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## Microbial fuel cell analysis

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Microbial Fuel Cells (MFC) are under vast considerations of use, by reason of the energy and economic "crisis" that faces many Western world citizens. MFCs have benefits over other renewable energy systems of creating at least two useful resources for human beings: electricity and sanitary water. However, MFCs are prone to hindrances including low voltage production and decreased efficiency due to fuel strangulation. This study tested the previously stated shortfalls. A fiberglass prototype MFC was used in conjunction with a 10-Amp resistor (i.e. light bulb) was used throughout the study. The prototype was injected with 2mL of anaerobic sludge in the cathode (negative) chamber and 2mL of aerobic sludge was transferred into the anode (positive) chamber. A 2.5mL sample of 600 parts/million chemical solution composed of a pre-mixed solution (300 parts/million), sodium acetate and distilled water (together, at 10,000 parts/million) was introduced to the cathode chamber and in following created .5mV circuit. All entry points were sealed with plastic film to force anaerobic reactions around the cathode. Voltage was measured throughout the day via voltmeter. As voltage flagged, a 10mL injection of extremely concentrated solution (2,240 parts/million) was created, inserted and mixed which made a 1,693 parts/million solution in the cell. Voltage immediately escalated to 1.1 mV and allowed for a rough conclusion that more extreme concentrations of solutions create higher voltage and efficiency. From these outcomes, the physical capacity of the prototype was found and a general understanding that a mass-marketed device similar to this would assist many in daily ventures.