



Distribution of organochlorine pesticides and polychlorinated biphenyls in the sediments of a tropical lagoon (The Grand-Lahou lagoon, Côte d'Ivoire)

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ABSTRACT

Objectives: The present study reports the concentration levels and distribution patterns of the organochlorine pesticide and Polychlorinated biphenyls (PCBs) residues in the surface sediments of the Grand-Lahou lagoon (Côte d'Ivoire).

Methodology and Results: Sediment samples were collected during two consecutive years (from April 2003 to May 2005) in ten stations spread along the Grand-Lahou lagoon system. The sediment samples were dried and extracted using hexane and anhydrous sodium sulfate. The technique of purification by adsorption using florisil as adsorbent was applied. The gas chromatograph GC-14 (Shimadzu) equipped with ECD (Electron Captured Detector) mode and having fused silica capillary column (SPB-608) was used for analysis.

Conclusions and application of the findings: The results revealed contamination of the surface sediments with several persistent organochlorine pesticides and PCBs. DDT and its metabolites (DDE and DDD), aldrin, dieldrin, endrin, heptachlor, heptachlor epoxide, lindane, endosulfan I, endosulfan II, endosulfan sulphate are detected in most of the sample. Concentrations of the sediments were important for DDT and its metabolites. PCBs are more present in the lagoon than the organochlorine pesticides. Highest concentrations of organochlorine compounds are encountered, in the areas where the Grand-Lahou is under the influence of the Boubo River and many other streams that carry pollutants generated by agro-industrial units located on the shores of these ecosystems. In the opposite, the sector of the lagoon under the oceanic influence relatively receives fewer pollutants.