Microplastic Bioaccumulation and its Trophic Implications in *Corbicula fluminea*

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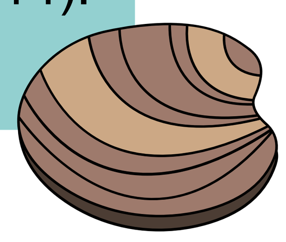
INTRODUCTION & AIM

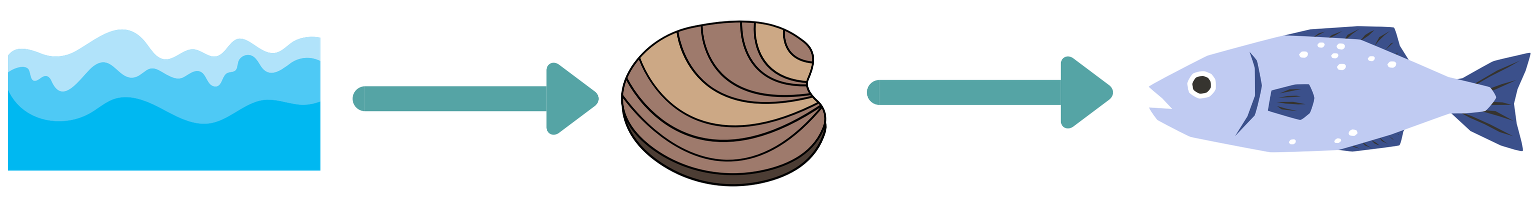
- Plastic pollution → increasing threat to freshwater ecosystems (Barnes et al., 2009).
- Microplastics → ingested by aquatic organisms and transferred through food webs (Santos et al., 2021).
- *Corbicula fluminea* → non-native filter-feeding bivalve widely distributed in European rivers (Sousa et al., 2014).



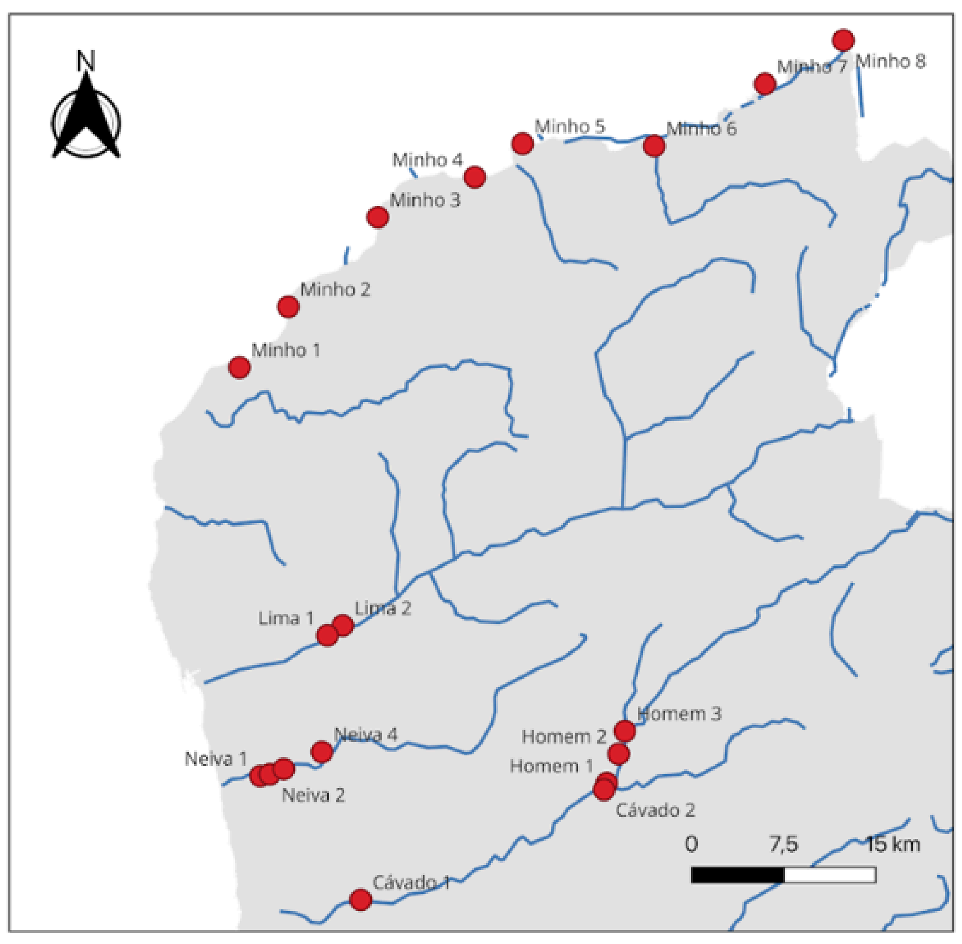
? Microplastic accumulation in *C. fluminea*.

