

TWO NEW SPECIES OF *MITROMORPHA* CARPENTER 1865 FROM THE WESTERN ATLANTIC (CONOIDEA: MITROMORPHINAE)

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Abstract Two new species, *Mitromorpha* (*Mitrolumna*) *braziliensis* sp. nov. and *M. (M.) canopusensis* sp. nov., are described from the western Atlantic off Brazil. These are the only species of *Mitromorpha* with body sculpture dominated by spiral ridges rather than with a well developed axial sculpture.

Key words Conoidea, Mitromorphinae, west Atlantic, Brazil, new species

INTRODUCTION

The genus *Mitromorpha* has about 90 recent species (Tucker, 2004). Most of the species are known from regions such as the European (15), the South African (16) and the Australasian (20) regions. Curiously, no species from the genus are known from the Red Sea region. The genus *Mitromorpha* occurs in a band running from 40° N to 40° S of the Equator. Species of the genus are generally neglected by malacologists. Most species have been described from material collected during scientific expeditions. The genus has four subgenera (Powell, 1966; Cernohorsky, 1988; Mifsud, 2001; Tucker, 2004). Species are known from shell characters (Mifsud, 2001), which are therefore important in separating species.

The subgenera include, *Mitromorpha* Carpenter 1865, *Mitrolumna* Bouquoy, Dautzenberg & Dollfus 1883, *Anarithma* Iredale 1917 and *Lovellona* Iredale 1917. Species of *Mitromorpha*, *Mitrolumna* and *Lovellona* are restricted in their distribution possibly because of their lecitotrophic or direct development. Species of *Anarithma* have a multi-spiral or planktotrophic development, and are more widely distributed.

MATERIAL AND METHODS

All the newly described material for this study came from dredging which was executed by Jose and Marcus Coltro from off the Canopus Bank, 120 miles off Fortaleza, Ceará State, Brazil, in 260 m depth in August 2005.

SYSTEMATICS

Superfamily CONOIDEA Rafinesque 1815

Family Conidae Fleming 1822

Subfamily Mitromorphinae Casey 1904

Genus *Mitromorpha* Carpenter 1865

Subgenus *Mitrolumna* Bouquoy, Dautzenberg & Dollfus 1853

Type species *Mitromorpha* (*Mitrolumna*) *olivoides* (Cantraine 1835: 391)

Diagnosis for the Subgenus Mitrolumna Bouquoy, Dautzenberg & Dollfus 1853 Shell small, biconical, with 3 to 6 post nuclear whorls. Protoconch paucispiral, consisting of 1½ to 2 whorls. Anal sinus present. Sculpture primarily of spiral chords, but axial ribs may also be present, especially on the top whorls. Columella has two folds. Siphonal canal short and open. Last whorl takes up 60% to 80% of the total shell height.

Mitromorpha (*Mitrolumna*) *braziliensis* sp. nov.
Figs 1a–b

Holotype BMNH London, number 20070001. Five paratypes are in the author's private collection.

Type locality Canopus Bank, 120 miles off Fortaleza, Ceará State, Brazil, in 260 m.

Description Shell is biconical, tall and narrow. Protoconch consists of two shiny, white whorls, h = 0.45 mm, w = 0.6 mm. There are five, flat,



Figure 1 *Mitromorpha* (*Mitrolumna*) *braziliensis* a. holotype b. paratype. Both 10 mm long (h) and 4 mm wide (w).

post-nuclear whorls. The holotype is 10 mm long (h) and 4 mm wide (w). Sculpture consists of flat-topped spiral chords, rather undulating due to well spaced and indistinct axial growth marks. There are six spiral chords on the penultimate whorl. The primary or sub-sutural chord in some specimens is wider than in others. Their interspatial grooves are narrow and decorated internally with thin, close-set axial lirae. The two columellar folds are shallow and white in colour. Anal sinus distinct. Outer lip is sharp, but thickened internally, with a large tooth slightly below the sinus and a few smaller ones below it. Aperture is narrow with a short, open canal. Last whorl takes up 70% of the total shell height. Colour is cream or white with brown dots and dashes scattered along the spiral chords. The animal was not observed.

