

Amund, O.O. and Igiri, C. O. (1990)

Biodegradation of Petroleum hydrocarbons under tropical estuarine conditions.
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ABSTRACT

The physic-chemical parameters of water samples collected from three points in the Lagos lagoon were studied for 12 months. Salinity varied seasonally but the temperature, pH, dissolved O₂, conductivity, NO₃ and HPO₄²⁻ concentrations were relatively constant. There was a direct proportionality between the population density of hydrocarbon-utilizing bacteria and the oil content of water samples. Twelve hydrocarbon-utilizing bacteria were isolated by selective enrichment and characterized as species of *Pseudomonas*, *Alcaligenes*, *Acinetobacter* and *Bacillus*. The organisms grew mainly on long-chain aliphatic hydrocarbons. Laboratory and field biodegradation studies showed both quantitative and qualitative changes in the hydrocarbon content of crude oil due to microbial degradative activities and a faster rate of oil depletion from the Lagos lagoon during the rainy season. The results obtained could offer a predictive model for estimating the rate of disappearance of petroleum hydrocarbons from the tropical estuarine environment.