

# Microplastics in mollusc used as food for residents in Southern Vietnam



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## INTRODUCTION

Microplastics (MiPs), the plastic particles have sizes of below 5 mm, which has been considered as a new pollutant by the world due to their deleterious effects on living things and environment. Primary microplastics used as an additive in products including toothpaste, cosmetics meanwhile secondary microplastics caused from plastic litter by many factors as erosion, abrasion, photo oxidation, temperature or degradation.

Beside of occurrence of microplastics in surface water, sediment and ambient atmosphere, appearance of MiPs in mollusks seems to be sources could directly affect to human, especially through bivalves (Phuong et al., 2018). Therefore, this study was implemented on commercial mollusc to have a preliminary assessment of MiP quantity that exist in the mollusc tissues.

## MATERIALS AND METHODS

The samples were collected from 3 different seafood stores in Ho Chi Minh City in July 26, 2020. The experiments were implemented 3 times for each kind of mollusc and 3 organisms per time. However, the type of oysters taken from store 1 was different from the others so there were 2 different kinds of oyster in the samples. Besides, the experiment of the hard clams were only implemented 2 times because they could not be bought in the first store.

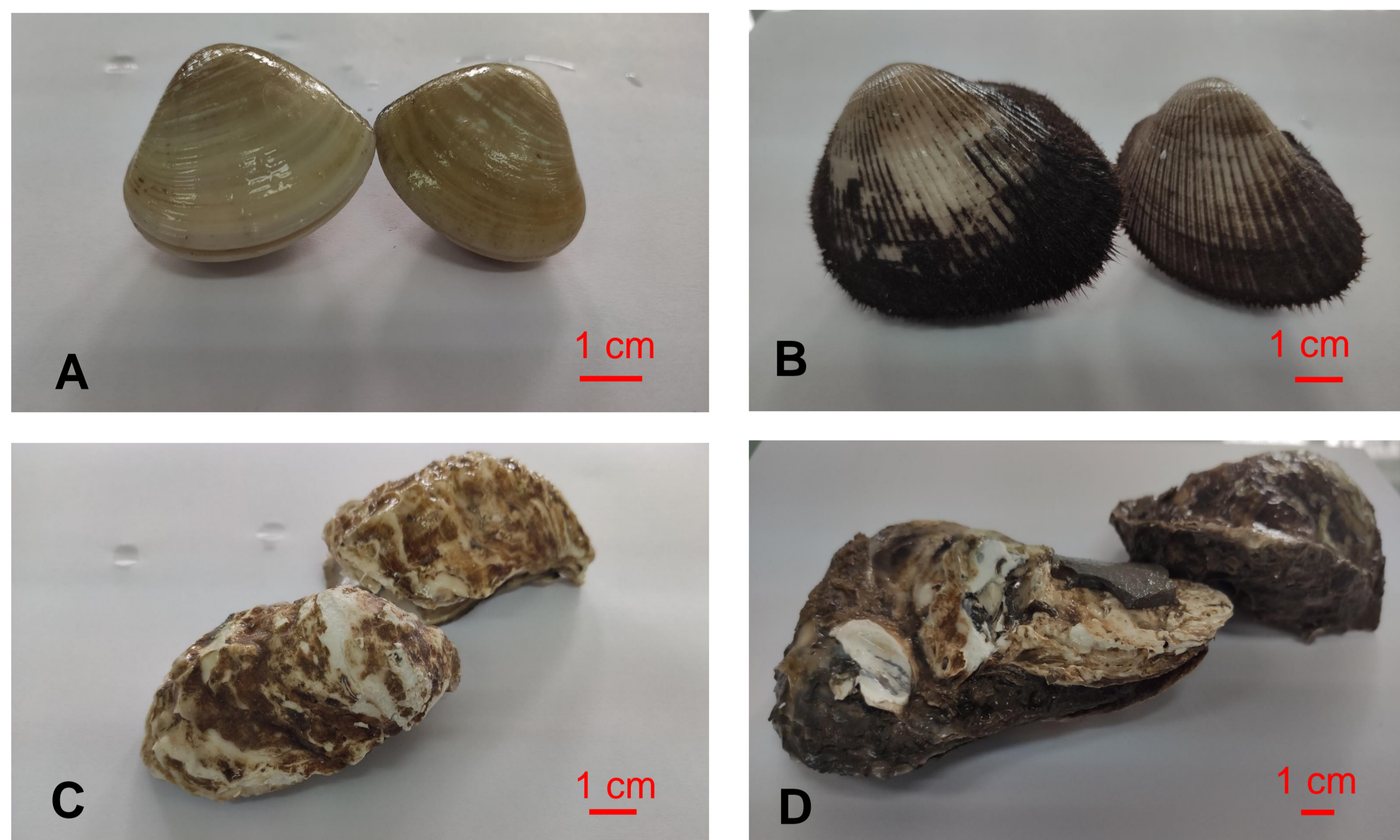


Fig. 1. Mollusks used for experiment including Hard clam (A), Hakf-crenate ark (B), Oyster 1 (C) and Oyster 2 (D)

