

Assessment of the Effects of Bathroom Effluents on the Soil in Halls of Residence, Landmark University, OMU-ARAN, Nigeria

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Abstract:

Bathroom effluents generated mainly in residential areas have been documented in previous studies to have harmful effects on the soil media but there is little information about the level of contamination by bathroom effluents on the soil media in the case of a large-scale residential area like the Hostels considered in this study. In this study, soil samples were examined for potential contamination with physicochemical, heavy metal, and biological parameters from different points at a close range in selected adversely polluted areas in each of the Eight hostels as well as the football field as the control location at Landmark University, Omu-Aran, Nigeria. A total number of 60 Soil samples were collected from the nine sampling locations on Monday and Friday for three consecutive weeks. The standard methods were used to determine the physicochemical parameters from the soil samples. The analysis of data was carried out using descriptive statistics and ANOVA. The mean concentration of parameters in the observed soil samples around the study area ranged from 6.02 ± 1.00 to $132.75 \pm 103.19\text{mg/L}$, 6.80 ± 0.10 to $8.81 \pm 0.58\text{ mg/L}$, $34.00 \pm 11.59 - 135.03 \pm 19.69\text{mg/L}$, $5.83 \pm 1.55 - 26.55 \pm 5.16\text{ mg/L}$, 57 for electrical conductivity, pH, TSS, TDS, TS respectively. Chloride, Nitrate, Calcium, Magnesium and Phosphate had values of 34.17 ± 0.12 to $82.00 \pm 30.31\text{ mg/L}$, 0.567 ± 0.11 to $\boldsymbol{\$}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{o}}\boldsymbol{\mathrm{l}}\boldsymbol{\mathrm{\{1.17\}}}$
 $\backslash\boldsymbol{\mathrm{pm}}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{0.50\}}}\backslash\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{mg/L\},}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{0.00\pm}0.00-0.00\pm}0.00\}}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{mg\}/\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{L\}}}}$
 , $\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{1.33\}}}\boldsymbol{\mathrm{pm}}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{0.40\}-}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{2.5\}}}\boldsymbol{\mathrm{pm}}\boldsymbol{\mathrm{bol}}\boldsymbol{\mathrm{symb}}\boldsymbol{\mathrm{\{0.48\}}}\boldsymbol{\mathrm{b...}}$

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