CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
Victoria Nguyen

Project Number
J1523

Project Title
Static Charge Distribution: A Plant Growth Revolution

Abstract

Objectives/Goals
The objective of my project was to determine the effects of different electrostatic field directions on the growth of radishes.

Methods/Materials
Twelve apparatuses were created using glass beakers, plastic wrap, paper towels, aluminum mesh cylinders, congruent octagon meshes, perpendicular bamboo skewers, 9-volt batteries, and alligator clips.Four radish seeds were inserted into each beaker on equidistant points and received a constant water supply of 20 ml. The different electrostatic field directions were established using alligator clips and 9-volt batteries. Four beakers were in a control, four had a radial (perpendicular) electrostatic field, and four had an axial (parallel) electrostatic field. The stem and root growth was measured daily over the course of seven days. The experiment was repeated twice and there was a total of 1344 numbers obtained from 96 radishes.

Results
Radishes grown in a radial electrostatic field had a 21.9% increase in stem growth and a 13% increase in root growth compared to the control. Radishes in an axial electrostatic field had a 37.5% increase in stem growth and a 43% increase in root growth compared to the control. In addition, they had a 12.8% increase in stem growth and a 26.5% increase in root growth compared to the radial group.

Conclusions/Discussion
The effects of different electrostatic field directions are reflected in the greater percentage of stem and root growth in radishes grown in an axial electrostatic field. The information obtained in this investigation is important as scientists continue to investigate the field of electro-culture and hydroponics. The results of my project could be used by harvesters to grow crops with less effort, time, and expense without the use of chemical or genetic modifications. It could also be used in areas with infertile soil or with limited land.

Summary Statement
I purpose of this experiment is to investigate how radial and axial electrostatic fields affect the growth of radishes.

Help Received
Mrs. Marcarelli gave helpful lectures and was a science fair advisor; Parents helped financially; Mr. Negus and Mr. Blank provided the initial idea for this project and assisted with procedure.