



Pôster – História Natural

The amazing world of bryozoans: morphological complexity of polymorphs

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Bryozoans are colonial animals formed by unities called zooids. Although the main individual – the autozooids – are characterized by a retractable lophophore (for food capture) and digestive system with mouth, intestine, and anus, the colony may also have heterozoids, modified multifunctional polymorphic zooids responsible for different functions, including defense, protection, support and larval incubation. In addition, other structures formed from the wall of the autozooid may have these same functions. Morphologies of these zooidal structures are suitable to be used to identify and differentiate species, as well as to infer phylogenetic relationships between different taxa. Thus, here we provide illustrations and characterization of polymorphic structures found in Beaniidae family (Cheilostomata, Bryozoa). Between 2015 and 2019, about 700 specimens of Beaniidae from zoological collections were analyzed and more than 3000 images were generated using scanning electron microscopy. At least five heterozoids were characterized: (i) spines (oral, lateral, abfrontal and opercular), (ii) avicularia (bird's head avicularia, formed by cystid, rostrum, mandible and peduncle), (iii) rhizoids, (iv) stolon and (v) ooecia. Besides this, two kinds of structures formed from the autozooid wall were also characterized: i) oral projections and ii) connecting tubes. Spines are sessile structures that provide protection for the soft parts of the autozooids, mainly the frontal membrane, oral opening and ovicell, but may also keep the abfrontal part of the autozooid away from the substrate, freeing the colony from accumulation of sediment. Avicularia are mobile, often located near the oral region and may have different functions, such as removing debris, capturing motile organisms and deterring possible predators. Rhizoids are elongate structures in abfrontal or basal region that attach the autozooid to the substrate. Stolons and connecting tubes connect the autozooids to each other and allow the exchange of nutrients for the entire colony through communication pores. Ooecia are the skeletal structure of the embryonic and larval incubation chambers, which may be well-developed or vestigial at the distal part of the autozooid. In addition to these, a lanceolate structure situated at the distal part of the autozooid, possibly a modified spine, unique to a *Beania* species is also characterized. The genus *Beania* has not yet been subjected to a comprehensive revision, and so far neither morphological nor molecular phylogenetic analyses were done for any taxa of the family Beaniidae. The morphological study performed is an important step toward the recognition of homologies so that hypotheses of phylogenetic relationships can be proposed and the taxonomical results obtained for these taxa validated.

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