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## A NEW SPECIES OF THE GENUS *CRENILABIUM* (MOLLUSCA, HETEROBRANCHIA, ACTEONIDAE) FROM BRAZIL

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### ABSTRACT

*Crenilabium birmani*, a new species of acteonid is conchologically described from the southwestern and southern coast of Brazil. The new species is the first record of the genus for the South Western Atlantic and differ in details and proportions of the suture and aperture. Two variants of the suture were detected, some specimens have simple suture, while others possess a deep, scaled suture. Information about a possible specimen of *Crenilabium* figured by Abbott (1974) representing *Rictaxis punctocaelatus* is here discussed, and its holotype is figured.

KEYWORDS: *Crenilabium birmani* n. sp., Acteonidae, Brazil, deepwater, conchology.

### INTRODUCTION

The acteonids are small gastropods that normally live in infratidal environment. The opisthobranch organization of their bodies contrasts with the heavy and well-developed shells. The genus *Crenilabium* Cossmann, 1889 [type species *Actaeon* (*C.*) *aciculatus* Cossmann, 1889:307 (pl. 8, fig. 30), OD, a Tertiary fossil from Europe] is sometimes considered subgenus of *Actaeon* Montfort, 1810 (e.g., Thiele, 1992:629). The genus encompasses species with elongated shell, few transversal lines at columellar margin of the shell aperture, and absence of fold at inner lip. The genus was never reported to Brazilian waters (Marcus, 1972; Rios, 1994).

In dredges off the southwestern and southern Brazilian coast, some shells belonging to *Crenilabium* were collected, revealing a new species formally described here.

### MATERIAL AND METHODS

The specimens were obtained for study already dry, being constituted only by shells. They were examined in stereo-microscope and also in SEM in the "Laboratório de Microscopia Eletrônica", MZSP, some specimens were covered by gold.

Abbreviations of Institutions: MNRJ, Museu Nacional da Universidade Federal do Rio de Janeiro, Brazil; MZSP, Museu de Zoologia da Universidade de São Paulo, Brazil; USNM, National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA.

Additional material for comparison with the species described here includes samples of the species *Rictaxis punctocaelatus* (Carpenter, 1864), beyond the holotype at USNM, another sample was examined: UNITES STATES OF AMERICA; California; San Luis Obispo County, Morro Bay, MNRJ HSL2443, 10 shells.

