

**Chromatography** is a physical method of separation in which the components to be separated are distributed between two phases

one of which is stationary (**stationary phase**) while the other (the **mobile phase**) moves through it in a definite direction.

The chromatographic process occurs due to differences in the distribution constant of the individual sample components.



**Classification according to the packing of the stationary phase:**

1- Thin layer chromatography (TLC): the stationary phase is a thin layer supported on glass, plastic or aluminium plates.

2- Paper chromatography (PC): the stationary phase is a thin film of liquid supported on an inert support.

3- Column chromatography (CC): stationary phase is packed in a glass column



**Classification according to the force of separation:**

1- Adsorption chromatography.

2- Partition chromatography.

3- Ion exchange chromatography.

4- Gel filtration chromatography.

5- Affinity chromatography

**Thin layer chromatography (TLC)**

is a method for identifying substances and testing the purity of compounds.

TLC is a useful technique because it is relatively quick and requires small quantities of material.

**Development :**

Several developing techniques can be applied in paper chromatography:

**1-Ascending development :**

**2-Descending development :**

**3-Radial or horizontal development**

**4-Two dimentional development** :

**5-Multiple development :**

**Advantages of TLC over paper chromatography**

1.small quantities are easily detected by TLC.

2.The spots are more compact & clear in TLC than paper chromatography.

3. We can use drastic reagent in TLC ex: concentrated H2SO4 in TLC but we can not use it on paper chromatography.