Date : 2078/11/11

EXPERIMENT NO. 4

NAME OF EXPERIMENT: TO STUDY THE INTERNAL STRUCTURE OF MONOCOT ROOT

COMMENTS

The T.S. of the monocot root shows the following anatomical structures.

1. Epiblema: It is the outermost layer of root which is single-cell layered thick. It is composed of thin-walled, barrel-shaped, compactly arranged parenchymatous cells. It lacks cuticle. Some epiblema cells give rise to unicellular root hairs which help in the absorption of water and minerals from the soil.

2. Cortex: It lies immediately below the epiblema. It is multilayered and composed of thin-walled, oval, loosely arranged parenchymatous cells with many intercellular spaces. It helps in the storage and lateral conduction of water.

3. Endodermis: It is the innermost layer of the cortex. It is composed of a single layer of compactly arranged, barrel-shaped cells. The radial wall of these cells possesses a band of thickenings called Casparian

TO STUDY THE INTERNAL STRUCTURE OF MONOCOT ROOT

Pole No. 11
Date 2078-11-11

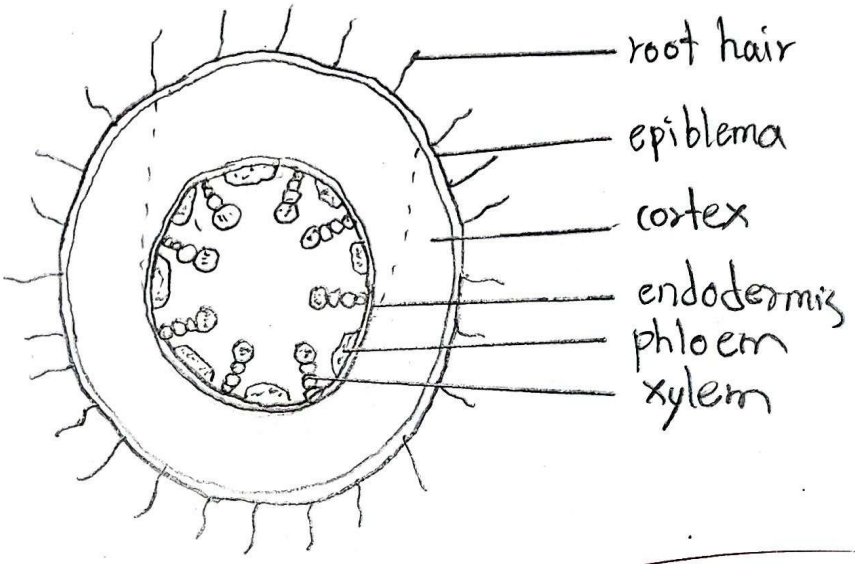

fig. Diagrammatic sketch of T.S. of root

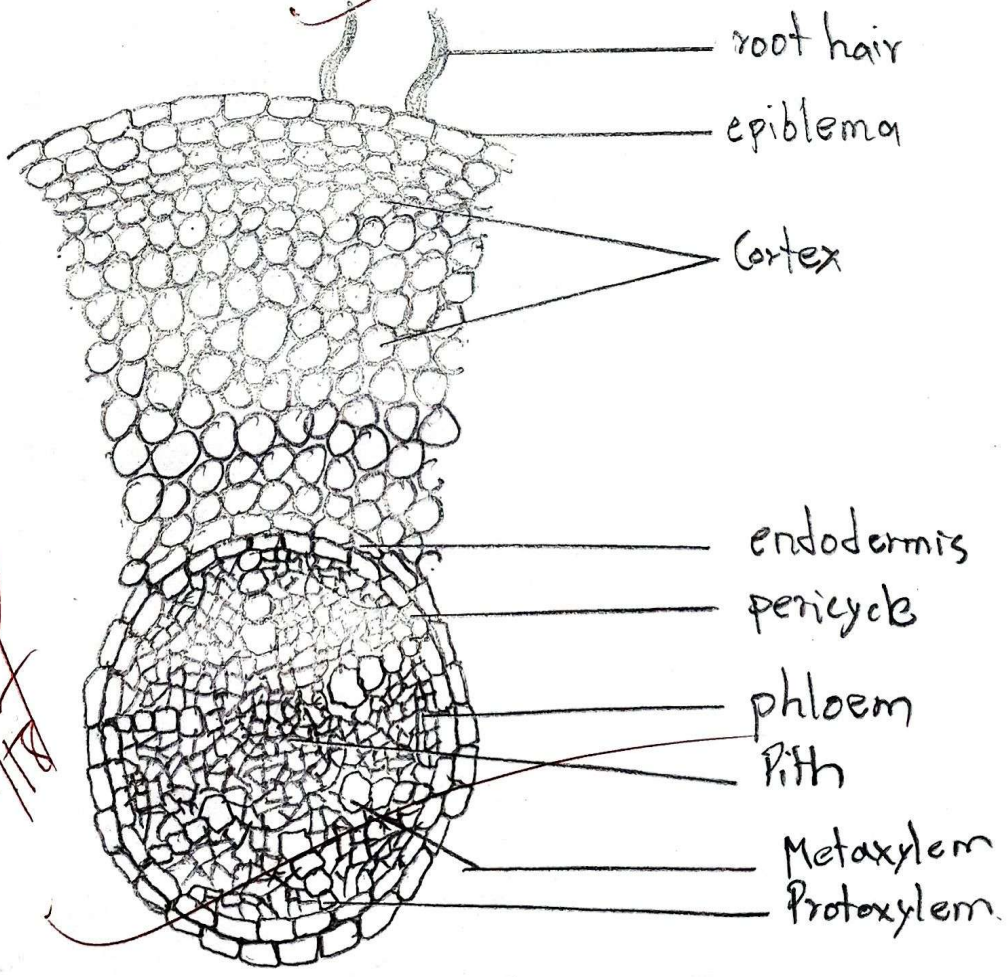

fig. A portion of root enlarged.

strips. It controls the movement of water and minerals from outside to inner part or vice-versa. The thin-walled endodermal cells lying opposite to the protoxylem are called passage cells which allow the passage of water into the xylem.

4. Pericycle: It is the outermost layer of the stele lying just inner to the endodermis. It is composed of a single layer of thin-walled parenchymatous cells. It is very important layer as lateral roots develop from this region.

5. Vascular bundles:

- The vascular bundles are radial types i.e. the xylem and phloem bundles lie on different radii alternating with each other. The number of radial bundles are more than six.
- Xylem is exarch i.e. protoxylem lies towards periphery and metaxylem lies towards the centre. Xylem is made up of vessels, and few trachieds. They are oval or spherical in transverse section.
- Phloem consists of sieve tubes, companion cells and phloem parenchyma.
- Phloem and xylem bundles get separated by one or more layers of thin-walled parenchymatous cells called conjunctive tissue.

6. Pith: Pith is large and well developed. Its function is the storage of food materials.