Oyeleke S.B., Galadima M. and **Oyewole O.A.** (2008).The Roles of Microbial Biofilms in Corrosion of Water Pipelines in Minna, Niger State, Nigeria, *Research Journal of Biotechnology*, 3, 446-449

Abstract

The role of biofilm attached to corroded water pipeline in Minna metropolis (BarkinSale, Bosso, Chanchaga, KeterenGwari, Maikunkele, and Kwangila) was examined. Sixty surface scrapings of corroded water pipes and soil samples were used for microbial and soil analysis respectively between the months of February and June. Bacteria isolated include Desulfovibrio desulfuricans, Desulfvibro vulgaris, Desulfotomaculum nigrificans, Thiobacillus thiooxidans, Lactobacillus lactis, Clostridium perfringes, Pseudomonas aeruginosa, Staphylococcus aureus, Bacillus cereus, Bacilus subtilis and Bacilus cereus var mycoides while fungi isolated were Aspergilus niger, Aspergillus fumigatus, Penicillium notaturn, Candida tropicalis, Mucor mucedo, Torulopsis candida, Geotrichurn candidum and Fusarium sp. The mean aerobic counts ranged from 5.2×103 to 3.4×1O6 (cfu/g), mean anaerobic counts ranged from 3.2×105 to 1.1×108 (cfu/g) and mean fungal counts ranged from 1.4×103 to 9.6×105 (cfut/g) Statistical analysis showed that there was insignificant difference (P>0.05) between the aerobic counts, anaerobic counts and fungi counts from the different locations. The corrosion products analyzed include sulphide and phosphide while the soil was also analyzed for organic carbon, organic matter, pH and moisture contents. There was insignificant difference (P>0.05) in the level the sulphide, phosphide, and organic carbon in all the locations but there was a significant difference (P<0.05) in the amount of organic matter from different locations with Kwangila having the highest mean composition of 1.57%. The moisture content also differ significantly from each other (P<0.05) with BarkinSale having the highest mean composition of 24.78%. The results of this study show that various microbial groups are found in biofilms attached to corroded water pipe surfaces, they produce sulphide and phosphide as corrosion products and their activities are influenced by organic carbon, organic matter, pH as well as moisture content.