

Puspa Shrestha

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Puspa Shrestha

Date: 20/08/03

EXPERIMENT NO. 1

NAME OF EXPERIMENT: TO STUDY DIFFERENT TYPES OF PLANT TISSUES.

COMMENTS

Permanent tissues are the group of simple or complex permanent tissue.

- i) Simple permanent tissue - contains only one type of cells and is of three types.
- ii) Parenchymatous tissue: A tissue composed of thin-walled spherical, polygonal or isodiametric living cells enclosing intercellular spaces. It is generally found in epidermal, cortical, pith and mesophyll cells. It becomes:
 - Chlorenchymatous tissue: They are composed of green chloroplast pigments.
 - Aerenchymatous tissue: They are loosely arranged cells enclosing large air-cavities.
- ii) Collenchymatous tissue: They are elongated living cells with slightly oblique or rounded ends. T.S of this tissue shows circular or polygonal cells with thickened intercellular spaces formed by the deposition of cellulose and pectin. The cells may

TO STUDY DIFFERENT TYPES OF PLANT TISSUES

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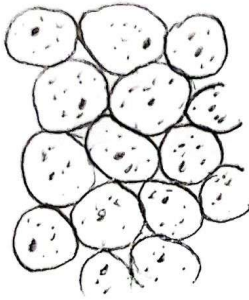


fig. Parenchyma

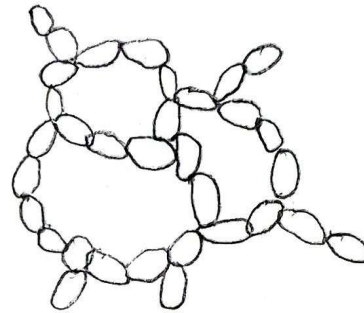


fig. Aerenchyma

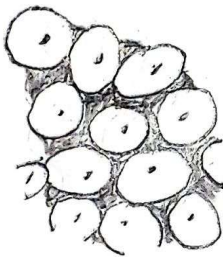


fig. Collenchyma

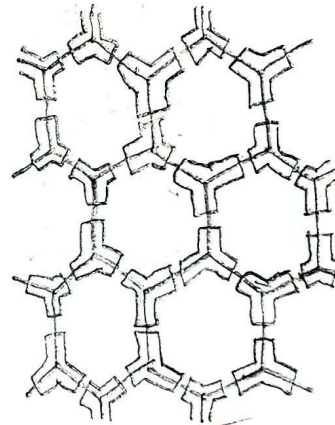


fig. Sclerenchyma

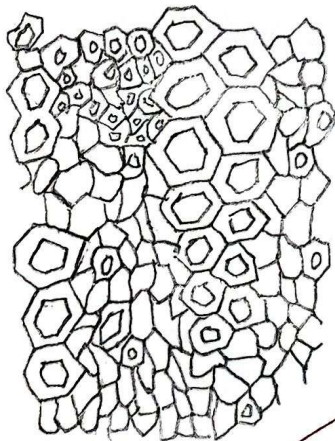


fig. Xylem

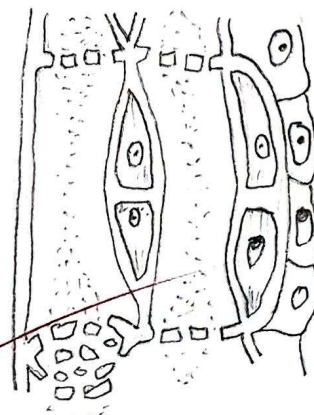


fig. Phloem

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may contain chloroplast. It is normally found below the epidermis.

iii. Sclerenchymatous tissue: They are compactly arranged dead cells without intercellular space. Each cells called fibre, is long and spindle shaped. The cell is empty with thick lignified walls. They are found in patches or in layers in hypodermis, pericycle and xylem. They are special kind of sclerenchyma tissue called Sclereids or the stone cells occurring in the hard parts of plant. They have reduced lumen due to the very thickened walls.

2) Complex permanent tissue: It contains more than two types of tissues. Its two types :-

i) Xylem: It is the hard tissue composed of four elements:

- Tracheids: elongated dead cells with tapering ends and the walls thickened in different patterns such as annular, spiral, reticulate, scalariform and pitted.
- Vessels: elongated tube like dead cells with thickened walls. They are found in bigger size as metaxylem or smaller size as protoxylem.
- Wood parenchyma: parenchymatous cells

- associated with other xylem elements.
- Wood Fibres: sclerenchymatous cells in woody plants.

ii) Phloem: It is soft tissue composed of four elements.

- Sieve tubes: thin walled elongated tube-like cells with perforated end walls called sieve plates.
- Companion cells: elongated thin-walled cells containing dense cytoplasm and a nucleus. They lie with sieve tube as company. In T.S., phloem shows rectangular cells adjoining with sieve tubes.
- Phloem parenchyma: parenchyma cells lying with sieve tube and companion cells.
- Bast: phloem sclerenchymatous tissue laying with sieve tubes and companion cells in secondary phloem.