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## Systematics

*Crenilabium birmani* new species

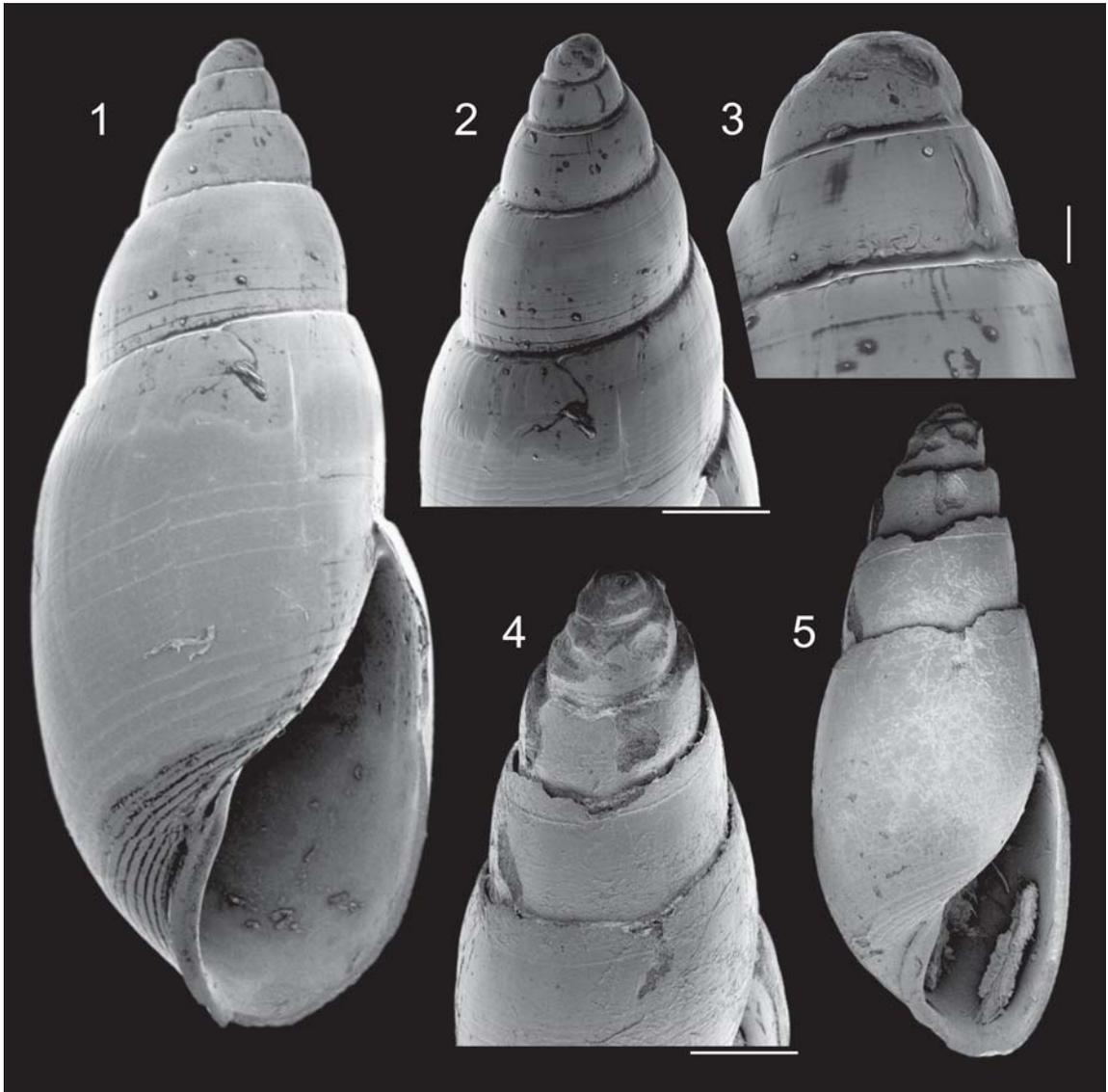
(Figs. 1-12)

*Types:* Holotype MZSP 63161. Paratypes: BRAZIL; Rio de Janeiro; off São Tomé Cape, 21°42'S 40°15'W, 53 m depth, MZSP 63162, 1 shell (R.V. "W. Besnard" sta. Macaé 11, 23/ii/1992); 22°18'52.95"S 40°11'58.95"W, 190-200 m depth, MNRJ 10703, 9 shells (sta. P47; R.V. Astrogaroupa col. 18/xii/2004). Rio Grande do Sul;

off Rio Grande, 33°39'S 51°07'W, 200 m depth, MZSP 63163, 1 shell (R.V. "W. Besnard" sta. 1891; viii/1972).

*Type locality:* BRAZIL; São Paulo; off Ubatuba, 23°46'S 44°51'W, 55 m depth (R.V. "W. Besnard" sta. 1624; 16/xii/1971).

*Diagnosis:* Shell with spire as long as aperture. Suture simple or scaled, deep. Inner lip simple; inferior region of aperture rounded or weakly bended, lacking folds.

