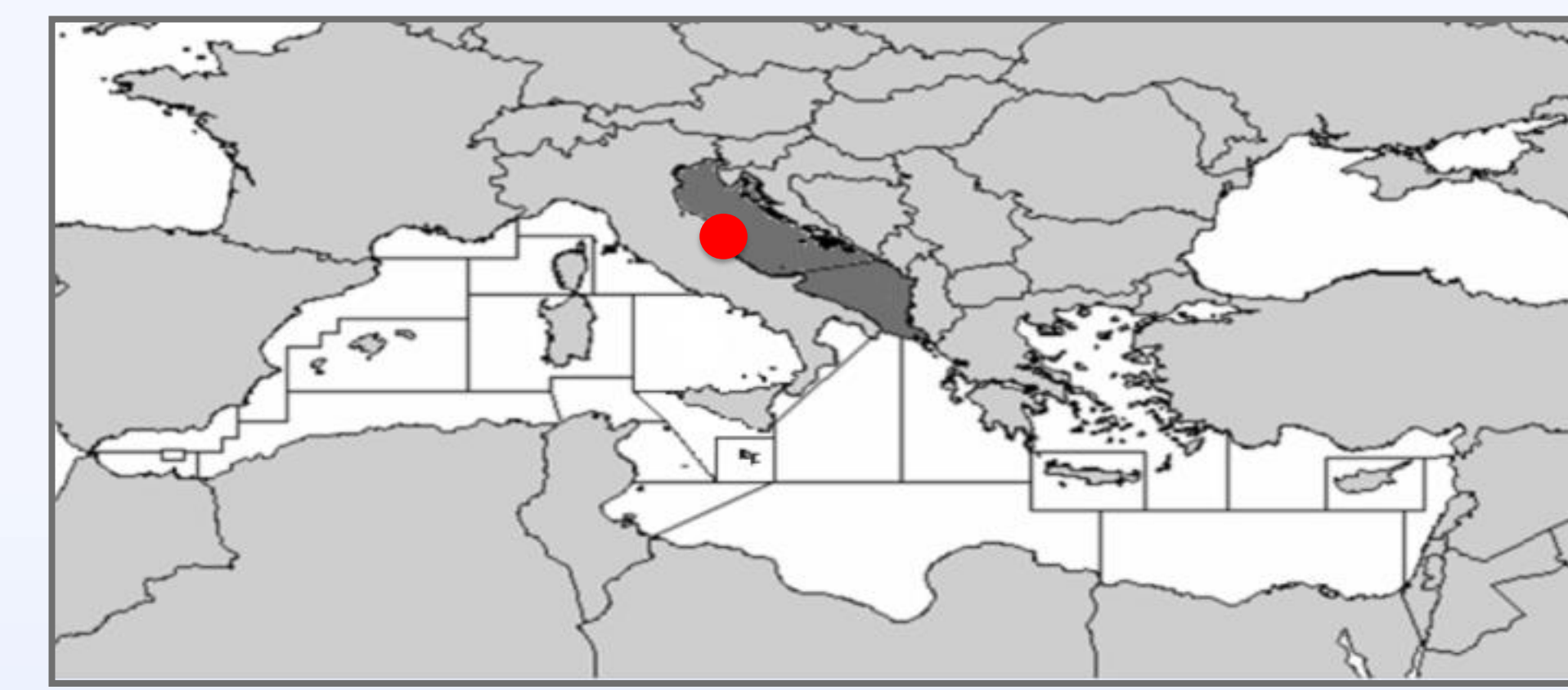




CONFIRMATION OF MICROPLASTIC CONTAMINATION IN MUSCLE TISSUE OF *Nephrops norvegicus* FROM THE ADRIATIC SEA

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INTRODUCTION

This study is a follow-up to the one conducted by Martinelli et al. in 2021, which highlighted the presence of MPs in gut, hepatopancreas, and edible parts (tail) of Norway lobsters sampled in 2 sites of the Adriatic Sea (among which the *Off Ancona* fishing ground). *N. norvegicus* has recently been proposed as a bioindicator for microplastic pollution (Joyce et al. 2022).

MATERIALS AND METHODS

This time 4 lobsters sampled *Off Ancona* were dissected in a controlled environment to analyse presence of MPs in 3 anatomical compartments: i) the entire hepatopancreas was extracted (Fig 1), ii) a portion of tail muscle distant from the intestine was dissected, iii) for the first time 1 claw (Fig. 2) per animal was also processed (the exoskeleton was dissolved using a Protease solution). MPs were then detected by mFTIR imaging and polymers were determined using the "SiMPLE" software.

