CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
38340

Project Title
Plants vs. Radiation

Abstract

Objectives/Goals
The objective of "Plants vs. Radiation', is to determine the effect of the suns's radiation on plant growth.

Methods/Materials
4 groups of 3 Basil Plants in 12 cardboard boxes measuring 27.94 cm x 38.10 cm. Group A acted as a control group, with white construction paper covering the inside of each control group box. Groups B and D were the Radiation affected groups (group B with black construction paper covering the inside of each B box and group D with a 6 watt solar panel on the back wall of the inside of each of the D boxes), and group C had aluminum foil covering the inside of each of the C boxes. I watered all the Basil plants equally 3 times a week for 3 weeks and measured the height of each plant on the same day every week. I also examined each Basil plant's leaves under a microscope. For the final portion of my experiment I measured the inside temperature of each Basil plant's box using a digital thermometer.

Results
My findings were that although Group A the control group grew to be the tallest, "38.83 cm" , Group B the black paper box had the most overall growth, "29.62 cm" , Group D the solar panel box grew moderately "28.78 cm" , and Group C the aluminum foil box became dehydrated and grew the least "27.74 cm"
Additionally after measuring each of the Basil Plant boxe's inside temperature, using a digital thermometer, Group A control group was the hottest followed by Group B the black paper box as the next hottest, followed by Group C the aluminum foil box as the 3rd hottest and lastley Group D the Solar panels box was the coolest.

Conclusions/Discussion
After exposing the Basil plants to the 4 conditions, (Group A White Control Group Box, Group B Black Paper Box, Group C Aluminum Foil Box, Group D Solar Panel Box) I have concluded that my hypothesis, that Group A would grow normally, that Group B and D would be unhealthy and Group C would be exposed to less radiation than usual, therefor prospering, was incorrect. As my results showed Group A, the control group grew the tallest, but Group B, the black paper box had the greatest growth increase over the 3 weeks, and the solar panels Group D were not an advantage. Interesting, Group A, the white control group box was the hottest. Therefor infrared radiation is not unhealthy for plants, and is in fact beneficial for faster growth.

Summary Statement
After measuring and viewing the height, leaf structure and infrared footprint of all 12 of my experimental Basil plants, I found that infrared radiation is beneficial to plant growth and overall heralth.

Help Received
my teacher was there to advise and answer questions as needed