



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Jake Carni; Toby Ferleman

Science Fair Use Only

S1603

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

How Does pH Affect the Photosynthetic Rate of the Aquatic Plant Anachlis?

Division

 Junior (6-8) X Senior (9-12)

Preferred Category (See page 5 for descriptions.)

16 - Plant Biology

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

GOAL: Our objective was to determine if the pH of a solution affected the photosynthetic rate of the aquatic plant Anachalis. We believed the plants would perform most efficiently in the neutral solution.

MATERIALS & METHODS: To alter the pH of the solutions, we added either hydrochloric acid (for our three acid tests) or sodium hydroxide (for our three base tests) to the water. Our control was neutral test group with a pH of seven. The pH of each sample was determined with pH paper. We placed the different plant samples (all with the same mass) into their appropriate graduated cylinders, each filled with their test#s solution. These were then placed upside down into beakers of the corresponding solution. Their photosynthesis was monitored by the amount of oxygen that accumulated at the top of their cylinders (noted in milliliters).

RESULTS: The plant sample in the acidic solution continuously produced more oxygen then the other two sample types.

CONCLUSION & DISCUSSION: Our results were contrary to our hypothesis. The acidic solution provided a more efficient environment for photosynthesis. These results are important because they can help predict how much acid rain the plant life of an aquatic ecosystem can sustain before permanent damage. They can also help decide on the proper pH for a plant aquarium.

Summary Statement (In one sentence, state what your project is about.)

We tested how pH levels affected photosynthesis of our aquatic plant, Anachalis.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

Mr. Kirkpatrick supplied us with beakers and other equipment.