RESULTS

The analyses revealed MPs in the hepatopancreas of each sampled individual; in total 14 particles of 4 different polymers were found, including fibers and fragments with sizes ranging from 50 to 300 μm (Figure 3).

All the examined portions of the tail muscles contained at least 1 MP fragment with sizes ranging from 20 to 50 μm ; in total 7 MPs of 5 different polymers were found.

Only 2 fragments of MP (polyester and polyethylene) were found in 2 different claws out of 4 examined.

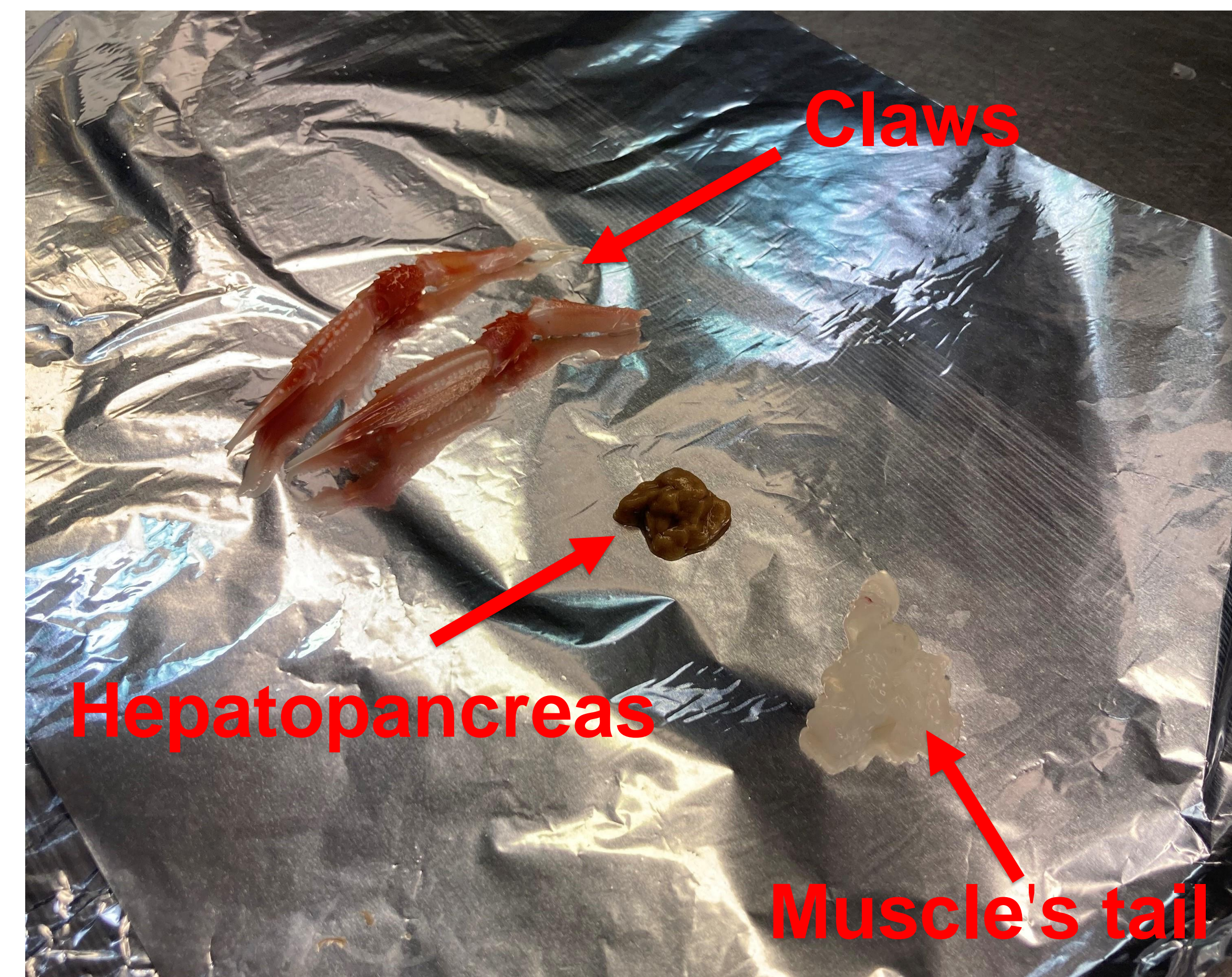


Figure 2: 3 anatomical compartments

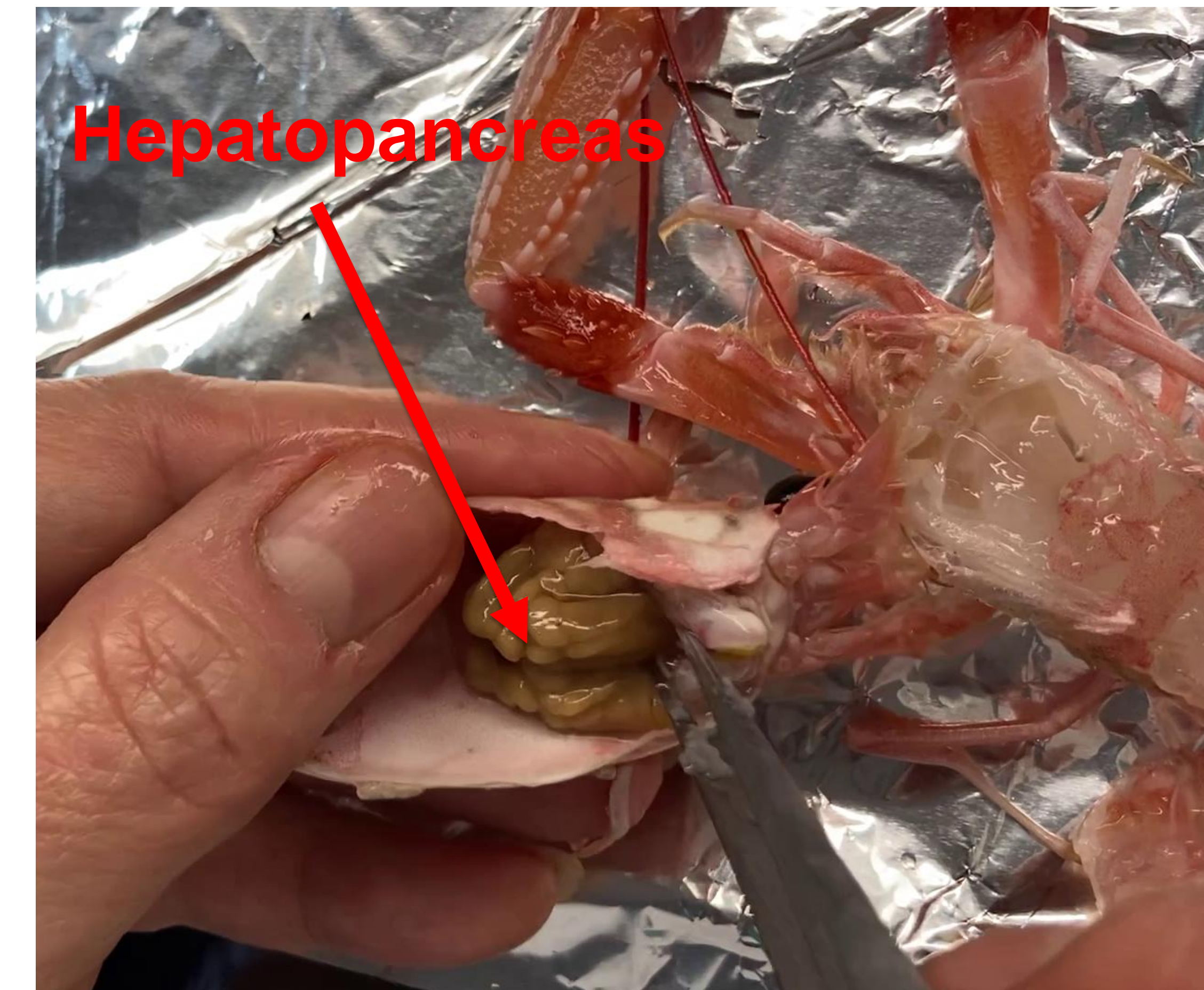


Figure 1: extraction of hepatopancreas

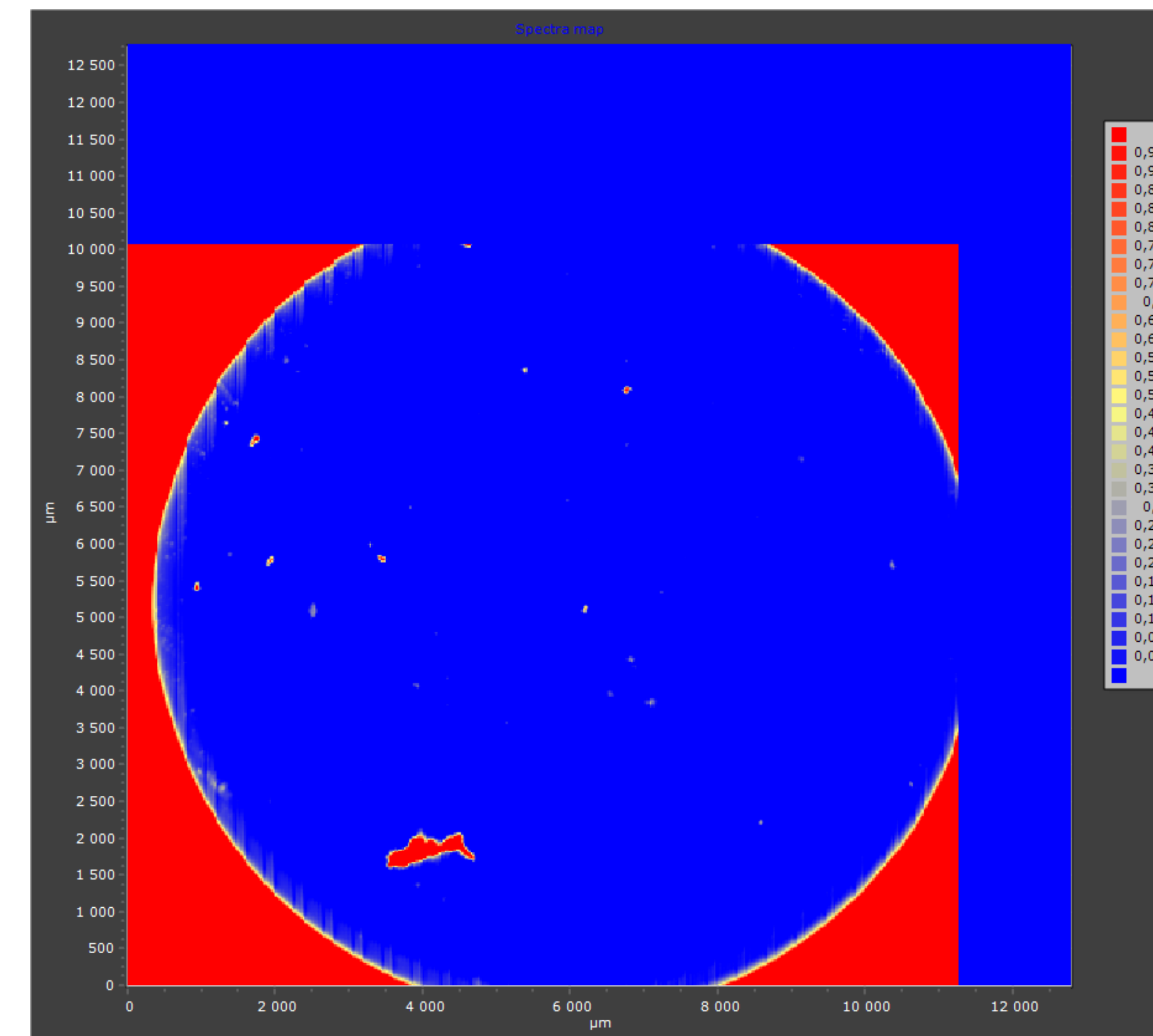


Figure 3. Spectra map, each polymer group is highlighted by a different color. Cellulose and protein-based fragments and fibers are shown in grey.

CONCLUSIONS

- The presence of MP fragments in the muscular edible tissues of *N. norvegicus* was confirmed.
- In this study, 7 different polymers were found in 4 sampled individuals (12 polymers were previously found by Martinelli et al. 2021 in 23 individuals).
- Compared to the previous one, this study revealed a lower occurrence in the hepatopancreas of MP particles with sizes ranging from 50 to 100 μm (from 74% to 43% of total MPs)
- Further studies are needed for the definition of a univocal and standardized protocol for the analysis of MPs in the various anatomical compartments of crustaceans.

REFERENCE

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