

Estuary and sea-associated wetlands as final sink for organic pollutants: a case study in Sabah, Malaysia

Abstract

Estuaries and sea-associated wetlands are the final destination for organic pollutants due to their chemical and physical properties. The current research studied Parai River and estuary adjacent to the southern South China Sea in Kota Kinabalu, Sabah. Six samples of surface sediment were taken during January 2012. The samples (top 3 cm) were extracted by Soxhlet using Dichloromethane, subjected to 2 steps of column chromatography for clean-up and fractionation followed by Gas Chromatography-Mass Spectrometry. The results indicated that the highest concentration of alkane in a full range of even and odd carbon numbers is dominant in the estuary and sea-associated wetland. Estuaries receive the highest level of suspended materials due to continuous interaction between marine saline and riverine fresh water. The high amount of Unresolved Complex Mixture (UCM) indicated an incomplete cycle of degradation and decomposition. Terrestrial input was the most dominant natural entry to the study area where C31/C19 ratio was employed. The study concluded that sea-associated wetlands around the estuary may act as the final sink of organic pollutants in the environment