Title:	Occurrence, distribution and sources of phthalates and petroleum hydrocarbons in tropical estuarine sediments (Mandovi and Ashtamudi) of western Peninsular India
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Abstract:	The present study provides baseline information on the concentration levels, distribution characteristics and pollution sources of environmental contaminants, such as phthalic acid esters (PAEs or phthalates) and petroleum hydrocarbons in surface sediments of the tropical estuaries (Mandovi and Ashtamudi) from western Peninsular India. Total PAEs (∑5PAEs), hopanes, steranes and diasteranes concentrations from Ashtamudi estuary ranged from 7.77 to 1478.2 ng/g, n.d.-363.2 ng/g, n.d.-121.5 ng/g and n.d.-116.6 ng/g, respectively. Likewise, PAEs (∑6PAEs), steranes and diasteranes concentrations from Mandovi estuary ranged from 60.1 to 271.9 ng/g, 2.33–40.1 ng/g and 2.28–23.0 ng/g, respectively. The PAEs comprising di-isobutyl phthalate (DIBP), dibutyl phthalate (DBP), an isomer peak for DBP, di(2-ethylhexyl) phthalate (DEHP), di-isononyl phthalate were dominant in Ashtamudi estuary sediments, while PAEs including diethyl phthalate, DIBP, DBP and its isomer, DEHP, di(2-ethylhexyl) terephthalate were detected in the Mandovi sediment samples. The results of this study show an insignificant correlation of TOC with PAEs, and indicates that the varying spatial distributions of the PAEs in both the estuaries can be the result of discharge sources. The higher concentration of PAE congeners was noticed in Ashtamudi, a Ramsar wetland site, that can be attributed to land-based plastic waste. The petroleum biomarkers were abundantly present in Mandovi estuary due to anthropogenic activities such as boating and spillage from oil tankers. The findings of the present study will serve as a reference point for future investigation of organic contaminants in Indian estuaries, and calls for attention towards implementing effective measures in controlling the pervasion of the PAEs and petroleum biomarkers.
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