



Digestive system and food of the Brown shrimp *Crangon crangon*

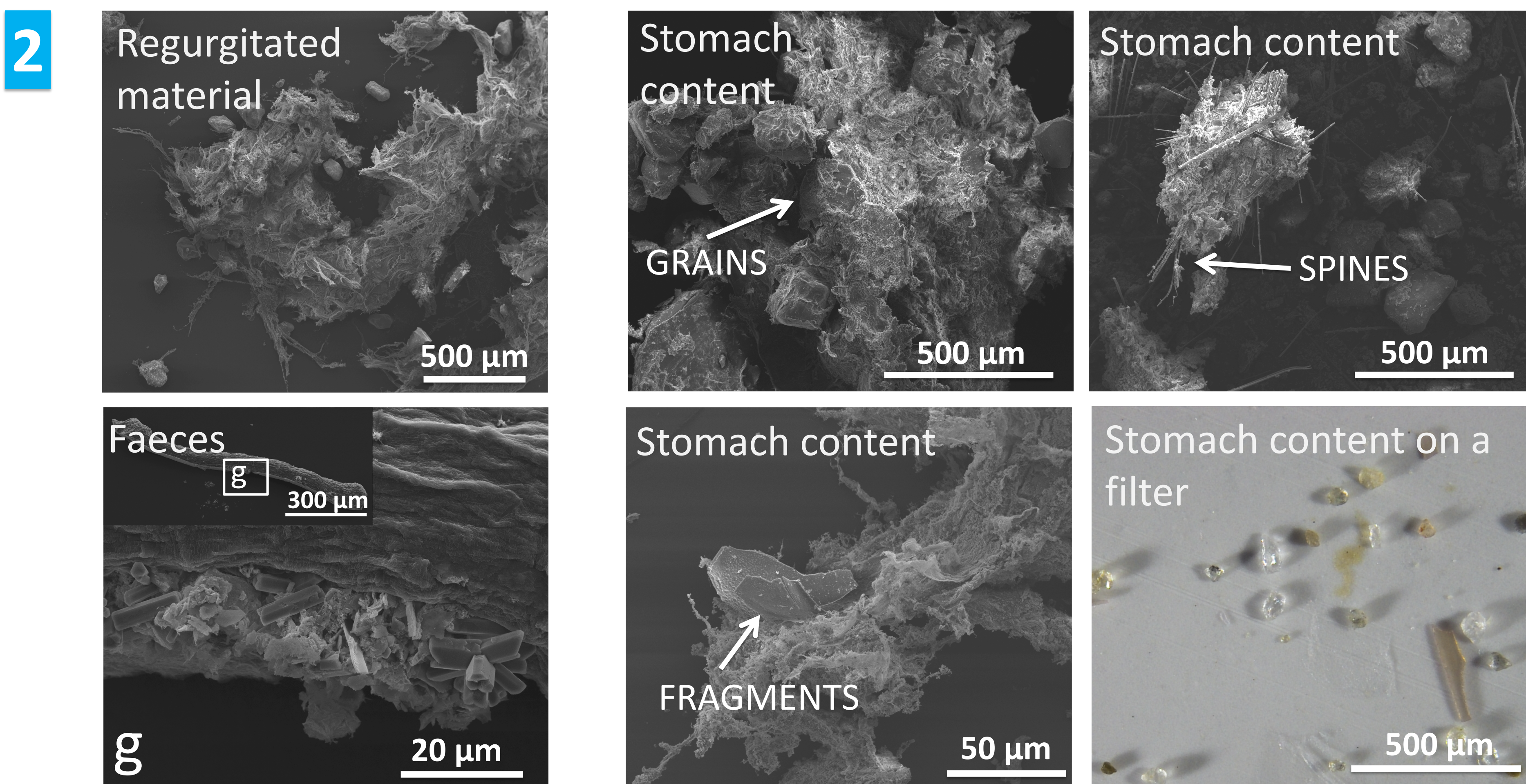
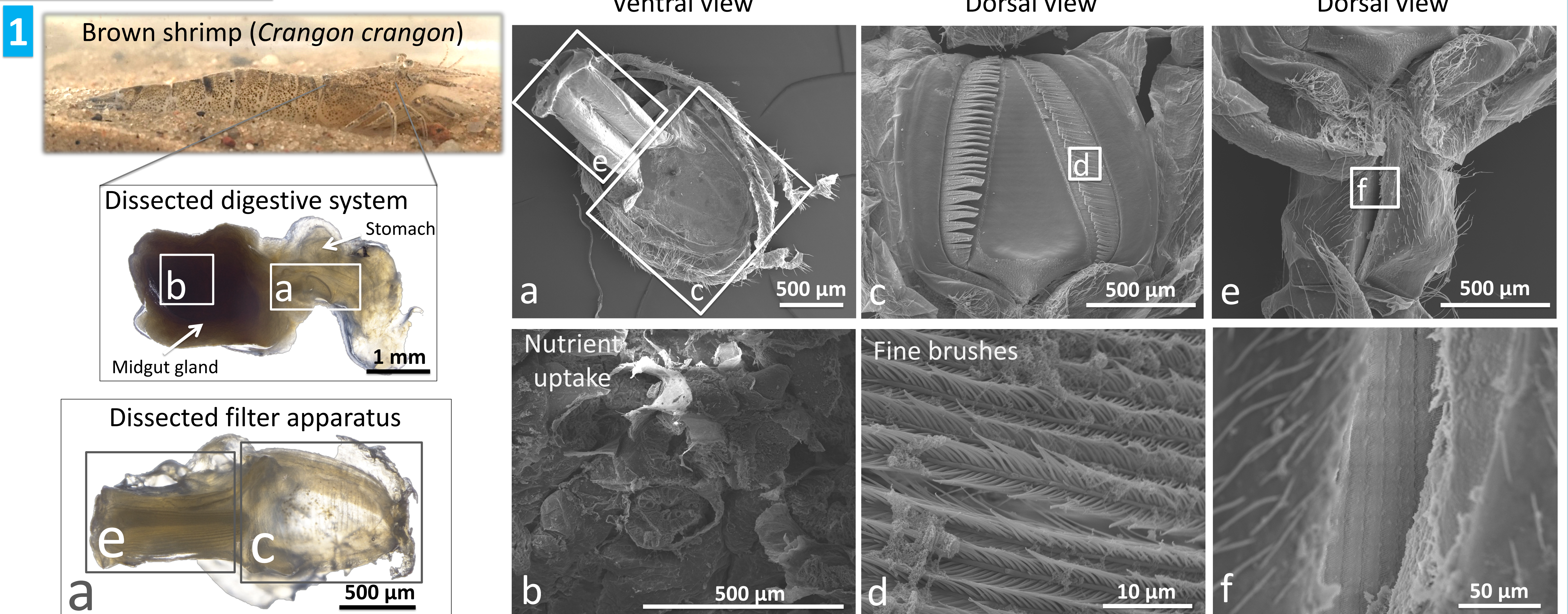
Introduction

