



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) David K. Tang-Quan	Project Number J1333
Project Title The Effects of Sodium Nitrate on the Growth Rate of Microalgae	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to study the effects of sodium nitrate on the growth rate of microalgae. The specific question to be answered was what concentration of sodium nitrate would most increase the growth rate of nannochloropsis, a species of microalgae.</p> <p>Methods/Materials Nannochloropsis was mixed with 5 ml of different concentrations of sodium nitrate solution: 0% (control), 1%, 5%, 10%, 20%, and 30%. Growth rates were measured by means of (1) weight, and (2) cell counting. Three trials were conducted.</p> <p>Results My first trial generated results showing that the 10% concentration of sodium nitrate led to the greatest rate of growth. But the second trial produced data showing that the 30% concentration most increased the growth rate. The third trial reflected evidence of a crash, but cell counts still provided sufficient data to determine growth rates. This last trial, which used the method of cell counting under a microscope, provided confirming data that the 30% concentration most increased the growth rate of nannochloropsis microalgae.</p> <p>Conclusions/Discussion From the data obtained, I formed the conclusion that a 30% concentration of sodium nitrate most increases the growth rate of microalgae. This study on nannochloropsis growth provides a foundation for discovering new methods of increasing microalgae productivity. Since algae are at the start of many food chains, whatever affects algae's growth rate will eventually affect our food supply.</p>	
Summary Statement The goal of my project was to determine the concentration of sodium nitrate that most increased the growth rate of nannochloropsis microalgae.	
Help Received Used Cabrillo Marine Aquarium research facilities and learned lab techniques under the tutelage of Dr. Kiersten Darrow and Mr. Mike Schaadt.	