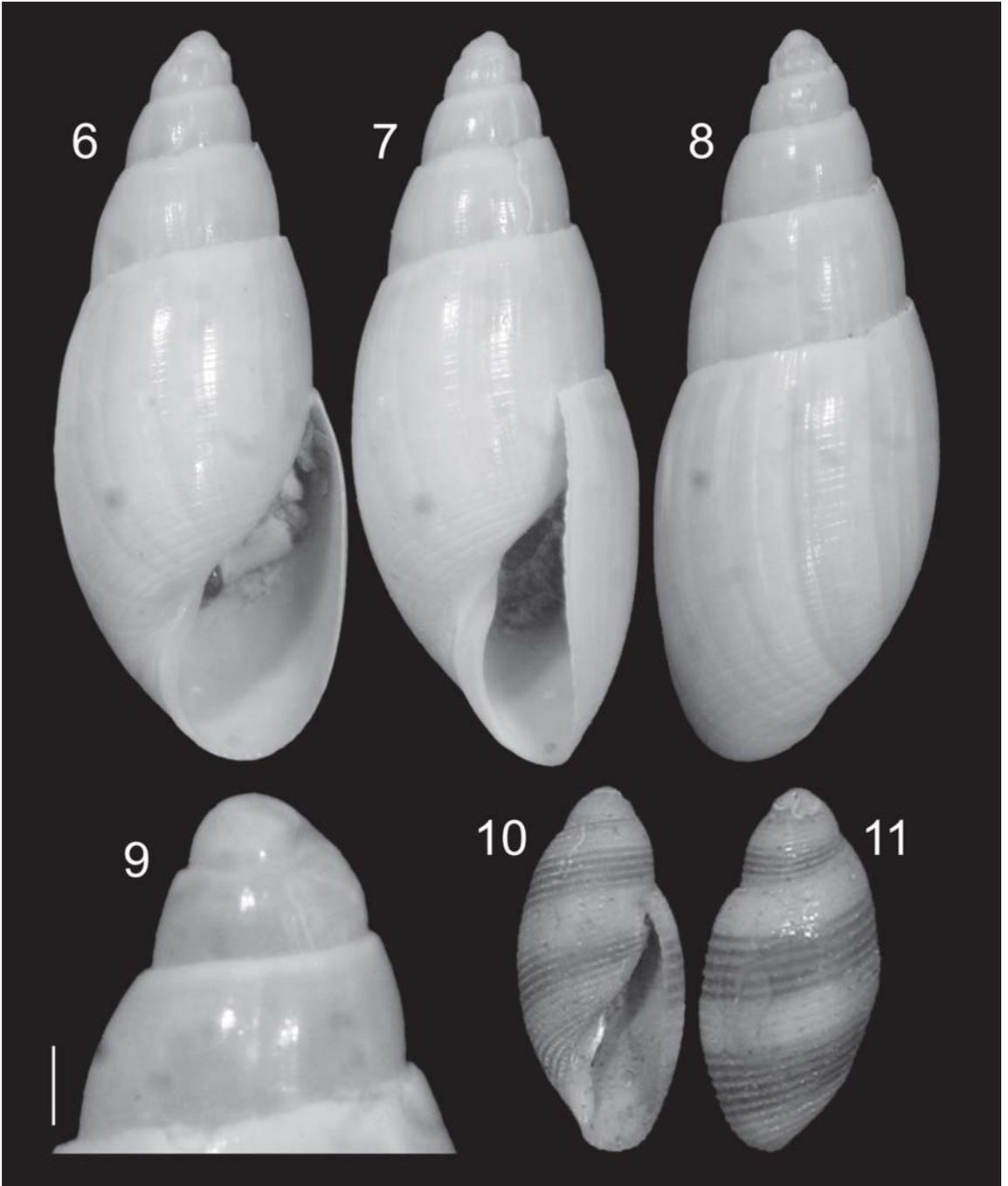


**FIGURES 1-5.** *Crenilabium birmani* shells in SEM: 1-3) holotype, 1) frontal view, length = 8.3 mm; 2) spire, frontal-slightly oblique view, scale = 0.5 mm; 3) detail of apex, profile, scale = 0.1 mm; 4-5) MZSP 63163 paratype; 4) detail of spire, frontal-slightly oblique view, scale = 0.5 mm; 5) frontal view, length = 7.6 mm.

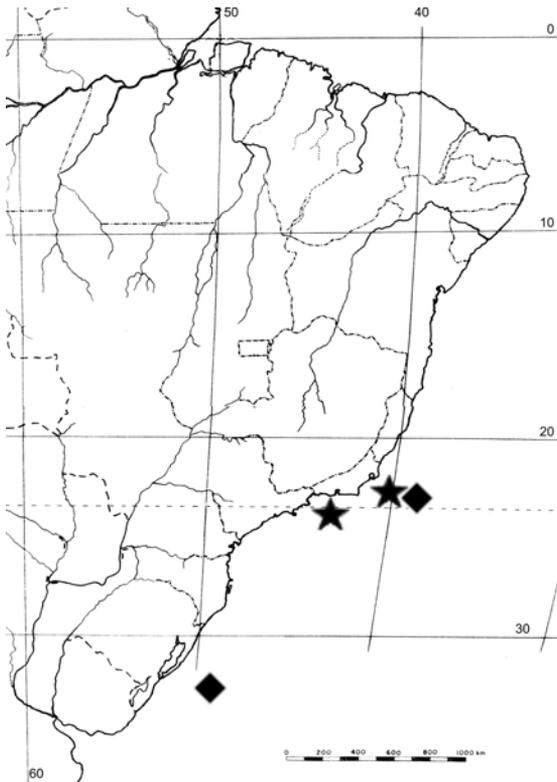
**Description**

*Shell (Figs. 1-9):* Bulloid, antero-posteriorly elongated; maximum size 8 mm; approximately 2.5 longer than wide. Wall relatively thick. Color white or yellowish

white. Protoconch mammillated, of one whorl; separation with teleoconch marked by narrow orthocline furrow (Figs. 2, 3, 9). Teleoconch with up to 4.5 whorls, weakly convex, profile weakly rounded (almost straight). Suture marked by shallow, concavity and low



