



Description of a new *Coronium* s.l. (Gastropoda: Muricidae: Trophoninae) from south-central Chile and a brief survey of the genus *Coronium* Simone, 1996

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Introduction

The genus *Coronium* Simone, 1996 currently includes five Recent species: *C. acanthodes* (Watson, 1882), the type species *C. coronatum* (Penna-Neme and Leme, 1978), *C. wilhelmense* (Ramírez-Bohme, 1981), *C. oblongum* Simone, 1996 and *C. elegans* Simone, 1996. All are known to live off South America, from Brazil to Chile. Simone (1996) included three species in *Coronium* (*C. coronatum*, *C. oblongum* and *C. elegans*). He also illustrated drawings of the protoconchs, opercula, radula and details of the animal. Although *C. acanthodes* was originally included in *Trophon* (Watson, 1882) and *C. coronatum* in *Columbarium* (Penna-Neme and Leme, 1978), the species are undoubtedly close to each other and belong to a common muricid genus as demonstrated by Pastorino & Penchaszadeh (2009). To our knowledge there are no fossil taxa known. With the exception of *C. wilhelmense* described from Chiloé Island, at 41°51'4" S, 74°30'5" W, included in *Coronium* by Houart & Sellanes (2006) and of *C. acanthodes* described from West Patagonia, at 50°8'30" S, 74°4' W, no other species of *Coronium* are known to be living off Chile.

Coronium wilhelmense was illustrated by Pastorino (2005) and *C. coronatum* by Pastorino *et al.* (2007). *Coronium coronatum* (Figs. 12–16) is a small shell with broad, conspicuous axial ribs and high, regular spiral cords, and few developed shoulder spines. *Coronium wilhelmense* has flat axial ribs with longer shoulder spines and lower, more irregular and more numerous spiral cords. *Coronium wilhelmense* has been reported in the Pacific Ocean off Southern Chile (~42°S) while related specimens were collected in the Atlantic Ocean South of Uruguay (~36°S) (coll. RH). Unfortunately, the holotype of *C. wilhelmense* is unavailable and could not be located so that the specimens from Uruguay could only be compared with the poor original illustration in Ramírez-Bohme (1981: fig. 1). In our opinion, specimens currently collected South of Uruguay are probably conspecific with *C. wilhelmense* or belong to another still undescribed species (Figs. 8–11, 18, 22–23).

After comparing two specimens collected in the vicinities of Mocha Island, south-central Chile (~38°S) with the original description and illustration of *C. wilhelmense* and other material, we here describe them as a new species. It is placed here dubiously in *Coronium* because the operculum and the penis do not fit perfectly in the genus. Moreover, the protoconch is essential to determine whether or not the species belongs in *Coronium*, but is missing in both specimens. No currently known genus seems to be appropriate to contain this new species. *Trophon* s.s. is broader, with a broader, roundly-ovate operculum with lateral nucleus on the lower right. On the other hand, the radula of the new species seems to fit within those of *Coronium* illustrated by Pastorino (2005), Pastorino *et al.* (2007) and Pastorino & Penchaszadeh (2009). A brief review of the actual state of knowledge of the genus *Coronium* Simone, 1996 is also included.

Abbreviations

dd	empty shell
JS	Javier Sellanes
lv	live collected specimen
MNHN	Muséum national d'Histoire naturelle, Paris, France.
MNHNCL	Museo Nacional de Historia Natural, Santiago de Chile, Chile.
RH	Roland Houart.

TABLE 1. Spiral cords morphology used in *Coronium petalos* n. sp.

IP	Infrasutural primary cord (primary cord on subsutural ramp)
P1	Shoulder cord
P2-P6	Primary cords of the convex part of the teleoconch whorl
s1-s6	secondary cords of the convex part of the teleoconch whorl
t1	tertiary cord between s1 and P2
example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.	

Systematics

Class Gastropoda Cuvier, 1797

Order Neogastropoda Wenz, 1938

Superfamily Muricoidea Rafinesque, 1815

Family Muricidae Rafinesque, 1815

Genus *Coronium* Simone, 1996

Type species by original designation *Coronium elegans* (Penna-Neme and Leme, 1978), Recent, Magellanic region.

?*Coronium petalos* new species

(Figs 1–7, 17, 20–21, 24–27, 29)

Type material. Holotype 64.4 x 31.2 mm, MNHNCL- 6746 (lv); paratype 45.9 x 20.8 mm, MNHNCL-6747 (dd).

