

Paper 12a Combined Practical - PLANT BIOTECHNOLOGY, TISSUE CULTURE, GENETICS AND MOLECULAR BIOLOGY

Core Practical

Plant Biotechnology and Tissue Culture

Sterilization Procedures: Fumigation, wet & dry sterilization, UV sterilization, surface sterilization. Handling of glassware.

Medium preparation: Preparation of solid, semisolid and liquid media. (MS medium)

Organ culture: Culture of excised leaves, axillary bud cotyledon and shoot tip culture.

Callus culture: Initiation, establishment and maintenance of callus from carrot.

Batch culture: Initiation and maintenance of *Chlorella* culture using Bold medium.

Demonstration of immobilization of plant cells.

DNA isolation from plants.

Isolation of Plasmid DNA *E. coli*.

Demonstration of restriction enzyme lambda phage digestion and separation DNA by gel electrophoresis.

Genetics and Molecular Biology

Acetocarmine and Haematoxylin staining procedures.

Determination of mitotic index and mitotic anomalies.

Isolation of Polytene chromosome from *Chironomous* larva and *Drosophila melanogaster* larva.

DNA separation by electrophoresis.

Solving problems in multiple alleles - inheritance, polygenic inheritance and gene regulation.