**FIGURES 5-9.** *Crenilabium birmani* shell of paratypes MNRJ 10703:6-8) frontal, right and dorsal views of larger specimen, length = 6.8 mm; 9) detail of apex in profile of a young specimen, scale = 0.25 mm; 10-11) *Riclaxia punctocaelatus* holotype USNM 14914 (courtesy of Ellen Strong, Smithsonian Institution); frontal and dorsal views; length = 4.9 mm.



**FIGURE 12.** Map of distribution of *Crenilabium birmani* (the symbols are slightly away from its actual place); star = specimen with simpler suture; lozenge = specimens with scaled suture.

and relatively wide, smooth furrow (Figs. 1, 2, 3); or deep furrow, with external edge away from superior surface of each whorl, similar to a scale turned superiorly (Figs. 4, 5, 6-9). Surface smooth, opaque, about 10 shallow, narrow spiral furrows, distributed rather irregularly; a narrow, spiral line located at certain distance from subsutural area. Last whorl with spiral furrows gradually becoming slightly deeper and close with each other towards umbilical area (Figs. 1, 5, 6, 7); about 15 in inferior half. Umbilicus absent. Aperture with about half of total length, antero-posteriorly elongated; superior end pointed, inferior (siphonal) region rounded (Figs. 1, 5, 6, 7). Inner lip concave; superior half to 2/3 convex, rounded, lacking callus; inferior half or 1/3 rounded, concave, with thick edge; between both regions of inner lip a strong notch in some specimens (Fig. 5). Outer lip simple, with cutting edge, subterminally thickened.

*Measurements* (respectively length and width in mm): Holotype: 8.3 by 3.1; MZSP 63162 (M11): 7.1 by 2.8; MZSP 63163: 7.6 by 2.9; MNRJ 10703 #1: 7.6 by 3.2; #2: 7.4 by 2.9.

*Distribution* (Fig. 12): From Rio de Janeiro (off São Thomé Cape) to north coast of São Paulo (off Ubatuba); also off Rio Grande, RS.

*Habitat*: Sandy bottoms; 53-200 m depth.

*Material examined*: Types.

*Etymology*: The specific epithet is in honor of the discoverer of the species, the physician and conchologist Adolpho Birman, from São Paulo, SP, Brazil.

## DISCUSSION

There is variability in some characters of *Crenilabium birmani*. One of them is the dissimilar shape of the suture, in which some specimens have a simple and shallow furrow (Figs. 1, 2, 3), while it is deep, scaled in others (Figs. 4-9). The form of the aperture is also somewhat variable; the deepest portion of the inner lip is almost in middle level in some specimens (Fig. 1), while it is between middle and inferior thirds in others (Figs. 5, 7). The inferior or siphonal region of the aperture can be also different, it is rounded sometimes (Fig. 1, 6, 7), while it is somewhat squared in others (Fig. 5), having a clear angle between inner lip and siphonal edge. There is a coincidence between the two morphs described above, represented each one in the Figures 1 and 5 that induced the initial interpretation of two species. The morph represented in the Fig. 1 is found in shallower waters (53-55 m depth); while the other, represented in the Figs. 5 and 6, with scaled suture, is found deeper, at about 200 m. Despite a conservative approach is given here, as both morphs considered a single species, further studies can change this scenario. However, the suggestion is that both morphs are actually because of adaptations to different deepness. Related to the geographic distribution (Fig. 12), specimens with simpler suture (Fig. 1) are for moment only know from Rio de Janeiro to north São Paulo coast; in the mean time, specimens with scaled suture occur from Rio de Janeiro to the south coast of Rio Grande do Sul.

