

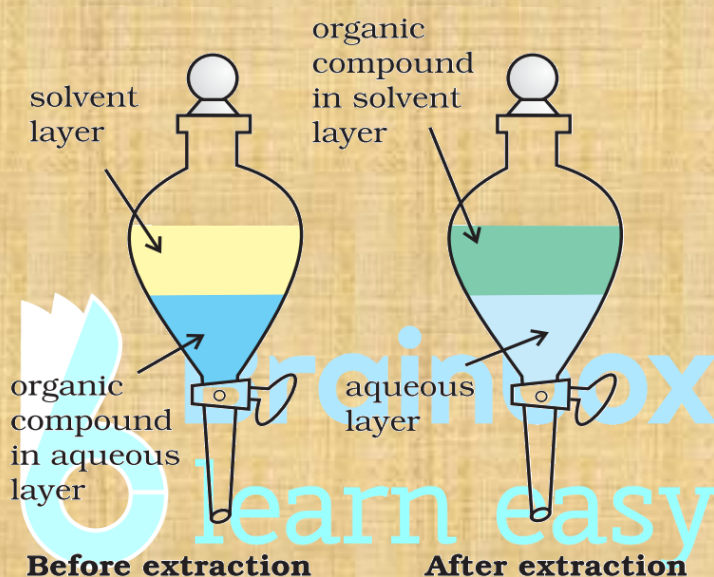
CHAPTER 12

General Organic Chemistry

Methods of purification of organic compounds:

Differential extraction:

When an organic compound is present in aqueous medium, it can be separated by shaking it with an organic solvent in which it is more soluble than in water.



Chromatography:

Chromatography is extensively used to separate mixtures, purify compounds and also to test purity to compounds.

In this technique, mixture is applied on to a stationary phase, which may be a solid or a liquid. A mobile phase, which may be a liquid (or) gas is allowed to move slowly over the stationary phase.

Based on the principle involved, chromatography is classified as,

- Adsorption chromatography
- Partition chromatography

Adsorption chromatography:

The principle involved in adsorption chromatography is, different compounds are adsorbed on an adsorbent to different extent. Adsorption chromatography is of two types.

1. Column chromatography:

A long column of adsorbent packed in glass tube acts as stationary phase and an appropriate solution of mixture is allowed to flow down slowly acts as mobile phase.

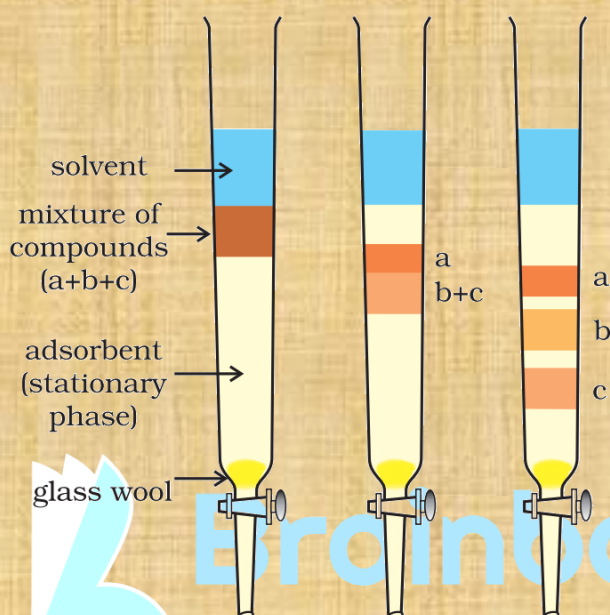


Fig. Column chromatography. Different stages of separation of components

The most readily adsorbed substances are retained near the top and others come down to various distances.

Thin layer chromatography:

A thin layer of adsorbent is spread over a glass plate. This is known as TLC plate. The solution of mixture is applied as a small spot above one end of TLC plate.

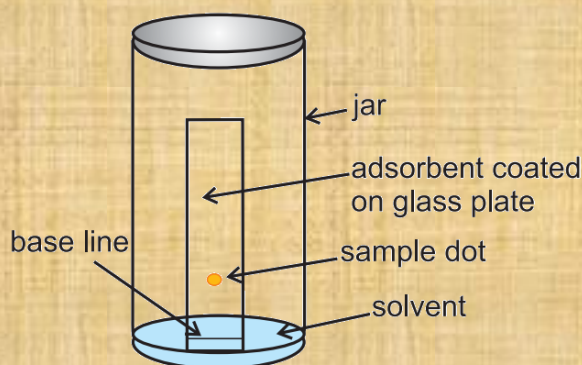


Fig. (a) Thin layer chromatography. Chromatogram being developed.

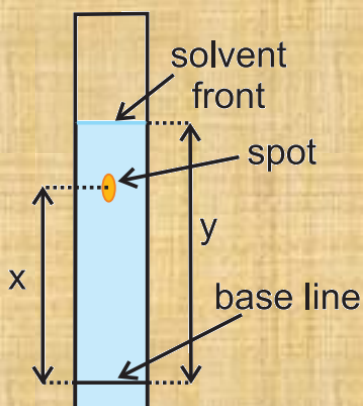


Fig. (b) Developed chromatogram

Partition chromatography:

This technique is based on continuous differential partitioning of components between stationary phase and mobile phases.

One example of partition chromatography is paper chromatography.

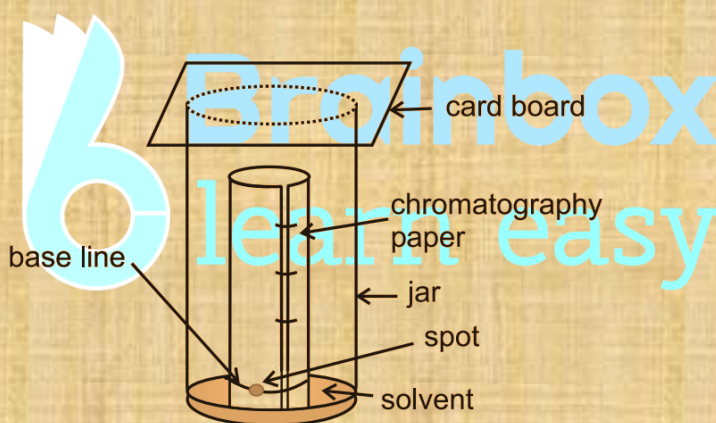


Fig. Paper chromatography. Chromatography paper in two different shapes.