Type locality. Chile, 37°56.79' S, 74°01.25' W, living at 608 m, October 5, 2007, Cruise VG-07, RV “Vidal Gormáz”, Stn AGT-17, coll JS.

Description of the holotype. Shell large and broad for the genus, 64.4 mm height x 31.2 mm width, broadly-ovate, weakly spinose, lightly built. Subsutural ramp weakly sloping, weakly convex. Shell greyish-white with light tan tinge on subsutural ramp and siphonal canal. Aperture glossy white within. Spire high. Protoconch unknown (eroded). Teleoconch of five broad, convex, strongly shouldered preserved whorls. Other whorls eroded. Suture impressed. Axial sculpture of last teleoconch whorl consisting of 18 low, narrow, lamellose ribs, each with short, narrow, open spine at shoulder. Occasionally with other very short spines where axial ribs cross primary spiral cords. Penultimate whorl with 14 or 15 axial ribs of which some are eroded. Axial sculpture of early whorls completely eroded. Spiral sculpture of last teleoconch whorl of

moderately high, narrow, squamous, primary and secondary cords: P1, s1, t1, P2, P3, s3, P4, P5, s5, P6, s6, followed by 13 or 14 lower cords on siphonal canal. Penultimate whorl with visible P1, s1, P2, P3. Spiral sculpture of other whorls eroded. Aperture broad, roundly-ovate. Columellar lip narrow, smooth, with a small, weak knob abapically. Rim completely adherent. Anal notch shallow, broad. Outer lip partly broken, smooth within. Siphonal canal broken at tip, long, 44 % of total shell length, straight, broadly open.

Operculum (Figs. 20–21) dark brown, ovate with apical nucleus in center and numerous concentric ridges. Attached surface with five or six growth lines and broad callused rim.

