



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

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

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Science Fair Use Only

J1607

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

Chlorophyll and the Absence of Light: Part 2

Division

J Junior (6-8) J 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.

Last year, the experimenter tested to see if the amount of chlorophyll in a plant decreased in light. The results concluded that chlorophyll did decrease. Thus this extension of that experiment was born. The purpose of this experiment is to ascertain whether or not the chlorophyll in a plant can be re-generated after being isolated from light.

I will isolate 15 elodea plants from light for designated amounts of time. I will isolate each plant for 36, 48, 60, and 72 hours and keep one plant in light as a control. After that time is over, I will re-introduce the plant to light for the same amount of time as it was in darkness. Results will be recovered after a plant has been in darkness and after a plant has been re-introduced to light. Measurements will be taken in three ways. The first way is by counting the number of chloroplasts in a plant using a microscope. The second and third ways both use similar methods of measurement. A sample is taken from the plant by boiling shredded pieces of plant and alcohol together for 20 minutes. This sample is placed in a colorimeter. The sample is also compared to the Chlorophilasmic Scale. The colorimeter allows a comparison to take place among each sample, while the chlorophilasmic scale alots a number of chlorophilimeters to each sample. The Chlorophilasmic Scale is a series of test tubes with dyed water that a sample can be compared to. Each grade of color on the Chlorophilasmic Scale has a calculated amount of chlorophilimeters depending on the ratio of water to dye. This scale was created by the experimentr with kitchen ingredients and applied mathematics.

My results were that after the elodea has been placed in darkness then re-introduced to light, the chlorophyll increased. The 72 hour plant's chlorophyll level was the highest after being re-introduced to light. As the hours in darkness and re-introduction to light decreased, so did the amount of chlorophyll in the plant.

This means that chlorophyll has the ability to re-generate/reproduce. Could there be another means of regeneration? Could there be another organism in the plant we have failed to identify? How is the chlorophyll regenerating/reproducing?

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

The purpose of this experiment is to ascertain whether or not the chlorophyll in a plant can be regenerated after being isolated from light.

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.

Science Teacher supplied me with a CBL, and Colorimeter.