

1. INTRODUCTION

- Rivers have been identified as microplastic (μ P) pathways, as they receive microplastics (μ Ps) from various sources.
- Small urban streams are close to the main μ P sources in land.
- Rainfall events may be a factor influencing the abundance of μ Ps in streams.



Figure 1. Urban sources of microplastics

2. METHODOLOGY

- The study was conducted in Coimbra city, Portugal.
- Water samples were collected from 5 urban streams inserted in watersheds with different levels of urbanization before and after a rainfall event, and from 3 rainfall events.
- Microscope and μ -FTIR were used to identify μ Ps from the water samples.



Figure 2. General overview of the sampling method

3. CONCENTRATION OF MICROPLASTICS IN STREAMS

3.1. THE INFLUENCE OF THE URBANIZATION LEVEL

- The μ P abundance in streams increases after a rainfall episode, in general (Figure 3).
- The level of urbanization does not seem to clearly influence the abundance of μ Ps in streams. This difference is visibly noticeable only in the higher urbanization level watershed.

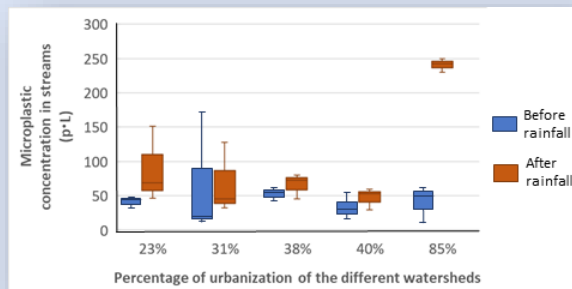


Figure 3. Microplastic concentration in streams according to the level of urbanization

3.2. THE INFLUENCE OF THE RAINFALL EPISODES INTENSITY

- The μ P abundance seems to slightly increase with the intensity level of the rainfall event (Figure 4).
- More intense rainfall events are linked to higher levels of μ Ps in the rainfall water.

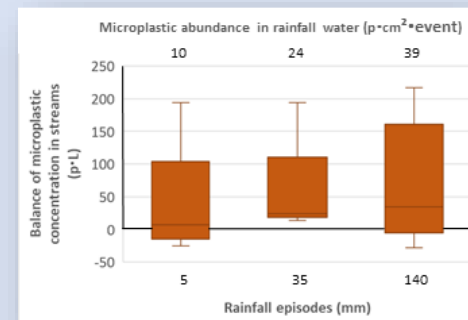


Figure 4. Balance of microplastic concentration in streams, according to the rainfall episode intensity.

4. CONCLUSION

- The rainfall episodes increase the microplastic abundance in streams, especially in more urbanized places.
- The results suggest that the μ P abundance in streams are not associated only with the level of μ P in the rainfall water or the rainfall intensity.
- Run-off and the consequent dragged particles may be a strong influence on the μ P abundance in streams.

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