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A new genus of the family Jaculinidae (Cheilostomata, Bryozoa) from the Miocene of the tropical western Atlantic

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Abstract

Pirabasoporella **gen. nov.** is introduced for three new bryozoan species from the Early Miocene of the tropical western Atlantic. The genus is placed in the family Jaculinidae Zabala, a peculiar group of cheilostome bryozoans characterised by reticulate colonies formed by uni- or biserial branches that are connected by kenozooidal struts. This colonial morphology superficially resembles colonies of the Paleozoic order Fenestrata (Stenolaemata) and some Recent Cyclostomata. As jaculinid colonies are anchored to soft sediments via rhizoids, however, they differ in life habit from Paleozoic and modern fenestrate colonies, which are firmly attached to stable substrata by an encrusting base.

The three new species are *Pirabasoporella atalaiaensis* **n. sp.** from the Brazilian Pirabas Formation, *Pirabasoporella baitoae* **n. sp.** from the Baitoa Formation (Dominican Republic), and *Pirabasoporella chipolae* **n. sp.** from the Floridan Chipola Formation. Their presence in the Early Miocene western Atlantic represents the earliest record of Jaculinidae, and suggests that the origin of the family, the only living species of which are known from the eastern Atlantic and Mediterranean Sea, extends well into the Paleogene.

The Jaculinidae is here transferred from the lepraliomorph superfamily Schizoporelloidea Jullien to the umbonulomorph Lepralielloidea Vigneaux owing to the partly umbonuloid frontal shield and non-schizoporelloid ovicell.

Key words: new genus and species, Pirabas Formation, Jaculinidae, palaeoenvironment, palaeobiogeography, systematics

Introduction

During investigations of the Cenozoic Pirabas Formation (Pará State, Brazil), numerous specimens were found that closely resembled species of the little-known, Pleistocene to Recent family Jaculinidae Zabala, 1986 from the northeastern Atlantic and Mediterranean Sea. Jaculinid species form reticulate colonies composed of uni- or biserial, subparallel branches that are connected by kenozooidal struts. Whereas the reteporiform colonies of modern ascophoran cheilostomes, such as those of the genus *Reteporella* Busk, 1884, connect neighbouring branches via trabeculae that consist of autozooids, species of Jaculinidae superficially rather resemble fenestrate colonies of Paleozoic stenolaemates, in which the connecting struts are formed by kenozooids.

In contrast to these species, whose reticulate colonies are attached to stable substrata by an encrusting base, recent jaculinids are anchored to soft bottoms via rhizoids. The facies of the Pirabas Formation, in which the present specimens were found, also indicates this type of environment. The screening of museum collections comprising coeval bryozoan faunas from similar paleoenvironments revealed two additional species from the Caribbean region. As the western Atlantic taxa differ in a number of morphological traits from the NE Atlantic and Mediterranean representatives, a new jaculinid genus and three new species are introduced here.

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Paleogene origin of the Jaculinidae when the continental shelves of the Atlantic were positioned considerably closer together. All fossil and Recent jaculinid species have been found in tropical to warm-temperate regions, while there are no records of Recent Jaculinidae from the western Atlantic to date.

The abfrontal rhizoidal pore plates and their communication pores in *Pirabasoporella* are distinctly larger than in the eastern Atlantic/Mediterranean taxa, suggesting that the rhizoids had a much greater diameter. Also, every zooid contains a pore plate, providing for a dense spacing of rhizoids. In Recent Jaculinidae, which occur at ~200–1250 m depth (*J. blanchardi* 230–980 m; *J. dichotoma* 1250 m; *J. tessellata* 460–1000 m), the relatively thin rhizoids are usually more widely spaced (BB, pers. observ.). The depositional environment of the respective formations in which the three *Pirabasoporella* species were found suggests that the water depth was comparatively shallow, perhaps inner-shelf (Távora & Fernandes 1994), and that stronger anchoring may have been needed to withstand higher current speeds. As no living jaculinid colonies have been observed *in situ*, the position of colonies relative to the seafloor is unclear and cannot be resolved with the fragmented material studied during this work.

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