Effects of Scaling a Microbial Fuel Cell

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This project was aimed at solving the problem of coming up with an inexpensive, reproducible, and efficient design of a microbial fuel cell. There are people without access to electricity in many remote areas, especially in developing nations. Energy is an extremely useful commodity that is often unavailable in remote areas and in small quantities can be used to power lights or chargers for small electronics. As a continuation of research, this project looked at scaling up the fuel cell based on previous experiment in order to see what factors may increase power and how they do so, in order to obtain a more powerful and useful product. Various designs of a microbial fuel cell will be tested, including different materials and different configurations. The fuel was anaerobic bacteria which was found in secondary water sources and the design was made as simple and inexpensive as possible in order to provide a more effective solution for those who could use it. The cell was tested for output to find which design delivers the most power. The results found were that increases in the surface area of both the PEM and electrodes increased power production, although changing materials yielded the highest gains. Also adding more volume to the cell greatly increased power.

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