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# Microplastics in the bivalve *Mytilopsis leucophaeata* from a coastal urban lagoon (Rodrigo de Freitas Lagoon, Rio de Janeiro-Brazil)

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## Abstract

False mussels (Dreissenidae) are among the most notable fresh- and brackish water invaders (Rodrigues et al.,2022). The unintentionally introduced *Mytilopsis leucophaeata* (Conrad,1831) in Rodrigo de Freitas Lagoon-RFL (Rizzo et al.,2014) is now the most abundant macrofaunal species, widely established and well distributed throughout the lagoon (Rodrigues et al.,2021). Our study aimed to assess the potential use of this invasive filter-feeder as indicator of microplastics pollution in RFL. Agglomerates (~150 mussels) were manually collected in ten stations distributed throughout lagoon and kept frozen. In the laboratory, 60 individuals were sorted by station for soft-tissues digestion. Each pool of 10 soft-tissue mussels (n=6 by station) was wet-weighted (g), then placed in a 150-mL decontaminated glass-beaker, with 50 mL of KOH (10%; Li et al.,2019). Samples were heated (40°C) for 48h, and digested samples were filtered in glass-fiber membrane (0.6 µm) using a vacuum system. Microplastics were found in all samples of soft-tissue mussels (n=60) from RFL, and mean concentration (±SD) was 35.96 (±47.64) microplastics g wet-weight<sup>-1</sup> of *M. leucophaeata*. Microplastics were distinguished in seven categories with different occurrence in samples (%): fiber (43.3%), fragment (34.3%), film (16.3%), sponge/foam (4.9%), pellet (0.57%), rope/filaments (0.17%), and undefined (0.4%). Thirteen colors of microplastics were found, but transparent (55%), black (11%), and white (9.4%) were the most common. *Mytilopsis leucophaeata* were useful to assess microplastic contamination in RFL and might be preferentially used in other invaded systems instead of native and often threatened bivalves. Our results confirm bivalve's potential use as bioindicator of coastal microplastic pollution.

**Keywords:** microplastics, molluscs, coastal lagoon, invasive species

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