

## CHAPTER – 5

### SEPARATION OF SUBSTANCES

- Handpicking, winnowing, sieving, sedimentation, decantation and filtration are some of the methods of separating substances from their mixtures.
- Methods of separation:
  - (i) Separation of solid from other solids:
    - (a) **Threshing**: Process by which the grains are released from the chaff.
    - (b) **Winnowing**: The process of separation of heavier and lighter components of a mixture by wind or blowing air.
    - (c) **Hand-picking**: The process by which undesirable components are just picked up by hand.
    - (d) **Sieving**: The process by which separate solid constituents of a mixture which differ in their sizes.
    - (e) **Magnetic separation**: Process by which magnet is moved over such a mixture, the magnetic material sticks to it and is removed.
  - (ii) Separation of water soluble solids:
    - (a) **Evaporation**: Process by which the conversion of liquid state into gaseous state on heating.
    - (b) **Condensation**: Process by which conversion of gaseous state into liquid state on cooling.
  - (iii) Separation of insoluble solids from Liquids:
    - (a) **Sedimentation**: It allows heavier matter to settle down. Example: sand, water.
    - (b) **Decantation**: The methods of separating insoluble solids from liquids.
    - (c) **Loading**: The methods by which finer particles are made to settle faster by dissolving a small quantity of alum.
    - (d) **Filtration**: The liquid that collects in the beaker is called filtrate.
  - (iv) Separation of Immiscible Liquids:
    - (a) **Funnel**: The method of separating mixture of oil and water.

(b) **Centrifugation:** The method in which mixture containing suspended particles is rotated at a high speed in a centrifuge and heavier particles settle down. It is used for separating cream from milk.

(c) **Churning:** The method which is used for separating lighter particles of solid suspended in a liquid. Example: butter from curd.

- Husk and stones could be separated from grains by handpicking.
- Husk is separated from heavier seeds of grain by winnowing.
- A saturated solution is one in which no more of that substance can be dissolved.
- More of a substance can be dissolved in a solution by heating it.
- Water dissolves different amount of soluble substances in it.

