



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Joyce Truong	Project Number S0819
Project Title The Effects of Aquatic Plants on Algae Growth, pH, Nitrite, and Phosphate Levels	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this experiment was to observe the effect of Eichhornia crassipes and Cabomba caroliniana on algae growth as well as pH, nitrite, and phosphate levels in the water.</p> <p>Methods/Materials The materials included six clear, plastic containers, water, four Eichhornia crassipes, six Cabomba caroliniana, and six liters of water. Two containers were partially and completely filled with Eichhornia crassipes. These containers, along with a container without plants, were set outside in a sunny location. The same was done for the remaining containers using Cabomba caroliniana. Algae growth, pH, nitrite, and phosphate levels, in the water were checked every other day, along with temperature, sunrise and sunset times, along with precipitation.</p> <p>Results The containers completely covered by plants had a pH of at least 8.8, a nitrite level of 0 mg/L, a phosphate level of at least 1 mg/L, and 20 percent algae cover. Containers partially covered with plants had a pH of at least 8.8, a nitrite level of 0 mg/L, a phosphate level of 0.4 mg/L, and 20 percent algae cover. Containers with no plants had a pH of 8.5, a nitrite level of 0 mg/L, a phosphate level of at least 1 mg/L, and 8 percent algae cover.</p> <p>Conclusions/Discussion Algae growth was higher in the containers with plants because of algae's tendency to cling, such as roots, leaves, and stems. It was also higher because the high phosphate levels and because the plants served as a barrier, shielding out harsh weather and other disturbances. Phosphate levels were high because the plants were dormant and did not need phosphate for development or flowering at this time of year. They were also high from the dying parts of the plants and the decaying vegetation that fell into the containers. Nitrite levels were low because there was no nitrite to begin with, nor were there any new sources of nitrite. The pH levels were lower in the containers with no plants due to the exposure to rain, which is acidic. Phosphate levels were lower in the containers with no plants because there were no plants placed in it so the only source of phosphate was the decaying leaves that fell in from outside.</p>	
Summary Statement My project deals with the relationship of aquatic plants and algae growth, and their effect on pH, nitrite, and phosphate levels.	
Help Received My father helped me by purchasing the pH, nitrite, and phosphate kit as well as the aquatic plants.	