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► To cite this version:

Jacky Vedrenne, Gardebled Eugénie, Antoine Turret, Maelle Baillergeau, Nicolas Creusot, et al.. The effect of contaminants on taxonomic composition of micromeiofauna present in biofilms. 49th Annual Canadian Ecotoxicity Workshop, Oct 2023, Ottawa, Canada. 2023. hal-04403941

HAL Id: hal-04403941

<https://hal.inrae.fr/hal-04403941>

Submitted on 18 Jan 2024

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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**.

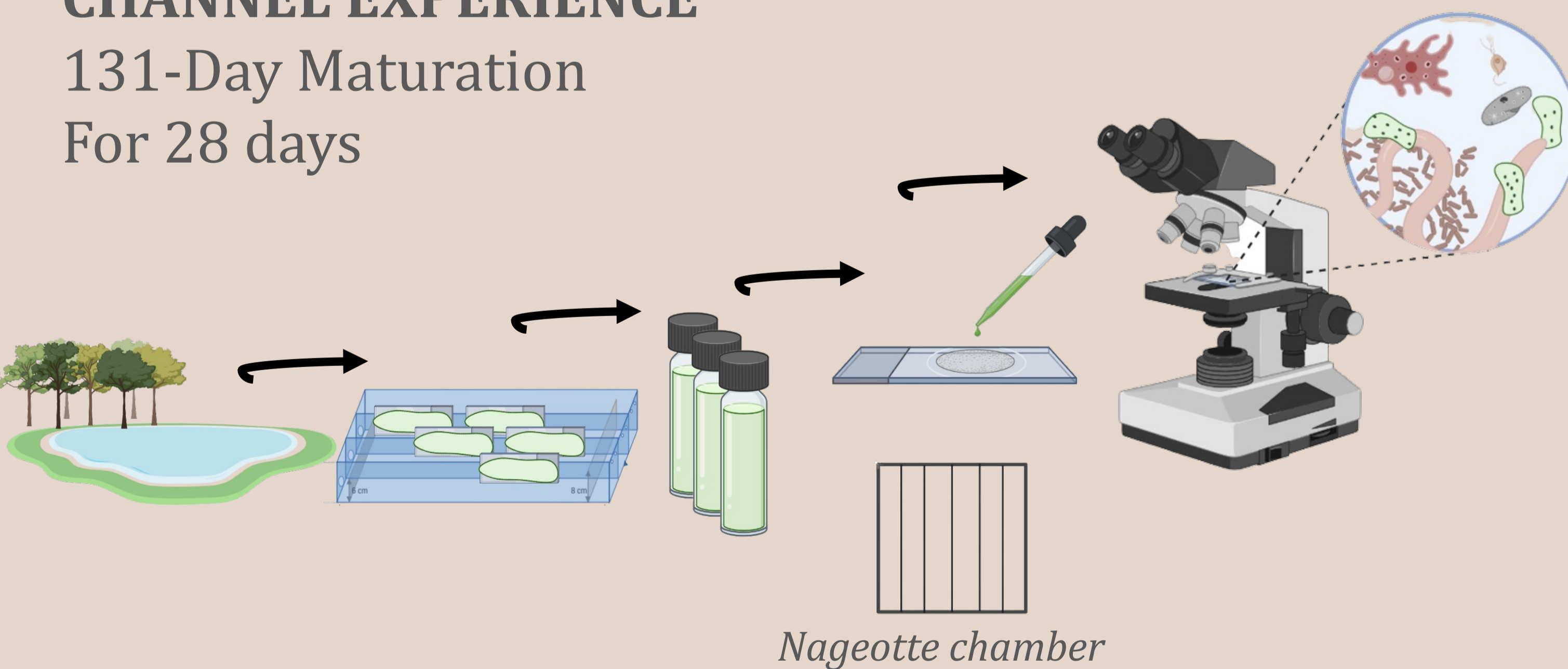
Considering that micro-meiofauna are widespread, easy to sample, and highly responsive to environmental changes, they may serve as **bio-indicators** of **pollution** or **disturbances**, yet their full potential in this regard remains largely untapped.

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**).

