



MCC, Department of Botany

Paper - 15a Combined Practical
PLANT ANATOMY, EMBRYOLOGY, RESEARCH METHODOLOGY,
INSTRUMENTATION AND USE OF COMPUTERS

M.Sc. va (Candidates admitted from the academic year 2008-2009)

Core Practical

Paper - 15a Combined Practical
PLANT ANATOMY, EMBRYOLOGY, RESEARCH METHODOLOGY,
INSTRUMENTATION AND USE OF COMPUTERS

M.Sc. va (Candidates admitted from the academic year 2008-2009)

Core Practical

Plant Anatomy and Embryology

1. Dissection of *Hydrilla* shoot apex.
2. Meristem from permanent slides and photomicrographs.
3. Vascular cambium prepared by hand section of stratified and non-stratified types with suitable examples.
4. Diagnostic characters of wood, Identification of some common timbers mentioned in theory. Maceration of tracheary cells and fibers.
5. Phloem from *Cucurbita* and photomicrographs.
6. Anomalous structure in the stem of *Pseudocalyma*, *Salvadora*, *Pisonia*, *Pachygone*, *Tinospora* and *Dracaena* and root of *Achyranthes*.
7. Leaf - Cross section of suitable examples showing C3, C4 and CAM, dorsiventral and isobilateral types. Stomata by peel technique.
8. Sporoderm development from photomicrographs.
9. Pollen morphology and sporoderm from slides and photomicrographs.
10. Cross section of anther to study development of pollen.
11. Pollen connecting threads from photomicrographs.
12. Structure of male and female gametophyte from slides and photomicrographs.
13. Cross-section of nectaries - selected floral and extrafloral types.

Research Methodology, Instrumentation and Use of Computers

Selected techniques in light microscopy. Microtomy.

Staining starch, cell walls, lipids, proteins and nucleic acids using bright-field dyes.

Demonstration of peroxidase activity in plant tissue using histochemical reagents.

Demonstration of tissue printing technique.

Demonstration of the following: pH meter, colorimeter, spectrophotometer, centrifuge, chromatography and electrophoresis.

Solving problems in statistics - standard error and standard deviation, 'T' test and chi square test. Graphical representation of data.

MCC, Department of Botany