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Fueling the Future

I read about a light that ran on only food scraps and mud (microbial fuel cell). I decided to test starch, glucose, maltose, and sucrose to see which food source would be the most efficient at feeding *Shewanella putrefaciens*. I would determine this by a colony count. I believed starch would be the most efficient food source.

The different food sources were mixed with a growth medium. These vials were incubated in a non-CO₂ incubator for 7 hours at 35.1 degrees Celsius. After 7 hours, they were plated on blood agar petri dishes and incubated in the CO₂ incubator for 24 hours at 35.1 degrees Celsius. Independent variable is the food source. Dependent variable is the number of colonies. Controlled variables are the same amount of food source, growth period, and type of *Shewanella putrefaciens*.

Data analysis of the efficiency of substrates starch, glucose, maltose, and sucrose in the growth of *Shewanella putrefaciens* was accomplished by visually counting colonies on each plate. Average number of colonies counted for each substrate was as follows: control-~300, starch-~154, sucrose-~194, maltose-~840, and glucose-~92.

The end results did not support my hypothesis. I had believed starch would be the most efficient. In reality it was maltose. Maltose is a disaccharide making it a food source that *Shewanella putrefaciens* can easily metabolize. Additional study of all substrates in a microbial fuel cell will show their efficiency in energy production.