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Estimation of Substrate Coverage by Marine Debris On Mangrove Ecosystem In Negombo Lagoon, Sri Lanka

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Abstract

Marine habitats are contaminated with man-made debris and represent the major categories of marine debris by material type on a global basis. The study was conducted in two mangrove inhabited sites in Negombo Lagoon for a six months period during September 2016 to February 2017 to assess the debris cover on mangroves. The collected debris particles were categorised by material type. The study revealed that $9.83 \pm 1.05\%$ of the substrate of the mangrove ecosystem is covered by debris. The Kadolkele site was covered by $18.80 \pm 1.74\%$ ($n=120$) while Molekadolwetiya was covered from $0.85 \pm 0.03\%$ ($n=120$). The debris cover was varied significantly between two site ($p=0.00$). Significantly higher debris cover was found in Kadolkele than that of Molekadolwetiya. The composition of debris by material types showed that the packaging items made up of plastics were dominated with a 40% followed by consumer items (21%), fishing items (8%) and rubber items (13%). The study revealed that the mangroves in Negombo Lagoon are highly polluted with marine debris and their impacts on mangroves are recognized visually on roots, seedlings, up-root areas etc. Thus, it is recommended to make remedial measure to reduce the debris accumulation on mangroves to conserve these valuable coastal habitats.

Keywords: Mangroves, Negombo Lagoon, marine debris, packaging items, impacts