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The effect of contaminants on taxonomic composition of micrometazoans present in biofilms

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1 Introduction

Micro-meiofauna play an important role in **freshwater**, estuarine and marine ecosystems. Their complex interactions with their environments, including other organisms, create an intricate web of relationships that collectively affect **ecosystem processes**.

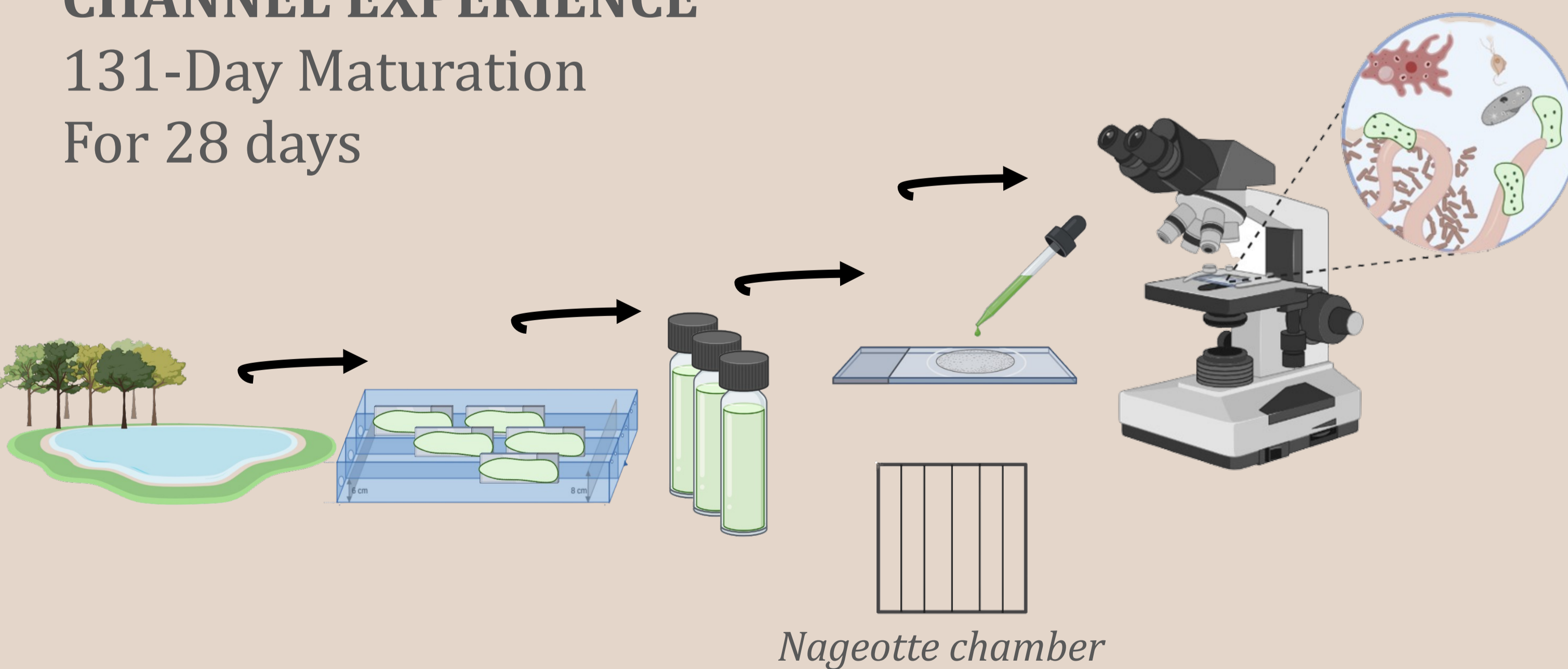
Considering that micro-meiofauna are widespread, easy to sample, and highly responsive to environmental changes, they may serve as **bio-indicators** of **pollution** or **disturbances**, yet their full potential in this regard remains largely untapped.

