3PAC: A Platform for Plastic Particles Analyses & Characterization

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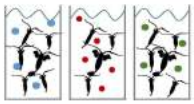
MICRO2020 INTERNATIONAL CONFERENCE
23-27 NOVEMBER 2020 LANZAROTE AND BEYOND
FATE AND IMPACTS OF MICROPLASTICS: KNOWLEDGE AND RESPONSIBILITIES

• Laboratory facilities

Copepods

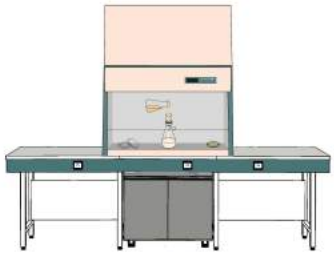


Mussels

Work with two models of marine organisms: copepods (*Acartia tonsa*, *Pseudodiatomus* sp., *Eurytemora* sp., etc.) and mussel (*Mytilus edulis*).

Work in aquaria in a monitored environment with controlled water and air supplies.

• Ad hoc working place



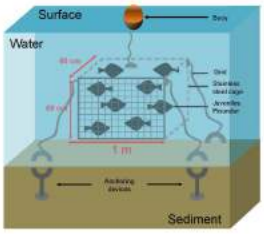
Manipulations performed in a specific laboratory
Use of laminar flow cabinet (HEPA 14 filters)

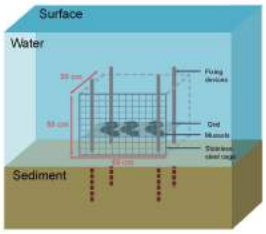
• Particles characterization

Stereomicroscopy:

Observation and measure of particles
Automatic counting of particles
Estimation of the size/volume

• Field studies facilities





Caging experiences:

Caging of marine organisms (bivalves, fish)
Used for biomonitoring of specific places
Control over the sampled area, possibility of having in situ metadata
Compromise between field data and laboratory experiments

Field sampling possibilities close to laboratories:

Natural deposit of bivalves, large beaches, estuaries
Access to sampling campaigns
Establishment in one of the first French fishing port

• Identification of polymers

Raman microspectroscopy:

Non destructive approach
Identification of small polymers (down to 5 µm)

Py-GC/MS:

Analyses of single polymers or mixture
Possible quantification of polymers
No interference of colouring agents

Py-GC/HRMS:

Possibility to detect nanopolymers
Detection of additives and Hydrophobic organic compounds (HOCs)

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