



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Nicole Midani	Project Number S2013
Project Title An Analysis of Six Plant Species Capacity for Oxygen Production and Ability to Block out UV Radiation	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Test six distinct species of plant leaf, Plumeria, Jasminum, Hibiscus, S. romanzoffiana, C. limon, and, S. oleracea each with different characteristics on their ability to produce high levels of oxygen, and compare it to the species ability to effectively block ultraviolet (UV) radiation. In this way, information was gathered to provide evidence towards the most beneficial plant specimen(s) to help add oxygen into the atmosphere, and block out dangerous ultraviolet (UV) radiation from the sun.</p> <p>Methods/Materials Plant leaves were cut into 2.5cm by 2.5cm pieces. Under full sun, a UV detector was used to measure the strength of UV radiation, first, without the plant leaf as a shield, then the UV strength was then measured under the plant leaf. This measurement was taken three times under the five different leaves of each plant specimen. Two different leaves were then taken from each plant specimen, fixed in glutaraldehyde, then shaken in EDTA. After dissociation process was complete, the samples were smeared on slides, and photographed under 60x magnification. Number of chloroplasts were counted by cellular sampling, unit area sampling, and distinct cell sampling.</p> <p>Results When tested, for their ability to block out UV radiation, all of the specimens, Plumeria, Jasminum, Hibiscus, S. romanzoffiana, and C. limon, blocked 100% of the UV radiation they encountered in the test area. S. oleracea, had the most chloroplasts by cellular sampling, unit area sampling, and distinct cell sampling.</p> <p>Conclusions/Discussion S. oleracea blocked out 100% of the UV radiation that it encountered, and had the highest oxygen production rate of any species. The data gathered in this experiment suggests that the climate zone the species is in, along with its position in the ecosystem, affects the species ability to block out UV radiation and produce oxygen.</p>	
Summary Statement A natural way to deal with enviromental problems such as UV radiation and decreased oxygen levels.	
Help Received Lab equipment at UCI under the supervision of Dr. Aileen Anderson.	