

ECOTOXICOLOGICAL CONSIDERATION OF DEMULSIFIER, CORROSION INHIBITOR AND DRILLING FLUID USING BIOLOGICAL SENTINELS

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Abstract

Short-term effects of industrial chemicals (Rigwash, Oil eaters, Nalco, Glycol™) commonly released into the Nigerian environment were studied using laboratory toxicity test. Fish and earthworms were exposed to varying concentrations of the test chemicals using the Organization for Economic Cooperation and Development (OECD) # 203 and 207 protocols respectively. The water and soil ratings indicate that the chemicals were toxic to the organisms. The estimated 96 hour lethal concentration (LC50) for Rig wash, Oil eater, Nalco EC1304A/COT 505, Glycol were 26.34 ± 0.46 , 6.02 ± 0.30 , 3.07 ± 0.14 and 1.31 ± 0.01 mg/l respectively while the 14-day LC50 were 80.05 ± 3.5 , 151.55 ± 10.7 , 172.63 ± 14.2 and 63.72 ± 2.43 mg/kg respectively. The fish exposed to the test chemicals showed significant difference when compared with the levels measured in the control group. The observed sensitivity of the test organisms to the chemicals indicate that appropriate safety measures such as adherence to standard operating procedures should be applied before use and disposal of industrial chemicals since the chemicals were toxic in the two media. This would ensure that the biotic components of the Nigerian Niger Delta ecosystem are prudently protected.
