

Course Code	Course Name	Credits
26BY154	PLANT ECOLOGY, ANATOMY, CELL AND MOLECULAR BIOLOGY LAB	02

Objective

The objective of this laboratory course is to develop practical skills in plant anatomy, cytology, molecular biology and ecology through hands-on laboratory and field techniques, enabling students to understand plant structure, growth processes, heredity, environmental adaptations, biodiversity assessment and basic analytical methods.

1. Preparation of transverse section monocot and dicot root to observe and record the internal structure.
2. Preparation of transverse section monocot and dicot stem to observe and record the internal structure.
3. Preparation of transverse section of *Amaranthus*, *Bougainvillea* and *Dracaena* stems to study anomalous secondary growth.
4. Preparation of transverse section of anthers.
5. Stomatal types using epidermal peels.
6. Study of pollen germination and pollen viability.
7. To study mitosis in *Allium cepa* through squash preparation of root tips.
8. To study meiosis through squash preparation.
9. Karyotype analysis using suitable plant material or prepared slides/photographs.
10. Isolation of DNA from plant tissue.
11. Estimation of DNA by diphenylamine reaction.
12. Agarose gel electrophoresis of genomic DNA.
13. Determination of pH of soil and water samples.
14. Study of vegetation sampling techniques – quadrat method and line transect for assessment of diversity, frequency, density and abundance of plant species.
15. Study of plant adaptations to environment – xerophytes, hydrophytes, epiphytes and halophytes.

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