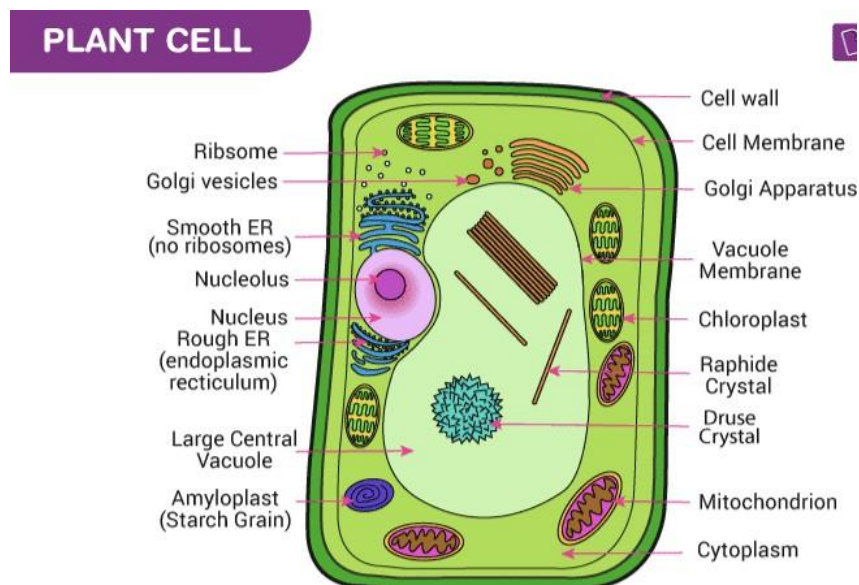


Lec.2

Plant cell

Plant cell: - It is a eukaryotic cell enclosed by a cell wall, containing a membrane-bound nucleus and other cell organelles that perform different functions. The plant cell contents divided into **living** and **non-living** components.

***Non-Living components including: - Cell wall and ergastic compounds



Cell wall: - It is the outer layer of the cell, it surrounds a part of the protoplasm within it called protoplast. The presence of a non-living rigid wall containing cellulose is characteristic of plant cells. The primary cell wall in the plant is thin; in some time the primary cell wall becomes thick but it could be recognized by the presence

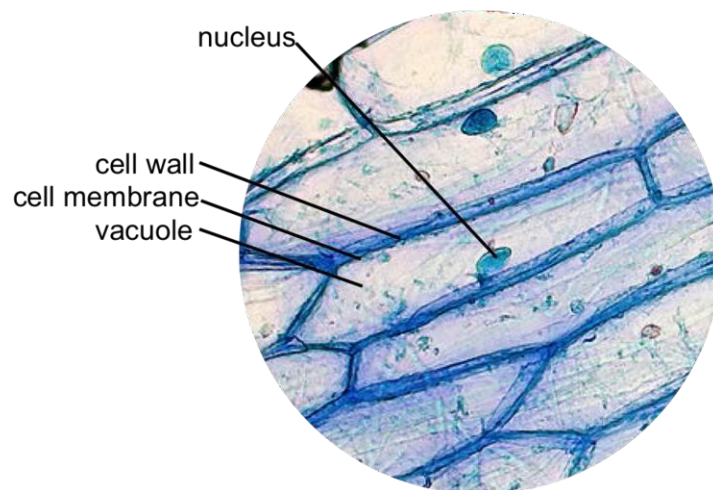
of plasmodesmata. The cell wall provides a rigid form to the cell and protects the parts inside.

Stages of forming plant cell wall:

1- Cell plate: - It is seen in the late anaphase or early telophase during plant during cell division. It is beginning in the center of dividing cell composed of pectin compounds.

2- Middle lamella: - It is a layer between the primary walls of adjacent cells.

3- Cell wall: - It usually consists of primary cell wall (cellulose, hemicelluloses, non-cellulosic polysaccharides, and pectin) and secondary walls (cellulose, non-cellulosic polysaccharides, lignin and suberin). However, the primary cell wall may be lignified to be a secondary cell wall that is thick and dead.



Primary cell wall in epidermis of onion bulb

*****Steps to prepare slide from epidermis of *Allium cepa* bulb**



Fig 1a Onion bulb sliced into sections.



Fig1b. Scale leaves of an onion bulb.



Figure 1c. Showing the removal of a portion of the epidermal layer forceps.



Fig 1d. A transparent epidermal peel



Figure 1e. Microscope slide of an onion

Practical work:-

- 1- Examine L.S. of onion (*Allium cepa*) root tip or *Zea mays* stem to study primary cell wall
- 2- Examine *Phoenix dactyliferae* seed to study plasmodesmata
- 3- Examine L.S. of Allium root tip (Telophase) to study cell plate and L.S. of Allium root tip (Cytokinesis) to study middle lamella.
- 4- Examine T.S of Draceana old stem to study secondary cell wall.