrat method of biodiversity study.
12. Assessment of environmental samples from soil and water for biological analysis.
13. Basic immunological techniques such as antigen-antibody reaction and agglutination.
14. Spawn preparation and cultivation techniques in oyster mushrooms.

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