Microplastics in the food chain? Occurrence of microplastics in brown shrimp (Crangon crangon) and blue mussel (Mytilus edulis)

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Goal
Evaluation of the number of microplastics (MP) ingested by brown shrimp (Crangon crangon) and blue mussel (Mytilus edulis), two important seafood dishes in Belgium.

Sampling locations
Belgian Part of the North Sea

Destruction Method
- 5 organisms + 3 blanks
- Acid destruction HNO₃:HClO₄ (4:1 v/v)
- 50ml acid / 10g tissue

Detection
- Stereo microscope
- Verification of microplastics: hot needle
- Classification: shape and colour

Tissues
Shrimp: Total shrimp
Shrimp body: without shell, head, digestive tract
Mussel body: body after gut depuration

Results
MP in Shrimp
- Fibres: 46%
- Other: 54%

MP in Shrimp body
- Fibres: 100%

MP in Mussel body
- Fibres: 100%

Conclusion
Ingested microplastics:
- Large variation between samples and individuals
- In tissues: only fibres!
- In digestive tract: also other microplastics!
- Average fibres in shrimp body: 6 / 10 g tissue
- Average fibres in mussel body: 4 / 10 g tissue

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