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Microplastics extraction from oyster tissue

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We use this protocol and it's working

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Abstract

Microplastics are defined as any plastic particles that are smaller than 5mm. They have been found in many of our household products, such as detergents, toothpaste, and other beauty products such as exfoliants. It has also been found that clothes with synthesized fibers, such as acrylics, nylon, and polyester shed hundreds of thousands of microplastic particles every time you wear or wash them. Due to the size of microplastics, they easily pass through many water filtration systems and end up in bodies of water, such as the San Francisco Bay or the Pacific Ocean. This protocol describes the procedure to extract and quantify microplastics in oyster tissue.

Preparation and extraction of microplastics from Oyster Gastrointestinal Tract/Tissues

1 Take samples of the gastrointestinal tract (GIT) /biofilm and gill tissues (fish gills have the same biofilm membrane)

2 Weigh out 1-2 g of the tissues. Use a glass cover for weighing.

3 Cut the sample with forceps to increase surface area

4 10% KOH, 50 mL,
(as a guideline 1:50 ratio of tissue to KOH works well)

5 incubate at 60 C for 24 hours

6 Filter through coarse mesh

7 Set up a filtration system (Whatman 1 filter, flask)

8 Soak the Whatman 1 filter in distilled water to prevent it from floating

9 USE VACUUM (or samples will be compromised due to floating)

10 Pour the KOH and tissue solution into the Whatman 1 filter. Vacuum.

11 Rinse sides of filter with distilled water

12 Carefully take the filter and place it into a glass plate with forceps

13 Wash with 50 mL boiling water

14 Incubate for 10 min with 10 mL acetone

15 Wash with another 10 mL of acetone

16 Staining with 1mL of diluted Nile Red

17 Rinse with 10 mL of water (wash the sides of the filter)

18 Place into a Petri plate

19 Observe, use a fluorescent scope