CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
J0223

Project Title
How Much Energy Can You Produce from Dirt Using a Microbial Fuel Cell?

Abstract

Objectives/Goals
My project is to determine if we can produce lot of energy from dirt using a microbial fuel cell.
My hypothesis was that if measured and calculated properly the MFC will produce around 100 milliwatts which can power household items such as an alarm clock or a LED light.

Methods/Materials
Topsoil from our backyard was obtained. An MFC kit (microbial fuel cell) was assembled according to instructions provided. Topsoil was mixed with water and placed in the MFC. Dirt was left untouched in order to grow required bacteria for about 10 days. Then the amount of energy generated in milliwatts over a period of time was measured using a voltmeter.

Results
Around 130 milliwatts of energy was produced with the topsoil .Right conditions yielded in development of bacteria. The energy produced was sufficient to power a small LED light.

Conclusions/Discussion
My hypothesis was that if measured and calculated properly the MFC will produce around 100 milliwatts and my experiment proves that it went over what was predicted. My experiment turned out in this particular way because of how the MFC was handled. When MFC was not moved, the bacteria growth increased steadily. The surrounding temperature also impacted the growth of bacteria. Using different types of dirt to study energy would also be an interesting study.
Overall, this experiment can help people in the real world to use MFCs in order to power small everyday appliances. MFC energy can even be considered a renewable source of energy. All you need to make energy is dirt!

Summary Statement
My experiment was to measure how much energy can be produced from dirt.

Help Received
Parents helped me get all the materials for the project and to put the display board together. Ms. Ligeti provided guidance and support.