

## Remediation of Crude Oil Contaminated Soils by Indigenous Bacterial Isolates Using Cow Dung as a Bioenhancement Agent

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**Abstract :** This study was conducted at the Department of Biological Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria, to determine the effects of different weights of cow dung on indigenous bacterial isolates in remediation of crude oil contaminated soils. The soil (1kg) was contaminated with 20g of crude oil and this was treated with three (40g, 80g and 120g) weights of cow dung. The soils were amended after two weeks of crude oil contamination. Soil samples were collected from the plastic bags for microbiological analyses. The isolates were cultured to test their ability to grow on crude oil. The ability of the isolates to utilize the crude oil was determined using media dilution technique. Bacteria such as *Proteus mirabilis*, *Bacillus lacterosporus*, *Morganella morganii*, *Serratia marcescens* and *Bacillus alvei* were isolated. The variables measured were heterotrophic bacterial populations, hydrocarbon utilizing bacterial populations and the percentage of crude oil degraded in the soils. Data collected were subjected to analysis of variance (ANOVA). Results obtained indicated that all the different weights of cow dung showed appreciable effect in crude oil decontamination. Based on the findings of the experiments, it could be deduced that 120g of cow dung promoted higher degradation of hydrocarbons. Thus, it should be recommended for remediation of crude oil contaminated soil in the study area.

**Keywords :** crude oil, cow dung, amendment, bioremediation, decontamination

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