Abstract

Contamination of Dioxin and Dioxin-like Chemicals in surface sediments collected from various environmental conditions of Indus River and coastal areas of Pakistan were determined. The significantly different distribution pattern (OCDD>PCBs>OCDF) were observed. Highest levels (300 pg PCDD/PCDF g⁻¹ dwt ) and ∑ Non-ortho–substituted PCB and Mono-ortho–substituted PCBs (1642 pg g⁻¹ dwt) were found in vicinity of untreated effluent discharge area along Karachi coast. However, most of the Indus Deltaic Creeks sediment represented relatively cleaner area while comparing Dioxin contamination. Whereas Indus River sediment demonstrated relatively lower contamination levels at most of the site with the exception of the sediment from last barrage on the Indus before the river enters the delta area (Station IR–4). The observed concentrations were expressed on toxicity equivalency of 2,3,7,8-TCDD (0.63 to 4.8 pg TEQ g⁻¹ dwt.).

The results clearly indicate the same distribution pattern of PCDD/F and PCBs individual congener profile which is dominated by higher chlorinated chemicals such as OCDD and PCBs in the samples collected from both the localities. The identical congener profiles may indicate the same source of contamination in the study areas.

The present results from aquatic environment of Pakistan showed relatively lower levels as compared to neighbouring, regional and European coastal countries. However, results are comparable with the reported levels from New Zealand and Australian estuaries.