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Synthetic Detergents (Surfactants) and Organochlorine Pesticide Signatures in Surface Water and Groundwater of Greater Kolkata, India

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ABSTRACT

An assessment on the concentration of surfactants and pesticides of chlorinated hydrocarbon group in surface and groundwater, is made from Greater Kolkata located in the Western Ganga Delta, one of the largest urban agglomerate in Asia. Concentration of both anionic synthetic detergents and organochlorine pesticide resi-dues analysed from 54 and 19 sampling stations covering groundwater and surface water sources respectively, are generally found to be within the tolerance limit for human consumption. The concentration of synthetic detergent ranges from 0.084 to 0.425mg/l. Residues of organochlorine pesticides are analysed from different sources like tanks, lakes, rivers and groundwater. Lindane (0.01-0.43µg/l) and DDT (0.03-0.65 µg/l) are the most widely detected pesticide residues. However, the two have not exceeded the limits for drinking anywhere. High value of aldrin and dieldrin (0.9µg/l) is obtained in the river Hugli at Barakpur-Seoraphuli, 20 km north of Kolkata. Likewise high value of Heptachloreis detected in a canal water sample at Palta (0.05 µg/l), a suburban area. Seasonally, the pesticide concentration in surface water is maximum during winter due to their higher application and minimum during monsoon. In groundwater, however, this relationship is reverse due to higher infiltration of surface water during monsoon.

KEYWORDS

Kolkata, Ganga Delta, Surface Water, Groundwater, Surfactants, Organochlorine Pesticides

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