

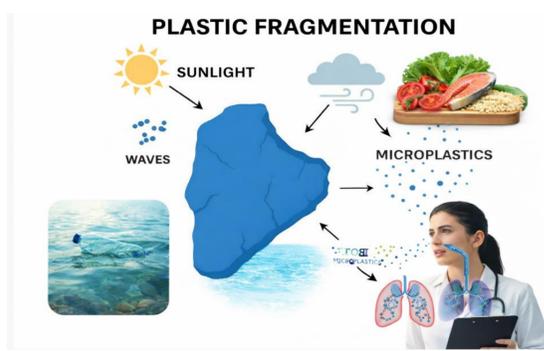
Occurrence and characterization of microplastics and trace metals in aquatic matrices of the ABC Paulista region

Caroline Cristine Augusto, Tatiana Pedron, Renata Tatsuco Silva Fuhwara, Bruna Moreira Freire, Bruno Lemos Batista

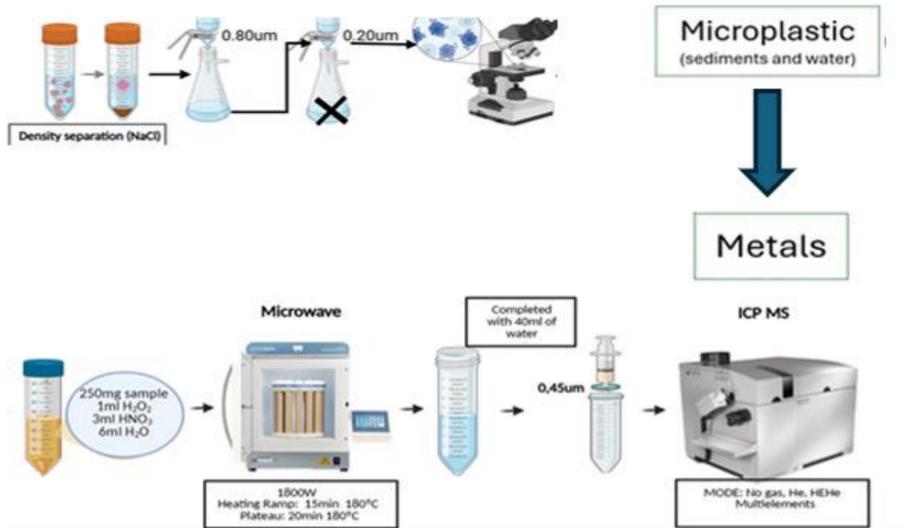
Center for Natural and Human Sciences (CCNH), Federal University of ABC (UFABC), Santo André, SP, Brazil

INTRODUCTION & AIM

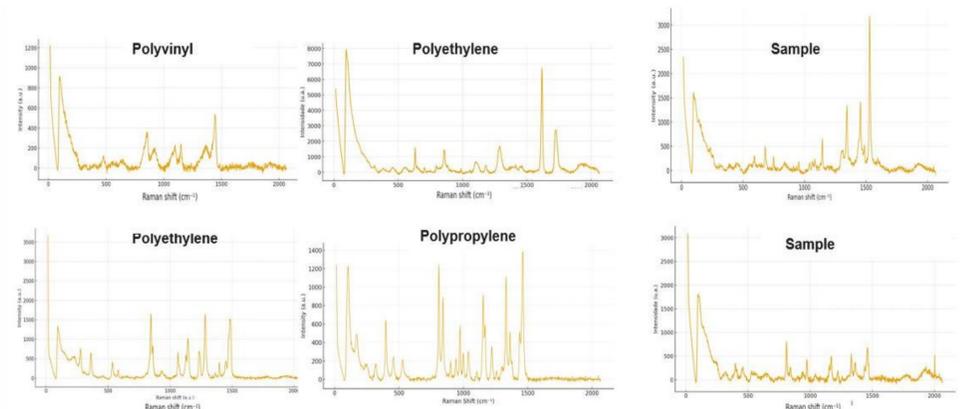
Increasing urbanization and industrialization have intensified the contamination of aquatic ecosystems, particularly in metropolitan regions, where rivers act as receivers of multiple pollution sources. Among the main emerging contaminants, plastic waste, especially microplastics, and potentially toxic elements stand out, as their persistence, widespread distribution, and capacity for interaction pose significant risks to aquatic biota and human health. In this context, the integrated assessment of these pollutants in urban river systems becomes essential to understand their environmental dynamics and potential impacts.



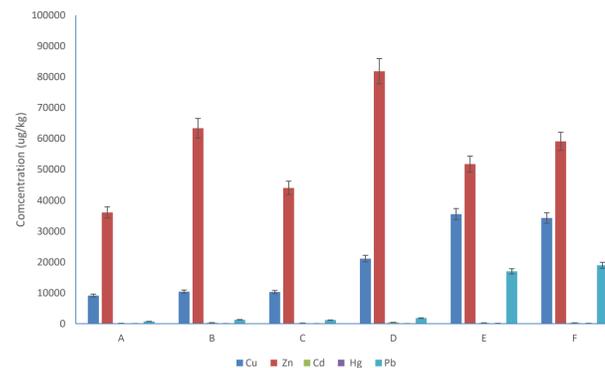
METHOD



RESULTS & DISCUSSION



Concentration of elements in different matrices



A- Leaves washed in February
B- Leaves washed in August
C- Leaves harvested in February
D- Leaves harvested in August
E- Sediments in February
F- Sediments in August

CONCLUSION

The results demonstrated the widespread presence of microplastics and potentially toxic elements across all analyzed matrices. Sediments contained 2–1,000 plastic particles per kilogram, mainly polyethylene, polypropylene, and fibers, while the water column showed an average of 350 microplastic particles per cubic meter. Elevated concentrations of PTEs were detected, with Pb as the dominant contaminant (up to 25,000 ppb in sediments), followed by Cd and As (up to 5,000 ppb), indicating potential ecological and human health risks in this urban-industrial river system.

FUTURE WORK / REFERENCES

Conducting a study on the adsorption and desorption of metals in different types of microplastics, aiming to understand the possible mechanisms involved and their health risks when ingested.

