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Application of agro-wastes in the treatment and conversion of industrial wastes for effective waste management: Chemical engineering perspective

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The problem of effective and sustainable waste management is an age-long problem that calls for immediate international attention. It requires a multidisciplinary approach with Chemical Engineering as the fulcrum. Over the past decades, Chemical Engineers in collaboration with Biotechnologists and Environmentalists have been working tirelessly to see how wastes generated from various industrial processes including the agro-based industries can be used sustainably in the treatment of industrial wastewater, generate energy or for the production of fine chemicals. Agricultural wastes are unwanted materials produced from agricultural processes like growing of crops or rising of animals. One area of great success is the use of agricultural crops waste as polymerized biochar for the adsorption of lethal heavy metals from wastewater. In tropical Africa like Nigeria, an important agricultural product that generates a lot of waste is cassava, a vital staple delicacy. The leaves, peels, bagasse and wastewater from the processing of this agricultural product poses great environmental nuisance. However, the leaves, peels and bagasse are currently being put to economic use either as animal feed or as biomass for wastewater treatment. Research is presently on-going in the utilization of the large volume of wastewater generated from cassava processing in generating electricity for small scale application and for the cultivation of microalgae. This potential application of cassava wastewater is here highlighted.

Biography

K M Oghenejoboh is currently working as an Associate Professor in Environmental Studies at the Delta State University, Abraka, Nigeria. He has obtained his PhD in Chemical Engineering. He is an ardent Scholar and the Head of the Bio-environmental Laboratory of the University. He has published more than 35 papers in reputable journals covering a wide range of environmental issues. He also attends and presents papers at major international conferences on environment annually.

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