

**Investigating the distribution
and sources of organic matter
in surface sediment of
RAMSAR gazetted mangrove
forest reserved, Johor, Malaysia
using elemental, stable isotopic
and lipid biomarkers.**

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Sediment bulk parameters and lipid biomarkers were identified from thirty-three surface sediment of RAMSAR gazetted mangrove forest reserved in Johor, Malaysia. The total extractable organic matter in the surface sediments in this mangrove ecosystem is predominantly from natural origin. *n*-alkanes (odd to even; C₁₃-C₃₃; C_{max}: C₂₇, C₂₉, C₃₁), *n*-alkan-2-ones (odd to even; C₂₃-C₃₅; C_{max}: C₃₁), *n*-alkanals (C₁₈-C₂₈; C_{max}: C₂₆) and *n*-alkanols (even to odd; C₁₆-C₂₈; C_{max}: C₂₈) suggested input of epicuticular higher plant waxes. Occurrence of triterpenoids (i.e. friedelin, taraxerol, α - and β -amyrins), sterols (i.e. sitosterol, stigmasterol) and high abundances of long chain *n*-alkanoic acids (> 20) in most sediment also reflect large amount of land-plant input to the sediment. Relatively high levels of bacteria fatty acid markers and low TOC: TN ratio in certain coastal area stations suggest that bacteria also contributed to the organic matter in this ecosystem. Presence of cholesterol (C₂₇) and brassicasterols (C₂₈) indicate that phytoplankton/ algal derived organic matter is pronounced in certain coastal and estuarine sediment. Existence of UCM together with CPI and Pr/Phy \leq 1 indicated the presence of petrogenic contamination in a few coastal stations. Furthermore, coprostanol is present in some sediment indicating the contribution of domestic untreated sewage run-off in the environment. Consistent with the above observations, the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values indicate mixture of terrestrial and marine sources in the sediment organic matter. The spatial pattern of TOC/TN, $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ are similar. The values are low in the river mouth and coastal area, suggesting potential sinking pool of organic matter within the area.