

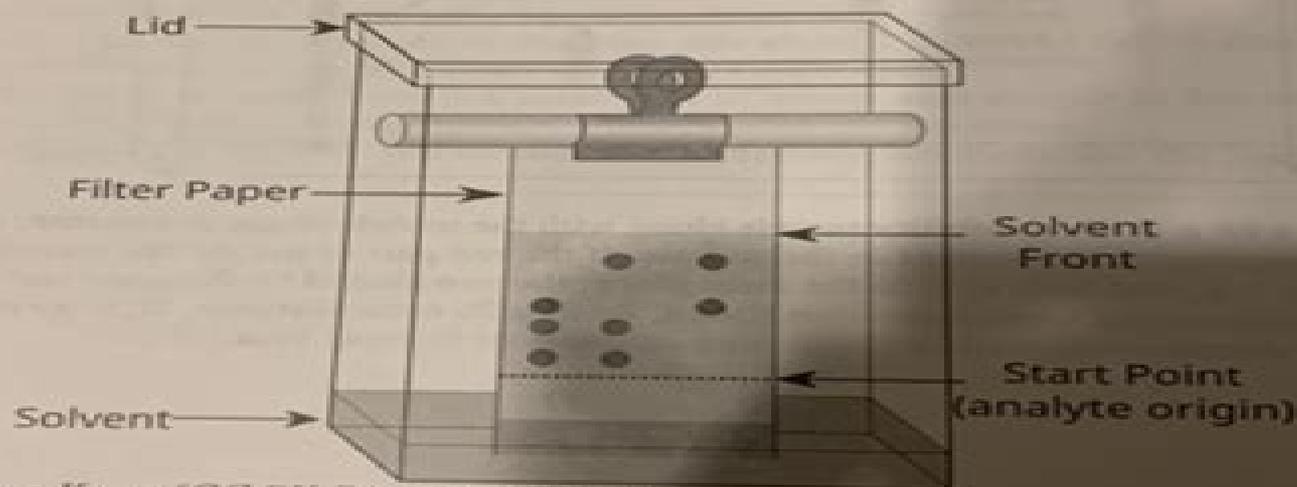
# 14. Paper Chromatography of Amino Acids

## OBJECTIVES

- To use paper chromatography to identify amino acids.
- To identify components of unknown amino acid sample by calculating  $R_f$  values

## BACKGROUND

Chromatography is a collective term for a set of analytical techniques used to separate mixtures. Chroma means color and graph means to write or draw. Paper chromatography is an analytical technique used to separate mixtures of chemicals (sometimes colored pigments) using a partitioning method. The paper in this method is called the stationary phase because it does not move and serves as a substrate or surface for the separation. Analytes (substances being analyzed) are separated from each other based on a differential affinity to a solvent. The solvent dissolves and carries the analytes along the matrix of the stationary phase. Since the solvent moves through a wicking action, it is called the mobile phase.



*Credit: Theresa Knott [CC BY-SA 3.0 or GFDL]*

The figure above shows a chamber containing mobile phase and a prepared paper stationary phase. A line drawn at the bottom edge of the paper is the starting point/line. The starting line and samples must be above the level of the mobile phase when the paper is placed inside the chamber. If the starting line is below the liquid level, the samples will wash out into the mobile phase rather than elute up the stationary phase. Another line is drawn about 10 cm above the bottom edge of the paper. This is the finish line. Its location was chosen for this experiment because when eluting solution reaches that line, any inks that are mixtures should be clearly separated.

**NOTE:** When the solvent front reaches the finish line, the paper should be removed immediately from contact with the mobile phase.

# Paper Chromatography Amino Acids Lab Report

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