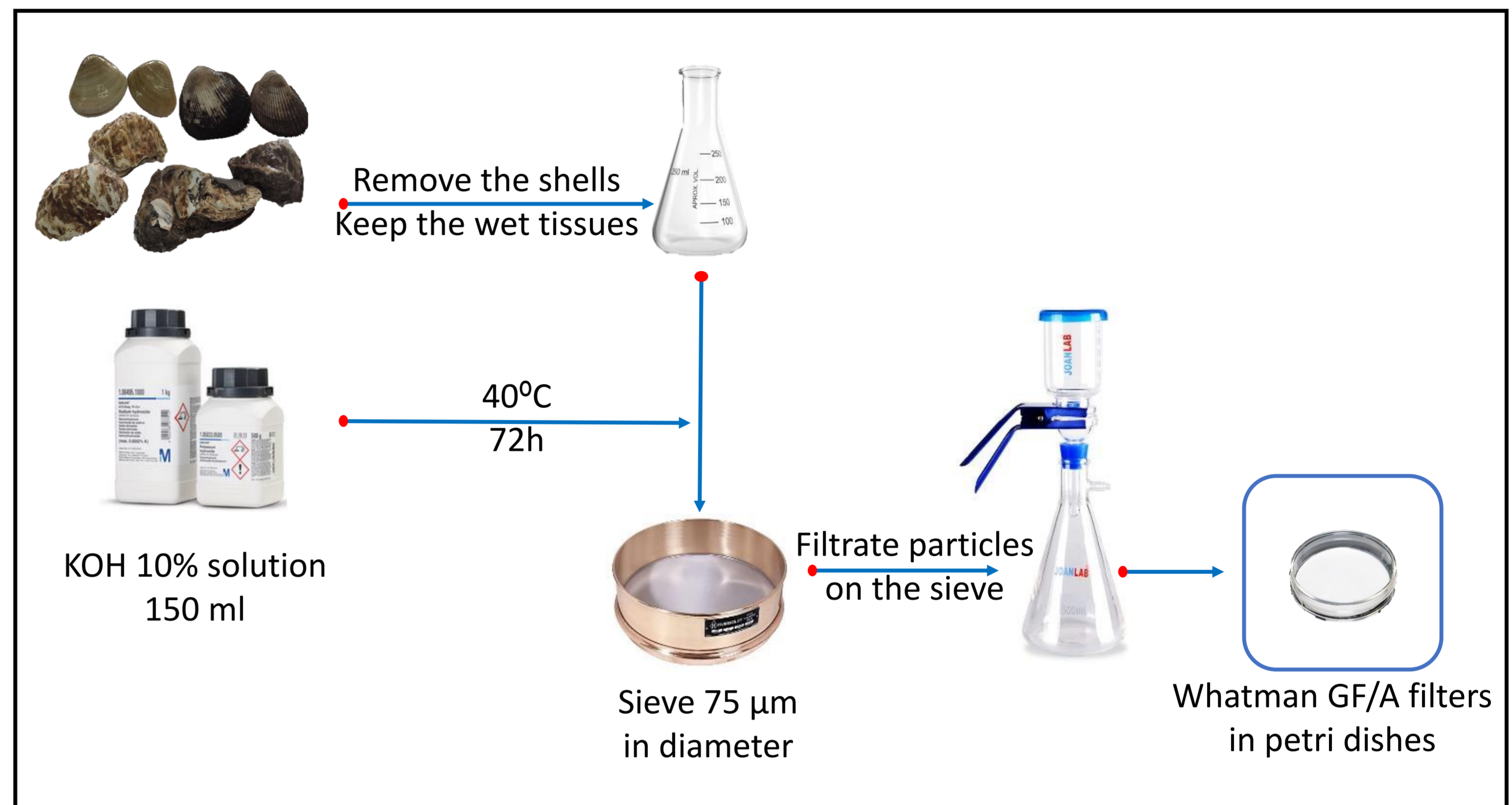


Fig. 2. Protocol for extraction of MiP particles from the mollusc adapted from Phuong Ngoc Nam et al., 2019

