The order Decapoda is the most diverse group within Crustacea. In this context, the infraorder Brachyura has, approximately, 6,900 known species. Within the Brachyura, the superfamily Majoidea is a large group and shows great morphological diversity, including the biggest known arthropods and very small species. Several species of this superfamily have a great ecological importance, mainly in the maintenance of the reef environments where they are commonly found. Among the Brachyura, roughly 400 marine species are found on the Brazilian coast. Specifically for Majoidea, this number is approximately 80, with 44 presenting a disjunctive distribution between the Caribbean Sea and Western South Atlantic. The idea that disjunctive patterns of distribution between the Caribbean Sea and Western South Atlantic are common is largely widespread in the scientific literature. However, these patterns remain untested for many groups, which make difficult to interpret such patterns as naturals or resulting from low taxonomic resolution. Besides the low taxonomic resolution, three possibilities can explain such patterns:

(i) the low quantity of sampled material in the region;
(ii) natural pattern with the mouth of the Amazon River acting as a biogeographical barrier;
(iii) and the possibility of these species are formed by complexes difficult to identify.

The present project aims to evaluate in large scale the biodiversity and the endemic patterns of Majoidea in the Western Atlantic Ocean, with the Brazilian coast as a priority, through detailed morphological studies of the Majoidea species. In addition, specific objective are to describe possible new genus and species and establish synonymies, upgrade the distribution patterns of the species studied, and recognize possible complexes of species.
SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

Until now, 23 of the 44 Majoidea species, with disjoint distribution between the Caribbean and Brazilian waters, were studied from material deposited in the Museu de Zoologia da Universidade de São Paulo (MZUSP), National Museum of Natural History, Smithsonian Institution (USNM) and Museu Nacional do Rio de Janeiro (MNRJ). Differences found among the studied species suggest that at least five of them cannot be considered the same species in the two studied areas. Additionally, no less than other four species do not occur in Brazilian waters, as suggested by previous studies. That is the case for *Collodes armatus* (*Figure 1*) which was thought to occur in all Gulf of Mexico, Antilles and in the states of Espírito Santo and Rio de Janeiro in Brazil (*Figure 1A*). However, studying the material from different areas, we believe that this species is known only in the type locality (*Figure 1B*) and the other records are related to misidentification problems. This pattern is expected to be found for other analyzed species, especially for those who have disjoint distribution in the Amazon area. The next step in this project is to study the material from the North region of Brazil, visiting the Museu Paraense Emílio Goeldi (MPEG). In that region, the Amazon River forms a very important biogeographical barrier, and beyond that, we observe a low number of specific studies about the decapods fauna of that area. Both hypotheses are being carefully analyzed to determine if this pattern of distribution is natural or specific studies targeting the decapods fauna of the area need to be improved. Furthermore, we found two new species and a new genus of the Hymenosomatidae, a family with old controversies about its inclusion in Majoidea. We studied material from several states of the Northeastern region of Brazil and Rio de Janeiro. Despite of being a large group, Hymenosomatidae comprises several very small and cryptic poorly studied species, especially in Brazil, with several species known from their type material only. Our findings suggest that this group could be much more numerous and abundant than previously thought.


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