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Effect of abandoned landfill (dumpsite) on soil, plant and underground water- A case study around Njoku sawmill, Owerri-Nigeria

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People live around the Njoku sawmill in Owerri –Nigeria and cultivate vegetable garden within the vicinity. They also have deep and shallow wells dug into the vicinity. The closeness of the dumpsite to the habitat and the stout and scanty leaves found beside some homes attracted this research. The determination of heavy metals was carried out using a vegetable garden with predominantly stout growth and scanty leaves about fifty meters away from the abandoned dumpsite by Njoku sawmill, (a case study). The research was done during the wet season (planting season). The heavy metal concentrations were determined with Atomic Absorption Spectrophotometer (Unicam, 969, England). Result showed that the level of heavy metals ranged from; Zn (243.3 -1993.7)mg/kg, Mn(213.7-423.9)mg/kg, Ni(191.8 -205.6) for the soil sample Cu(0.031–0.073) mg/L, Fe(0.3905–0.4539)mg/L, Ni(0.105-0.26)mg/L and Mn(0.1045–0.2637)mg/L for water sample and Cu(67.8-149)mg/kg, Fe(164.)mg/kg, Mn(301.2-2658.9)mg/kg and Ni (222.2-344.8)mg/kg for the leaf sample. A similar experiment was carried out on another site where the growth of vegetables was favored and the difference was clear as regards the presence of heavy metals. From this result, it shows that the dumpsite soil was moderately acidic and polluted by heavy metals which affect negatively the growth of plants. Unlike the expectation of the dwellers who presumed that the dumps turned manure, some of the dumps especially the saw dust dumps would have become toxic. The deep well water was moderately alright.

Biography

Margaret C Enedoh has completed her PhD from the University of Abuja Nigeria. She is 55years old and is a lecturer in Imo State University Owerri, Nigeria. She is a full member of American Chemical Society and National Science Teachers of America and back home belongs to Chemical Society of Nigeria, Science Teachers Association of Nigeria, 3rd World Organization for Women in Science and Coordinator of Female Chemists in Imo state Nigeria. She has published many papers in reputable journals.

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