

Transpiration

In this lab you will be using a potometer to measure the amount of transpiration taking place from a small branch. You will take measurements over a three day period and explore various factors that influence the rate of transpiration.

Materials:

10ml disposable pipette	Ring stands and clamps
1 holed stopper	
tubing	
Small Beaker	
Parafilm	
Small branch with leaves	

Procedures:

Part I

1. Set up a mechanism to measure transpiration. Investigate a potometer.
2. Pick a branch that will fit in the one holed stopper that you have.
3. Cut it and clear off the lower leaves so that it can be placed down into the stopper.
4. Seal the stem near the stopper by melting paraffin on the junction between stem and stopper or seal with Parafilm.
5. Fill the pipette and tube with water so the is completely filled with water.
NO AIR AT ALL!
6. Develop a way to test the different transpiration rates between different plants or what might cause different rates of transpiration among a single species of plants.

Part II.

7. Take some clear finger nail polish and paint the lower surface of the leaves you used in your potometer.

8. Wait until the polish dries and peel it away from the lower surface.
9. Place this on a microscope and look at the number and distribution of the stomata. Draw what you observe.
10. Calculate an approximate number of stomata on each leaf. Compare the various different leaves that the class has chosen and predict where they might live (sun or shade).