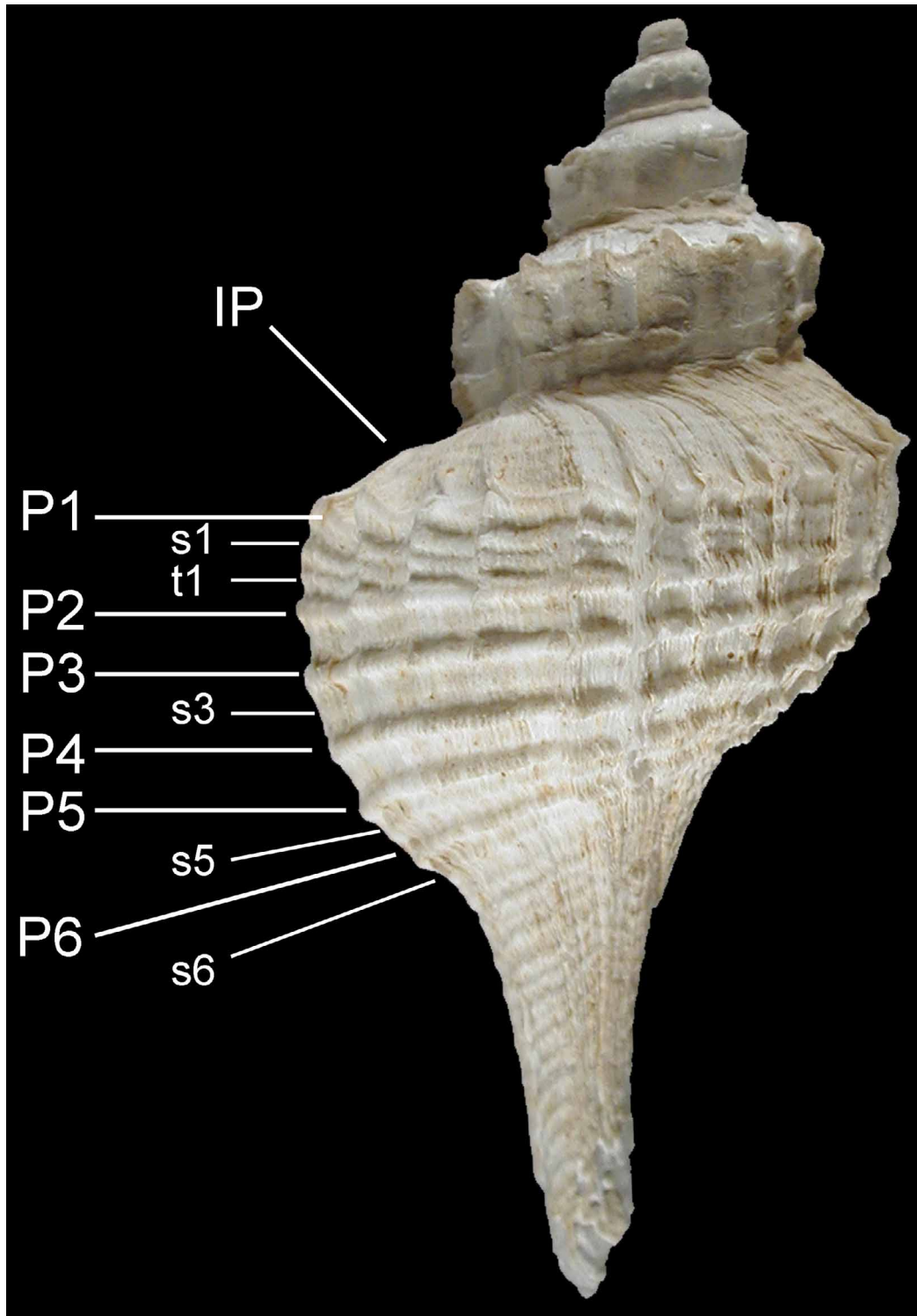
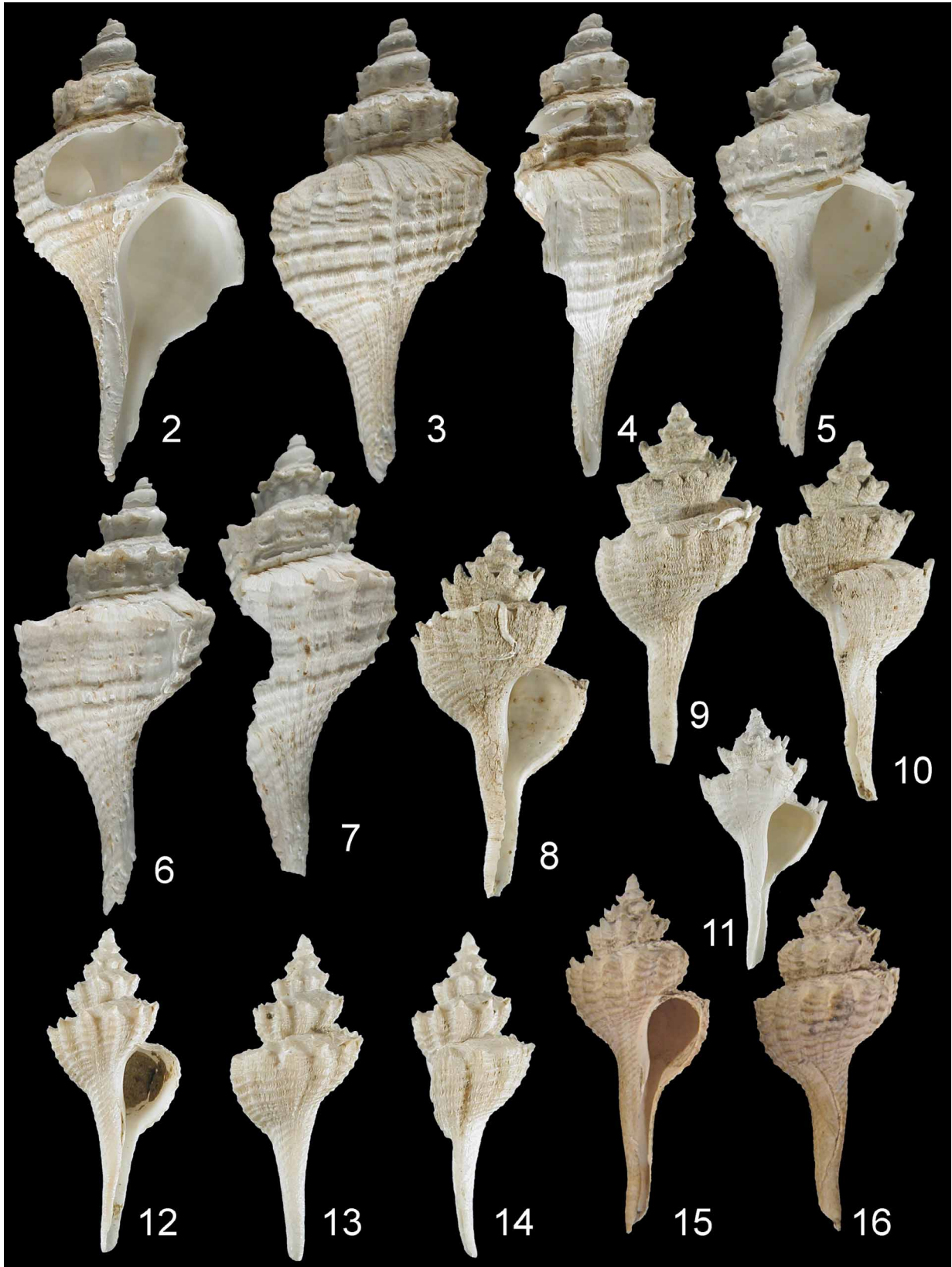