Organisms ingest various organic and inorganic particles along with their food. Recently, they are also exposed to manmade microplastics that are regularly reported in all habitats. While planning the details of feeding experiments for my PhD project, we realised that little is known about the feeding habits of the Brown shrimp (*Crangon crangon*) and its treatment of indigestible particles.

Methods

(1) Freshly caught shrimps were dissected, and the digestive system was prepared for light microscopy and scanning electron microscopy (SEM). (2) Other living specimen with filled stomachs were separated in 100-mL petri dishes for 24 h. Regurgitated material, stomach content and faeces were collected for SEM. Additionally, stomach contents were analysed.

Results



Stomach content analysis

(n=16)	Frequency of occurrence (%)
Grains	75
Fragments	62.5
Spines	12.5

SIZE CLASSES (µm)	GRAINS (%)	FRAGMENTS (%)	SPINES (%)
<10	1.86	0.34	0
10-100	43.61	59.93	0
101-500	54.29	19.86	100
>501	0.25	19.86	0

Conclusions

The filter apparatus in the stomach of the Brown shrimp differs from that of other decapods. Future histological investigation and microcomputed tomography (μ CT) are needed to reveal its precise function. It seems that the shrimp regurgitates the larger undigested material. These formations are different from faeces but similar to the structure of the stomach content. Analysis of these contents showed inorganic material, such as sediment grains, and, fragments and spines of the prey. The items were mostly smaller than 500 μ m.