CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
J0211

Project Title
Accessible Solar Cells: Creating an Anthocyanin Powered Solar Cell

Abstract

Objectives/Goals
The objective of creating an anthocyanin-based solar cell is to realize the efficacy of using fruits containing this specific pigment. Utilizing several fruits with this pigment also adds depth to the understanding of how voltage generation may be impacted by different fruits.

Methods/Materials
Microscope slides, sunscreen, blueberries and blackberries, iodine, soda can, sandpaper, glass glue, candle. Used two glass slides for the two electrodes in the cell, with one side containing the sunscreen and fruit juice. The other side had carbon deposit from the candle, along with iodine, and aluminum strips from the soda can were present on both electrodes. The cell efficiency was tested with blueberry and blackberry juice separately. The solar cells were tested in both ambient light and sunlight.

Results
The efficiency of implementing blueberry juice versus blackberry juice as the anthocyanin source was tested, with the voltage generated generally being exhibited as higher for the blueberry juice on a shorter scale of time, whereas the blackberry juice proved to sustain longer in generation. Sunlight and ambient light impacted the generation of voltage in the cells differently.

Conclusions/Discussion
Testing the generation of voltage in different sizes and materials in accessible solar cells proved that even fruits may be viable candidates for creating energy, and that the juice of certain fruits containing anthocyanin pigment may prove to be of greater use in different circumstances.

Summary Statement
I proved that using fruits containing anthocyanin pigment as the main component of a solar cell can efficiently generate voltage, even with several types of fruits.

Help Received
I designed and created multiple solar cells on my own with guidance from my science teacher, who advised me in the execution of the project.