



MACROFAUNA ASSOCIATED TO *Himantothallus grandifolius* (HETEROKONPHYTA, DESMARESTIACEAE) FROM ADMIRALTY BAY (KING GEORGE ISLAND, SOUTH SHETLAND ISLANDS, MARITIME ANTARCTICA)



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INTRODUCTION

In Admiralty Bay occur 60 species of marine macroalgae and Desmarestiaceae is the most common family in this region. Among them, *Himantothallus grandifolius* is kelp constituted by leaf-like thallus with corrugate edges narrowing downwards forming short stipe, which can reach large sizes much higher than 1 m of width and the range of 5-15 m of total length. This Heterokontofphyta is found attached to rocks and stones by a great number of appendages forming a strong holdfast. Thallus and holdfast of these large brown algae are considered to be structurally complex habitats, consisting a rich aggregation in sublittoral zone within the depth from 10 to 90 m, and which can serve as shelter and feeding area for a diverse associated fauna. There are few studies on Antarctic phytal communities, despite its great importance in marine coastal ecosystems and diversity census. In this context, the aim of the present study is to describe the phytal macrofauna composition associated to *H. grandifolius* in Admiralty Bay, emphasizing Isopod composition.



Figure 1: *Himantothallus grandifolius*. Photo: Adriana G. Dalto

STUDY AREA AND METHODOLOGY

Admiralty Bay is the largest of King George Island (South Shetlands Archipelago, Maritime Antarctica). This bay covers some 122.08 km² and comprises three inlets: Martel, Mackellar and Ezcurra.

The specimen of *H. grandifolius* was collected in February 2010 in the inlet Mackellar to 15 meters deep. The specimen measured approximately 8 m long and 60 cm wide. The holdfast was circular and the diameter had approximately 45 cm. Due to its large size was necessary to freeze the specimen after sampling. During thawing, the organisms associated to macroalgae have been carefully collected and immediately fixed in formaldehyde 4% neutralized. The holdfast was washed and elutriated for remove the organisms, and the supernatant was poured on two sieves with meshes of 500 and 45 µm for separate macrofauna and meiofauna. Macrofauna organisms were sorted and screened at higher taxonomic levels (e.g. Phylum, Class, Order). The Isopods were separated for preliminarily taxonomic identification to Family level and expressed in absolute number of individuals.

Table 1: Composition and density (absolute number) macrofauna associated to *Himantothallus grandifolius*. * Isopod Families.

Taxon	Holdfast	Tallus
Acari	2	
Amphipoda	1767	116
Asteroidea	3	2
Bivalvia	33	3
Copepoda	181	
Cumacea	1	
Gastropoda	71	7
Holoturoidea	2	
Nematoda	281	
Nemertea	3	
Ofiuroidea	3	5
Oligochaeta	7	
Ostracoda	20	
Polyplacophora	19	4
Polychaeta	158	9
Lophophorata	472	32
*Gnathiidae	71	
*Sphaeromathidae	1	
*Plakarthiidae	74	
*Munnidae	41	
*Janiridae	3	
*Jaeropsidae	2	
Total Macrofauna	3393	

RESULTS AND DISCUSSION

The preliminarily results showed that phytal fauna of *H. grandifolius* were composed by Arachnida, Crustaceans, Molluscs, Echinoderms, Nematodes, Nemertean, Annelidans and Lophophorates (Table 1). The holdfast was the thallus region with the greater density and diversity (Table 1). Amphipod was the dominant taxa (n=1776), followed by Lophophorate (n=496). The Isopod found in fewer individuals (n=208), distributed in the 5 families: Plakarthiidae, Munnidae, Janiridae, Jaeropsidae and Gnathiidae.

Despite the low number of publications on Antarctic macrofauna communities associated to macroalgae, frequently, the dominant groups are Peracarids Crustacea, especially Amphipods, Isopods, Tanaidaceans. This is very similar to the faunal composition observed in Admiralty Bay. Although, taxonomic identifications it is starting up the results obtained so far suggest that holdfast was the region with the greatest diversity of organisms. This is can be explained by the morphological aspects of the holdfast such as textures and interstitial spaces that accumulating sediment, debris and epiphytes, in addition to providing greater degree of protection both as wave exposure and predators. Up to this point, have not been found Serolidae associated to *H. grandifolius*. This Isopoda family is very abundant in Admiralty Bay and its absence could suggest a preference for habitat in the sediment.