Etymology Named after the type locality, Brazil.

Distribution This species is only known from the type locality.

Mitromorpha (*Mitrolumna*) *canopusensis* sp. nov.

Figs 2a–b

Holotype BMNH London, number 20070002. Two paratypes are in the author's private collection.

Type locality Canopus Bank, 120 miles off Fortaleza, Ceará State, Brazil, in 260 m.

Description Shell is biconical, small and pupoid. The holotype is 4.5 mm long and 2 mm wide. Protoconch consists of two, transparent, brown-laced whorls, $h = 0.25$ mm, $w = 0.3$ mm. There are four slightly rounded post nuclear whorls. Sculpture consists of faint, flat, spiral chords which can be about eight on the penultimate whorl. These chords are crossed by about 20 orthocline, shallow and narrow, indistinct, growth marks, producing a textured appearance to the shell. There are two white, very shallow columellar folds. Outer lip is thin and sharp. The last whorl takes up about 80% of the shell height. Anal sinus is shallow. Canal short and open. Basic colour is white to cream with thin, brown spiral bands on three or four of the spiral chords. Animal was not observed.



Figure 2 *Mitromorpha* (*Mitrolumna*) *canopusensis* a. holotype b. paratype. Both 4.5 mm long and 2 mm wide.

Etymology Named after the type locality, the Canopus Bank, off Brazil.

Distribution Only known from the type locality.

DISCUSSION AND COMPARISONS

The *Mitromorpha* presently known from the western Atlantic comprise eight described species. There is a single shell of an additional undescribed species figured by Leal (1991) (as *Mitrolumna* sp.) and dredged off Brazil.

These species are mostly known from the original descriptions and many have not been figured. Moreover, there has been some confusion about the identity of several. Despite this, a revision of these taxa is beyond the scope of this paper.

The main characteristic of all the described *Mitrolumna* species from the western Atlantic region is that they possess a sculpture of dominant, strong, axial ribs crossed by fine narrow spiral chords and forming a reticulate type of sculpture.

The two new species differ from all the known western Atlantic species in their sculpture which is predominantly made up of spiral chords. In both new species axial ribs are not well developed.

Mitromorpha (*M.*) *canopusensis* sp. nov. seems to be much rarer than *M.* (*M.*) *braziliensis* sp. nov. although both are from the same area. It differs from *M. braziliensis* by its more pupoid shape, its smaller protoconch, its smaller size, its sculpture of more numerous spiral chords and the orthocline type of shallow growth marks.

Leal (1991) figured a specimen identified as *Mitrolumna* species that was trawled off Brazil. It also has a predominant spiral sculpture and lacks the strong axial ribs. It differs from *M. braziliensis* by the smaller protoconch, the more slender shape of the shell which possesses slightly more rounded whorls, and the spiral chords which are wider and round-topped, rather than flat. Also, the post nuclear whorls have fewer spiral

chords (4–5) than those (6–8) of both new species. It differs also from *M. canopusensis*, which is of a similar size, by the thicker spiral chords and lack of orthocline growth marks. Moreover, the figured shell with four post-nuclear whorls possesses very prominent columellar folds. No other species with similar predominant spiral chords are known from the region.

Together with the protoconch characters, the shells from the subgenera of *Mitromorpha* could be divided into two types for ease of determination:

1. Those with predominant axial sculpture, usually of strong axial ribs. These include most of the worldwide species.
2. Those with only predominant spiral sculpture, usually of thin chords. These include many species from South Africa and a few from west Africa, and the western Atlantic.

ACKNOWLEDGEMENTS

I would like to thank Dr. J.H. Leal (Director, The Bailey-Matthews Shell Museum) for important references and material referring to his figured species. Thanks are also due to unknown referees for their comments and corrections to the manuscript and last but not least, the brothers J. and M. Coltro (Brazil) for specimens of the new species.

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