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Phylogenetic classification and antibiotic resistance study of hydrocarbon and non-hydrocarbon utilizing proteobacteria isolated from Iko River Estuary, Nigeria

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The phylum Proteobacteria is made up of many characterized polar flagellated, Gram-negative, rod-shaped, aerobic bacteria with the genus *Stenotrophomonas and Xanthomonas* being accommodated in the family Xanthomonadaceae while the genus *Pseudomonas* belong to the family pseudomonadaceae. The 16S rRNA sequences of the 12 hydrocarbon and non-hydrocarbon utilizing Proteobacteria in this study were determined and matched with available sequences in the ribosomal database project (RDP). Only one isolate was found to belong to the family Pseudomonadaceae and was of the genus *Pseudomonas* (Specie: *P. aerugonosa* DSM 50071 THE978271) while 11 were found to belong to the family Xanthomonadaceae and were of the genus *Stenotrophomonas*. Among the 11 *Stenotrophomonas*, 6 were identified to be *Pseudomonas beteli* (*Stenotrophomonas maltophilia* ATCC 19861 TAB021406), 3 as *Pseudomonas hibiscicola* and 2 as *Stenotrophomonas maltophilia* IAM 12423 TAB294553). The blast comparison also showed the closeness of the genus *Stenotrophomonas* to the genus *Pseudomonas* in their 16S rRNA sequence as seen in *P. beteli* which is known as *S. maltophilia*, ATCC 19861. *P. beteli*, *P. hibiscicola* and *S. maltophilia*-IAM 12423 were all species of the genus *Stenotrophomonas*. The antibiotic resistance study of all the proteobacteria using gentamicin, ciprofloxacin and clavulin showed that *P. Aerugonosa* DSM 50071 was resistant to clavulin with a minimum inhibitory concentration of 2000 µg/ml and a minimum bactericidal concentration of 2000 µg/ml. *P. beteli* ATCC 19861 and *Pseudomonas hibiscicola* ATCC 19867 had low level resistance to gentamicin while *P. aeruginosa* DSM 50071 and *S. maltophilia* IAM 12423/S. *pavanii* ICB 89 were sensitive.

Biography

Mmuoegbulam Oluchi Augusta is currently a PhD student of the Department of Microbiology, University of Calabar, Nigeria. She did Molecular Biology Research on the taxonomic classification, plasmid profile and antibiotic resistance of some microbial isolates from Nigeria at CPQBA-UNICAMP, Brazil under TETFUND sponsorship as part of her present PhD program.

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