

Marine Litter and Microplastic Pollution in Mangrove Sediments in The Sea of Oman

Authors : Muna Al-Tarshi, Dobretsov Sergey, Wenresti Gallardo

Abstract : Marine litter pollution is a global concern that has wide-ranging ecological, societal, and economic implications, along with potential health risks for humans. In Oman, inadequate solid waste management has led to the accumulation of litter in mangrove ecosystems. However, there is a dearth of information on marine litter and microplastic pollution in Omani mangroves, impeding the formulation of effective mitigation strategies. To address this knowledge gap, we conducted a comprehensive assessment of marine litter and microplastics in mangrove sediments in the Sea of Oman. Our study measured the average abundance of marine litter, which ranged from 0.83 ± 1.03 to 19.42 ± 8.52 items/m². Notably, plastics constituted the majority of litter, accounting for 73-96% of all items, with soft plastics being the most prevalent. Furthermore, we investigated microplastic concentrations in the sediments, finding levels ranging from 6 to 256 pieces/kg. Among the studied areas, afforested mangroves in Al-Sawadi exhibited the highest average abundance of microplastics (27.52 ± 5.32 pieces/kg), while the Marine Protected Area Al Qurum had the lowest average abundance (0.60 ± 1.12 pieces/kg). These findings significantly contribute to our understanding of marine litter and microplastic pollution in Omani mangroves. They provide valuable baseline data for future monitoring initiatives and the development of targeted management strategies. Urgent action is needed to implement effective waste management practices and interventions to protect the ecological integrity of mangrove ecosystems in Oman and mitigate the risks associated with marine litter and microplastics.

Keywords : microplastics, anthropogenic marine litter, ftir, polymer, khawr, mangrove, sediment

Conference Title : ICMPPS 2023 : International Conference on Microplastics and Plastic Pollution Studies

Conference Location : London, United Kingdom

Conference Dates : August 17-18, 2023