



Journal of Applicable Chemistry

2013, 2 (3): 486-491

(International Peer Reviewed Journal)



Source identification and contaminant risks of organochlorine pesticide residues in ground water from Hyderabad city, India

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Received on 30th April and finalized on 4th May 2013.

ABSTRACT

This study was conducted the contaminant risks and source identification of organochlorine pesticide residues in ground water from northwestern part of Hyderabad City. Hyderabad is the Capital and largest city of the Indian state of Andhra Pradesh. It occupies 650 sq km on the banks of the Musi River on the Deccan Plateau in South India. Water samples were extracted for pesticide residues by using solid phase extraction (SPE) procedure, and were investigated by gas chromatography coupled with quadruple mass spectrometer (GC-qMS). The total concentrations of DDTs ranged from 4.52 to 37.32 $\mu\text{g L}^{-1}$ with an average of 12.6 $\mu\text{g L}^{-1}$ and HCHs 3.78 to 10.76 $\mu\text{g L}^{-1}$ with an average of 6.13 $\mu\text{g L}^{-1}$. The ratios of (DDD+DDE)/DDT and α/γ -HCH revealed that residue levels in water were originated from long past to recent mixed source of contamination. About 91% samples for DDT and 84% samples for HCH exceeded the WHO recommended drinking water limits.

Keywords: GC-qMS, Ground water, Organochlorine pesticides- DDT and HCH, Solid Phase Extraction, Total Organic Carbon.
