



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Vinay Tripuraneni	Project Number J0815
Project Title Which Plant Is Most Beneficial to the Environment? A Six Week Study	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The Purpose of this experiment was to determine which plant produced the most oxygen, thus converting carbon dioxide to oxygen by means of photosynthesis (Carbon Dioxide is a major contributing factor to global warming). I live in the Central Valley where the concentration gradient of airborne particulates and carbon dioxide is alarmingly high, rendering the air quality unhealthy. So I wanted to design an experiment that would eventually help similar residents, and environmentalists seeking a way to impede global warming/habitat degradation. My hypothesis entailed that the plant with a large surface area to gather light, and a spacious area to grow throughout will be the most prolific oxygenating plant.</p> <p>Methods/Materials I used a plant growing apparatus that could only hold six plants. So I used the following plants in the specified weights: 1.Ceratophyllum demersum- 4.55g 2.Ceratophyllum Submersum- 4.8g 3.Lysimachia nummularia-4.55g 4.Myriophyllum aquaticum- 4.5g 5.Vallisneria americana- 4.7g 6.Vallisneria spiralis- 3.8g After gathering these plants and placing them in their growing chambers under 'grow-lux' light bulbs I set an automatic timer to turn the lights on at 10:00 AM. and off at 8:00 P.M. (a total of a 10 hour time lapse). From then on, I monitored the plants visually and chemically by measuring the pH, presence of trace elements (i.e. nitrates, proteins ect.) and noting any significant physical changes in my log.</p> <p>Results Each plant was dried and then weighed on a triple beam balance, where it was measured 5 times to insure no error was made in reading the biomass. The following list details the analysis of the net biomass accumulation and oxygen production from most to least (biomass/oxygen): 1.Myriophyllum aquaticum- 1.8g/0.46g 2.Vallisneria spiralis- 0.5g/0.1g 3.Ceratophyllum Submersum- 0.3g/0.06g 4.Lysimachia nummularia- 0.2g/0.04g 5.Ceratophyllum demersum- 0.15g/0.03g 6.Vallisneria americana- 0.1g/0.02g</p> <p>Conclusions/Discussion My hypothesis was not supported by my conclusion because my experiment demonstrated that a plant's surface area may not be the major determining factor of a plant's ability to photosynthesize. Perhaps other environmental factors such as lack of submersion, and exposure to an open air environment allowed Myriophyllum Aquaticum, to be the most successful at photosynthesizing</p>	
Summary Statement My project was geared towards testing for the most environmentally beneficial aquatic plant.	
Help Received Miss Amie Mazzoni arranged for me to borrow the plant growth apparatus and any other materials I needed. My father helped in assembling the board.	