Name _____ Date _____ Class _____

BIOLAB 6 PHOTOSYNTHESIS

Chapter 6

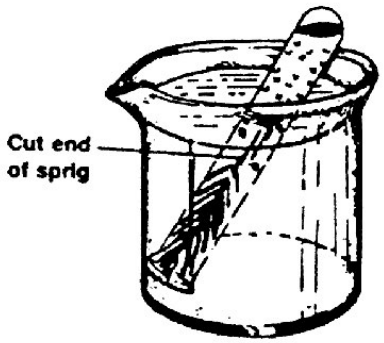
Problem: How does light intensity affect the rate of photosynthesis?

Materials

test tube
weak sodium bicarbonate solution
bright light
sprig of *Elodea*
magnifying glass
400-mL beaker
stopwatch or clock

Procedures

1. Fill the test tube and beaker with sodium bicarbonate solution.
2. Place a freshly-cut sprig of *Elodea* into the test tube. Make sure the cut end of the *Elodea* is downward in the tube. Do not push the sprig more than halfway into the tube.
3. Seal the mouth of the test tube with your thumb and turn the test tube upside down. Try not to trap an air bubble under your thumb.
4. Place the mouth of the test tube under the surface of the solution in the beaker. Remove your thumb from the opening of the tube. Lower the test tube into the beaker so that the test tube leans against the side of the beaker.
5. Place your setup in the dark for five minutes or shield it from light with a piece of black construction paper.
6. Make a **hypothesis** about how the rate of photosynthesis in *Elodea* will change in response to light intensity.



7. Expose the setup to normal room light. Count the number of bubbles produced by the *Elodea* in the test tube for five minutes. You may need to use a magnifying glass. Observe where the bubbles emerge from the *Elodea*. Record your number in the data table.
8. Lower the lights in the room and count the bubbles again for five minutes. Record this number in the data table.
9. Turn on the lights in the classroom. Shine a bright light on the tube and count the bubbles again for five minutes. Record this number in the data table.

Data and Observations

Trial	Light Conditions	Number of Bubbles in Five Minutes
1		
2		
3		

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Questions and Conclusion

1. When was the number of bubbles produced the greatest? the least?

2. From where did the bubbles emerge?

3. Explain how counting bubbles measures the rate of photosynthesis.

4. What was the purpose of placing the test tube in a beaker of solution?

5. How might you prove that the bubbles were oxygen?

6. Did your results support your **hypothesis?**

7. Suggest a way of testing the effect of light color on photosynthesis.

Conclusion: How does light intensity affect the rate of photosynthesis?