

Presence of Microplastics in *Selar Crumenophthalmus* from Malaysia

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Structured Abstract

Background: Microplastics are tiny plastic pieces less than five millimeters in size and are a serious environmental problem. They come from larger plastic items that break down and from products like face scrubs. Trillions of microplastics now float in the ocean, and millions of tons of plastic enter the sea each year, breaking into smaller pieces that harm sea life and the environment. In Malaysia, microplastics have been found in the stomachs of many fish species, showing how widespread the issue is. Most are tiny fibers, likely from fishing nets, clothes washing, and other human activities. Plastics like rayon and polyethylene are also found in rivers and coastal areas.

Methods: 12 big eye scad fish were bought from a market in Selangor, cleaned, measured, and dissected to collect flesh, gills, and GIT. Each organ was stored in labeled petri dishes. The samples were digested using a KOH solution and kept in an incubator at 40°C for 2–3 days. A salt solution was added to help separate plastic particles, and the contents were filtered. The filter papers were dried and examined under a microscope to count and identify microplastics. Plastic types were confirmed using FT-IR analysis.

Results: This study found microplastics in half of the *Selar crumenophthalmus* fish, mainly in the stomach, followed by flesh and gills. Most particles were fibres, then films and fragments, likely from fishing nets, clothing, and plastic waste. Fish often swallow microplastics by mistake while feeding, and these particles stay longer in the gut. The shape and color of microplastics differ based on pollution sources. Nylon was the most common type, followed by PET and polyethylene. These plastics come from everyday items like clothes, ropes, and packaging that break down in water.

Conclusion: This study confirms the presence of microplastics in *Selar crumenophthalmus*, mainly in the gastrointestinal tract. Fibres were the most common type, showing pollution from sources like fishing gear and textiles. Microplastics enter fish through feeding or exposure to polluted water. These findings highlight the risk of microplastics to marine life and human health through the food chain.

Keywords: Microplastics, Big Eye Scad, Plastic Pollution, Microplastic particles

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