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Detection of some organo-chlorine pesticide residues in the waters of Walawe river in Sri Lanka

River Walawe is the most important water source in the South Eastern region of Sri Lanka. With a length of about 100 km and a catchment of 2442 km. it has an extensive tributary system. It feeds water to the irrigationally important Uda Walawe reservoir and to a number of other tanks. Some parts of the catchment and the river basin are predominantly agriculture lands with tea, paddy, sugar cane, banana and dry zone vegetables. Two major agro-based industries located in the region, the sugar factory at Sewanagala, the Pulp and Paper Mills at Embilitiya, the effluent of which know as black liquoir, affects the water quality of the river significantly specially during certain times of the year. Use of large quantities of agrochemicals is prevalent in the basin throughout the year. The main rainy season in the basin is from October to January with an average of 568 mm with significant rains during April to June as well.

This investigation was carried out to detect the presence of organo-chlorine pesticides in the water as they are commonly used in the catchment areas. Water samples were collected at 5 sites along the river during April to September 2000, and extracted using n-heptane for organo-chlorines and subjected to gas-chromatographic analysis for 16 organo-chlorine pesticides. Only three major pesticides were detected out of the 16 tested which are Heptachlor (conc. Range from 3.1 – 60.8 ng/L, ± 0.34) Dieldrin (conc. Range from 0-97.3 ng/L, ±7.0), and Endrin, (conc, range from 0.8-9.3 ± ng/L, ± 8.2). All three are well known insecticides, which are used in agriculture in Sri Lanka. Highest concentrations are detected during April and September/October periods, which coincide with onset f rains after dry spells and cultivation periods in the basin.