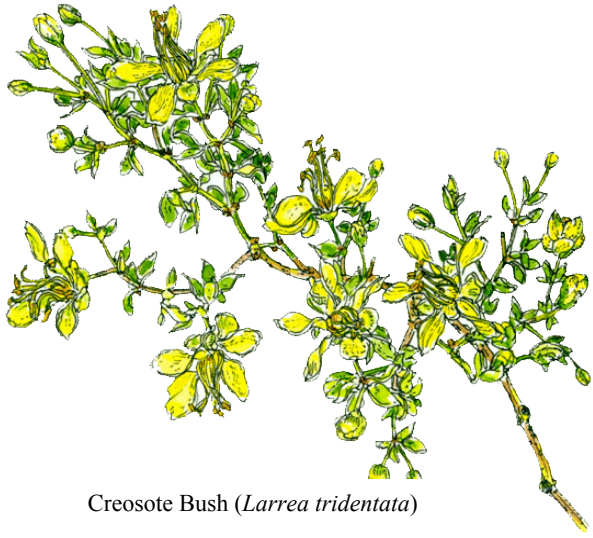


PHOTOSYNTHESIS LAB 2 – PHOTOSYNTHESIS IN DESERT PLANTS AP BIOLOGY



Creosote Bush (*Larrea tridentata*)

At the conclusion of our spinach chloroplast photosynthesis lab, you were asked to speculate on how photosynthesis might vary between different types of plants.

Over the next several days, you will have a chance to develop a more specific hypothesis and design and carry out an experiment to test the hypothesis.

Continuing our long-term investigation into the Sonoran Desert ecosystem, you will use desert-adapted plants in this experiment. The goal is to determine what measurable differences in photosynthesis there may be between these plants and spinach.

Instructions

Day One: Working in the same lab group, take ten minutes to look at the plants available in the courtyard. Discuss in your group how these plants are different from spinach, and choose one as your experimental target. Use the ideas you generated during bellwork, and develop your specific hypothesis. When you have decided on the one you want to test, please write it in the correct format in a Word document. Include your group member names and give the document the filename “UserID_PS2ResearchPlan_AP”. Once you have done that, plan and then write out the exact procedures you will use in the experiment, and the materials you will need. Be sure to take into account all the aspects of good experimental design. When you have a final plan, come discuss it with me. Make any final changes you wish, and submit it to TurnItIn.com.

Remember that at least one of you will need to come in during zero hour tomorrow to do the chloroplast isolation step!

Day Two: During zero hour, collect a fresh sample from your plant of interest (approx 20 g of leaf or other photosynthetic tissue) and isolate chloroplasts as before. Store them in the dark in the refrigerator until class time. During class, set up and carry out your experiment. Export your data to Excel and analyze it as before. Contrast these results with those obtained using spinach. Evaluate your hypothesis. If you have time, think about how you could expand on this experiment and carry it out.

Day Three: Finish your data analysis. Prepare a report to the class to describe your original hypothesis, the experiment designed to test your hypothesis, the results obtained, whether your hypothesis was supported by the data, and how photosynthesis compares in your target plant and the model plant (spinach). You may use Keynote, PowerPoint, or any other approved media to present your results to the class.

Day Four: Class presentations and discussion. Once you have presented, please turn in a copy of the presentation to our Moodle site. Filename: "UserID_PS2Pres_AP"