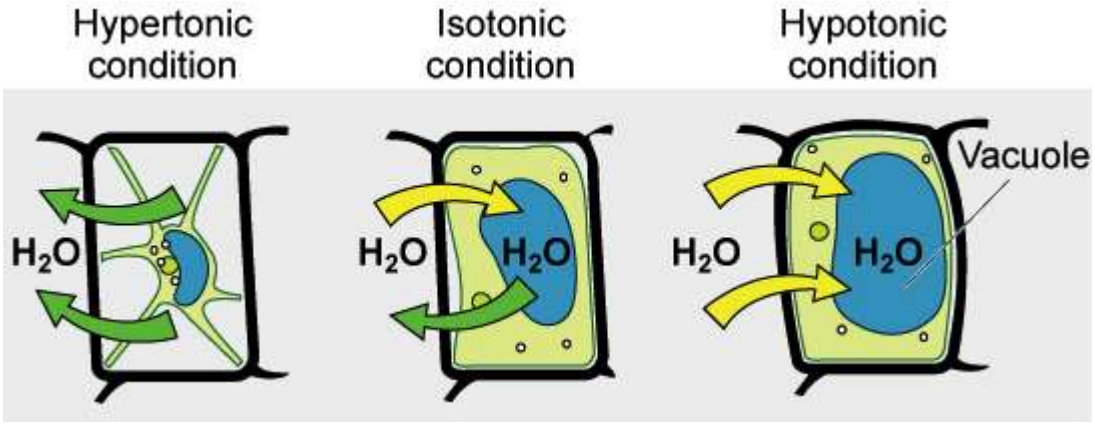
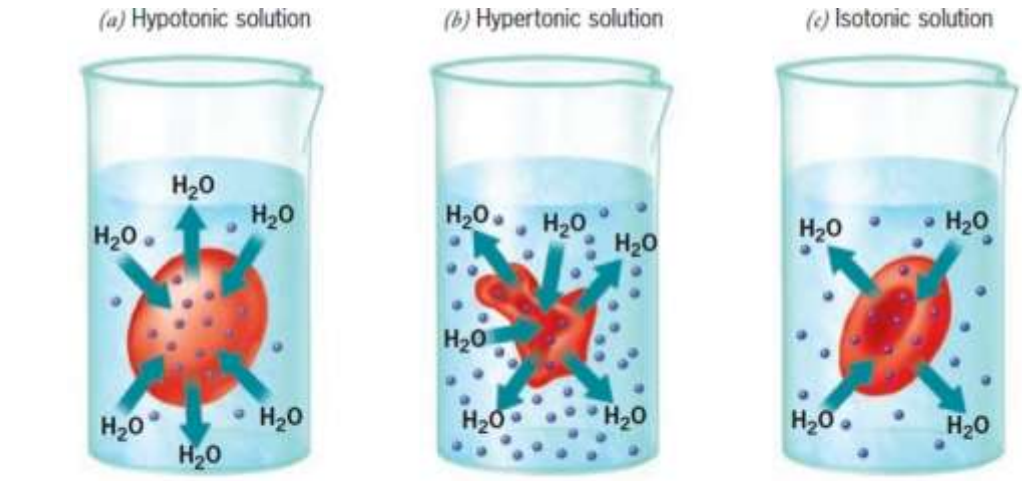
Functions of cytoplasmic membrane

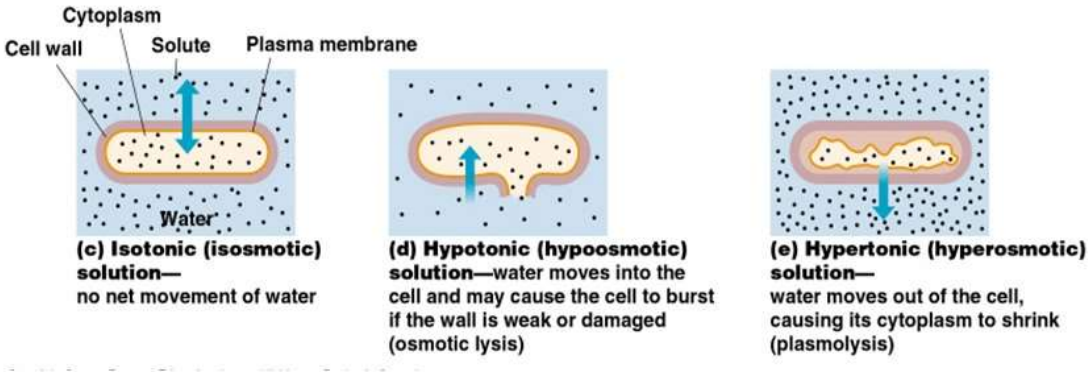
The plasma membrane, also called the cytoplasmic membrane, is the most dynamic structure of a prokaryotic cell. Its main function is a s a selective permeability barrier that regulates the passage of substances into and out of the cell. The bacterial membrane allows passage of water and uncharged molecules , but does not allow passage of larger molecules or any charged substances except by means special membrane transport processes and transport systems , The process of moving or diffusing water across the membrane is called **osmosis** , Depending on the water content of the cell compared to the outside, the water can move depending on the difference in the concentration of the cell from the outside, so the cell can lose or gain water or remain without that.

To explain this, it can be divided into three states.

1. **Isotonic:** The rate of transfer or diffusion of water into the cell is equal to the rate of transfer of water out of the cell, so there is no change in the size of the cell.
2. **Hypotonic:** When the concentration of the solution inside the cell is higher than the outside, then the water is transferred from the outside to the inside of the cell, and as a result, there is swelling and an increase in the volume of the cell, which leads to the burst of the cell, where the osmotic pressure is high.
3. **Hypertonic:** A term used when the concentration of the solution inside the cell is less than outside it, then the water will move from inside the cell to the outside to equalize the concentration of the solution, so the cell shrinks the protoplast of the cell from its wall, so the situation is called Plasmolysis.







:Microbes are divided according to their tolerance to osmotic pressure

1. Halophilic microorganism
2. non Halophilic microorganism
3. Osmophilic microorganism

Experiment name: Study of the effect of osmotic pressure on microbial growth

Materials:

1- A 24-48 hour liquid culture of *E. coli*, *Staph.aureus*.
2- Petri dishes from the nutrients containing different concentrations of Nacl (0.5-5-15-30-60%).
3- Wax pencil.
4- inoculating loop.
5-Bunsen burner.

The method of work:

1- Divide each plate into two parts with a wax pen from the bottom and write the name of the bacteria, the date of cultivation and the concentration.
2- A part of the bacterial culture is transferred by the loop to the plates and streaking.
3- The dishes were incubated in the incubator for a period of 24-48 hours, at 37 ° C.

After incubation, the growth results are examined and observations are recorded.