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## Environmental risk assessment of hospital wastewater in Enugu, Nigeria

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The issue of contamination of the environment by hospital and industrial effluent or wastewater has been an issue of concern to the public health of any area where these industries and hospitals are located. This study sets out to determine the level of contamination produced from different hospital wards by the discharge of hospital wastewater at Park Lane General Hospital Enugu, Nigeria. To this end, the microbial load and heavy metal analyses of the hospital wastewater were determined using established procedures. The wastewater samples were collected directly from the outlet of different wards labeled wws1, wws2 and wws3 with pre-cleaned sterile and dried containers. The isolated pathogenic bacteria included both pathogenic and non-pathogenic bacteria species. The result of the microbial analyses showed mean total aerobic bacteria counts of  $14.40 \pm 0.86 \times 10^{10}$  cfu/ml,  $13.70 \pm 0.65 \times 10^7$  cfu/ml and  $22.8 \pm 1.14 \times 10^{10}$  cfu/ml, for wws1, wws2 and wws3 respectively. The mean total anaerobic bacteria counts gave  $6.00 \pm 1.60 \times 10^3$  cfu/ml,  $4.00 \pm 2.50 \times 10^3$  cfu/ml and  $1.70 \pm 0.41 \times 10^4$  cfu/ml for wws1, wws2 and wws3 respectively. The result showed the presence of *Candida albican*-a pathogenic fungus as the only isolated fungi specie in wws1 and wws3 with a population of  $1.70 \pm 0.41 \times 10^3$  cfu/ml and  $2.3 \pm 0.16 \times 10^5$  cfu/ml respectively. No fungi were isolated from wws2. The varying mean concentrations of the following heavy metal Arsenic, Cadmium, Lead, Mercury and Chromium were determined and most were found to be within the threshold of the WHO permissible limit of such metal. Therefore, it would be necessary to properly treat hospital wastewater before discharging into the environment to avoid the possible environmental health risk that might be associated with the discharge of such contaminated water. Close monitoring of the heavy metal concentration of the discharge water is also suggested.

### Biography

Eze Chukwuebuka ThankGod is currently a PhD student under ECOWAS sponsorship studying Environmental Toxicology and Pollution Management at the University of Lagos, Nigeria. His PhD research focuses on E-waste management in West Africa and its Environmental and Public Health Implications including toxicity testings at different biochemical, histopathological and genotoxic levels in African Cat Fish. He holds a BSc in Biochemistry with Second Class Honors, Upper Division and a MSc in Environmental Management and Toxicology with Distinction from the University of Nigeria Nsukka . He is an Assistant Lecturer in the Environmental Toxicology & Pollution Management Unit, Department of Biochemistry, Federal University Oye-Ekiti, Ekiti State, Nigeria. He has some journal proceedings to his credit.

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