

- Stomata also helps in transpiration. Cork is made up of dead cells with thick walls and do not have any intercellular spaces. The cell walls in cork deposit waxy substance called as suberin.

(B) **Supporting tissue:** These are supportive in function and are of three types:

Parenchyma: It is the fundamental tissue, parenchymatous cells have thin cell wall.

- Cell wall mainly composed of cellulose & pectin.
- Large central vacuole for food & water storage.
- Primary function is food storage.
- Chloroplast containing parenchyma tissues are chlorenchyma which perform photosynthesis. e.g. mesophyll of leaves.
- In hydrophytic plants aerenchyma (A type of parenchyma containing air spaces) provides buoyancy.

Collenchyma: It is the living mechanical tissue.

- Elongated cells with thick corners.
- Localized cellulose & pectin thickening.
- Provides flexibility to plant parts & easy bending of various parts of plant.
- It gives mechanical strength & elasticity to the growing stems.

Sclerenchyma: (Scleras-hard)

- Strengthening tissue.
- Composed of extremely thick walled cells little or no protoplasm.
- Cells are dead & posses very thick lignified walls.
- Lignin is water proof material.
- Inter cellular spaces are absent.

Cells of sclerenchyma are of two types:

1. **Sclereids:-** Small stone cell or grit cell, having small lumen and thick cell wall.
2. **Fibres:-** They are very long, narrow, thick, lignified cells.

Sclerenchyma fibres are used in the manufacture of ropes, mats & certain textile fibres.

Jute & coir are obtained from the thick bundles of fibres.

(ii) **Complex permanent tissue:** It consists of more than one type of cells which work together as a unit.

It helps in transportation of organic materials, water & minerals.

It is also known as conducting or vascular tissue.

Xylem & phloem together form vascular bundles.

(A) **Xylem:-** Also known as wood and is a vascular and mechanical tissue. Thick walled cells are found in the form of tubular passages.

Xylem consists of four types of cells called as elements:

Tracheids: They are elongated angular dead cells (primary elements) mainly involved in conduction of water & minerals in gymnosperms.

Vessels: They are advance elements (generally found in angiosperms). Vessels are cylindrical tube like structures placed one above the other end to end which form a continuous channel for efficient conduction of water.

Xylem parenchyma: They are small & thick walled parenchymatous cells subjected for storage of starch (food).