CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
J1419

Project Title
The Effects of an Electromagnetic Field on Mealworms

Abstract

Objectives/Goals
People are exposed to electromagnetic fields daily. When someone walks through a metal detector, stands under a power line, rings an electric doorbell or uses their computer they are exposed to an electromagnetic field. It is usually not possible for a person to feel if they are in an electromagnetic field. Although no one knows for sure all the effects of electromagnetism on organic material, some studies have suggested an association between exposure and cancer. The purpose of my project was to determine if continuous exposure to an electromagnetic field will effect the lifecycle or development of mealworms.

Methods/Materials
In this experiment one hundred mealworms are continuously exposed to an electromagnetic field using copper wire coiled around a steel pole and attached to a transformer. A control group of one hundred mealworms is exposed to all the same conditions except there is no electric current attached to the copper wire.

Results
The results obtained showed significantly ($p<0.005$) faster development to pupa and beetle stages in the experimental group. There were no differences in the physical characteristics and no difference in mortality up to the first month of life.

Conclusions/Discussion
In conclusion, mealworms continuously exposed to an electromagnetic field have a more rapid development.

Summary Statement
My project is about evaluating if there are any effects of an electromagnetic field on mealworms

Help Received
Dr. Edmund Capparelli , University of California, San Diego, for help with the statistical analysis.