

*Sclerenchyma:-

- It makes plant hard and stiff.
- They have dead cells.
- The cytoplasm and nuclei disintegrate.
- The primary walls made up cellulose becomes thick with lignin and forms a secondary wall.
- As a result the cell wall becomes thick and lumen of the cell gets reduced.
- They are of two types: - A) Sclerenchyma fibers B) Sclerids (Stone cell).

*Sclerenchyma fibers:-

- Cells are long narrow like fibers, spindle shape having pointed ends.
- They appeared to be polygonal in transverse section.
- They are found in stem and in the veins of leaves.

*Sclerids (Stone cells):-

- They are mostly isodiametric or variously shaped.
- They can be seen in outer seed coat of bean, pea, and green grams and in the pulp of Sapodilla and Pear.
- They provides mechanical strength to the plants.
- They are known as dead mechanical tissues.

*Complex tissue:-

- It is made up of more than one type of cells.
- The most important complex tissue in plants are Xylem and Phloem.
- They are associated with the transport of water, ion and soluble food substances.
- They are also known as conducting tissues.

*Xylem:-

- It conducts water and dissolved mineral salts upwards from root to leaves.
- It consists of tracheid, vessels, and xylem parenchyma and xylem fibers.
- Tracheid are unicellular and vessels are multicellular.
- The cells have thick walls and they are dead.
- Xylem fibers provides mechanical strength.

*Phloem:-

- It conducts organic food materials from leaves to different plant organs.
- It consists of sieve cells, sieve tubes, companion cells, and phloem parenchyma and phloem fibers.
- The transverse walls of sieve tubes are perforated. They are known as sieve plates.
- Except the phloem fibers, phloem cells are living cells

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