

Lesson Plan 10

Topic: Plant Cell

Sub – Topic: Temporary mount of an Onion Peel

Class: 7

Duration: 30 Mins

Aim:

- To prepare stained temporary mount of onion peel.

Objective:

- Students will be able to prepare a wet mount of an onion skin.
- Students will be able to focus the specimen under the microscope at different magnification.
- Students will be able to practice drawing microscopic illustrations.

Materials Required:

1. Glycerin
2. Safranin solution
3. Dropper
4. Forceps
5. Compound microscope
6. Distilled water
7. Needle
8. Brush
9. Cover slip
10. Blotting paper
11. Onion
12. Glass slide
13. Watch - glass.

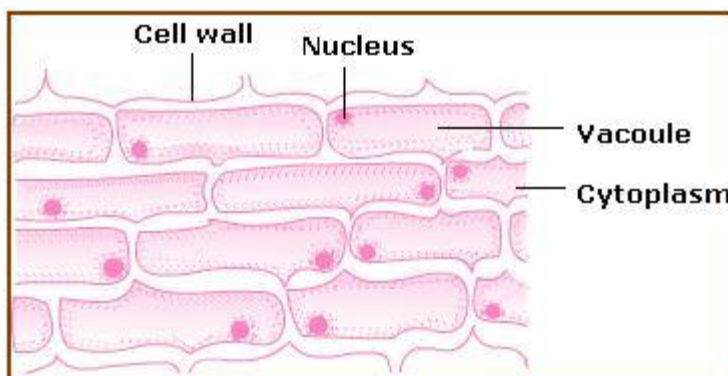
Principle:

All living organisms are composed of cells. New cells arise by the division of pre-existing cells. Cell is the structural and functional unit of life. In plants, cells have an outermost rigid cell wall beneath which is a cell membrane. The cell membrane encloses cytoplasm, cell organelles, and a nucleus.

Procedure:

1. Pour some distilled water into watch glass.

2. Peel off a leaf from half a piece of onion and using the forceps, pull out a piece of transparent onion peel (epidermis) from the leaf.
3. Put the epidermis in the watch glass containing distilled water.
4. Take a few drops of Safranin solution in a dropper and transfer this into another watch glass.
5. Using a brush, transfer the peel into the watch glass containing the Safranin solution.
6. Let this remain in the Safranin solution for 30 seconds, so that the peel is stained.
7. Take the peel from the Safranin solution using the brush and place it in the watch glass containing the distilled water.
8. Take a few drops of glycerin in a dropper and pour 2 – 3 drops at the center of dry glass slide.
9. Using the brush, place the peel onto the slide containing glycerin.
10. Take a cover slip and place it gently on the peel with the aid of a needle.
11. Remove the extra glycerin using a blotting paper.
12. Place this glass slide on the stage of the compound microscope and view it.

**Observations:**

1. There are a large number of regularly shaped cells side by side and each cell has a distinct cell wall.
2. Lightly stained cytoplasm is observed in each cell.

Conclusion:

- The cells that form the peel are rectangular in shape, compactly arranged and without any intercellular spaces. Each cell has a distinct cell wall, a prominent nucleus and a vacuole. The cells form the outer layer of the leaf known as epidermis.
- This is an easy and fun activity that will allow the student to learn about the cell structure. Students have the opportunity to experiment and observe the onion membrane with different stains (methylene blue and iodine) and without the stain and observe the differences.

Precautions:

1. Use a brush to transfer the peel from one apparatus to another.
2. Staining of peel should neither be too dark, nor too light.
3. Extra glycerin stain should be removed using blotting paper.