Partition chromatography: is a technique in which mixtures of substances are seperated by means of Partition b/w the moving solvent and a stationary liquid, which is held on suitable solid support.

* when the Solvent (moving Phase) is called liquid - liquid chromatography.

Solvent - is ~~gas~~ gas => Vapour-Chrom. or gas-liquid chrom.

Liq-liq chrom => the solid support for the stationary liq is provided by either cellulose or moist silica gel. This solid support may be in the form of thin sheet => called PC.

Solid support may be thin layer => TLC

" " Packed colum => Partition column chrom.

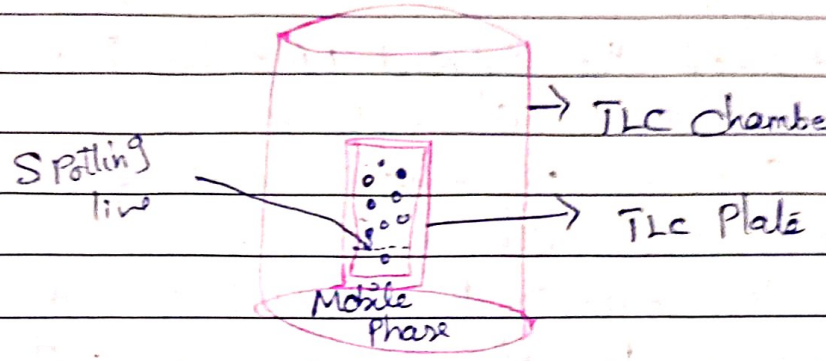
Ion-exchange chromatography

⇒ interchange of ions of like forms takes place b/w a Sln and

Paper chromatography

Thin layer chromatography (TLC)

* This technique is used to Separate non-volatile mixtures. It is performed on a sheet of glass, Plastic or aluminium foil, which is coated with a thin layer of adsorbent material, usually silica gel, aluminium oxide (alumina) or cellulose called chromatographic Plates.



Principle TLC is based on the Separation through adsorption type. The Seperation relies on the relative Empathy of Compounds towards the mobile phase and Stationary Phase.

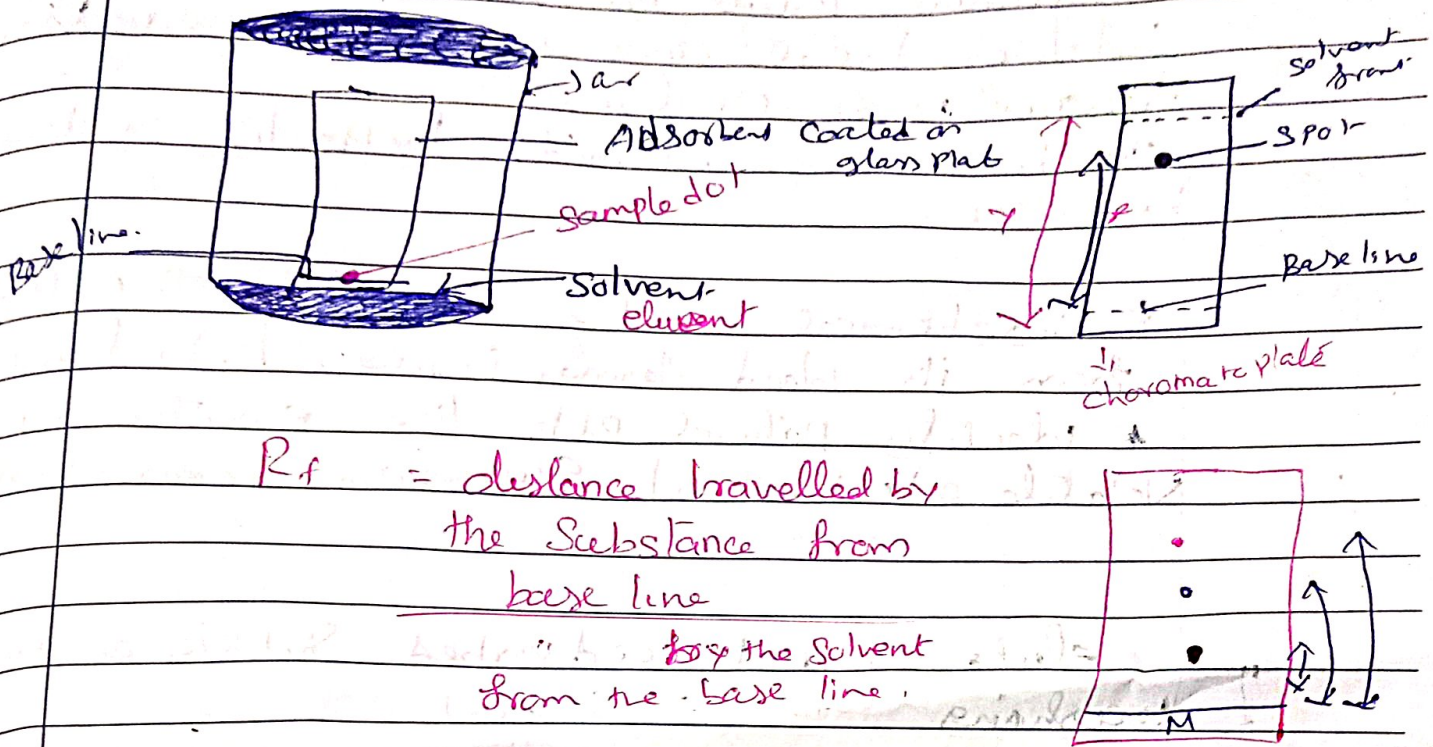
+ The movements occurs in such a way that the cpds which have a higher affinity to the Stationary Phase move slowly while the other cpds travel fast. Therefore the separation of mixture occurs.

On Completion of the Seperation Process, the individual components from the mixture appear as spot at respective levels on the plates. Their character and nature are identified by Suitable detection techniques.

Stationary phase => a solid or a liquid supported on a solid

Mobile Phase => a liquid or a gas

The mobile phase flows through a stationary phase and carries the component of the mixture in



R_f = distance travelled by the substance from base line / distance travelled by the solvent from the base line.

* Polarity ↑ means seperation also ↑

Experiment

* To apply sample spot, thin marks are made at the bottom of the plate
* apply sample solution on the mark
* Pour the mobile phase into the TLC chamber and to maintain equal humidity, Place a moistened filter paper in the mobile phase
* Place the plate in the TLC chamber and close it with a lid. It is kept in such a way that the sample faces the mobile phase
* Immerse the plate for development But don't immerse it in the solvent.
  ↓
  sample spot

wait till the development of Spots. once the Spots are developed, take out the Plate and dry them. The sample Spots can be Observed under a UV light

application:

qualitative testing of various medecines such as Sedatives, local anaesthetics, anticonvulsants, tranqualizers, analgesics, antihistamines, Steroids, hypnotics is done by TLC.

* Biochemical analysis → isolation of metabolites from its blood Plasma, Urine, body fluids, Serum
* identify natural pdts like essential oil or volatile oil, fixed oil, glycosides, waxes, alkaloids,

elute → and adsorbed substance by washing with a solvent

Eluent → Carrier portion of the mobile phase