In this **preliminary** work, we investigated the effects of a mixture of contaminants at environmental concentrations on the biodiversity of biofilm micro-meiofauna: the optical brightener (**DAST**); the insecticide fenoxycarb (**FNX**); the herbicide glyphosate; and its main metabolite AMPA (**GA**).

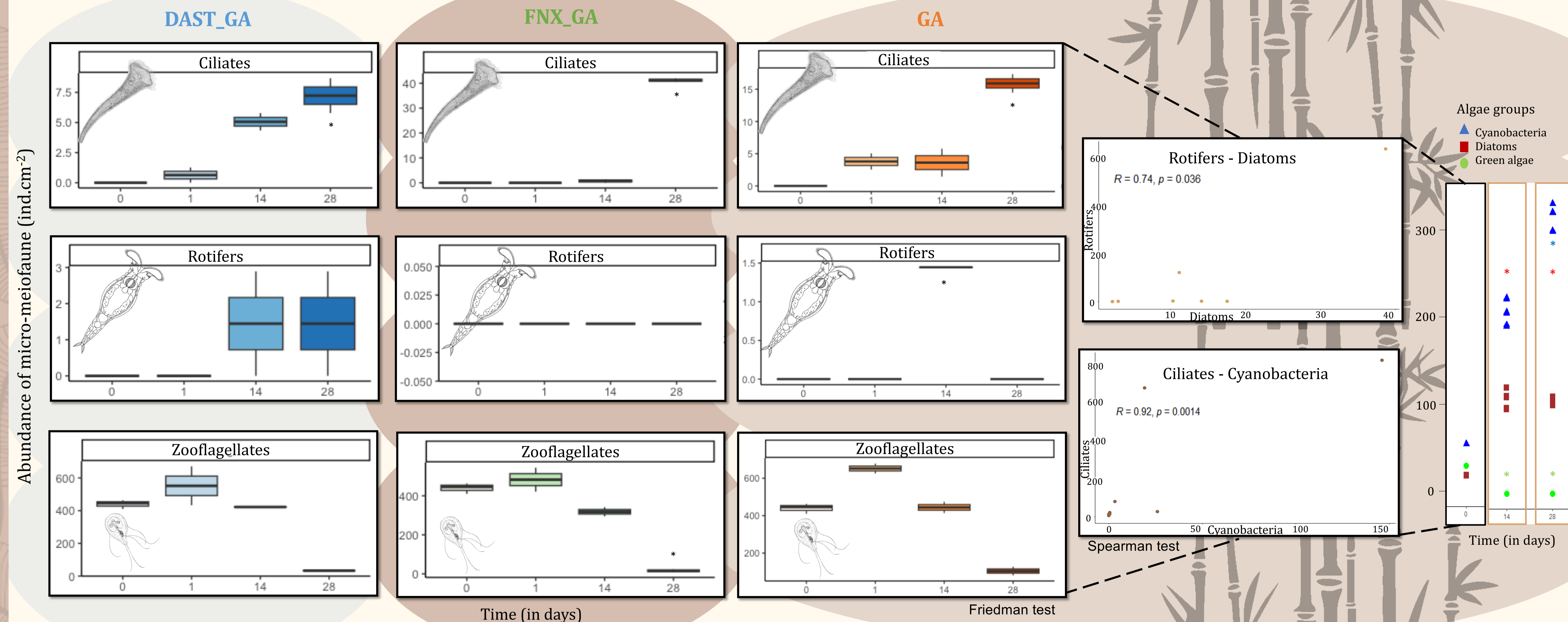
2 Methods

CHANNEL EXPERIENCE

131-Day Maturation
For 28 days



3 Results



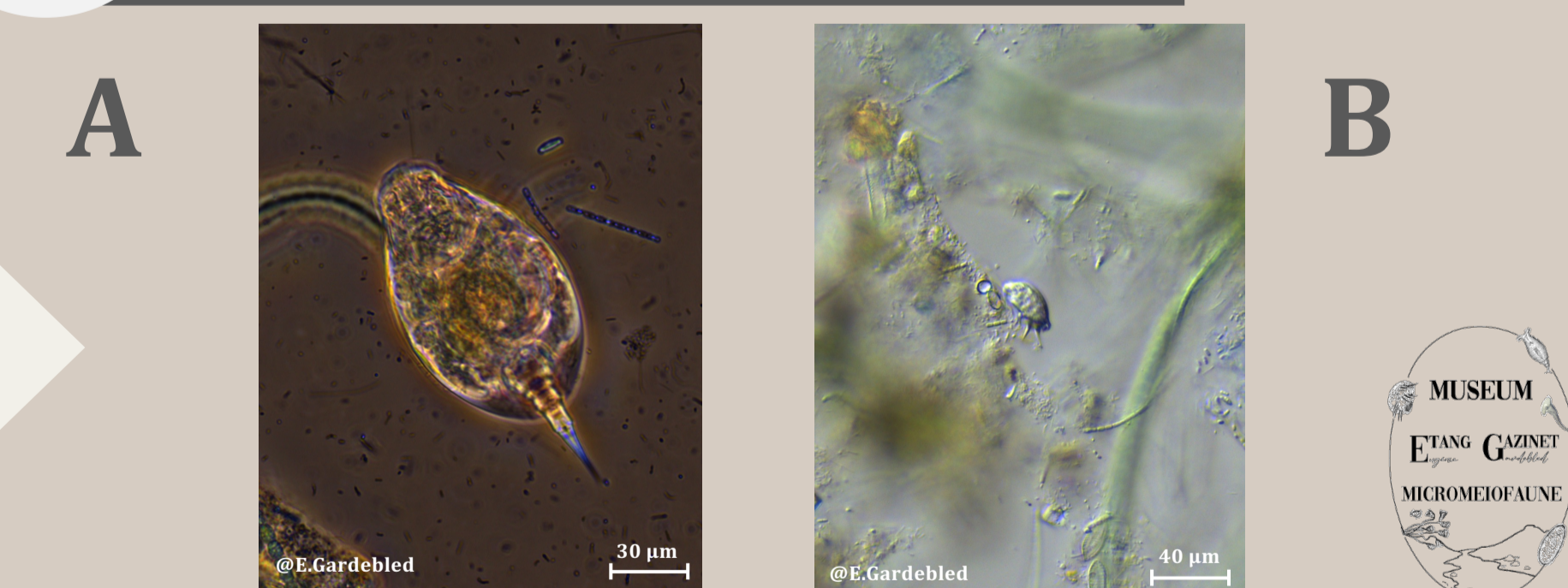
4 Discussion

- * **Ciliates** are more resistant to the cocktail with FNX with DAST
- * **Rotifers** are resistant to GA and DAST_GA up to 14 and 28 days, respectively, whereas they are sensitive to FNX_GA.
- * **Zooflagellates** are sensitive to GA, DAST_GA and FNX_GA cocktails or to experimental conditions.

The results revealed that these contaminants **modified the taxonomic composition** of the micro-meiofauna. The study highlights the **sensitivity** of micro-meiofauna to contaminants in biofilms.

- * Rotifers feed on diatoms **A**
Colurella uncinata is phytophagous (Obertegger and Wallace, 2023)
- * Ciliates feed on cyanobacteria **B**
Aspidisca cicada feed on the order of 15 μm, corresponding to the diameter of the cyanobacteria observeds (Neury-Ormanni et al., 2020)

5 Pictures



6 Acknowledgments



Sampling days during exposure : 1, 14 et 28 days

GA : Glyphosate (1 μg.L⁻¹) + AMPA (100 μg.L⁻¹)
DAST_GA : DAST (30 μg.L⁻¹) + Gly (1 μg.L⁻¹) + AMPA (100 μg.L⁻¹)
FNX_GA : FNX (30 mg.L⁻¹) + Gly (1 μg.L⁻¹) + AMPA (100 μg.L⁻¹)