

Method Validation & Determination of Contamination (Pesticides) Scenario of Surface & Wastewater †

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Abstract: Un-treated wastewater can contaminate surface water and harm huge amounts of life. Toxic compounds like pesticides in the wastewater can seriously disrupt aquatic ecosystems also, so there is a necessity to monitor their components. It is very important to determine these pesticides at trace levels in wastewater with an updated method. A modified liquid-liquid extraction process for micro-quantitative determination of multiclass multi-residues in surface wastewater samples of organochlorine (OCPs), organo-phosphorus (OPPs), synthetic pyrethroids and other pesticides by using GC-MS and GC-ECD has been established. The important method validation parameters, like the limit of detection and limit of quantification, linearity, accuracy, precision, specificity, were evaluated as per standard guidelines. The percent recovery ranged from 84.3 to 111, with an acceptable coefficient of variation (RSD) of 1.8 to 15.4%. The linearity showed a reliable range (0.995–0.999). Validated methods have been finally applied to field wastewater samples, and a significant number of water samples found to be contaminated with targeted pesticides. So, surface water pollution with special reference to pesticides has to be monitored on a regular basis has been discussed.

Keywords: wastewater; pesticides; OCPs; OPPs; GC-MS.

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Conflicts of Interest

The authors declare no conflict of interest.