

**INTERNATIONAL JOURNAL OF
INNOVATIVE RESEARCH AND KNOWLEDGE**

ISSN-2213-1356

www.ijirk.com

**FATE ORGANOCHLORINE PESTICIDE RESIDUES
IN THE UPPER TANA RIVER, KENYA**

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Abstract

Water, sediment and weed samples obtained from Tana River in the upper Tana catchment were screened for organochlorine (OCs) pesticides in this study. The main aim of the study was to investigate the water quality from upper Tana River. This is because of the intense crop and livestock farming activities and high rate of industrialization processes taking place in the area. The river profile was divided into three sections; upstream, mid-stream and downstream. The extraction of water samples was done by liquid-liquid partitioning method using dichloromethane, while sediment samples were extracted in hexane and acetone solvents by soxhlet extraction method. The extraction of weed samples was done using an orbital shaker in acetone. The analysis of the OCs was done using Gas chromatography-mass spectrometer and the data analysis conducted using Microsoft. The concentration of the OCs in water samples ranged from <0.00012 to $107.33 \mu\text{g/L}$ with p,p'-DDT having the highest mean residue level observed at Point 7 (Kiganjo) located at the mid-stream section. Sediments samples had OCs concentration ranging from < 0.00024 to $190.07 \mu\text{g/kg}$. These levels were higher than those found in water samples. On the other hand, the residue levels of the OCs detected in weed samples ranged from < 0.00012 to $28.82 \mu\text{g/kg}$. Generally, there was an increasing trend in levels of individual OCs as well as the total OCs in the mid-stream in all the three matrices. The concentrations were higher during the dry seasons than in the wet seasons.

Keywords: Pesticides, Tana River, Organochlorines, Screened, Soxhlet