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Phylogenetic diversity, antibiogram and plasmid profiling of enterotoxigenic *Klebsiella variicola* and *Enterobacter* species isolated from Iko River-Nigeria

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Crude oil exploration has led to the presence of pollutants in the marine environment. Among the biota presumably affected by environmental pollution are the microorganisms. It is speculated that oil pollution of the marine environment would create a preponderance of pathogenic and antibiotic resistant survivors which would constitute an enormous public health problem. Such pathogens that could be affected in the event are enterotoxigenic enterobacteria, which abound in Nigerian coastal waters and estuaries. Enterobacteria from Iko River in Nigeria were evaluated for enterotoxigenicity and phylogenetically classified using the 16S rRNA sequencing protocol. The sequence data generated from the PCR amplification and cycle sequencing reaction were matched with available sequences in the ribosomal data project (RDP). Isolates 12A, 13 and EC6 were identified as *Klebsiella variicola* F2R9T (AJ783916), isolate 11A as *Enterobacter ludwigii* EN-119^T (AJ853891), and isolate 10 as *Enterobacter asburiae* JCM6051 (AB004744)/*cancerogenus* LMG 2693^T (Z96078). Based on the ligated ileal loop assay, all the isolates were found to be enterotoxigenic with some histopathological effects. The plasmid profile of the isolates was also determined using the Promega protocols; and, with the exception of isolate 13, all the isolates harboured plasmids. Antibiogram showed that the isolates were susceptible to Gentamycin, Ciprofloxacin and Clavulin; however, minimum bactericidal concentration (MBC) determination showed that Gentamycin and Ciprofloxacin were more effective than Clavulin. Evaluation of the relationship between crude oil exposure to presence of plasmid, antibiogram and enterotoxigenicity indicates that exposure to crude oil does not ameliorate or exacerbate antibiotic resistance, enterotoxigenicity and plasmid acquisition.

Biography

Mmuoegbulam Augusta O is a Lecturer in the Department of Microbiology, University of Calabar, Nigeria. She did her PhD in Molecular Biology research internship in CPQBA, University of Campinas, Brazil under TETFund sponsorship. Her masters and PhD specializations were Medical Microbiology and Pathogenic Microbiology/Public Health respectively. Her research interests include pathogenic microbiology, public health, molecular biology, bacteriology, antibiotic resistance, infectious diseases, virology, immunology, genomics and cancer therapy.

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