## RESULTS AND DISCUSSION

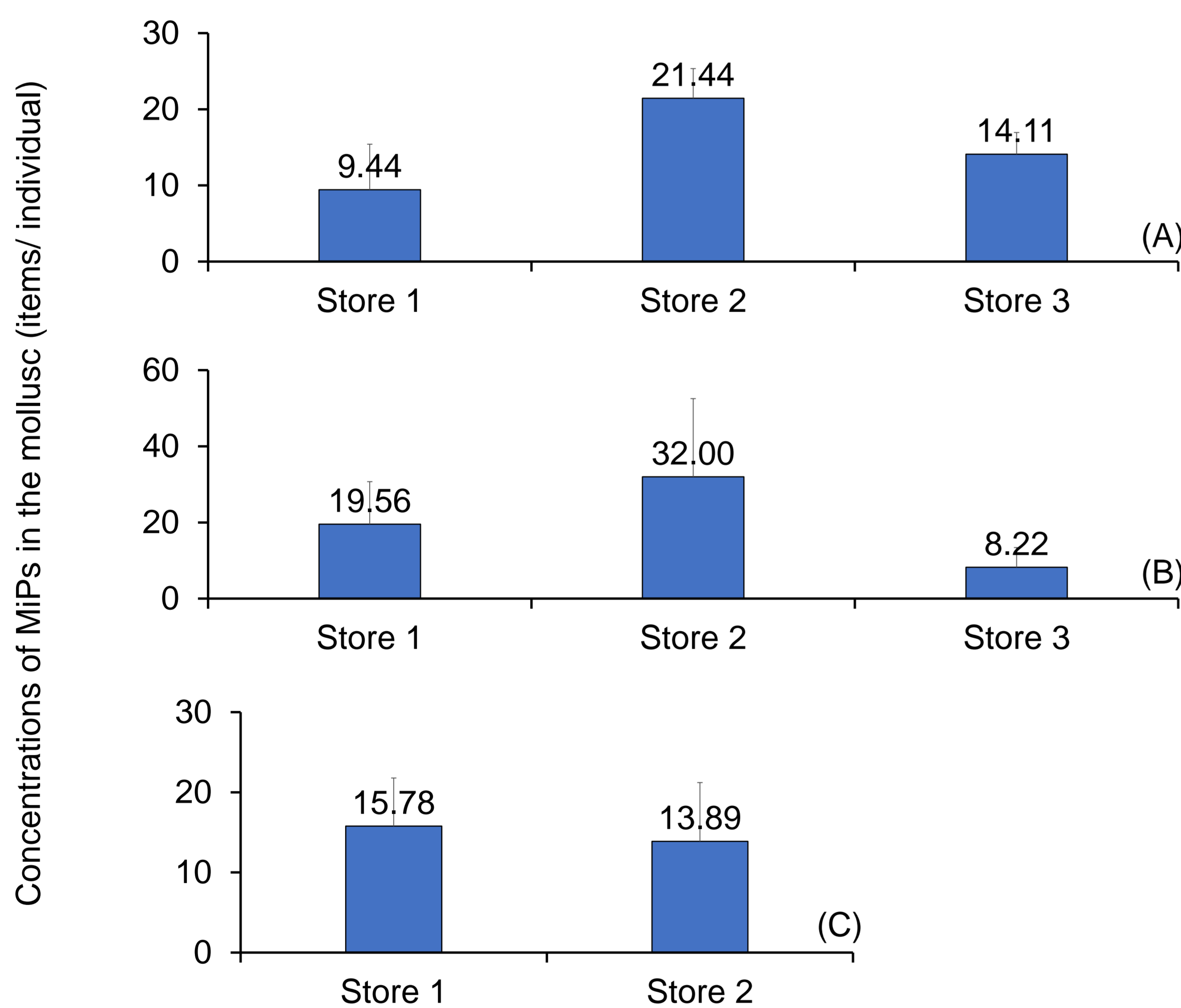


Fig. 3. Microplastic concentrations in Oyster (A), Hakf-crenate ark (B), and Hard clam (C). Stores 1 – 3 were places of mollusc order

