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## MICROPLASTIC INGESTION PATTERNS AMONG MACARONESIAN COMMERCIAL FISH SPECIES: A COMPARATIVE ANALYSIS

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**Abstract:** The Gastrointestinal (GI) content of 634 fish belonging to seven species from the four Macaronesian archipelagos were analysed to study the ingestion of microplastics (MP). Fish species were selected based on their habitats, feeding behaviour, and commercial value in each archipelago accounting for a total of 181 *Katsuwonus pelamis*, 121 *Scomber colias*,

121 *Pagrus pagrus*, 60 *Mullus surmuletus*, 60 *Aphanopus spp.*, 70 *Cephalopholis taneopsis* and 21 *Selar crumenophthalmus*.

Prior to dissection, all specimens were weighed and measured for total length. The GI tract was weighed and digested with a 10% KOH solution for 24 h at 60°C. The material was filtered through a 25 µm metal filter, examined and counted under a stereo microscope. Additionally, polymer composition was identified using µFTIR.

The highest incidence of MP was observed in *Aphanopus spp.* (100%), followed by *Katsuwonus pelamis*, (90%) and *Cephalopholis taneopsis*, (85%). Moderate values were found in *Scomber colias*, (25-63%), *Pagrus pagrus*, (20-83%) and *Mullus surmuletus*, (43-63%).

Fibers were found to be the dominant MP in most species, followed by lines and fragments. No pellets were detected in any organisms. Blue and black were the predominant colours across species, except for demersal ones like *Aphanopus spp.* (51%) and *Pagrus pagrus* (43%), in which transparent MP were prevalent. This suggests for pelagic fish selective ingestion based on colour and possible accidental ingestion of transparent and blue MP for demersal species due to lower visibility at these depths.

This study also revealed the the significant presence of cellulose-based fibers (both natural and semi-synthetic) and 100% synthetic fibers such as polyester, polyethylene, acrylics, and polyamide (nylon), which are likely associated to wastewater discharge.

**Key words:** Macaronesia; commercial fish; Microplastics, Synthetic fibers.

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