

Biology Laboratory: LS1102

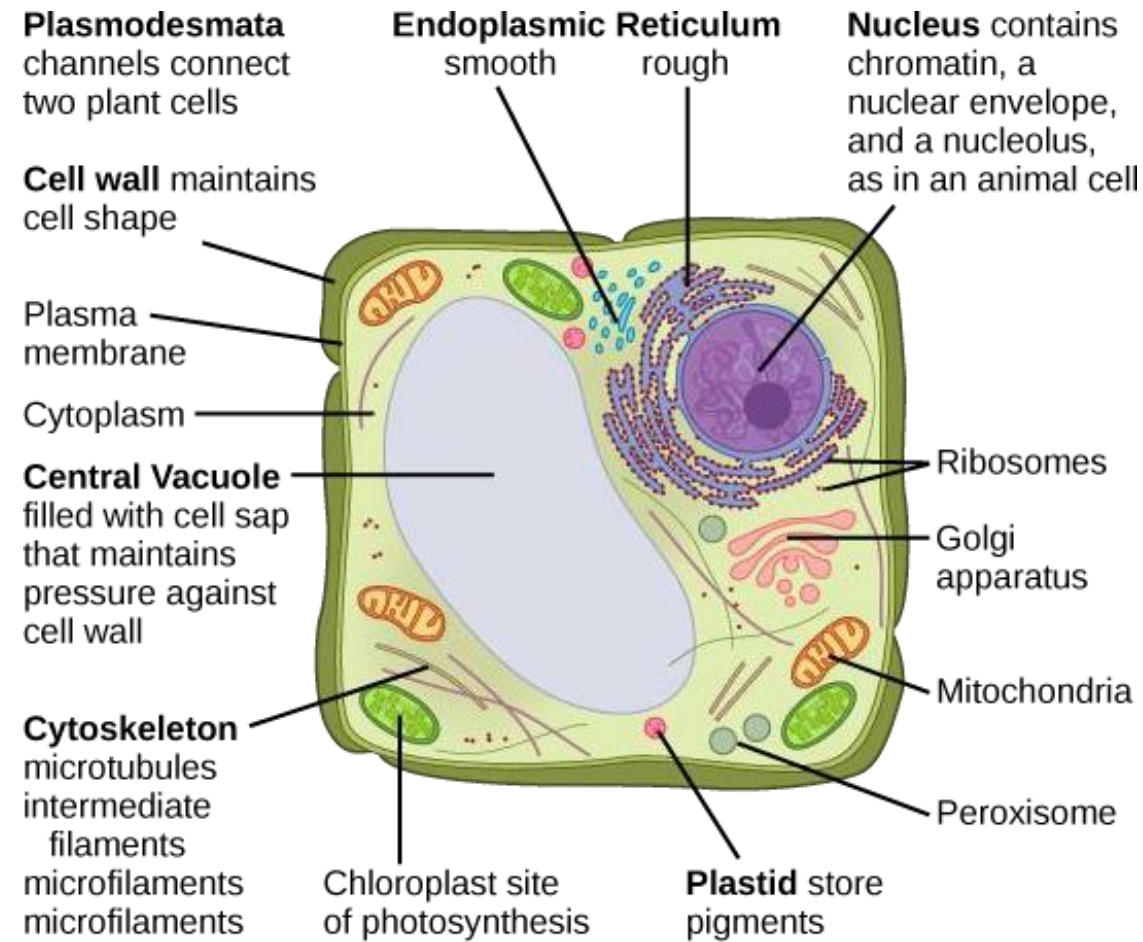
Basic Cell Biology: Part II

Microscopic observation of plant cell (onion peel)

