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Armadillogorgia albertoi sp. nov.: a new primnoid from the Argentinean deep sea

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Abstract

Eleven specimens of a new species of primnoid from the Argentinean deep sea are here presented. *Armadillogorgia albertoi* sp. nov. differs from *A. cyathella* Bayer, 1980 in colony and polyp morphology, abaxial sclerite number and shape. It is the second species of the hitherto monospecific genus, and the northernmost record of the genus.

Key words: Alcyonacea, Anthozoa, Benthos, Buenos Aires, Cnidaria, Octocorals, Southwest Atlantic.

Introduction

The family Primnoidae Milne Edwards, 1857 is one of the most diverse families of octocorals. It includes 247 known species in 38 genera, distributed mainly in Antarctic and sub-Antarctic waters (Cairns 2012). Several species were described from the Argentine Sea, some of them recently, like *Heptaprimnoa patagonica* Cairns, 2012.

Armadillogorgia Bayer, 1980 is a southwest Atlantic and Antarctic genus of primnoid created to accommodate one species: *A. cyathella* Bayer, 1980. This species lacks opercular and marginal scales and has sickle-like sclerites, features that differentiate it from all others primnoids (Cairns & Bayer 2009). Furthermore, the lateral and the adaxial sclerites are not arranged in rows and the abaxial rows have up to 70 sickle-like sclerites (Bayer 1980, 1996, Cairns & Bayer 2009). Although Bayer (1980) compared *Armadillogorgia* with *Primnoella* Gray, 1857, the similarities are few: colonies are flagelliform, calyces are arranged in whorls, both genera have two abaxial rows and the coenenchymal scales lie in two layers. The original description of *A. cyathella* was based on only one colony collected off South Georgia, from 659–686 m, and it was later slightly amended based on other colonies from the Scotia Sea from 1879–1886 m (Bayer 1996), so there are only three known specimens. Here we describe a second species, *A. albertoi* sp. nov. from the Argentinean deep sea off the Buenos Aires province, based on eleven specimens collected on the Argentinean R/V "*Puerto Deseado*" at 877–1037 m depth in 2012 and 2013 (Fig. 1).

Material and methods

The examined specimens were collected by the Argentinean R/V "Puerto Deseado," within the Argentinian Exclusive Economic Zone from 877 to 1307 m depth. We used two different methods for collecting the specimens. We found specimens during the first campaign "Talud Continental 2012" at station N°16 using a trawl, and during "Talud Continental 2013" at stations N°35, 36, 38, 41 and 42 using a fishing net. Most specimens were fixed in 96% ethanol and one (MACN-IN 39214-III) was dried out. No specimen of *A. albertoi* sp. nov. was found in the collections of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN) or Museo de La Plata (MLP).

Colonies were viewed under a stereo microscope. Several whorls of polyps and individual polyps were removed from several colonies for detailed study. SEM images correspond to specimen MACN-IN 39214-I and MACN-IN 39214-II. After critical point drying, dried whorls and entire polyps were mounted on SEM (scanning

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the holdfast and the second 8 cm above the first. Eleven specimens of *A. albertoi* sp. nov. were collected; none have bifurcations and all show the same growth pattern. Along colonies of *A. albertoi* sp. nov. growing whorls are observed, which are smaller and have the same growth pattern as the rest of the colony. The whorl density along the colony is constant; all whorls are close to each other except for the first and second whorl. Four of the eleven specimens collected show that the first whorl is well detached from the rest of the colony (Fig. 2BD) and is not rudimentary or vestigial as seen on colonies of *A. cyathella*. At the bottom of the colony there is stem with coenenchymal without whorls. This feature does not occur in any other area of the colony in any of the specimens found. Along the colony, the whorls overlap or are close to the top whorl. This pattern is constant in all specimens. *A. albertoi* sp. nov. has a higher whorl density (10–15 whorls per 4 cm of axis) than *A. cyathella*, which has seven whorls per 4 cm of axis, with polyps similarly sized. In addition, in *A. cyathella* some of the whorls are obliquely set and a few adjacent whorls join as a spiral, a characteristic not present in *A. albertoi* sp. nov. The polyp of *A. cyathella* is globular, the oral pore surrounded for leaf-shaped adaxial sclerites. In contrast to *A. albertoi* sp. nov. the polyp is thin, the oral pore is depressed, on top has big and rectangular anterior abaxial scales (different that abaxial scales of the body wall) and lanceolate adaxial scales on the bottom. Only the abaxial zone of the polyp body is covered by abaxial sclerites, the lateral zone being characterized by lanceolate scales extending from the adaxial zone. In *A. cyathella* the abaxial zone is bigger than in *A. albertoi* sp. nov., and the abaxial scales reach the lateral zone. These scales are more curved and give polyps a more globular shape than *A. albertoi* sp. nov. The abaxial scales of *A. albertoi* sp. nov. have two ends, one free and other in the middle of polyp bonded to the adjacent scales in a zigzag pattern. These ends have a different shape, the free end (toward the lateral side) tending to be more convex than the other side (toward the calyx midline), which is straight. Therefore the abaxial scales in lateral view have a J-shape. The shape of the abaxial scales gives the polyp a depressed shape, as they only cover the abaxial zone and lateral sides remain free. This contrasts with *A. cyathella*, which abaxial, sickle-shaped scales are curved in the middle, giving the polyp its globular shape. The adaxial sclerites have a different shape, leaf-shape in *A. cyathella* and lanceolate in *A. albertoi* sp. nov. Both species have goblet-shaped sclerites in outer coenenchyme layer, but only *A. cyathella* have sinuses in them.

Eleven specimens of *A. albertoi* sp. nov. were found amongst about 200 others primnoids collected from 200–3447 m during two campaigns, and no other specimen was found in local museums. Previous reports of the genus *Armadillogorgia* consist of three specimens of *A. cyathella* (Bayer 1980, 1996), so we conclude that specimens from this genus are not abundant.

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