

CHALLENGES FOR DETECTING MICROPLASTICS IN FISH

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ABSTRACT

INTRODUCTION: Consumption of fish has been increasing, but concern about contamination by microplastics (MPs) has gained prominence in the scientific community, since it can interfere with the quality of fish meat and the population's dietary pattern. The lack of public policies and proper management of plastic waste in Brazil directly implies contamination of environmental matrices and promotes bioaccumulation in river basins. This is due both to the lack of support from Brazilian environmental legislation and the lack of standardised methodologies for detecting MP contaminants in the aquatic environment and in foodstuffs such as fish. The MPs are small structures derived from the fragmentation of plastic, which, when ingested by fish, can also contaminate humans and trigger various health problems. **OBJECTIVES:** In this context, this study compared the efficiency of methodologies for detecting MPs in order to corroborate their detection, identification and quantification. **MATERIAL AND METHODS:** The protocols used to digest the intestinal tract of fish are time-consuming and require several steps. In this study, three parts of the fish were digested: the gastrointestinal tract, gills and fat of *Pseudoplatystoma corruscans* species acquired by local fishermen in Aruanã-GO. A 10% potassium hydroxide (KOH) solution was prepared at room temperature for three weeks until the organic matter was completely digested (Foekema *et al.*, 2013). In parallel, another method was used, combining a 35% solution of hydrogen peroxide (H₂O₂) and 4% potassium hydroxide (KOH) at 60°C for 72 h; 10:40 of 68% perchloric acid (HClO₄) and 65% nitric acid (HNO₃) were added (Abbasi *et al.*, 2018). After vacuum filtration, it was visualised under a stereomicroscope. **RESULTS AND CONCLUSION:** According to the analysis, microplastic particles were found in all the samples in both methods. Thus, the most viable, economical and safe method was digestion with 10% KOH, as proposed by (Foekema *et al.*, 2013). Therefore, the applicability of this method was possible; there is an urgent need to implement public policies in Brazil against the improper disposal of plastic waste, to establish methodological standards for monitoring and controlling plastic pollution in the aquatic environment, and to raise public awareness about fish quality.

Key words: Microplastics; Methods; Fish

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