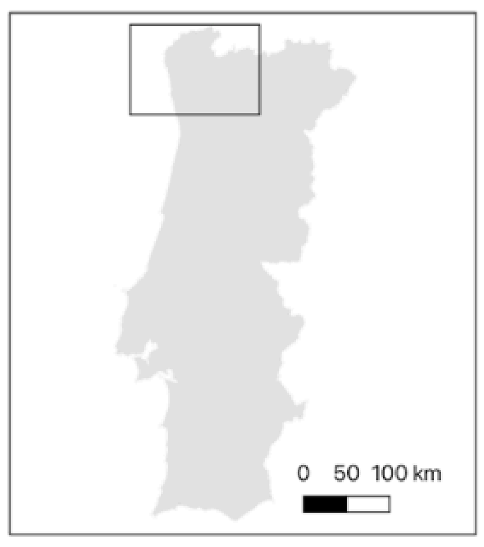
? Relationship between sediment contamination and bioaccumulation.

? Potential trophic implications of microplastic transfer.



METHOD

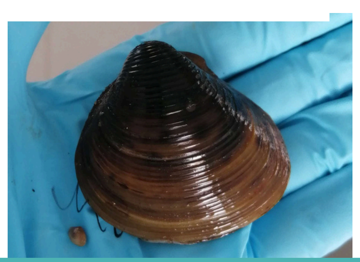




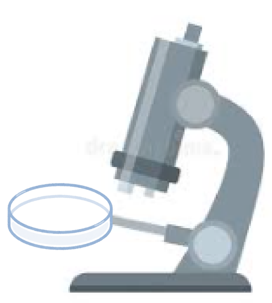
Sampling Sites
Watercourses
Mainland Portugal

Riverbank macroplastics

Sediment collection (n=3 per site)



