The Effects of Bacteria Isolated from Waste Waster on Sodium Lactate Microbial Fuel Cells

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Alternative energy sources are currently in high demand, one type of alternative energy is the Microbial Fuel Cell (MFC). MFCs produce electricity while purifying water. This study tries to answer questions that will improve the way that MFCs are tested. MFCs waste a lot of time and money when being tested, the use of waste water bacteria could be potential solution. This study will observe if an MFC containing bacteria isolated from Tucson waste water will produce electricity? if so: can waste water strains of bacteria produce more electricity than pure strains of bacteria? Two experiments were ran to answer these questions, the first compared the current produced by a sterile MFC without bacteria against an MFC with bacteria isolated from waste water. The second experiment compared the current produced by waste water MFCs against MFCs containing Shewanella putrefaciens (a pure strain commonly use for MFC testing). The results of the first experiment showed that waste water bacteria do work in MFCs, the first waste water MFC produced 4.5 mA of current while the sterile MFC produced no current. The second experiment showed that the waste water MFC produced less current than the pure strain of S.putrefaciens. the pure strain produced 1.02 mA of current, the second waste water MFC produced 0.44mA of current. the waste water MFC i test one however did produce more current than the pure stain. The most important finding was the difference in current readings between the first and second MFCs. the first waste water MFC produced 10 times more current than the second waste water MFC. this huge variance in results for the waste water MFCs indicates that waste water bacteria are not suitable for the purpose of testing.

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