The placement in the genus is based mainly on the elongated shell shape, the relatively thick shell walls, and by the absence of folds at the inner lip. These characters are present in the species described herein that approach it from the type species *Crenilabium aciculatum* (see Zilch, 1959-1960:8, fig. 13). The fold in the inner lip is present in other elongated shelled genera of acteonids, such as *Tenuiacteon* Aldrich, 1921, and

*Actaeonidea* Gabb, 1873 (Zilch, 1959-1960:8-9), from which the presently described species can not belong, as it lacks this fold.

The described species can not be confused with any other *Crenilabium* species, however, it is similar to the Mediterranean and North Atlantic *C. exile* (Jeffreys, 1870) [= *Acteon nitidus* Verrill, 1882:540, pl. 58, fig. 21], from which *C. birmani* differs in having proportionally longer aperture, spire with deeper suture and last whorl proportionally longer. *Crenilabium birmani* additionally differs from the type species of the genus, *C. aciculatum*, by deeper suture, by shorter proportion of the aperture and by wider and less rounded shape of the anterior region of the aperture.

A specimen surprisingly similar to *Crenilabium birmani*, and to *Crenilabium exile*, is figured by Abbott (1974:312, fig. 3906) to represent the Californian *Rictaxis punctocaelatus* (Carpenter, 1864). On the other hand, the examination of the holotype of *R. punctocaelatus* (Figs. 10, 11) revealed completely different characters. Most subsequent pictures of that species never showed a different shape of the holotype [e.g., Marcus, 1972 (fig. 5); Rudman, 2001], which allow that Abbott's picture may be a misidentification of a *Crenilabium* species, possibly to the *C. exile* (species number 3908 of that catalogue). The species described here differ from that Abbott's specimen in having a proportional longer aperture and by less straight spire.

## RESUMO

*Crenilabium birmani*, uma nova espécie de Acteonidae é descrita conquiliologicamente para a costa sudeste e sul do Brasil. A espécie nova é o primeiro registro do gênero para o sul do Atlântico Oeste e difere em detalhes e proporções da sutura e abertura. Duas variantes de sutura foram detectadas, alguns espécimes apresentam sutura simples, enquanto outros uma sutura funda e escalonada. Informações sobre um possível espécime de *Crenilabium* figurado por Abbott (1974), representando *Rictaxis punctocaelatus*, é discutido neste, com a ilustração do holótipo desta espécie.

PALAVRAS-CHAVE: *Crenilabium birmani* n. sp., Acteonidae, Brasil, águas profundas, conquiliologia.

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## REFERENCES

- Abbott, R.T. 1974. *American Seashells*. Second edition. Van Nostrand Reinhold Company, New York, 663 p. + 240 pls.
- Carpenter, P.P. 1864. Supplementary report on the present state of our knowledge with regard to the mollusca of North America. *Report of the British Association for the Advancement of Science*, 1863:517-686.
- Cossmann, M. 1889. Catalogue Illustré des coquilles fossiles de l'Éocène des Environs de Paris. (4ème fascicule). *Annales de la Société Royale Malacologique de Belgique*, 24:3-385 + pl. I-XII.
- Marcus, E.B.R. 1972. On Some Acteonidae (Gastropoda, Opisthobranchia). *Papéis Avulsos de Zoologia (São Paulo)*, 25(19):167-188.
- Rios, E.C. 1994. *Seashells of Brazil*. Second edition. Fundação Universidade do Rio Grande, Rio Grande, 368 p. + 113 pls.
- Rudman, W.B. 2001. *Rictaxis punctocaelatus* (Carpenter, 1864). In: *Sea Slug Forum*. Australian Museum, Sydney. Available at: <http://www.seaslugforum.net/factsheet.cfm?base=rictpunc>
- Thiele, J. 1992. Handbook of Systematic Malacology. Part 2 (Gastropoda: Opisthobranchia and Pulmonata). In: Bieler, R & Mikkelsen, P. [translators]. *Smithsonian Institution Libraries*. The National Science Foundation, Washington, p. 627-1189.
- Verrill, A. E. 1882. Catalogue of marine Mollusca added to the fauna of the New England region, during the past ten years. *Transactions of the Connecticut Academy of Arts and Sciences*, 5:451-587 + pls. 42-44, 57-58.
- Zilch, A. 1959-1960. Euthyneura. In: W. Wenz. *Gastropoda*. Handbuch der Paläozoologie. Berlin. Band 6(2):xii + 834 p.

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