CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J2006

Project Title
What Is the Long Term Effect of Electricity and Metal on Plant Tumors?

Abstract

Objectives/Goals
The objective of this experiment is to determine if repeatedly treating tumorous plant leaves with electric shock will have a noticeable effect on the tumors.

Methods/Materials
A procedure was designed to grow tumors on pinto bean leaves using the tobacco mosaic virus, or T4. After tumors grew, I shocked the leaves using low voltage (6 V) from four C size batteries for five minutes. I also used metal filings to enhance the electrical effect. Finally the leaves were studied under a microscope at 100x.

Results
Based on my previous research, I found that iron filings enhanced the shocking effect. The shock treatment was repeated a second time on a smaller group of plants. Finally the leaves were studied under a microscope at 100x. The unshocked tumorous plants had many white spots where it seemed that all the cells in that area have been destroyed. In the shocked tumorous plants, there were fewer of these spots and they were smaller. I also compared the two groups to controls. In one, the plant had no tumor, but it did have electricity, and the other had absolutely nothing. I found that the control electricity plants looked a lot like the tumor electricity plants, but it was just a little greener.

Conclusions/Discussion
I found that electricity and metal did have an effect on plant tumors. The plants that have been shocked looked healthier than those that haven#t been. I also found that the number of times you shocked the plants didn#t have any visible difference, because both groups, 1 shock and 2 shocks, looked the same.

Summary Statement
The project was about trying to kill plant tumors using electricity, but not kill the plant.

Help Received
Dad helped put together board and work on the project; people from Schmahl Science helped with the project.