

Occurrence, fate and distribution of organochlorine pesticides (HCHs and DDTs) in surface water and ground water along tributary of Swarnamukhi River, Andhra Pradesh, India

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Organochlorine pesticides (OCPs) are one of the most important persistent organic pollutants (POPs) and have been of great concern around the world owing to their chronic toxicity, persistence and bioaccumulation. The concentration levels, distribution pattern and fate of selected organochlorine pesticides (OCPs = *p,p'*-DDT, *p,p'*-DDE, *p,p'*-DDD and α -, β -, γ -, δ -HCH) in surface and ground water of the study area were investigated. The samples were extracted by solid phase extraction (SPE) procedure, and were investigated by gas chromatography coupled with mass spectrometer (GC-q MS). The concentrations of Σ HCH in surface and ground water samples were ranged from, n.d-2970 ng/L (mean 795 ng/L) and n.d-2150 ng/L (mean 649 ng/L) respectively. Similarly, the Σ DDT concentrations in surface water ranged from, n.d-2020 ng/L (mean 653.6 ng/L) and in ground water n.d-1540 ng/L (mean 527.3 ng/L) were observed. The concentration distribution of Σ HCH in surface and ground water varied significantly with different sampling sites that indicated their different sources of contamination. The ratios of DDT and (DDE+DDD) in surface water indicate recent inputs of such chemicals into the study area used for agricultural and public health purposes. Spatial distribution was also investigated to identify the areas with higher pesticide loadings in surface and groundwater. Present data on contamination profile of OCPs could be used as reference levels for future POPs monitoring programme.