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## TWO NEW SPECIES OF *TEREBRA* (GASTROPODA, CONOIDEA) FROM COLOMBIA

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### ABSTRACT

*Two new species of the genus Terebra are described conchologically to the Atlantic coast of Colombia. The species are Terebra colombiensis and T. sterigmoides. They are differentiable mainly because of their sculpture, protoconch and spire angle. They are part of a group of Western Atlantic terebrids informally called "T. doellojuradoi complex" and differ from the Brazilian species in having well-developed pair of folds at columella. This character approaches the species described here to the Argentinean T. doellojuradoi.*

KEYWORDS: Terebra, Colombia, new species, taxonomy, Caenogastropoda.

### INTRODUCTION

Recent studies of the Western Atlantic Terebridae revealed several new species, which have been the target of recent papers (Simone, 1999; 2000). The analysis of conchological characters alone, indicated a certain degree of endemism, particularly in deeper waters species. Additional evidence was uncovered when anatomical data was investigated.

This paper deals with samples collected in South Caribbean sea during the INVEMAR-Macrofauna and MARCORAL cruises, in the coast of Colombia, where additional undescribed species have been collected. The samples studied had shells only, so it's the only aspect herein analysed. However, the shell has sufficient comparative information for a complete systematic analysis.

This paper focuses on terebrids and is part of an on-going project on the Western Atlantic caenogastropod revision.

### MATERIAL AND METHODS

A list of studied material is presented under each species description, constituted mostly of types. Additionally, specimens from related species are studied, mostly mentioned in the given bibliography (Verissimo & Simone, 1994; Simone, 1999, 2000). Some samples were also examined in SEM in the "Laboratório de Microscopia Eletrônica do Museu de Zoologia da USP". Due to the scarcity of specimens, the shells were not coated with gold.

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## Systematics

### *Terebra colombiensis* new species

(Figs. 1-15, 26, 27)

*Types*—Holotype INV MOL2389. Paratypes: COLOMBIA. La Guajira; off Dibulla, 11°28'49.2"N 73°23'58.2"W, 308 m depth, 3 shells, INV MOL3146, (sta. E24, 25/xi/1998); off Palomino, 11°26'13.2"N 73°33'00"W, 306-312 m depth, INV MOL3185, 3 shells (sta. E26, 26/xi/1998). Magdalena; off Neguange, 11°24'59.4"N 74°10'48"W, 304-306 m depth, INV MOL3427, 7 shells (sta. E35, 02/xii/1998), 296-304 m depth, 11°24'42.6"N 74° 09'37.8"W, INV MOL3445, 7 shells (sta. E36, 02/xii/1998); off Punta Gloria, 11°11'45"N 74°17'33"W, 282-274 m depth, INV MOL1960, 1 shell (sta. E46, 04/xii/1998). Atlántico; off Bocas de Ceniza, 11°05'15.6"N 75°15'19.8"W, 318-314 m depth, INV MOL1962, 3 shells (sta. E49, 06/xii/1998), 11°05'10.8"N 75°15'23.4"W, 312-326 m depth, INV MOL1963, 1 shell (sta. E50, 06/iv/1998).

*Type locality*—COLOMBIA. Magdalena; off Bahía Concha, 11°22'74"N 74°10'50"W, 150 m depth (sta. E122, 19/iii/2001).

## Diagnosis

Protoconch with 1.5 whorls. Teleoconch sculptured by broad axial and spiral ribs, both equally strong or two subsutural spiral ribs broader; from 17 to 22 axial and 3-4 spiral ribs in penultimate whorl. Two subsutural spiral ribs outstandingly larger, well-marked, or rarely similar to remaining ribs. A pair of middle columellar folds.

## Description

*Shell* (Figs. 1-15, 26, 27)—Long, slender, turritiform, small (about 16 mm), up to 15 convex whorls; color pale cream to beige. Approximate spire angle between 16 and 19°. Protoconch (Figs. 4, 10, 26) with 1.5 whorls, convex, smooth; first whorl slightly broader; transition with teleoconch indistinct. Sculpture of firsts teleoconch whorls (Figs. 3, 4, 9, 10) broad to narrow and interrupted axial ribs, each one with a subsutural node; spiral ribs gradually becoming continuous, 3-4 in penultimate whorl, subsutural nodes clearly larger than others, nodes on spiral rib immediately below subsutural spiral rib also larger, but not as large as those

on subsutural rib (Figs. 7-9, 12, 27); rarely (1 each 20) subsutural nodes similar in size to others; (Figs. 1-3, 6, 27) between 17-22 axial ribs in penultimate whorl; with similar width as axial ribs; a small node at intersection of spiral and axial ribs. Aperture simple (Figs. 5, 6, 12, 13); outer lip edged; inner lip smooth, sigmoid, possessing pair of oblique, low folds located in middle region, inferior fold continuous with inner edge of canal (Fig. 13). Canal short, somewhat widely opened, weakly curved, preceded by short narrow region.

*Measurements (in mm)*—Holotype INVMOL 2389: 16.60 by 3.30; INVMOL 1963: 15.45 by 3.70; INVMOL 1962: 15.66 by 3.70 (Fig. 14), (2 other shells): length 16.25; 11.31 resp.; INVMOL 3427 (7 shells measured): length 12.88; 11.96; 10.95; 0.96; 12.78; 10.57; 9.40 respectively; INVMOL 1961 (2 shells measured): length 16.14; 9.01 resp.; INVMOL 3146 (3 shells): length 13.22; 12.64; 9.82; INVMOL 3146 (8 shells): length 9.76; 9.87; 8.76; 10.11; 9.49; 8.02; 8.83; 8.70; resp.; INVMOL 3185 (11 shells): length 10.77; 10.09; 11.6; 11.87; 10.18; 9.98; 9.55; 8.71; 11.81; 8.92; 8.48 resp.

