

Microplastic and Polycyclic Aromatic Hydrocarbon (PAH) Contamination in Saihat Mangroves, Western Arabian Gulf, Saudi Arabia

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Mangrove ecosystems are critical coastal habitats that provide ecological and socio-economic benefits. However, increasing anthropogenic activities have led to significant pollution stress, particularly from microplastics and polycyclic aromatic hydrocarbons (PAHs). This study investigates the contamination levels of these emerging pollutants in the sediments of the Saihat Mangroves, Western Arabian Gulf. The average concentration of microplastics was found to be 53 ± 27 items/kg dry weight (dw), while the total PAH concentration (Σ PAHs) ranged from 0 to 32.7 ng/g dw, with an average of 12.3 ± 9 ng/g dw. The Saihat Mangroves, dominated by *Avicennia marina*, support a rich diversity of avifauna, including waders, herons, and flamingos, and serve as nurseries for juvenile fish and crustaceans. Despite their ecological importance, these mangroves are under threat from plastic pollution and hydrocarbon contamination, which may pose risks to biodiversity and trophic interactions. Our findings highlight the need for targeted monitoring and mitigation strategies to preserve the health of these vital coastal habitats.