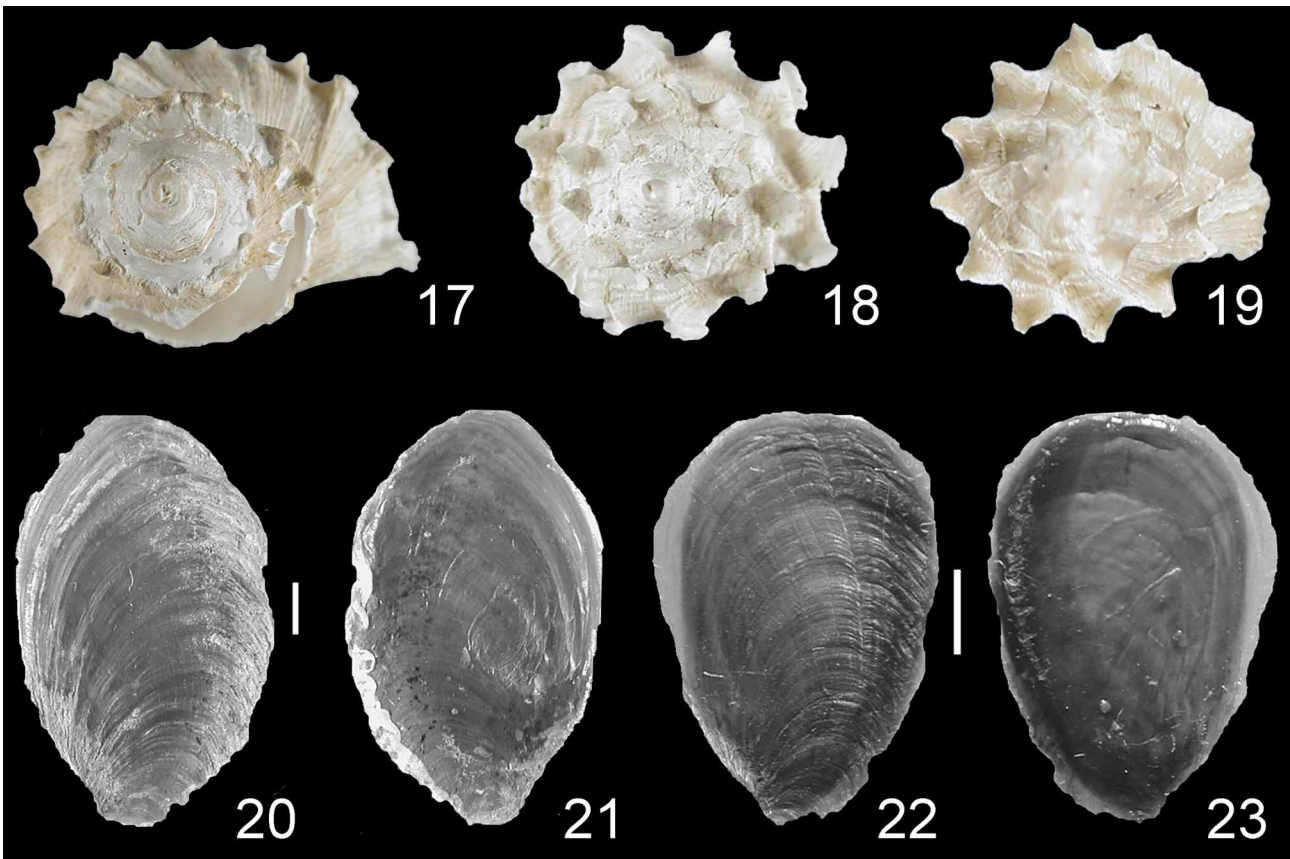


