

Experiment No.7:

Aim: To study of anatomical details of dicot root through permanent slides/temporary stain mounts

Material required: Sharp razor, brush, dropper, needles, watch glass, microscopic slides, coverslips, safranin, glycerine and compound microscope.

Technique:

- Take 2-3cm long pieces of the material.
- Hold the material between thumb and first finger of your left hand.
- Hold the razor in the right hand with edge of the blade facing you and handle at right angle to it.
- Dip the top of the material in water.
- Then start cutting transverse sections as fast as possible in a watch glass containing water.
- Select the thinnest section of the material with the help of a delicate brush.
- Take a clean watch glass with water, transfer thin sections of the material.
- Put a few drops of safranin stain in the watch glass with water.
- Leave it for 3-5 minutes.
- Drain off stain and wash with water if necessary.
- Put the thinnest section in the centre of the slide.
- Put a drop of glycerine over the material.
- Cover it with a coverslip with the help of needle.
- Observe it under a compound microscope after staining and mounting.

Study under the microscope: Focus the slide under lower of microscope and then change to high power if needed

Precautions:

3. Safranin is to be used to stain only the lignified tissues, over staining can be removed by washing in water.
4. Air bubbles must be avoided in the sections.
5. Use only brush to transfer or to handle the sections. Do not use needles for this purpose.
6. Discard the incomplete and oblique sections.

Identifying Characters:

- The cuticle is absent in the epiblema and well fitted with unicellular root hairs.
- Endodermis consists of one-layered cells and Casparian strips are present in endodermal cells. It consists of barrel-shaped compressed parenchymatous cells. It contains both Casparian stripes and passage cells.
- The pericycle is composed of one-layered cells. Pericycle uniseriate
- Vascular bundles are radial; Xylem is exarch, i.e. proto-xylem is situated towards the periphery a number of xylem bundles vary from 2 to 4 rarely more (up to 6-8).
- The medulla is very small. Cortex is homogenous (without differentiation).
- Pith is very small or completely obliterated.

Inference: The given specimen is the section of dicot root.

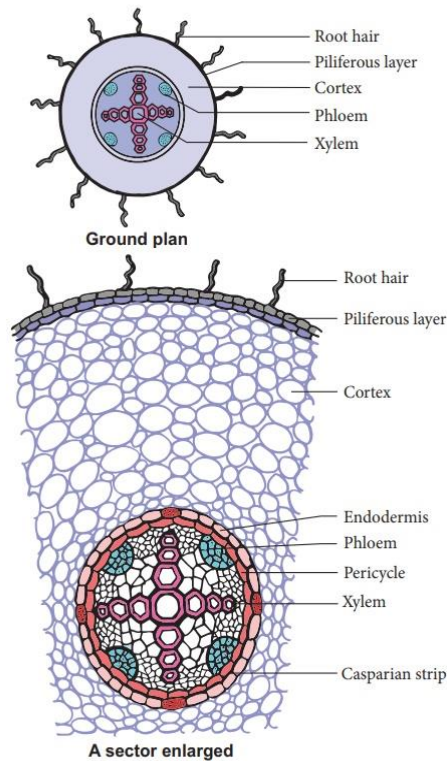


Fig. 1. Transverse section of dicot root