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Puspa Shrestha

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EXPERIMENT NO. 2

NAME OF EXPERIMENT: TO STUDY INTERNAL STRUCTURE OF DICOT ROOT

COMMENTS

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

1. Epiblema: It is the outermost layer of the root which is composed of a single layer of thin-walled, barrel-shaped, compactly arranged parenchymatous cells. It does not cover with cuticle but some of the 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 constituted by 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 a single layer of compactly arranged, barrel-shaped cells. The radial wall of cells possesses a band of thickenings called Casparian strips. It controls the

TO STUDY INTERNAL STRUCTURE OF DICOT ROOT

Roll No. 11
Date: 2018-08-09

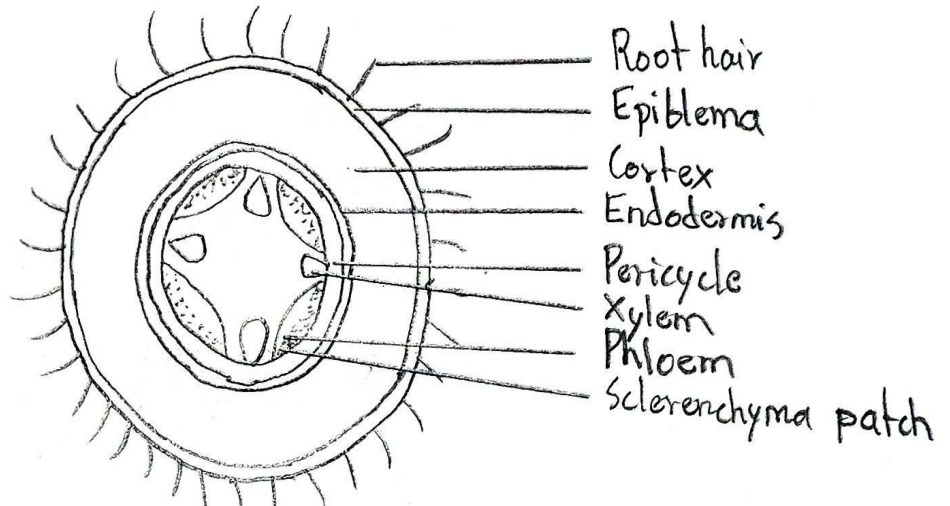


Fig. T.S of Dicot Root (Diagrammatic sketch)

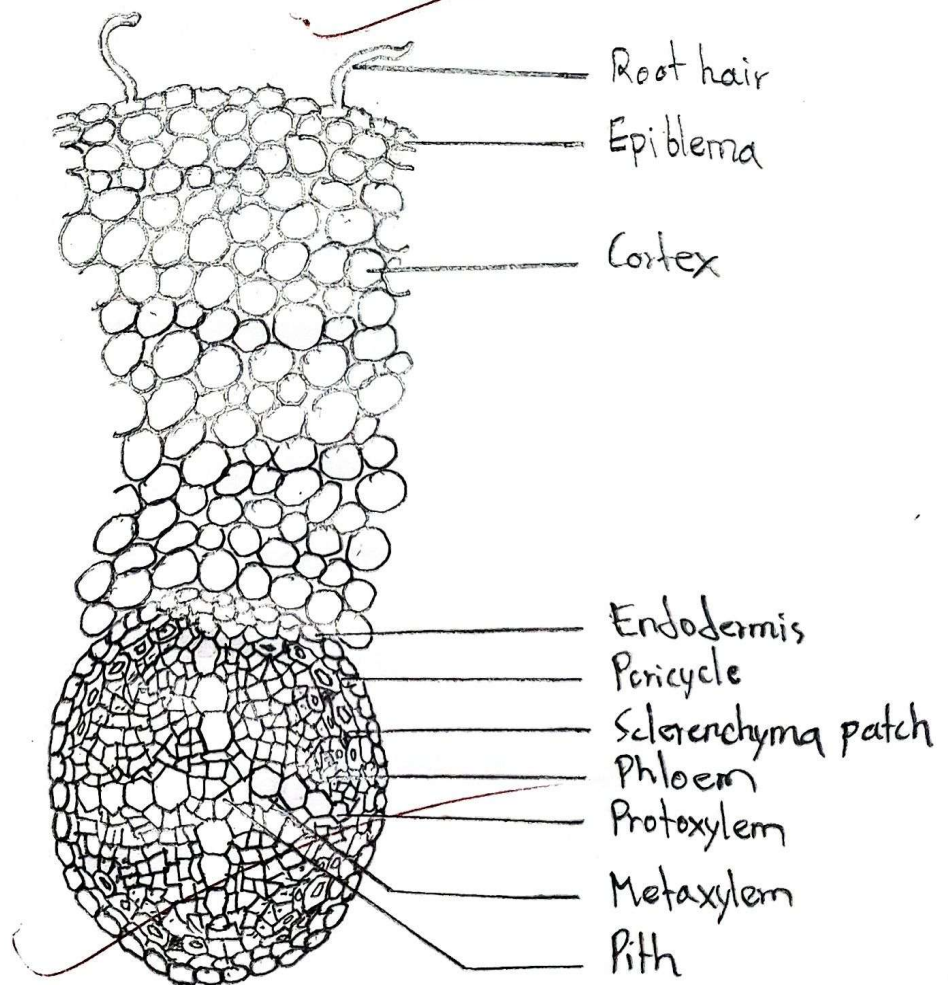


Fig. T.S. of a Portion of Dicot Root (Enlarged)

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

4. Pericycle: It is a single layer, thin-walled parenchymatous cells lying below the endodermis. It is very important layer, as a portion of vascular cambium, cork cambium and lateral roots develop from this region.

5. Vascular bundles

- The vascular bundles are radial types:

Xylem - It is exarch with the protoxylem towards the periphery and ~~metaxylem~~ metaxylem towards the centre.

Phloem - It is semi-circular cluster of cell consisting of sieve tubes companion cells and phloem parenchyma.

6. Conjunctive tissue: They are thin-walled parenchymatous tissue which separate xylem and phloem patches from each other.

7. Pith

It is the central mass of parenchymatous cells with intercellular spaces. It may disappear due to the growth of metaxylem tissue.