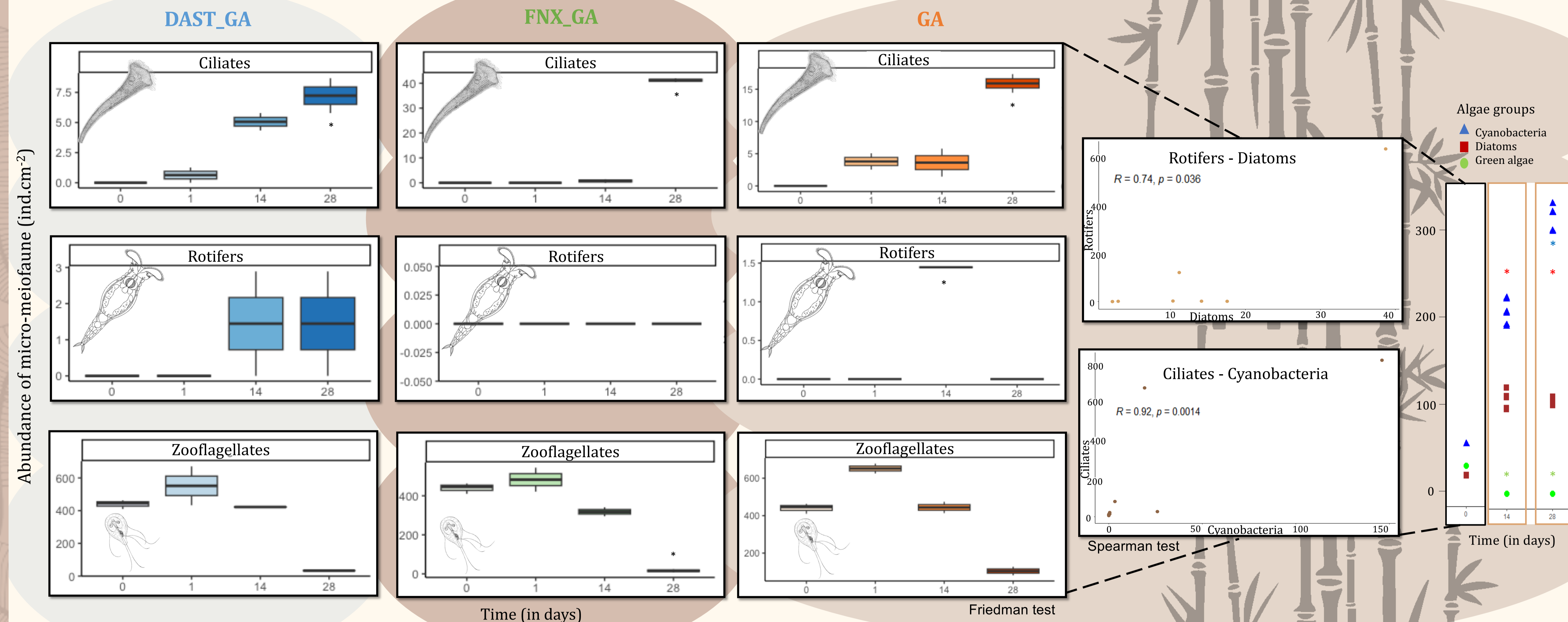
2 Methods

CHANNEL EXPERIENCE

131-Day Maturation
For 28 days



3 Results



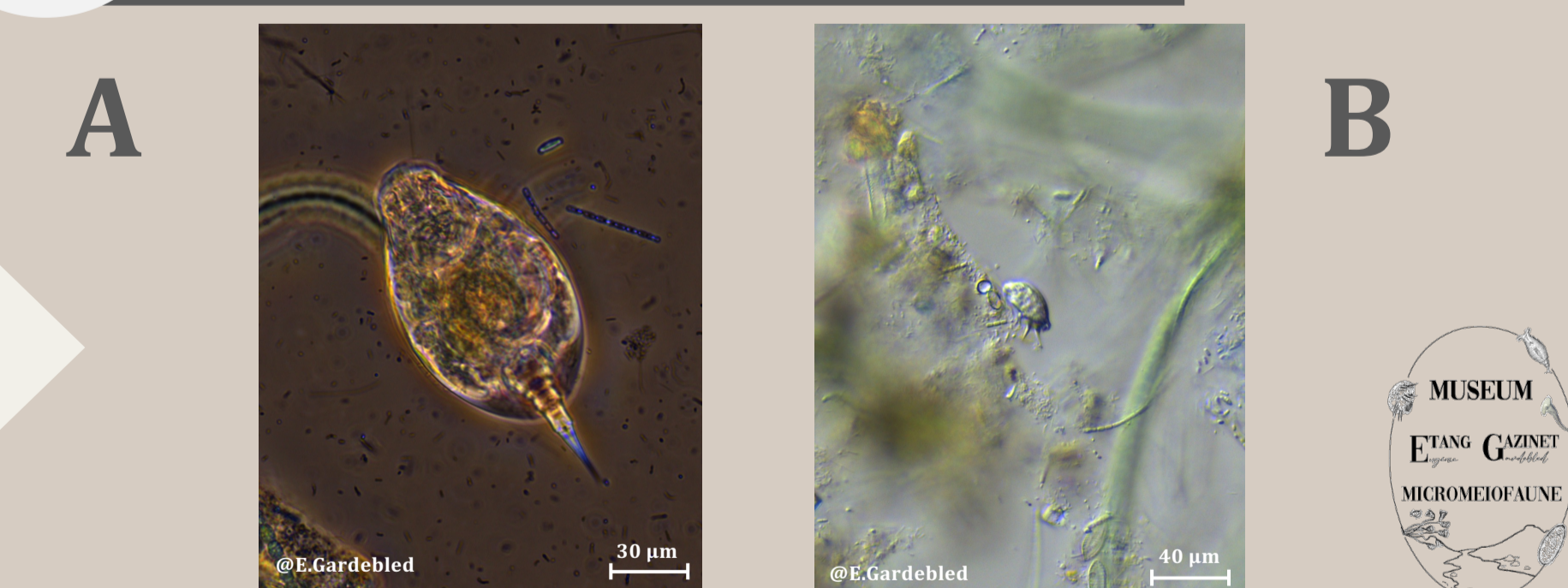
4 Discussion

- * **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)