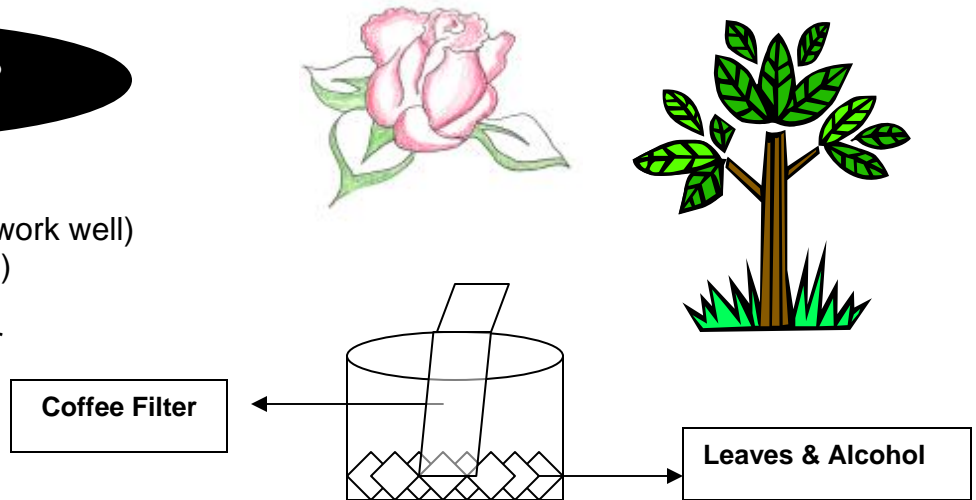


Plant Chromatography

What Do I Need?

- ❖ Leaves or Flowers
- ❖ Small jars (baby food jars work well)
- ❖ Rubbing alcohol (Isopropyl)
- ❖ Paper coffee filters
- ❖ Shallow pan with hot water
- ❖ Tape
- ❖ Plastic knife and spoon



What Do I Do?

1. Collect 2-3 large leaves from several different trees. Tear or chop the leaves into very small pieces and put them in small jars. You may want to number the jars or label them with name and location of leaves.
2. Add enough alcohol to each jar to cover the leaves. Then, using a plastic knife or spoon, carefully chop and grind the leaves in the alcohol.
3. Cover jars very loosely with a lid or plastic wrap and carefully place them into a shallow tray containing 1 inch of hot tap water.
4. Keep the jars in water for at least 30 minutes until the alcohol is colored (the darker the better). You may need to replace the hot water if it cools.
5. Cut one long thin strip from a coffee filter for each jar and label it accordingly.
6. Remove the jars from the water and uncover them. Place one strip of coffee filter into each jar so that just the end is in the alcohol. Bend the other end over top of jar. If needed, you can secure the filter with tape.
7. After 30-90 minutes, you should see different shades of green, and possibly yellow, orange or red, depending on the type of leaf.
8. Remove the strips of paper, let them dry and tape them to a piece of plain paper for display.

What's Going On?

In this experiment, you are using a technique called CHROMATOGRAPHY. This experiment is used with liquids, such as blood, in police laboratories.

As the alcohol travels up the paper, it carries the pigments along with it. Different colored pigments are carried along at different rates; some travel farther and faster than others. How fast each pigment travels depends on the size of the pigment molecule and on how strongly the pigment is attracted to the paper. Since the alcohol carries the different pigments at different rates, the mixture separates to reveal the colors contained in the leaf.

Now Try This!

Try this experiment with different leaves, or the same that have changed colors in the autumn, to compare the different pigments present. There is normally much less of the other colors in the leaves compared to the green chlorophyll.