

Leaf Chromatography

Leaves have a green pigment called chlorophyll that they use to capture sunlight. But did you know that leaves also have pigments of other colors to capture colors of light that chlorophyll misses? You can use chromatography to see the many colors in a leaf.

What You'll Need

- Coffee filter
- Scissors
- Leaves
- Coin
- Rubbing alcohol
- Jar
- Pencil
- Tape
- Foil

What is Chromatography?

Chromatography (from Greek work for *chromos* for color) is the collective term for a family of laboratory techniques for the separation of **mixtures**. It involves passing a mixture which contains the analyte through a stationary phase, which separates it from other molecules in the mixture and allows it to be isolated.

Which means...Chromatography is the physical separation of a mixture into its individual components.

We can use chromatography to separate the components of inks and dyes. The process can also be used to separate the colored pigments in plants or used to determine the chemical composition of many substances.

Procedures

Step 1: Cut a strip one inch wide from a coffee filter. Cut one end of the strip to a point.

Step 2: Place a leaf on the paper 1/4 inch above the cut. Roll the edge of a coin over the leaf, pressing green leaf juice into the paper.

Step 3: Let the paper dry, and repeat the process with three different leaves.

Step 4: Pour a 1/2-inch layer of rubbing alcohol into the bottom of a jar.

Step 5: Tape your paper strip to the middle of a pencil and hang it so that the very tip of the strip touches the alcohol. (The colored strip of leaf "juices" should not touch the alcohol -- you may have to adjust the length of the strip.)

Step 6: Lay a piece of foil over the top of the jar to keep the alcohol from evaporating.

Step 7: Watch carefully as the alcohol moves up the filter paper, carrying the pigments along with it. In 10 to 20 minutes the colors should be separated -- do not allow them to run to the top of the paper.