

Table of Contents

1. DEFINITION OF OSMOSIS

- Explanation of Osmosis
- Importance of Osmosis in Living Organisms

2. FACTORS AFFECTING OSMOSIS

- Concentration Gradient
- Temperature Effects

1. DEFINITION OF OSMOSIS

- Explanation of Osmosis

Osmosis is the process where solvent molecules move across a semi-permeable membrane from a region of lower solute concentration to a region of higher solute concentration. This movement is driven by the need to equalize the concentration of solute on both sides of the membrane. Osmosis plays a crucial role in maintaining the balance of water and nutrients in cells and biological systems.

- Importance of Osmosis in Living Organisms

Osmosis is crucial for living organisms as it helps maintain the balance of water and solutes within cells. This process enables nutrients and essential molecules to pass through cell membranes for cellular functions and survival. Imbalances in osmosis can lead to cell damage and malfunction, highlighting the importance of this process in living organisms.

Osmosis is the passive movement of water molecules through a selectively permeable membrane from a region of lower solute concentration to a region of higher solute concentration. This process is crucial for maintaining the balance of water and solutes in cells and organisms. Osmosis plays a vital role in processes such as nutrient uptake in plants and kidney function in vertebrates.

2. FACTORS AFFECTING OSMOSIS

- Concentration Gradient

Concentration gradient in osmosis refers to the difference in solute concentrations between two areas separated by a permeable membrane. During osmosis, water molecules move across the membrane from an area of low solute concentration to an area of high solute concentration to achieve equilibrium. The steeper the concentration gradient, the faster the rate of osmosis.

- Temperature Effects

Temperature affects osmosis by altering the speed of the molecules involved in the process. Higher temperatures generally increase the rate of osmosis as molecules move faster, while lower temperatures slow down the process. Extremes in temperature can also impact the cell membrane's structure and integrity, affecting the overall osmotic balance.