

KICK-OFF MEETING, 22.5.2025.

# Exposure, biological effects and fate of microplastics in aquatic organisms under different anthropogenic impacts

PlastOrgAnoTox

## PlastOrgAnoTox project discussion and final words

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### WP1 Analyses of MPs in water and sediment



a) **Analyses of MPs** in different habitats – river, sea, aquaculture



b) **Isolation of MPs** for laboratory experiments



### WP2 Analyses of MPs in aquatic organisms

a) **Analyses of MPs** in organisms from polluted environment and aquaculture



b) **Analyses of MPs** in laboratory exposed organisms



### WP3 Effects of MPs on aquatic organisms

a) **Stress responses** due to pollutant exposure in the environment (multibiomarker analyses)



b) **Stress responses** in laboratory exposed organisms (multibiomarker analyses, acute toxicity)



### WP4 Environmental risk assessment of MPs



Obtained data on MPs in water, sediment and aquatic organisms

+



Hazard data



**Environmental Risk and novel biomarkers of MP exposure**



**WP5 Dissemination and communication**



**WP6 Project management**

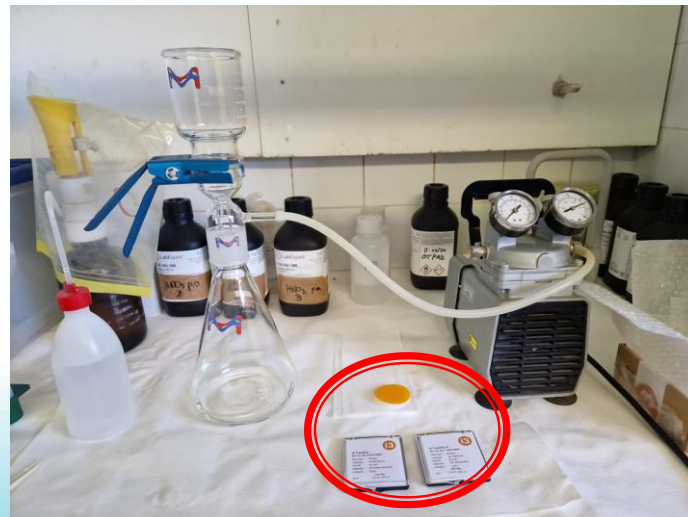
# Discussion

- ▶ „Aged” microplastics - **preparation of "aged" MPs (one part from the environment and the other prepared experimentally under UV light); application of cryo milling, methods for the assessment of structural changes of MPs – FTIR but also differences on the surface area !!!**
- ▶ **Procurement of commercial MP**, especially fluorescent for mussel shell exposure (**1 nm – determination!!!**)
- ▶ **Types of MPs** for experimental exposures – based on environmental data!!! – we have experience with PS, but commercially available is **carboxylate-modified**



# Discussion

- ▶ The methods for the isolation of MPs from biological components – **define methodology for biological tissues (10% KOH) and the gut content ( $\text{HNO}_3 + \text{HF}$ ); - type of filters for sample filtration (PET filters coated with gold!!!)**



# Discussion

- ▶ **Short-term and long-term experiments on adults and larvae of mussels**

- ▶ **How to detect PS in acanthocephalans**

PS	3rd day	5th day	8th day
CONTROL	6 individ.	6 individ.	6 individ.
<b>0.03 <math>\mu\text{m}</math>, fl</b>	6 individ.	6 individ.	6 individ.
<b>0.1 <math>\mu\text{m}</math>, fl</b>	6 individ.	6 individ.	6 individ.
<b>0.5 <math>\mu\text{m}</math>, fl</b>	6 individ.	6 individ.	6 individ.
<b>1.0 <math>\mu\text{m}</math>, fl</b>	6 individ.	6 individ.	6 individ.



- ▶ **Toxicity testing on water fleas (*Daphnia magna*)**



# Discussion

- ▶ **Communication – web page, media**
- ▶ **Dissemination – conferences, scientific papers**
- ▶ **Project management – gantt chart, timeline of activities; regular meetings online**





# THANK YOU FOR YOUR ATTENTION!

