TP 3: PREMERIE MERISTEMS AND COVERING TISSUS

INTRODUCTION

The epidermis is a continuous layer of cells that covers the aerial organs, protecting them from desiccation and external aggression. while regulating gas exchange with the atmosphere.. It is a living tissue consisting of a single layer of cells stomata and sometimes hairs.

1- Epidermal cells: They are living cells without chloroplasts. They provide protection against excessive desiccation. They are always and may consist of a single layer of cells (single epidermis) or several (simple epidermis) or several layers (compound epidermis).

2- Stomata: They allow the exchange of gases between the plant and the atmosphere. (O, CO, water vapor, etc.). Stomata consists essentially of an opening or ostiole delimited by two kidney-shaped cells called stomata. stomatal guard cells, which open onto a substomatal chamber, and usually chloroplasts.

3- Hairs: In some species, the epidermal cells bear hairs, which give the plant a surface of leaves or stems. These hairs can be unicellular or multicellular.

Meristems are composed of undifferentiated embryonic cells, responsible for plant growth in length and thickness. There are two main types of meristems:

- **Apical meristem:** responsible for primary growth = growth in length

Located in buds and root tips

- Lateral meristem: responsible for secondary growth = growth in thickness located at the periphery of stems and roots

OBJECTIVE

- observation of root and stem meristems tissues
- observation of epidermal tissues

MATERIALS AND SOLUTIONS

- Branches, leaves, stems and roots: Plant samples for study;
- New razor blades;
- Petri dishes, glassware and a few small empty watch glasses or clean

- clean capsules (at least four);
- A strip of filter paper or filter cloth;
- A sieve for filtering fine cups;
- Bleach;
- Fine tweezers and a cloth;
- Distilled water (Rinse) ;
- 1% acetic acid (Fixer);
- Iodine green, alum carmine or methyl green and Congo red (Dyes);
- Blades (object holders);
- Slide covers or coverslips;
- A multi-magnification optical microscope, photo-microscope and
- digital camera;
- Nail varnish or glycerine to preserve the thin sections
- obtained ;
- Multi-magnification optical microscope;
- Micrometer for histometric measurements and digital camera camera;

THE METHOD

- Make a cross-section on the plane of the stem, bolt and leaf.
- Make a longitudinal cross-section of the roots.

We dip the cups in a watch glass containing bleach for 10 to 20 minutes to destroy cell contents and bleach the membranes. We rinse the sections with distilled water to remove the bleach. 1% acetic acid for 5 to 10 minutes to eliminate traces of bleach and fix other dyes. Iodine green for up to one minute for lignified tissue. Sections are rinsed with distilled water to remove excess dye. Alumina carmine for 10 to 15 minutes, then rinse with distilled water. For mounting, we use the slide-to-slide technique in a drop of distilled water, due to its simplicity and the availability of products and microscopic observation of the best for fixing with synthetic resin.

WORK TO DO :

- Histological sections of fresh organs (apical Root, apical shoot, Stem and Leaf)

- Staining of these sections

- Microscopic observation of the various organ tissues

- Fixation and conservation