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EFFECTS OF UNTREATED PHARMACEUTICAL EFFLUENTS ON THE SOIL PHYSICOCHEMICAL PROPERTIES

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Abstract

A good agricultural soil is characterized by adequate nutrients and stipulated Physicochemical properties. Most agricultural soil in Nigeria has been subjected to different kinds of pollutants resulting from anthropogenic activities, notably Untreated Pharmaceutical Effluents (UPE) which emerge as the major threatening factor to the quality of Nigerian agricultural soil. This study was undertaken to X-ray the effects of UPE on the soil Physicochemical properties. UPE samples were collected from five major pharmaceutical companies (P1, P2, P3, P4 and P5) in Anambra State, and these samples were analyzed for Physicochemical properties using instrumentation and gravimetric techniques. The Physicochemical analysis of the selected agricultural soil samples and UPE-polluted sites (25L/9m2, 50L/9m2 and 100L/9m2) were also determined. The study revealed that the Physicochemical parameters of the UPE were above the stipulated limits of the World Health Organization (WHO). There was reduction in the pH, increase in nitrates, sulphates, phosphates and significant ($P<0.05$) reduction in microbial counts of UPE polluted sites, mostly in 100L/9m2 sites. Therefore, this study has shown that the Physicochemical properties were significantly reduced in UPE polluted sites, mostly in 100L/9m2 site.

Keywords: Effluents, Pharmaceuticals, toxicity, Physicochemical