

Puspa Shrestha

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Puspa Shrestha

EXPERIMENT NO. 5

NAME OF EXPERIMENT: TO STUDY INTERNAL STRUCTURE OF MONOCOT STEM.

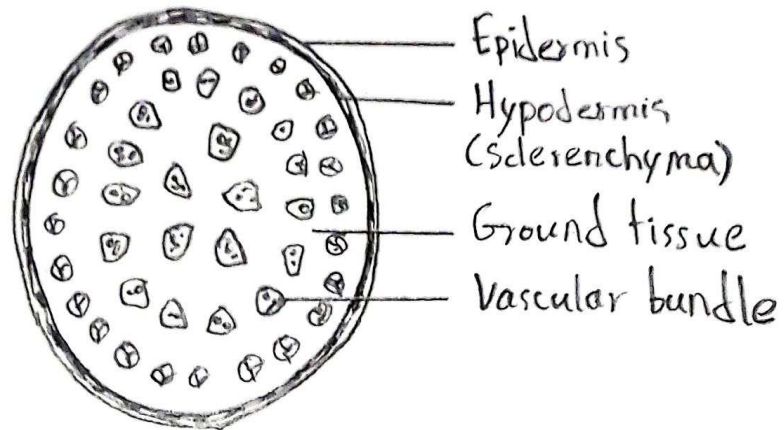
COMMENTS

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

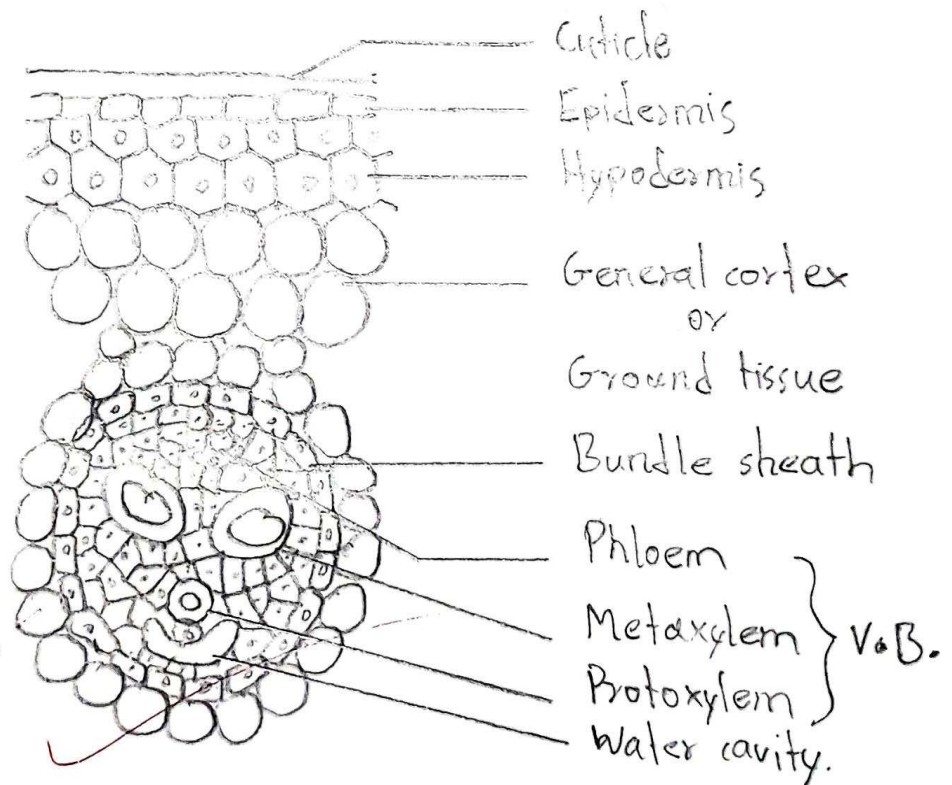
1. Epidermis: It is the outermost layer of the stem and consists of more or less barrel-shaped, thin-walled parenchymatous cells arranged compactly without any intercellular spaces. It is externally covered by a thin layer of cuticle. Epidermal hairs are usually absent but sometimes stomata may be present.
2. Hypodermis: The epidermis is followed by 2-3 layers of compactly arranged sclerenchymatous hypodermis. This region provides mechanical strength to the stem and also acts as a heat screen.
3. Ground tissue: It lies just below the hypodermis and consists of a uniform mass of thin-walled parenchymatous tissues. This region is not

TO STUDY THE INTERNAL STRUCTURE OF MONOCOT STEM

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Date: 20/8-11-18



T.S. of monocot stem (Diagrammatic sketch)



Yadav
12/23

T.S. of monocot stem (Detailed structure)

differentiated into cortex, endodermis, pericycle and pith. This region stores food materials.

4. Vascular bundles

- The vascular bundles are scattered throughout the ground tissues. They are smaller and numerous towards the periphery and fewer but larger towards the central region.
- Each vascular bundle is oval, conjoint, collateral and closed type.
- Each vascular bundle is surrounded by sclerenchymatous bundle sheath.
- Xylem vessels lie in the form of 'Y' shaped and endarch (Protoxylem towards the centre) and consists of vessels, tracheids xylem parenchyma and a few xylem fibre. A large water cavity (lysigenous cavity) is present below the protoxylem which stores water. This cavity is formed by the dissolution of xylem parenchyma and some protoxylem.
- Phloem occupies in a patch on the outside of the xylem. It consists of sieve tubes, companion cells, and a few phloem fibres but lacks phloem parenchyma. It is differentiated into outer protophloem and inner metaphloem.