

Bacteriological and Mineral Analyses of Leachate Samples from Erifun Dumpsite, Ado-Ekiti, Ekiti State, Nigeria

Authors : Adebowale T. Odeyemi, Oluwafemi A. Ajenifuja

Abstract : The leachate samples collected from Erifun dumpsite along Federal Polythene road, Ado-Ekiti, Ekiti State, were subjected to bacteriological and mineral analyses. The bacteriological estimation and isolation were done using serial dilution and pour plating techniques. Antibiotic susceptibility test was done using agar disc diffusion technique. Atomic Absorption Spectrophotometry method was used to analyze the heavy metal contents in the leachate samples. The bacterial and coliform counts ranged from 4.2×10^5 CFU/ml to 2.97×10^6 CFU/ml and 5.0×10^4 CFU/ml to 2.45×10^6 CFU/ml, respectively. The isolated bacteria and percentage of occurrence include *Bacillus cereus* (22%), *Enterobacter aerogenes* (18%), *Staphylococcus aureus* (16%), *Proteus vulgaris* (14%), *Escherichia coli* (14%), *Bacillus licheniformis* (12%) and *Klebsiella aerogenes* (4%). The mineral value ranged as follow; iron (21.30mg/L - 25.60mg/L), zinc (1.80mg/L - 5.60mg/L), copper (1.00mg/L - 2.60mg/L), chromium (0.50mg/L - 1.30mg/L), cadmium (0.20mg/L - 1.30mg/L), nickel (0.20mg/L - 0.80mg/L), lead (0.05mg/L-0.30mg/L), cobalt (0.03mg/L - 0.30mg/L) and in all samples manganese was not detected. The entire organisms isolated exhibited a high level of resistance to most of the antibiotics used. There is an urgent need for awareness to be created about the present situation of the leachate in Erifun, on the need for treatment of the nearby stream and other water sources before they can be used for drinking and other domestic use. In conclusion, a good method of waste disposal is required in those communities to prevent leachate formation, percolation, and runoff into water bodies during the raining season.

Keywords : antibiotic susceptibility, dumpsite, bacteriological analysis, heavy metal

Conference Title : ICWSM 2020 : International Conference on Water and Soil Microbiology

Conference Location : Berlin, Germany

Conference Dates : May 21-22, 2020