&

Plasmolysis and deplasmolysis of onion cells

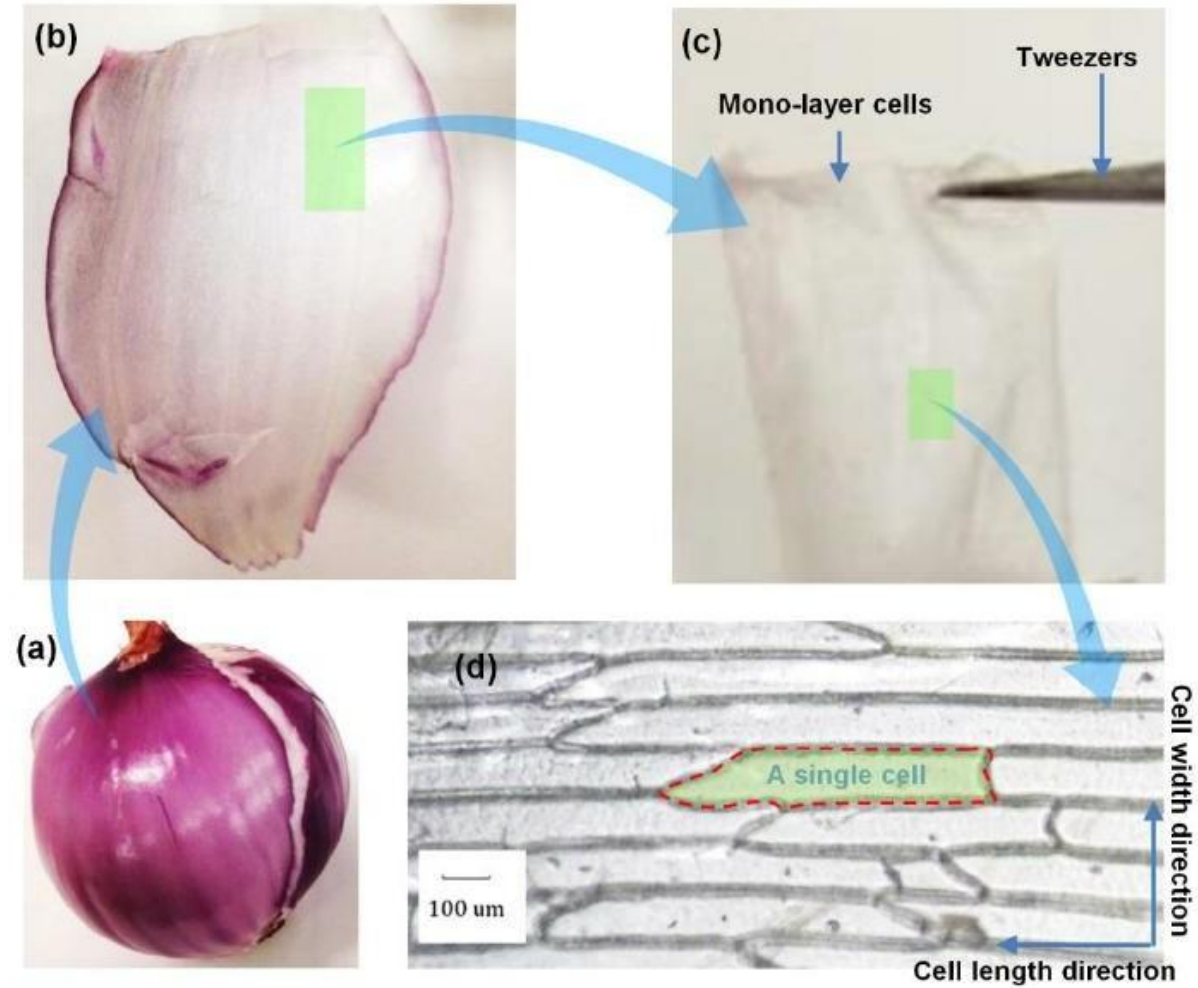
Partha P. Datta



Plant Cell

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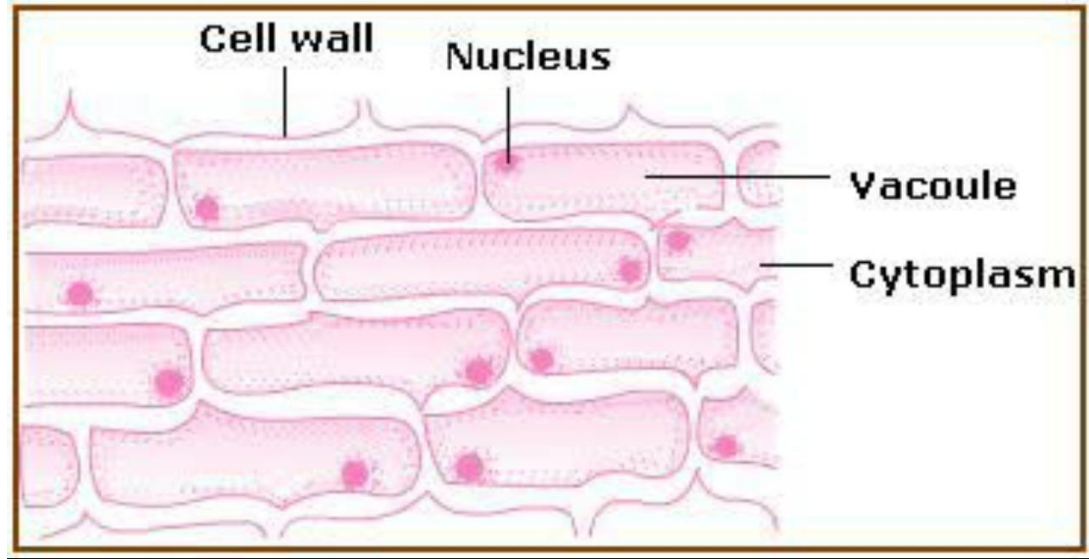
Preparation and microscopic observation of