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ENZYMES ACTIVITIES AS BIO INDICATOR OF SOIL CONTAMINATED WITH PETROLEUM HYDROCARBON

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ABSTRACT

The study evaluates the changes in the soil dehydrogenase and urease contaminated with hydrocarbon. Soil dehydrogenase and urease activity were investigated by contaminating soils at five loading rates (1.0, 5.0, 10, 15, 20 %) volume of oil/weight of soil and monitoring activity at 7 days interval. The highest level of the dehydrogenase activity observed at 21 days of incubation in crude oil contaminated soil was 1.19 ± 0.01 and at 7 days in kerosene contaminated soil was 0.78 ± 0.01. The highest level of the urease activity observed at 21 days of incubation in crude oil contaminated soil was 1.34 ± 0.01 and at 7 days in kerosene contaminated soil was 1.25 ± 0.01. The increase in dehydrogenase and urease activity was in proportion to the rate of oil application, as it increases with increasing loading rates. Analysis of variance of dehydrogenase activity and urease activity showed a high significant difference between the control and the oil treated soils at $p < 0.05$ level. The study demonstrated that soil contaminated with crude oil and kerosene disturbed the biochemical equilibrium of soil. Dehydrogenase and urease activity may be employed as suitable tools for predicting, assessing and remediating effect of crude oil and kerosene on the soil.

KEYWORDS: *Dehydrogenase, Urease, Crude Oil, Kerosene, Bioindicator, Pollution*