FIGURE 1. Spiral cords morphology (see Table 1)



FIGURES 2–16. 2–7. *Coronium petalos* n. sp. 2–4. Chile, 37°56.79' S, 74°01.25' W, 608 m, 64.4 mm, holotype MNHNCL-6746. 5–7. Same locality, 45.8 mm, paratype MNHNCL-6747. 8–11. *Coronium* cf. *C. wilhelmense* (Ramírez-Bohme, 1981). 8–10. Uruguay, 36°30' S, 53°41' W, 280–300 m, 35 mm, coll. RH. 11. Off Uruguay, crab traps, 300–500m, 27.3 mm, coll. RH. 12–16. *Coronium coronatum* (Penna-Neme and Leme, 1978). 12–14. Southeast Brazil, 21°32' S, 40°09' W, 295–300 m, 26.7 mm, coll. RH. 15–16. Brazil, Rio de Janeiro State, off Cabo de São Tomé, 22°34' S, 40°29' W, 213m, sta.ix., holotype MZUSP 18994. Photo courtesy L.R.L. Simone.

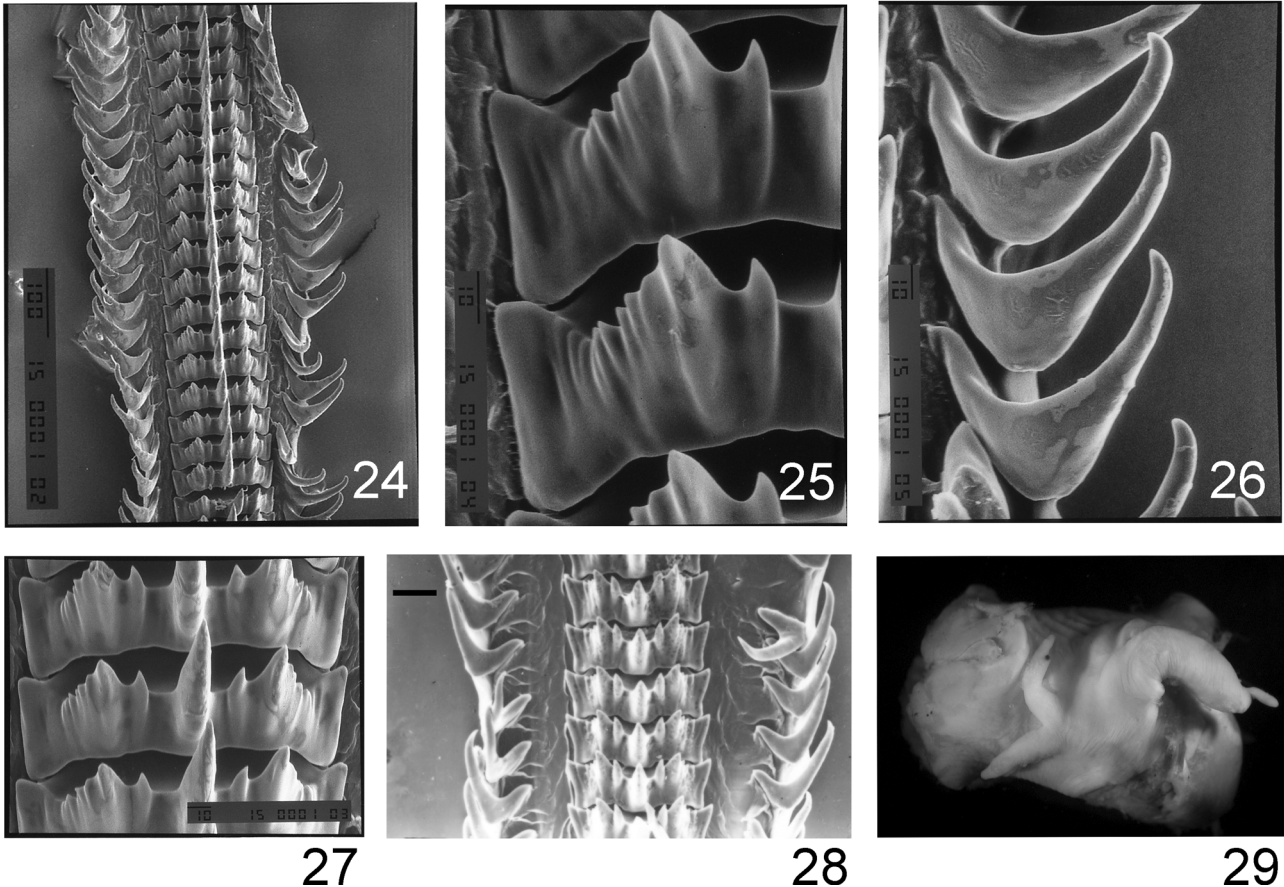


FIGURES 17–23. 17. *Coronium petalos* **n. sp.** (holotype). 18. *Coronium* cf. *C. wilhelmense* (Ramírez-Bohme, 1981), off Uruguay, crab traps, 300–500m, 27.3 mm, coll. RH. 19. *Coronium coronatum* (Penna-Neme and Leme, 1978), Southeast Brazil, 21°32' S, 40°09' W, 295–300 m, 26.7 mm, coll. RH. 20–21. Operculum of *Coronium petalos* **n. sp.** (holotype). Scale bar 2 mm. 22–23. Operculum of *Coronium* cf. *C. wilhelmense* (Ramírez-Bohme, 1981), Uruguay, 36°30' S, 53°41' W, 280–300 m, coll. RH

Radula (Figs. 24–27) rachiglossate with a rachidian tooth bearing a long, narrow, central cusp, a narrow, short, lateral denticle on the inner side of the shorter lateral cusp and several outer lateral denticles between the lateral and the low, fairly broad, marginal cusps. Central cusp longest. Lateral cusps splayed outwards. Lateral teeth sickle-shaped with long, narrow cusp and broad base.

Preserved animal (Fig. 29) is pale yellowish in color, tentacles are mid sized with sub-terminal black eyes of moderate size. The penis is broad and muscular, extends half the length of the mantle cavity and has a terminal papilla.

Remarks. The generic classification of ?*Coronium petalos* **n. sp.** is based on shell, operculum and radula characters. The shell is most similar to *C. wilhelmense*, a species also described from Chile. The radula (Figs. 24–27) is similar to that of *Coronium*, having a rachidian tooth with a narrow, long, central cusp, a short, narrow, lateral denticle fused at base of the inner side of the lateral cusp, and shorter lateral cusps with outer lateral denticle and several outer lateral denticles between it and the marginal cusp as illustrated in Fig. 28, in Pastorino (2005: 68 & 74, figs. 77–78, 75, 118–119), in Pastorino *et al.