Corbicula fluminea n=271

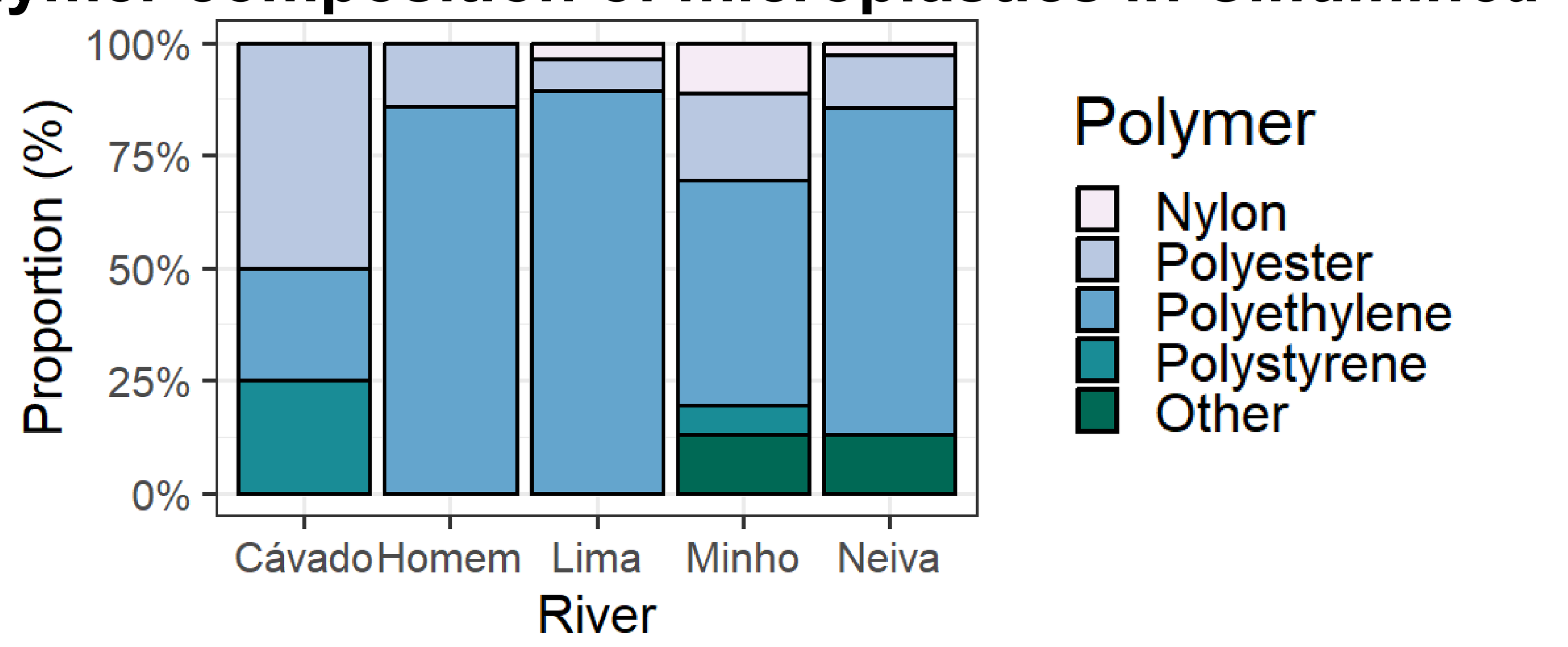


Laboratory processing

ATR-FTIR analysis

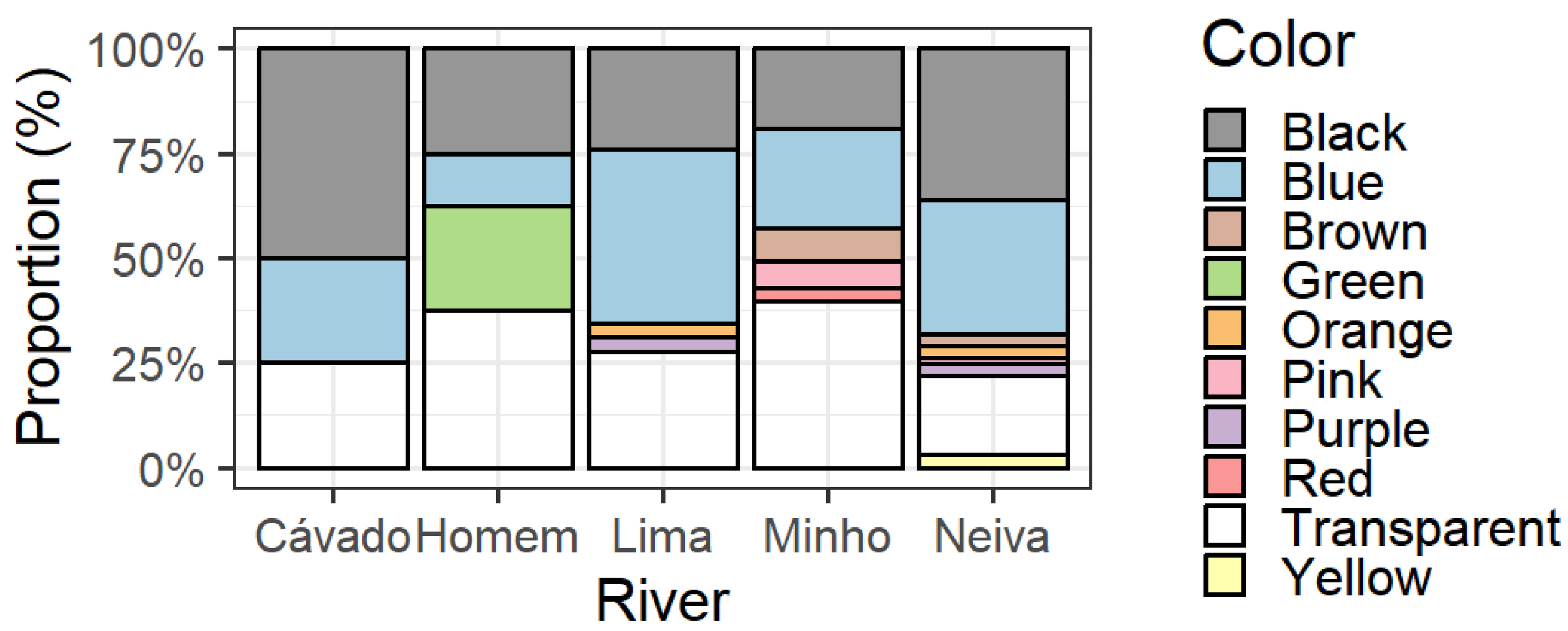
RESULTS & DISCUSSION

Polymer composition of microplastics in *C.fluminea*



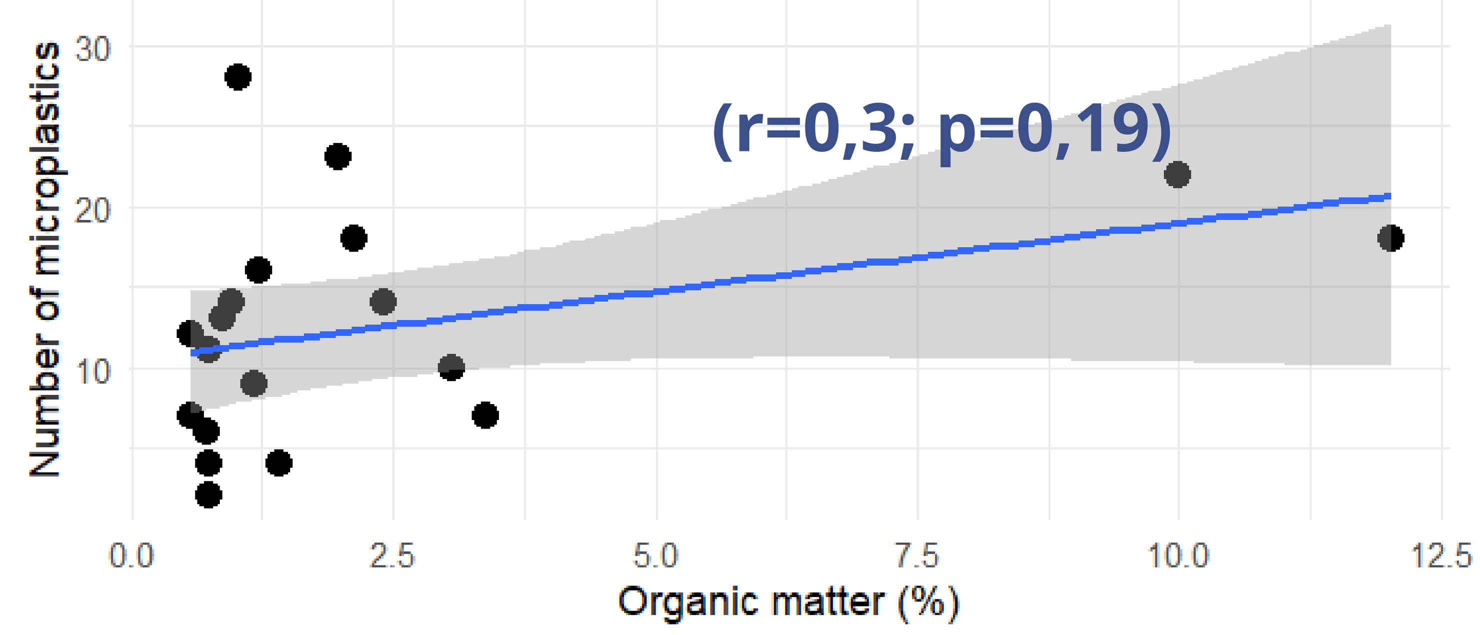
→Polyethylene was the dominant polymer found in riverbank macroplastics, sediment microplastics, and in the clams.

Color composition of microplastics in *C.fluminea*



→ Transparent particles were the most abundant colour category.

Organic Matter (%) vs Microplastic Abundance in the sediment



→ Positive trend observed but no statistically significant relationship detected.

CONCLUSION

✓ *C. fluminea* accumulated microplastics in all sampled rivers.

✓ Polyethylene was the most abundant polymer.

✓ Organic matter was not significantly related to microplastic abundance.

✓ The species may act as a vector for trophic transfer of microplastics.

REFERENCES

Barnes, D. K. A., Galgani, F., Thompson, R. C., & Barlaz, M. (2009). Accumulation and fragmentation of plastic debris in global environments. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *364*(1526), 1985–1998. https://doi.org/10.1098/rstb.2008.0205

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