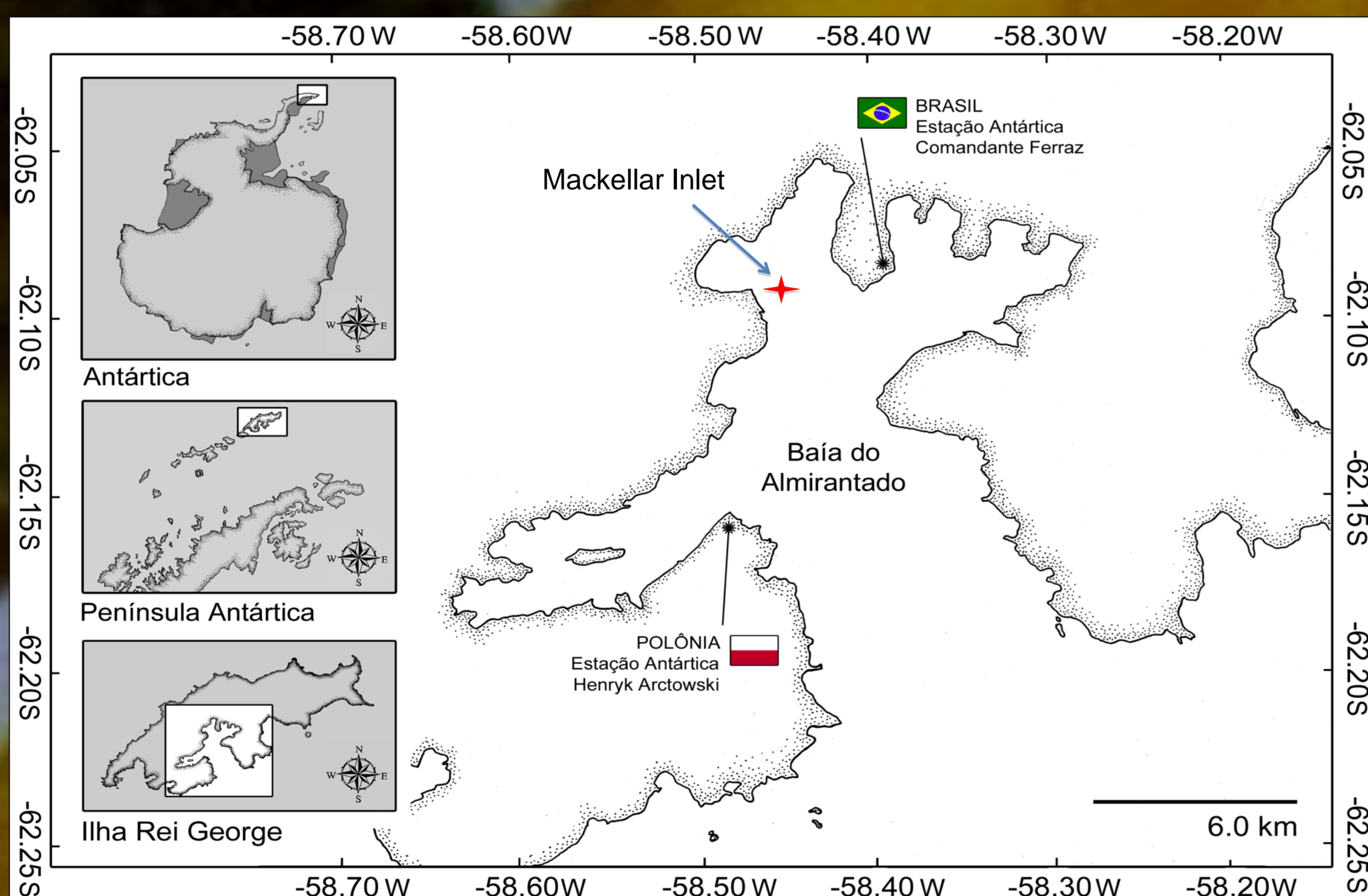


Figure 2: Sampling station at Mackellar Inlet (Admiralty Bay, King George Island, South Shetland Archipelago). Illustration: Rafael B. de Moura.



