CWSF 2018 - Ottawa, Ontario

Connor McCourt

Pee-Tricity: Generating Electricity from Urine using Microbial Fuel Cells

Challenge: Energy
Category: Junior
Region: Bay Area
City: Oakville, ON
School: Oakville Christian School

Abstract: Worldwide, over 1 billion people do not have access to electricity. The use of human urine, a readily available and renewable resource was examined as a fuel source for soil-based Microbial Fuel Cells (MFCs). Undiluted urine was more effective than both diluted urine and water at fueling MFCs and produced the highest voltage output. Urine provided nutrients the microbes required and kept the MFC active.

Biography

My name is Connor McCourt and I am currently in grade eight at Oakville Christian School. I am an avid hockey and soccer player. During my reading on world issues I was surprised to learn that over 1 billion people had no access to basic electricity and upon my mom's return from a medical mission trip to Haiti she said only a few people had electricity. This inspired me to conduct an experiment to evaluate if human urine, an abundant and renewable resource could fuel and recharge a soil based Microbial Fuel Cell (MFC) and generate electricity. Interestingly, my experiment showed that undiluted urine MFCs could successfully power a LED light and clock! Recently, I had the opportunity to go on a youth mission trip to a Trinidad orphanage and I was able to see how my project findings could be beneficial to individuals who have little access to electricity. For future research I would like to design a cost effective MFC that yields more power that could be practical for implementation in developing countries. My advice is even though your project idea may seem weird you should go for it because you might just surprise yourself with the results.

Awards

Awards	Value
Excellence Award - Junior - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$1 000