Monitoring the Occurrence and Distribution of Selected Organophosphates And Carbamate Pesticide Residues In The Ecosystem Of Lake Naivasha, Kenya. (2015).

P Otieno[1]; P Okinda Owuor[1]; **J O Lalah[2]*;** G P fister, K-W Schramm[4]
[1]Maseno University
*[2]Department of Chemical Science and Technology Technical University of Kenya
[4]Germany Research Centre

Abstract

Although use of pesticides is critical in agricultural production, their residues present a potential risk to non-target organisms and lower the quality of surface water. In Kenya for instance, widespread use of pesticides in the catchment of Lake Naivasha, has raised concern over the years due to possible pollution of the lake through discharge of runoff from agricultural fields. In this study, sediment, water, and fish samples were analyzed for selected pesticide residue contamination. Chlorpyrifos-ethyl (CPF) was detected in the range of 2.6–24.9 ng/ml and 6.8–35.8 ng/g dry weight (dw) in water and sediment, respectively. Meanwhile, diazinon was detected in the range of below detection limit (bdl) to 33.3 ng/ml and bdl to 9.3 ng/g dw in water and sediment, respectively. CPF was detected in fish tissues (Niloticus leucosticus) in the range of bdl to 8.9 ng/g dw with diazinon and carbofuran not detected in any fish sample. A significant difference was observed between different seasons with wet season recording higher levels. Concentrations detected varied seasonally and on average exceeded the maximum criterion set by European Union. Therefore, data generated in this study are useful in environmental risk assessment and as a baseline in formulation of mitigation measures to protect the lake from pesticides residues pollution.
Keywords: pollution, pesticide, Lake Naivasha, sediment, fish, water column

Toxicological & Environmental Chemistry vol.97 pp51-61(2015)
See more at: http://www.tandfonline.com/doi/abs/10.1080/02772248.2014.942309