

9th Class

➤ Plant Tissues

❖ Introduction:

- Plant tissues are groups of cells with similar structures, functions, and origins.

❖ Types of Plant Tissues:

1. Meristematic Tissue:

- Found in areas of active growth (meristems) such as root and stem tips.
- Cells are small, with thin walls and dense protoplasm.
- Responsible for primary and secondary growth in plants.
- Classified into apical, lateral, and intercalary meristems.

2. Permanent Tissue:

- Derived from meristematic tissue and specialized for specific functions.
- Classified into simple and complex permanent tissues.

a. Simple Permanent Tissues:

- Consist of cells with similar structures and functions.
- Three types: Parenchyma, Collenchyma, and Sclerenchyma.

i. **Parenchyma Tissue:** - Most common type of plant tissue. - Cells are living, with thin cell walls and large vacuoles. - Functions include photosynthesis, storage, and secretion.

ii. **Collenchyma Tissue:** - Cells have unevenly thickened cell walls. - Provide mechanical support to young, growing parts of the plant.

iii. **Sclerenchyma Tissue:** - Cells have thick, lignified secondary walls. - Provide mechanical support and protection to mature plant parts. - Two types: Fibers and Sclereids.

b. Complex Permanent Tissues:

- Composed of different types of cells with specialized functions.
- Two types: Xylem and Phloem.

- i. **Xylem Tissue:** - Conducts water and minerals from roots to the rest of the plant.
- Composed of vessel elements, tracheids, fibers, and parenchyma cells.
- ii. **Phloem Tissue:** - Transports organic nutrients (sugars) from photosynthetic tissues to other parts of the plant. - Composed of sieve tube elements, companion cells, fibers, and parenchyma cells.

❖ **Functions of Plant Tissues:**

- Support and mechanical strength.
- Transport of water, nutrients, and organic substances.
- Storage of food and water.
- Photosynthesis and gas exchange.

❖ **Conclusion:**

Understanding plant tissues is essential for comprehending plant structure and function. Each type of plant tissue plays a vital role in the growth, development, and survival of plants, contributing to their diverse adaptations and ecological success.