Figure 3: Macrofauna Associated, Tallus and Holsdfast. Photo: Adriana G. Dalto

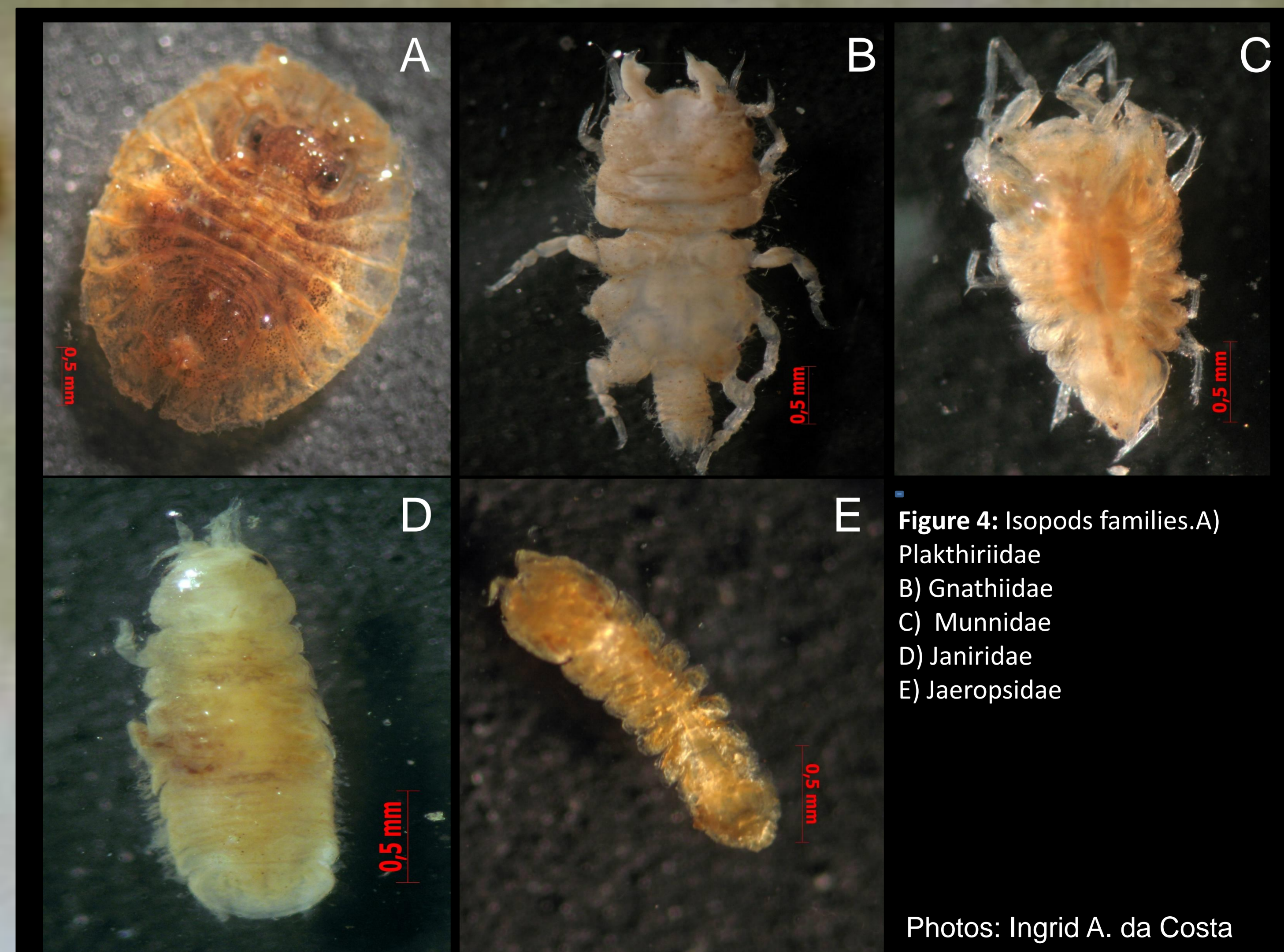


Figure 4: Isopods families. A) Plakthiriidae B) Gnathiidae C) Munnidae D) Janiridae E) Jaeropsidae

Photos: Ingrid A. da Costa