

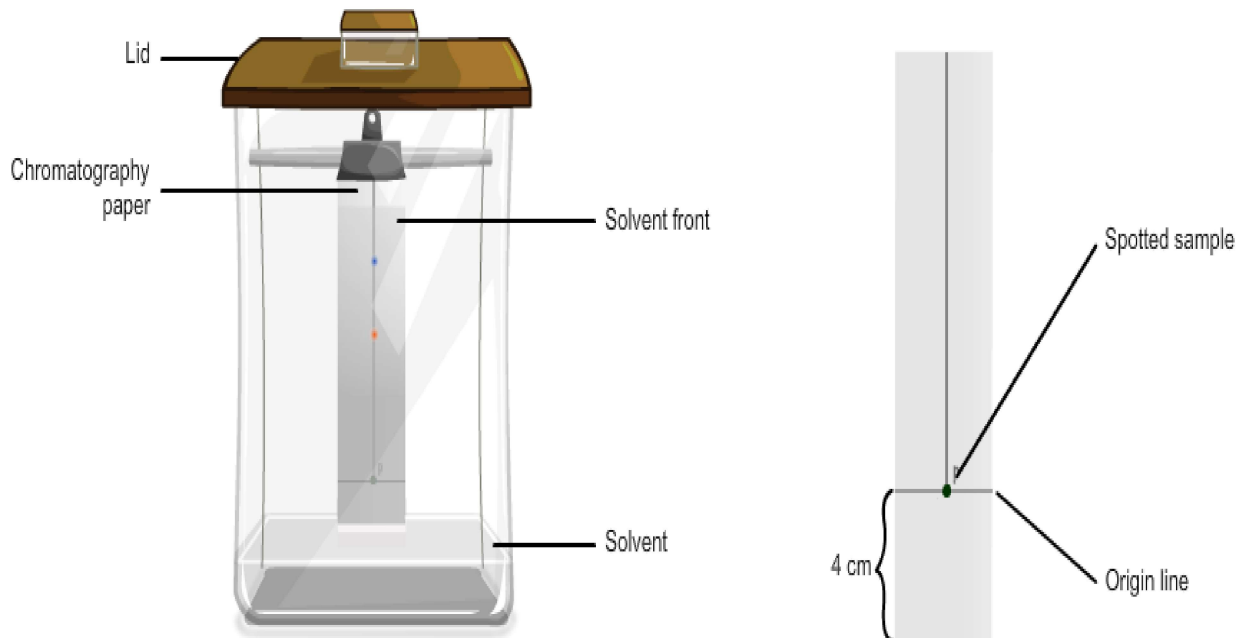
Chromatography:

Chromatography is a separation technique used to separate the different components in a liquid mixture. Chromatography involves the sample being dissolved in a particular solvent called mobile phase. The mobile phase may be a gas or liquid. The mobile phase is then passed through another phase called stationary phase. The stationary phase may be a solid packed in a glass plate or a piece of chromatography paper.

The various components of the mixture travel at different speeds, causing them to separate. There are different types of chromatographic techniques such as column chromatography, TLC, paper chromatography, and gas chromatography.

Paper chromatography is one of the important chromatographic methods. Paper chromatography uses paper as the stationary phase and a liquid solvent as the mobile phase. In paper chromatography, the sample is placed on a spot on the paper and the paper is carefully dipped into a solvent. The solvent rises up the paper due to capillary action and the components of the mixture rise up at different rates

TLC similar to paper chromatography but instead of paper stationary phase which is silica or alumina supported by piece of glass or aluminum which make this technique speed and to visualize spot we can use acid for example compare to paper chromatography which destroyed by acid.



Procedure

1-use pencil to draw base line and put spot of the sample in this lab. The sample is salicylic acid (don't use pen).

2- put the plate inside jar contain mobile phase and cover it let the mobile phase separate sample until reach to the end line which draw it by using pencil at 4cm from the end of the plate (in this lab. We use this mobile phase Butanol: acetic acid : water)

3- visualize spot by using FeCl_3 1% solution then calculate R_f

$R_f = \text{distance traveled by sample} / \text{distance traveled by solvent}$

Applications:

- To separate colors in a dye.
- To separate pigments from natural colors.
- To separate drugs from blood.