

FIRST EVIDENCE OF MICROPLASTIC POLLUTION IN REEF-BUILDING CORALS OF SRI LANKA

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With the emerging global concern on marine microplastic, studies reveal that exposure of corals to microplastics poses a threat to the reef ecosystems by coral bleaching, necrosis and yet unstudied consequences. Even though microplastics were detected in different marine matrices across the nation, the abundance and characteristics of microplastics in reef-building corals of Sri Lanka received poor scientific attention. Therefore, the present study is an endeavour to assess the microplastic abundance and characteristics of reef-building corals of Sri Lanka. Coral samples of six different species, *Acropora nasuta*, *Acropora muricata*, *Pocillopora verrucosa*, *Pocillopora damicornis*, *Montipora millepora* and *Goniastrea edwardsi*, collected from the four most prominent coral reefs (Pasikudah, Pigeon Island Marine National Park, Ahangama and Ussangoda) were studied. Microplastics were extracted from coral tissues under laboratory conditions with saturated NaCl and 37% HCl solutions, following quality control measures. Extracted microplastics were characterized based on their shape, size, colour and polymer type. Results showed that microplastics are ubiquitous in each scleractinian coral species. The mean abundance of microplastic in corals was 578.5 ± 77.2 items kg^{-1} (wet weight). The highest abundance of microplastic was encountered in *Pocillopora verrucosa*. Fibres were the most abundant shape, while blue and red were the most prevalent colours. Fourier Transform Infrared Spectroscopy (FTIR) analysis revealed that low-density polyethylene (LDPE) (60%), polyamide (20%) and polystyrene (20%) were the main types of microplastic polymers present in corals. Though no significant differences in microplastic concentrations were observed among coral species or study sites, the study provides the first evidence for the aggregation of microplastic in reef-building corals of Sri Lanka.

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