

Lab (3)

Diffusion

The movement of ions or molecules from a region of high concentration to a region of low concentration.

This movement dependent , or due to the (kinetic energy)

Properties :-

1. Movement in one way direction from high pressure region to low pressure .
2. Does not require energy.
3. Diffusion stop when concentration on both sides equal.
4. Diffusion of one compound is independent to diffusion of other.
5. Molecules continue to move, but no change in net concentration.
6. Equilibrium is reached.

Factors affecting diffusion:-

1. Size of particles .
2. Rate of diffusion as the concentration difference increase.
3. Temperature :- when temperature increased, the kinetic energy of particles increased , and the diffusion is increased.
4. The solubility:- the greater solubility of particles or molecules in the media the faster it will diffuse.
5. The rate of diffusion decrease when molecules must travel a longer distance in their search for equilibrium.

The importance of diffusion in plant life:-

1. It is an essential process in exchange of gases (O_2 and CO_2) during respiration and photosynthesis .
2. Up take of minerals is affected by diffusion.
3. It helps in removal of excess water by the process of transpiration.
4. Translocation of organic solutes also take place by diffusion , means.
5. Fragrance of flowers spread in air by diffusion means attracts insects to pollination.

The diffusion in gases faster than in liquids, and in liquids faster than in solid

The diffusion of solid substances in solid medium, and in liquid medium.

Exp. 1.

2 dishes, containing agar.

First one we put potassium bromate (58 m.w). and the second one we put iodine potassium (204 m.w).

When comparing diffusion between the two above we see that potassium bromate faster in diffusion, comparing with iodine potassium, because their weight less than other.

Exp. 2 .

2 tubes, contain water.

First one we put potassium bromate and second one we put iodine potassium.

When comparing diffusion between the two above, we see that potassium bromate diffuses faster than iodine potassium, because its weight is less.