* (2007: 63, figs. H–K) and in Pastorino & Penchaszadeh (2009: fig. 3). There are no significant differences observed in these illustrated radulae beyond those seen in other muricid genera, such as the number of outer lateral denticles between the lateral cusp and the marginal cusp, or/and minor differences in the length or width of the denticles. The operculum (Figs. 20–21), with an apical nucleus, resembles the operculum of *Coronium*, although it is ovate rather than triangular as in typical *Coronium* species (Figs. 22–23). Similarly, *Trophon* s.s. has a broadly ovate operculum with a lateral nucleus on the lower right, as in ocenebrine species (*Ocenebra*, *Nucella*, etc.). Opercula from *Coronium* were illustrated by Simone (1996: 47, fig. 3; 50, fig. 13), by Pastorino (2005: 68, fig. 74) and Pastorino *et al.* (2007: 63, figs C and G).



FIGURES 24–29. 24–27. Radula of *Coronium petalos* **n. sp.** (holotype). 28. Radula of *Coronium coronatum* (Penna-Neme and Leme, 1978), Brazil (MNHN). 29. Animal of *Coronium petalos* **n. sp.** (holotype). Scale bars: 24: 100 μ m; 25–27: 10 μ m; 28: 20 μ m.

?*Coronium petalos* **n. sp.** differs from *C. wilhelmense* and from *C. cf. C. wilhelmense* from Uruguay (Figs. 8–11, 18, 22–23) in having a broader and larger shell relative to the number of teleoconch whorls, a relatively shorter siphonal canal, a more strongly sloping subsutural ramp, more numerous and more lamellate axial ribs with comparatively shorter shoulder spinelets, and more regular, well defined spiral cords, while narrower, more dense, lower and irregular in *C. wilhelmense*. *Coronium coronatum* (Figs. 12–16, 19, 28) differs in having a smaller, narrower shell with broader, more rounded and fewer axial ribs and a less strongly sloping subsutural ramp.

Other species of trophonines living off Chile are *Trophon geversianus* (Pallas, 1774) and *T. plicatus* (Lightfoot, 1786) (Pastorino, 2005), while other recently described species were included in *Trophon* by McLean & Andrade (1982) and in *Trophon* s.l. by Houart (2003) and Houart & Sellanes (2006). Although trophonines are notoriously variable in shell morphology, none of these species is close to the new species described here, which is distinguished altogether by its strong spiral sculpture, broad teleoconch whorls, high spire and long siphonal canal.

Etymology. *Petalos*, meaning broad in Greek.

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