CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
Esther L. Cohenzadeh; Kaitlyn Lindsay; Emily Thomas

Project Number
J1612

Project Title
The Physiology of Plants in a Simulated Martian Atmosphere

Abstract

Objectives/Goals
This experiment had two objectives.
1. The first objective was to determine whether plants could survive in a simulated Martian-like environment.

2. The second was to find whether plants could change the atmosphere from carbon dioxide to oxygen.

The first hypothesis was that the plants would survive, but not thrive. The second, was that they would partially change the atmosphere.

Methods/Materials
Three terrariums were built. Different soils were researched and combined to create a mixture that would replicate the Martian soil. Three types of plants were chosen and planted in each terrarium. Carbon Dioxide was introduced into the two Martian terrariums. The plant growth, oxygen level, and carbon dioxide level were monitored for ten days. Oxygen probes and carbon dioxide probes were used to measure the gas levels in each terrarium. A computer program called LoggerPro was used with the probes to create charts of the daily gas levels.

Results
1. The first results were that the Primrose and Wheatgrass survived in the simulated Martian-like environment, while the Nasturtium died.

2. Second, the plants changed a mainly carbon dioxide atmosphere to a mainly oxygen atmosphere.

Conclusions/Discussion
In conclusion, this study found that certain plants can survive in a Martian-like environment. The experiment also showed that plants can change a mainly carbon dioxide atmosphere to mainly oxygen. In addition, the hypothesis was mostly correct.

Summary Statement
This project is about the survival of plants in a simulated Martian-like environment and their ability to change a Martian-like atmosphere.

Help Received
Dr. Boolootian helped obtain and introduce the carbon dioxide; teacher helped cut five gallon containers