the cells from lower epidermis of onion peel



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3:59 PM

70%

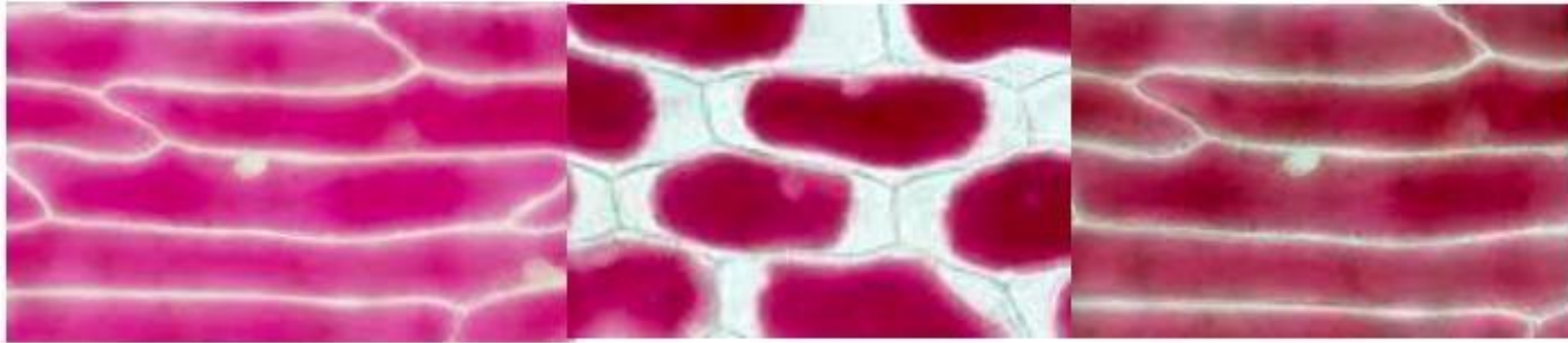


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Plasmolysis and Deplasmolysis of Onion Cells

