

MICROPLASTIC CONTAMINATION IN LIVER, BRAIN, KIDNEY AND MUSCLE OF CYPHOCHARAX VOGA IN A POLLUTED STRETCH OF THE SINOS RIVER

INTRODUCTION: Microplastic (MP) pollution is an emerging issue in freshwater ecosystems, and its effects on native fish species remain poorly understood. The Sinos River, located in southern Brazil, is heavily impacted by untreated domestic and industrial discharges, making it a critical environment for studying MP bioaccumulation. **OBJECTIVE:** This study aimed to quantify MP concentrations in the liver, brain, kidney, and muscle of *Cyphocharax voga*, as well as to characterize the particles in terms of shape and size, while also assessing possible sex-related differences. **MATERIALS AND METHODS:** A total of 54 individuals (25 males and 29 females) were collected from a contaminated section of the Sinos River. Tissues were chemically digested and filtered for MP extraction. Particles were quantified per gram of tissue (MPs/g), classified into four shapes (fragments, spheres, films, and fibers), and measured using a fluorescence microscope. **RESULTS AND CONCLUSION:** MPs were detected in all analyzed organs. Females showed a higher mean concentration of MPs/g in the liver (77.60) than males (41.51), while males exhibited higher concentrations in the brain (216.98 vs 140.78 MPs/g) and kidney (53.90 vs 33.74 MPs/g). Muscle presented the lowest concentrations with no significant differences between sexes. Most identified particles were fragments (73%) and spheres (28%), with sizes ranging from 2.3 to 372 μm . The average particle size was 39.7 μm in the liver, 28.9 μm in the brain, 24.2 μm in the kidney, and 43.3 μm in the muscle. Statistically significant differences between sexes were observed in the liver ($p = 0.03452$) and kidney ($p = 0.00946$). These findings indicate multi-organ MP accumulation in *C. voga* and highlight the importance of considering sex as an influential factor in the ecotoxicology of emerging contaminants.

Keywords: freshwater pollution; ecotoxicology; microplastics; tissue bioaccumulation; sexual dimorphism.

Funding: This study was supported by CAPES – Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.