

# Recycling and Waste Management

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## Bio-electricity generation from waste vegetables (fluted pumpkin, water leaf and cabbage) using MFCs

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**B**io-electricity generation from organic wastes through the metabolic activities of microbes using MFCs is a promising Green Technology transforming Waste to Energy. Organic wastes from vegetables are generated daily in large quantities in Port Harcourt from the markets. Baseline survey revealed that if these wastes are not properly managed, their accumulation may lead to serious health problems. The heaps of vegetable waste at the market refuse dump which is our sample collection site, has close proximity to other places of business. This study was carried using these vegetables which are consumed daily by the people. Various weights of 4kg, 6kg, 8kg, 10kg and 12kg were used. Results showed that the 12kg substrates produced the highest voltage of 460 mV, 132 mV and 280 mV for fluted pumpkin, water leaf and cabbage respectively. The pH, DO and BOD values from the substrate solution of

each vegetable waste indicated that the biodegradation efficiency of this process was optimal. The electricity generated was capable of powering small portable devices such as cellphones, rechargeable torches and an electrical bulb of 2V.

### Speaker Biography

Ihesinachi A. Kalagbor obtained a Ph.D degree in Analytical Chemistry from University of Port-Harcourt, Rivers State Nigeria in 2006. She is a Chief lecturer and Director, Research & Development Centre, Ken Saro-Wiwa Polytechnic Bori. She has carried out a lot of research on heavy metals in water, soil, fruits, vegetables and crops. To date, she has supervised 67 students to graduation in Chemistry. She is involved with a team of researchers in her institution working on a pilot scheme for the generation of electricity using waste organic materials. She has published 26 papers in reputed journals. She is a Fellow of the Chemical Society of Nigeria (FCSN), Fellow, Institute of Chartered Chemistry of Nigeria (FICCON), Fellow, African Scientific Institute (FASI), Member, Royal Society of Chemistry (MRSC), Member, International Water Association (MIWA) and Affiliate Member of IUPAC. She is currently the coordinator, Women in Chemistry (WIC) Rivers Chapter, Nigeria.

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