

**Experiment No. 5:**

**Aim:** To prepare temporary stained glycerine mounts of transverse sections of dicot stem and study of anatomical details

**Material required:** Sharp razor, brush, dropper, needles, watch glass, microscopic slides, coverslips, safrannin, 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

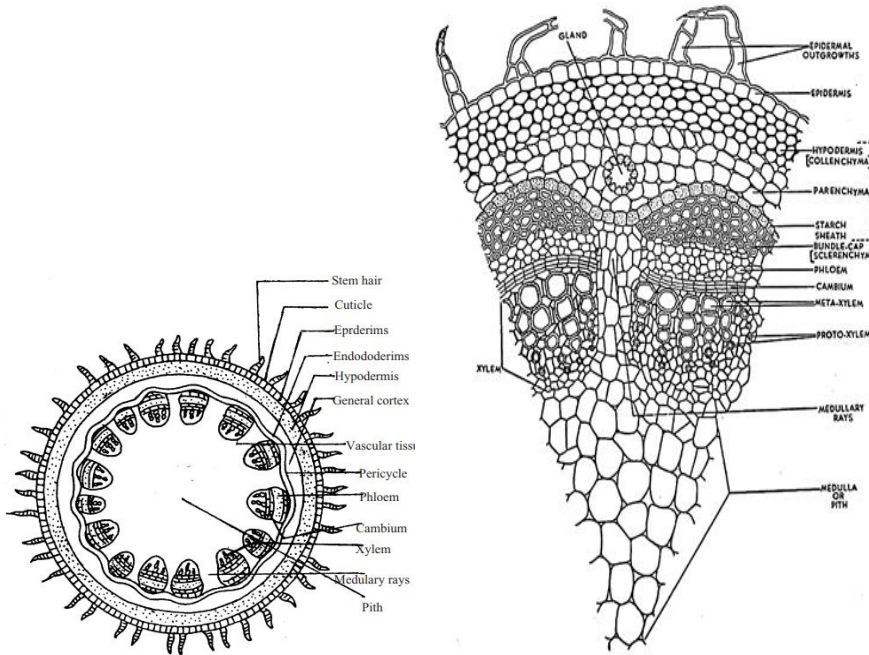
**Precautions:**

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:**

- Multicellular hair present on the epidermis.
- Hypodermis collenchymatous.
- Xylem endarch (metaxylem towards periphery and protoxylem towards centre)
- Vascular bundles are arranged in a ring.
- Vascular bundles conjoint, collateral and open.( cambium present)

**Inference:** The given specimen is the section of dicot stem.



(Ground Plan of T.S. of dicot stem)

(T.S. of dicot stem)

**Identifying Characters:**

- Hypodermis is sclerenchymatous.
- Cortex is not differentiated into endodermis and pericycle.
- Vascular bundles are scattered in the ground tissue.
- Vascular bundles are conjoint, collateral and closed, i.e cambium is absent.

- Each vascular bundle is surrounded by a bundle sheath.
- Xylem is y-shaped and metaxylem lies towards periphery

**Inference:** The given specimen is the section of monocot stem.