Source apportionment of sedimentary hydrocarbons in the Segara Anakan Nature Reserve, Indonesia

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Abstract	The study aimed to determine the spatial distribution of n-alkanes and polycyclic aromatic hydrocarbons (PAHs) in surface sediments of the Segara Anakan nature reserve and their potential origins using gas chromatography-mass spectrometry. Total alkane concentrations ranged from 3755 to 129,027 mu g kg(-1), and the concentrations of 16 PAHs ranged from 375 to 29,517 mu g kg(-1). The ratios of specific n-alkanes (e.g., CPI24-34, WaxC(n), and Paq), including a new proposed index, terrestrial-marine discriminant (TMD), as well as the ratios of selected PAHs (e.g., Ant/Sigma 178, Fl/Sigma 202, BaAnt/Sigma 228, and IPyr/Sigma 276), showed that the sources of hydrocarbons in the sediments were generally biogenic, including both terrigenous and marine, with an anthropogenic pyrolytic contribution (petrogenic and biogenic combustion). For the environmental risk assessment, a sediment quality guideline (SQGs) comparison indicated that the station risk levels ranged from low to medium-low, except for R6, which has a greater impact on the ecological risk for marine organisms. (C) 2013 Elsevier Ltd. All rights reserved.
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