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EXPERIMENT NO. 3

NAME OF EXPERIMENT: TO STUDY THE INTERNAL STRUCTURE OF DICOT STEM

COMMENTS

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

1. **Epidermis**: It is the outermost, single-celled layer that consists of compactly arranged parenchymatous cells, covered by cuticle externally. Many multicellular hairs called epidermal hairs are present which are protective in function. The function of this layer is protection.
2. **Hypodermis**: Just below the epidermis, lies hypodermis which is made up of multi-layered collenchymatous cells having pectin and cellulose depositions at the corners. The functions of this layer are storage as well as providing elasticity and mechanical strength to the stem.
3. **Cortex**: Below the hypodermis, lies cortex which consists of loosely arranged thin-walled and spherical parenchymatous cells. The main functions of the cortex are storage as well as help in exchange of gases.

TO STUDY THE INTERNAL STRUCTURE OF DICOT STEM

Roll No. 11
Date: 2078-08-21

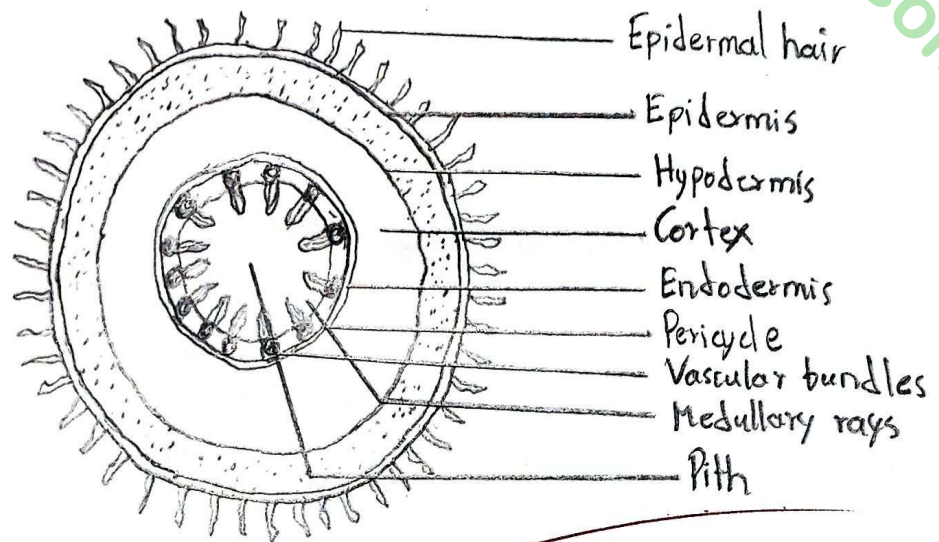
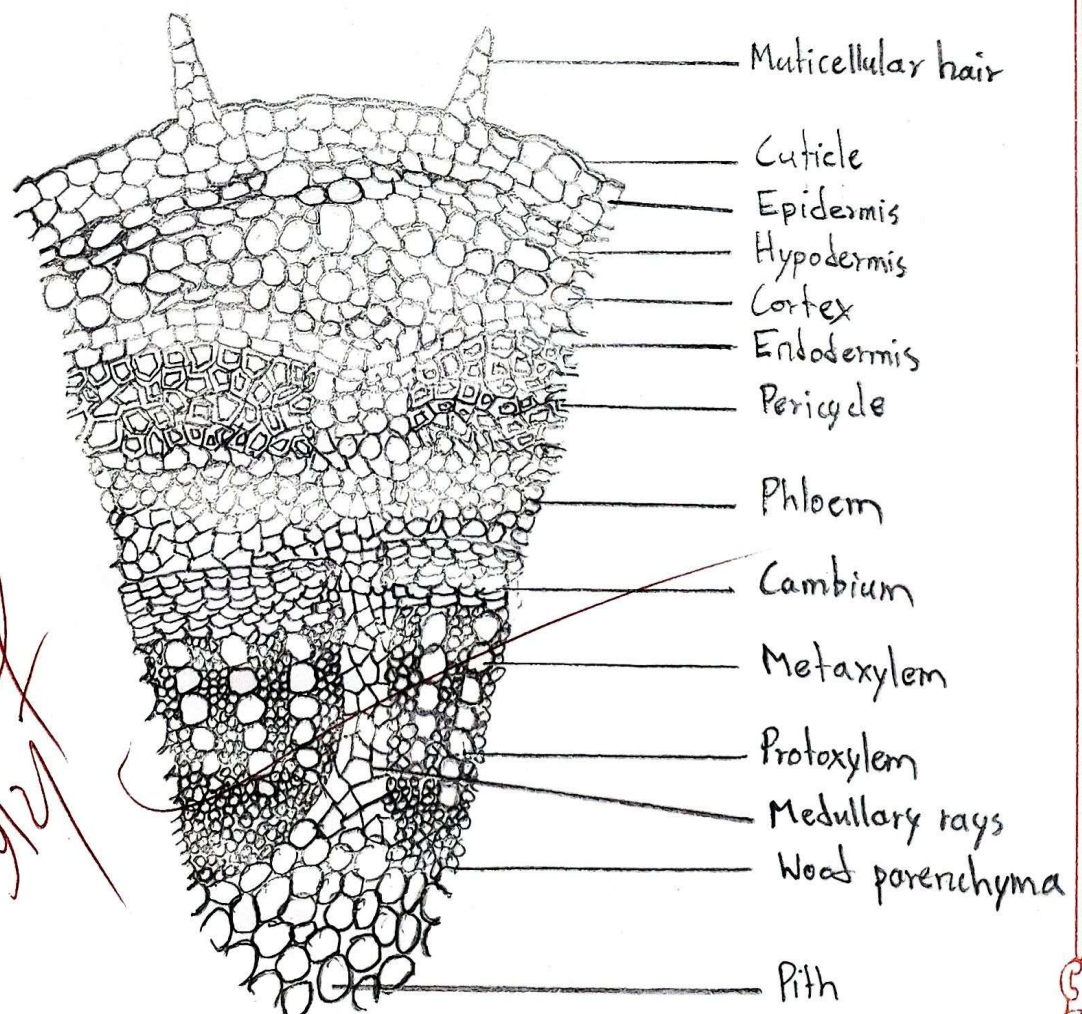


Fig. T.S. of Dicot



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Fig. T.S. of Dicot stem

4. Endodermis : It is the innermost layer of the cortex. It is composed of a single layer of barrel-shaped, compactly arranged parenchymatous cells. The endodermal cells contain starch grains, hence endodermis is also called as a starch sheath.
5. Pericycle : It is a multilayered region lying just below the endodermis. It consists of two types of the tissues - parenchymatous tissues above the medullary rays and patches of sclerenchymatous tissue above the vascular bundles. The functions of this region are to provide mechanical support and storage.
6. Vascular bundles: The vascular bundles are arranged in a ring. The vascular bundles are wedge-shaped. They are conjoint, collateral and open type. The xylem consists of vessels, tracheids and xylem parenchyma. It is endarch (i.e. protoxylem towards the centre and metaxylem towards the outer side). Phloem consists of sieve tubes, companion cells and phloem parenchyma.
7. Medullary rays: These are radially elongated, thin-walled, parenchymatous cells present between the vascular bundles.

8. Pith : It is the central region that consists of thin-walled, loosely arranged, parenchymatous cells with intercellular spaces. The main function of pith is storage.