



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

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| Name(s) Chunning (Ningning) Hu | Project Number S2010 |
| Project Title CO(2): A Green Thumb? | |
| Abstract Objectives/Goals The purpose of my project was to test how an increase concentration of carbon dioxide, evident in our atmosphere over the years, would affect a plant's growth, appearance, and amount of intake and output of carbon dioxide. Methods/Materials Pea plants and soybean plants were grown hydroponically in vases with different concentrations of CO(2). Two enclosed vases grew plants at different concentrations of elevated CO(2) while two other vases grew plants in normal concentration of CO(2) in both enclosed and not enclosed vases. Lastly, one vase was enclosed with normal CO(2) concentration but not given any seeds. Their growths, appearances, and CO(2) concentrations were measured over a period of 13 days. In order to mimic outdoor conditions of constant air circulation, the concentration of CO(2) in each container was restarted everyday at their specify concentration. I used a CO(2) Gas Sensor, and I used my breath as a source of CO(2). Results My experimental results showed that the soybean plants grew taller and healthier overall in elevated CO(2) than ambient air, while the likewise conditions did not affect pea plants. As for elevated CO(2) having an affect on the amount of CO(2) exchanged between photosynthesis and respiration, the data does suggest that plants grown in elevated CO(2) could decrease the amount of CO(2) released back into the atmosphere during respiration. However, uncontrolled variables were discovered after wards that left the claim indefinite. Conclusions/Discussion The majority of plants use CO(2) in photosynthesis, so increasing the concentration has been known to boost the plants' growth. My hypothesis that CO(2) would induce positive growth on both plants was only partially supported. The results showed that pea plants were not affected which could lead to further conclusion that not all plants respond to elevated CO(2). In addition, the amount of CO(2) released back into the atmosphere exhibited a decrease under elevated CO(2). Uncontrolled variables like decomposition, and respiration of microorganisms in the water discovered after wards, may have had an impact. This project suggested that some plants can tolerate the gradual increase of CO(2) in our atmosphere and may even benefit from it. | |
| Summary Statement My project tests the effect of elevated CO(2) on a plant's growth, appearance, and intake and output of CO(2) during photosynthesis and respiration. | |
| Help Received Mother and Father helped me obtain materials; Biolodgy teacher Mrs. Kelly lend me equipment and reviewed my work; Uncle got me familiarized with equipment. | |