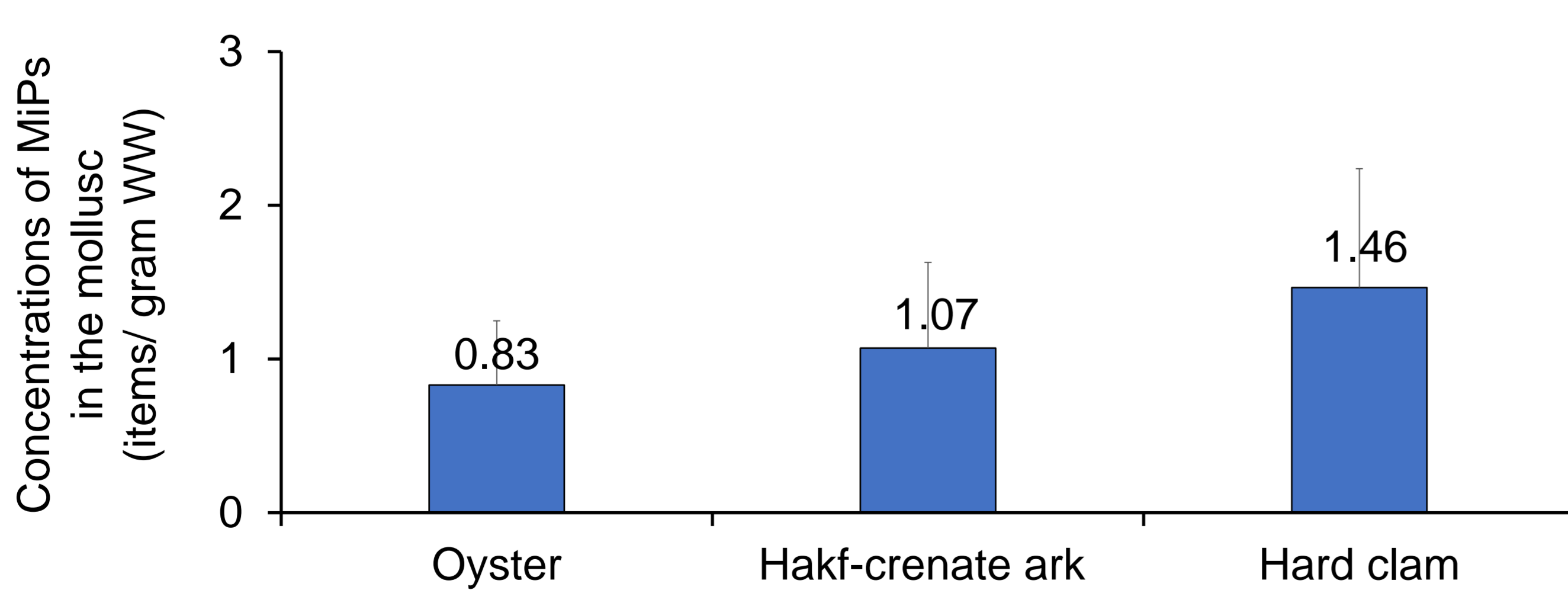


Fig. 4. Microplastic concentrations in three mollusc species

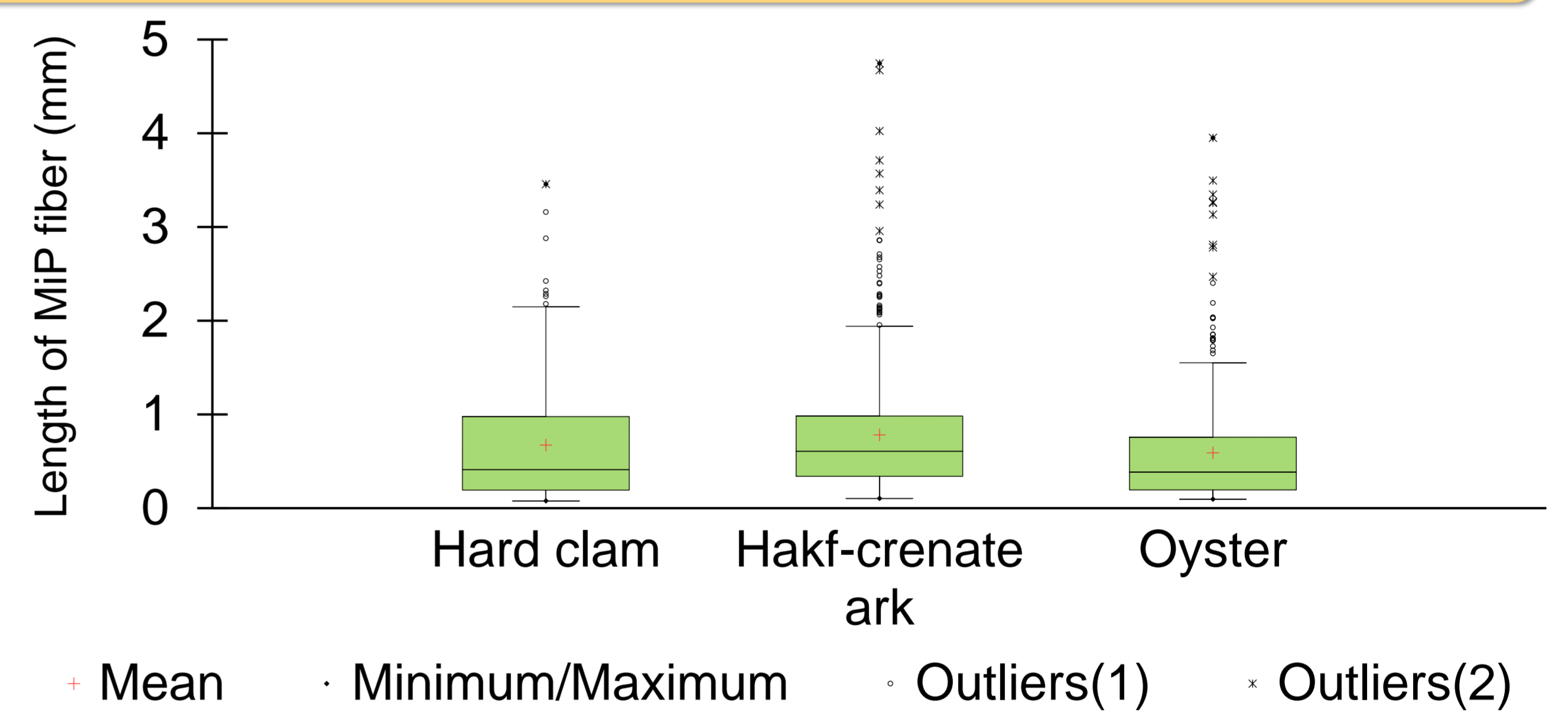


Fig. 6. Length distribution of MiP fibers in three mollusc species

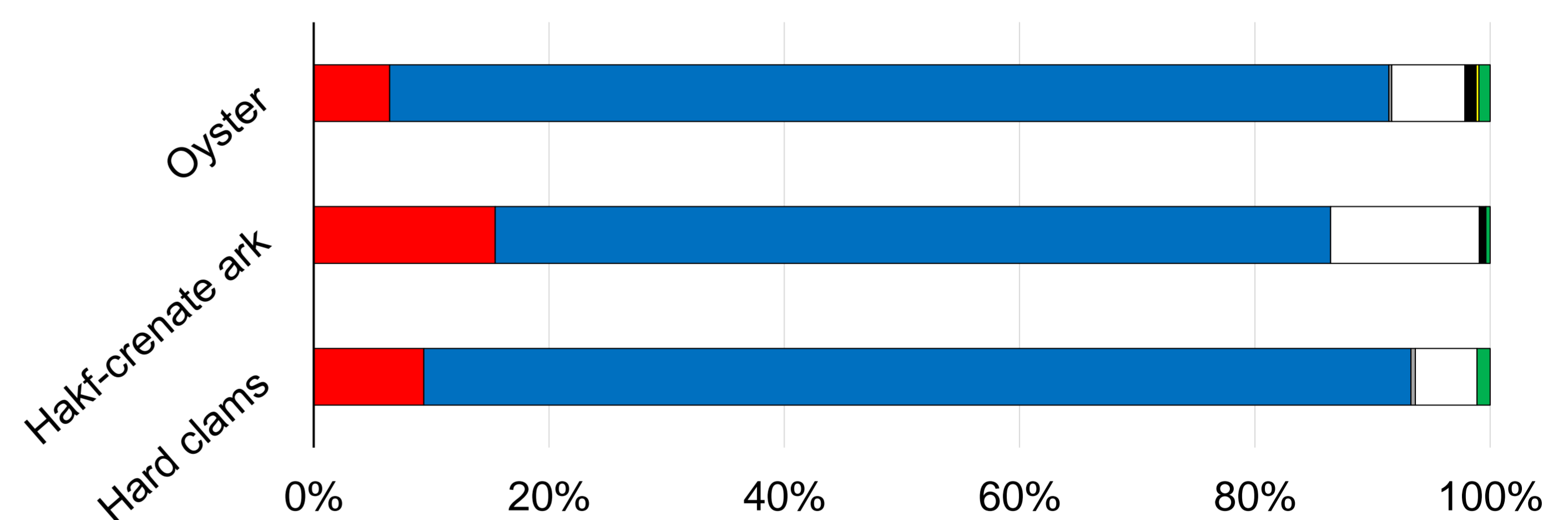


Fig. 6. Color proportion of MiP in three mollusc species

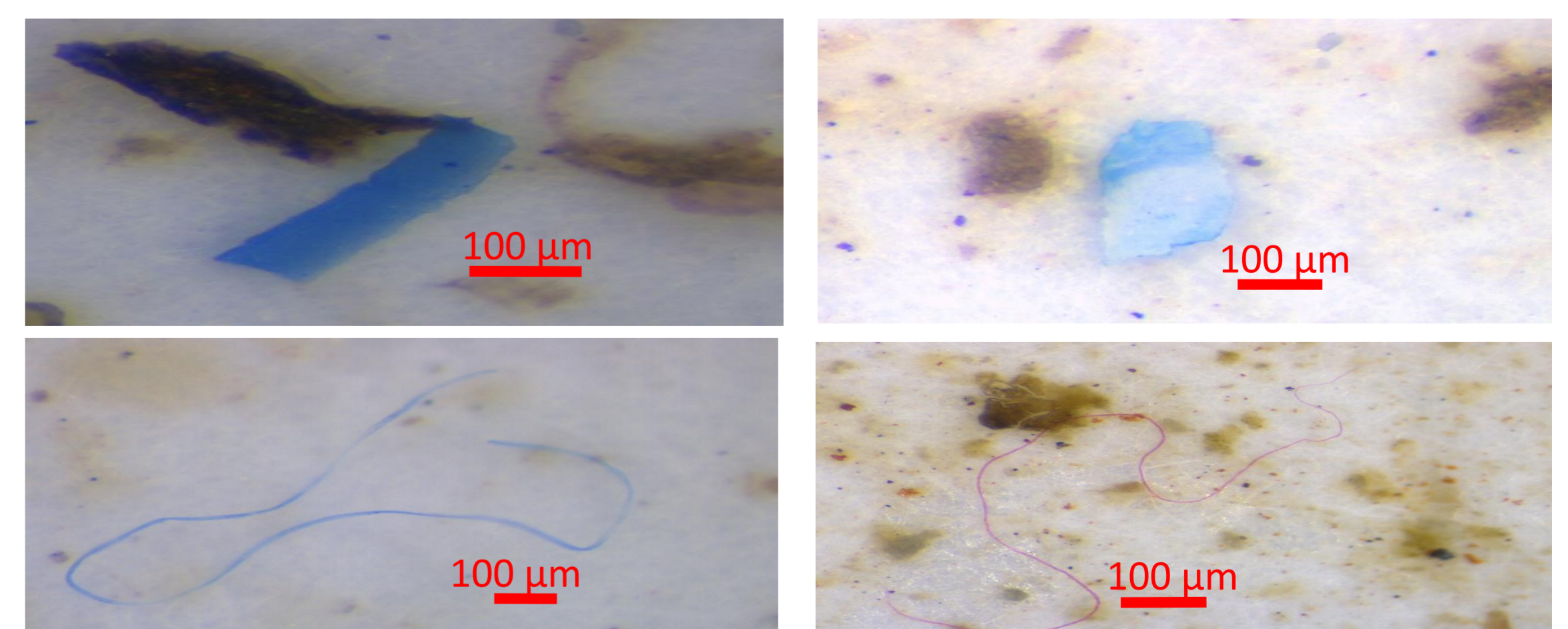


Fig. 7. MiP fragments (above photos, minor proportion) and fibers (below photos, major proportion) in the mollusc.

## ACKNOWLEDGEMENT

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## REFERENCES

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## CONCLUSIONS

Microplastics were found in all three mollusc samples. The Hakf-crenate ark had the largest concentration of MiPs which was up to 32 items/individual. Besides, the highest microplastic level was also recorded in the hard clams which reached up to 1.47 items/ gram WW. Fiber was the main shape of microplastic concentrations whereas fragment accounted for a minor one. Furthermore, blue was the dominant color of microplastics in these mollusc.