

The Fate of Plastic Debris and Microplastic Particles in Mangroves in the Sultanate of Oman

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Abstract : The distribution and accumulation dynamics of anthropogenic marine debris (AMD) and microplastic particles in mangrove habitats in the region are poorly understood. The abundance, sorting, and diversity aspects of AMD and microplastics were investigated in three types of mangroves creeks (Natural mangrove, afforested mangrove, and non-planted). Abundance, concentration, and particles form of microplastics have been illustrated in three substrate in mangrove habitats e.g. sediment, water, and aquatic organisms. Density separation method by using highly saturated solution was implemented to extract the plastic particles from the sediment samples. The average size of particles in each transect was done using image software, and the polymer type was determined via FTIR. There was variability in abundance of microplastics and marine debris between the habitats and within the substrates in the habitats. Biomonitoring program was developed to detect the pollution of microplastics in mangrove habitats in Sultanate of Oman. Sediment dwelling species were the best choice. Testing whether the zooplankton (*Artemia*) eating the microplastics via FlowCam technique have been studied. The zooplanktons (*Artemia*) were eating the microplastics as mistaken food.

Keywords : microplastics, marine debris, flowcam, FTIR, polymer, artemia

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