

## Persistent Organic Pollutant Level in Challawa River Basin of Kano State, Nigeria

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**Abstract :** Almost every type of industrial process involves the release of trace quantity of toxic organic and inorganic compound that up in receiving water bodies, this study was aimed at assessing the Persistent Organic Pollutant Level in Challawa River Basin of Kano State, Nigeria. And the research formed the basis of identifying the presence of PCBs and PAHs in receiving water bodies in the study area, assessing the PCBs and PAHs concentration in receiving water body of Challawa system, evaluate the concentration level of PCBs and PAHs in fishes in the study area, determine the concentration level of PCBs and PAHs in crops irrigated in the study area as well as compare the concentration of PCBs and PAHs with the acceptable limit set by Nigerian, EU, U.S and WHO standard. Data were collected using reconnaissance survey, site inspection, field survey, laboratory experiment as well as secondary data source. A total of 78 samples were collected through stratified systematic random sampling (i.e., 26 samples for each of water, crops and fish) three sampling points were chosen and designated A, B and C along the stretch of the river (i.e. up, middle, and downstream) from Yan Danko Bridge to Tambirawa bridge. The result shows that the Polychlorinated biphenyls (PCBs) was not detected while, polycyclic aromatic hydrocarbons (PAHs) was detected in the whole samples analysed at the trench of Challawa River basin in order to assess the contribution of human activities to global environmental pollution. The total concentrations of  $\Sigma$ PAH and  $\Sigma$ PCB ranges between 0.001 to 0.087mg/l and 0.00 to 0.00mg/l of water samples While, crops samples ranges between 2.0ppb to 8.1ppb and fish samples ranges from 2.0 to 6.7ppb. The whole samples are polluted because most of the parameters analyzed exceed the threshold limits set by WHO, Nigerian, U.S and EU standard. The analytical results revealed that some chemicals are present in water, crops and fishes are significantly very high at Zamawa village which is very close to Challawa industrial estate and also is main effluent discharge point and drinking water around study area is not potable for consumption. Analysis of Variance was obtained by Bartlett's test performance. There is only significant difference in water because the  $P < 0.05$  level of significant, But there is no difference in crops concentration they have the same performance, likes wise in the fishes. It is said to be of concern to health hazard which will increase incidence of tumor related diseases such as skin, lungs, bladder, gastrointestinal cancer, this show there is high failure of pollution abatement measures in the area. In conclusion, it can be said that industrial activities and effluent has impact on Challawa River basin and its environs especially those that are living in the immediate surroundings. Arising from the findings of this research some recommendations were made the industries should treat their liquid properly by installing modern treatment plants.

**Keywords :** Challawa River Basin, organic, persistent, pollutant

**Conference Title :** ICEMTE 2016 : International Conference on Environmental Management, Technology and Engineering

**Conference Location :** Rome, Italy

**Conference Dates :** May 02-03, 2016