



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Daniel J. Concho</b>	<b>Science Fair Use Only</b>  <h1 style="margin: 0;">S1206</h1>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>Effects of Solar Wavelengths on Chlorophyll in Algae</b>	<b>Division</b> _ Junior (6-8) <u>X</u> Senior (9-12)
<b>Preferred Category</b> (See page 5 for descriptions.) <b>12 - Microbiology</b>	
<b>Abstract</b> (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.	
<p>Filtering of solar energy through colored filters was examined to determine effects on algae#s (Tetraselmis Sp.) chlorophyll and pH levels, while maintaining constant supply of oxygen. Algae need certain colors from the light spectrum to survive. Colored filters block out colors necessary for photosynthesis to occur, affecting growth of algae over a period of time. It was hypothesized that colored filters would affect chlorophyll and pH levels in algae.</p> <p>Six sets of four flasks, with different colored filters and a control, were used to grow algae. Readings for chlorophyll levels using a spectrophotometer and pH levels were taken. From raw data, math calculations were performed to determine chlorophyll levels. Data was graphed and statistical analyses calculated.</p> <p>Chlorophyll A results showed that algae grown using the clear filter had greater variation and increase of biomass. Algae grown using the green filter had the greatest decrease in biomass. Chlorophyll B results showed that algae grown using the clear filter had the greatest reaction to light and the green filter showed the least reaction. The results of pH tests showed that the water with the clear filter was most alkaline and the water with the green filter was least alkaline. All filters had significantly different results.</p> <p>The stated hypothesis was correct. Filtering of solar energy through colored filters does affect the chlorophyll and pH levels of algae. This could be important as an engineering tool to control algae levels, which in turn would have an impact on greenhouse gases and reduce global warming.</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) This project tested the effects of solar wavelengths on Chlorophyll A and B in algae.	
<b>Help Received in Doing Project</b> (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. Mother helped put paperwork on board and proofed typing.	