CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
S1909

Project Title
"Zapped" Veggies: The Effects of Battery Electricity on Plants

Abstract

Objectives/Goals
What technique can agricultural farmers use that is mildly safe and doesn't involve harmful chemicals and pesticides, to enhance their crops? This project demonstrates the effects of a crop-enhancing method called electro-culture, which is the application of electricity via connection from an outlet, DC battery, magnetic field, etc. to seeds, plants, or soil. This technique is not widely-known, but it has been proven to be able to accelerate growth rates, increase yields, improve crop quality, protect plants from diseases, insects, and frost, and reduce the requirements for fertilizer or pesticides, simply by the induction of electrical ions in a plant's cells, in addition to mandatory sunlight, water, and air. In this project, electromagnetic electricity from the positive and negative terminals of 9-volt DC batteries was inserted into the soil of pots containing Raphanus sativus seeds (champion radishes), a very productive farming crop. Based on my research, I predicted that the radish seeds with electromagnetic energy applied to its soil will germinate faster and grow taller than the radish seeds without any electric source.

Methods/Materials
For my procedure, I had a total of 32 individual radish plants (4 seeds for each of 8 pots). Of the eight pots, four of them were tested with the electromagnet, and the other four were controls. The electromagnets were made with DV9-volt batteries and insulated-copper wire wound around zinc nails. The battery energy completely depleted after five hours, and then were removed. Half of the total plant specimens were allowed to grow for five days, and the other half for ten days.

Results
According to my experiment, the radish plants that were not given any battery electricity grew only slightly taller than the radish plants that were given electricity, on average. Yet, the plants with electricity did germinate earlier than the ones without.

Conclusions/Discussion
My experiment contradicts my hypothesis, because overall, the electrically induced radishes grew out to be slightly shorter than the radish specimens without any electromagnetic stimulation, which is the opposite of what I predicted the outcome would be.

Summary Statement
This project demonstrates the effects of electro-culture by inserting electricity in the soil of radish seeds.

Help Received
My biology teacher (Mrs. Ramirez-DelaCruz) helped me through the scientific method. My parents helped me purchase materials for the procedure.