Plasmolysis

Deplasmolysis



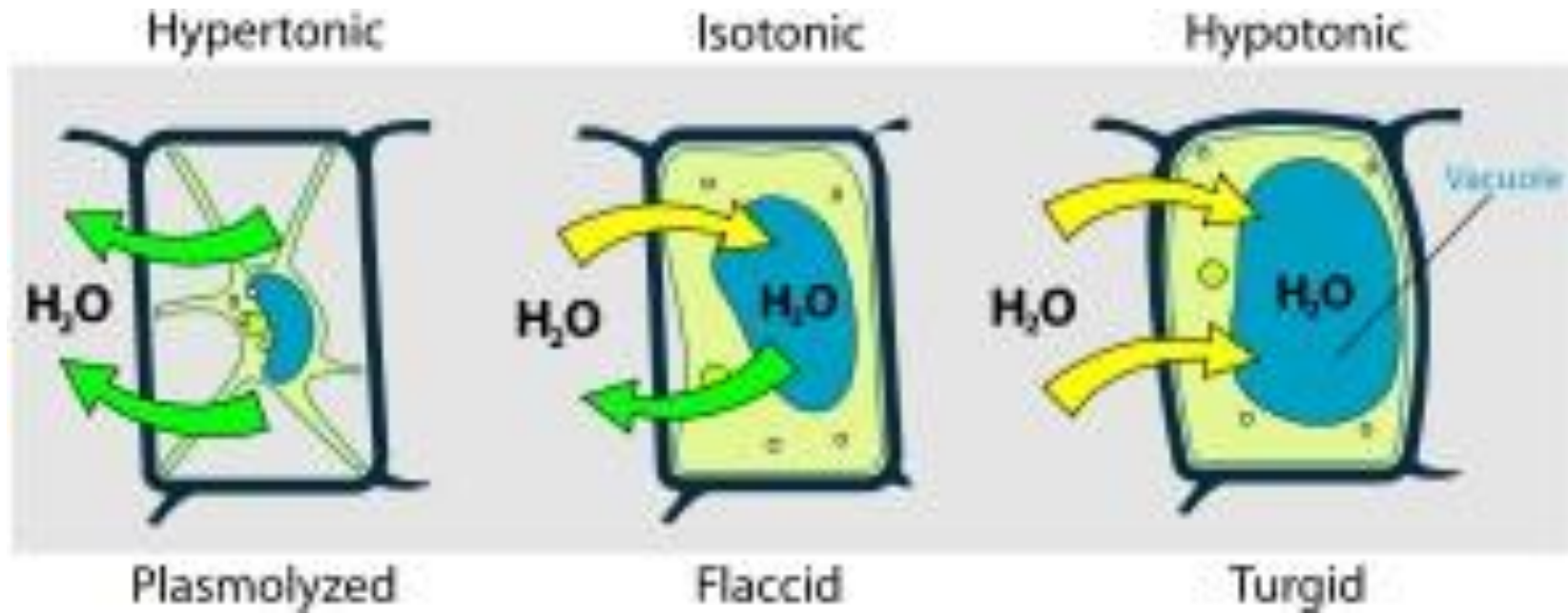
Initial view of onion cells
under the 40X

View of onion cells after
20% salt solution was
added

View of onion cells after
flushed with distilled
(100%) water.

Ref: Internet

Osmosis in plant cells



Ref: Internet

Protocols

Microscopic observation of plant cell (onion peel) & Plasmolysis and deplasmolysis of onion cells.

Microscopic observation of onion cells:

Requirements: Fresh peeling of lower epidermis of onion, glass slides, cover slips, iodine stain, Microscope

Procedure:

1. Peel a translucent piece of tissue from the onion. Translucent means that you can see light through the specimen, but it is not transparent.
2. Place the piece of onion on a glass slide and add a drop or two of the iodine solution. Cover the slide with a cover slip using your best wet-mount making techniques.
3. Observe the onion cell under both low (10X) and high (40X) power. Make a drawing of onion cell, labeling all of its parts as you observe them.

(At minimum you should observe the nucleus, cell wall and cytoplasm.)

Plasmolysis and deplasmolysis of onion cells:

Theory: If a plant cell is immersed in a solution that has a higher solute concentration than that of the cell, water will flow out from the cell. The loss of water from the cell will cause the cellular contents to shrink and move away from the cell wall. This phenomenon is called plasmolysis.

The plasmolysed cells, when washed and mounted in water, regain their original shape. The protoplast swells up and comes in contact with the cell wall. This is called deplasmolysis.

Requirements: Fresh peelings of lower epidermis of onion, 5% salt solution, water, slide, coverslips, watch glass and microscope.

Method: Peel off the lower epidermis of the onion and cut into small pieces. Observe single strip under the microscope and see that all the cells are uniformly colored. Immerse another strip into 5% solution in a watch glass/glass slide for few minutes. Mount the strip in the same solution and examine under the microscope. The cells become plasmolysed. Wash the plasmolysed strip with deionized/distilled water and mount in a drop of water. Examine under the microscope and sketch your onion cells.