*Distribution*—Colombian Caribbean coast, from La Guajira to Atlántico.

*Habitat*—Upper slope and continental shelf soft bottoms, from 150 to 314 m depth (shells only).

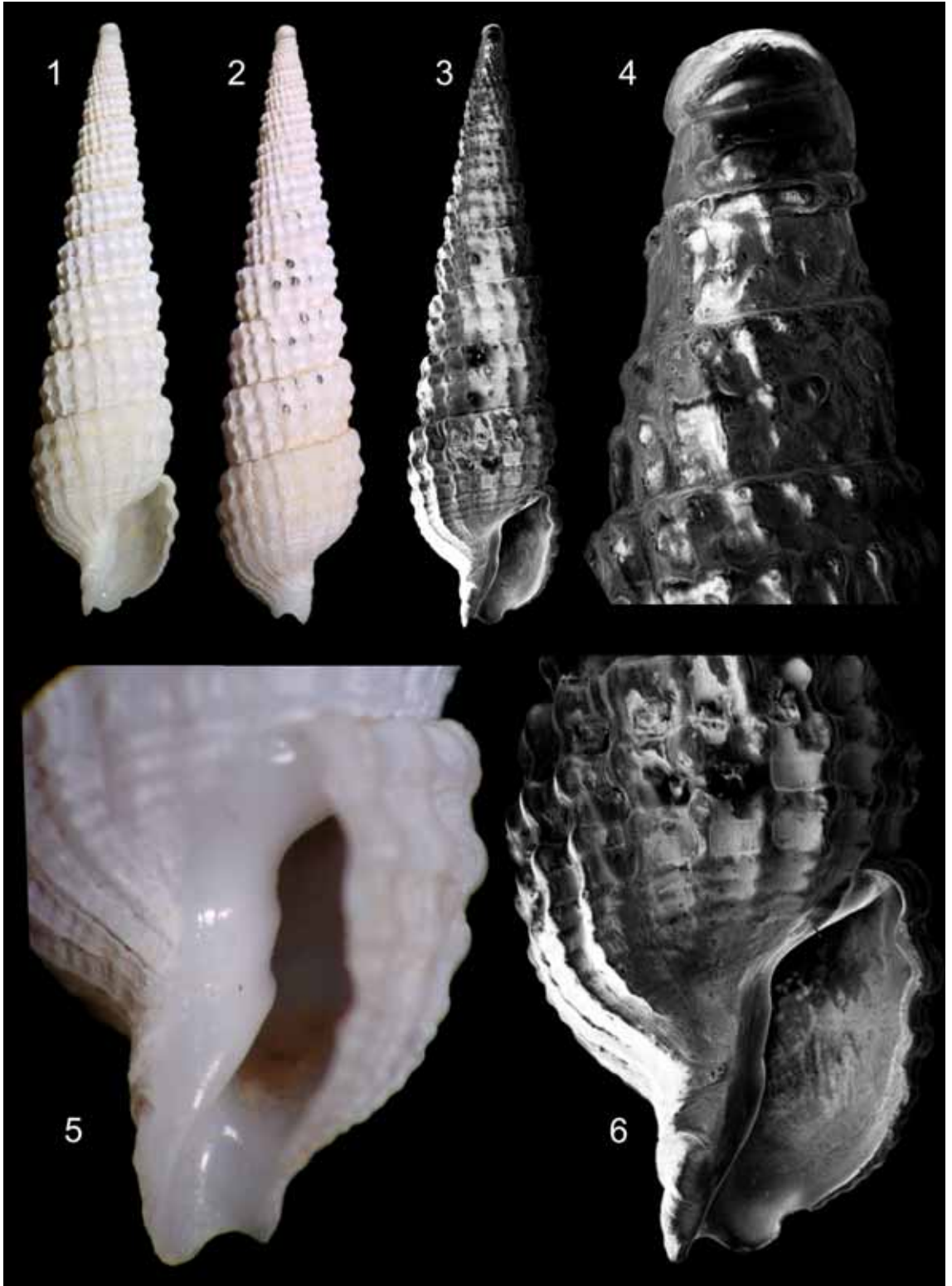
*Material examined*—*Types. Additional material*: COLOMBIA. La Guajira; off Palomino, 11°26'13.2"N 73°33'00"W, 306-312 m depth, MZSP 64444, 5 shells (sta. E26, 26/xi/1998; ex-INV MOL3185). Magdalena; off Neguange, 11°24'42.6"N 74° 09'37.8"W, MZSP 64445, 4 shells (sta. E36, 02/xii/1998; ex-INV MOL3445); off Punta Gloria, 11°11'45"N 74°17'33"W, 282-274 m depth, MZSP 64446, 1 broken shell (sta. E46, 04/xii/1998; ex-INVMOL 1960). Atlántico; off Bocas de Ceniza, 11°05'15.6"N 75°15'19.8"W, 318-314 m depth, 2 shells, MZSP 64447, (sta. E49, 06/xii/1998; ex-INVMOL 1961).

*Etymology*. The specific epithet refers to the country of occurrence, Colombia.

### *Terebra sterigmoides* new species

(Figs. 16-25)

*Terebra (Strioterebum) protexta*: Díaz-Merlano & Puyana-Hegenus, 1994: 217 (pl. 66, fig. 858) (*non* Conrad, 1846).

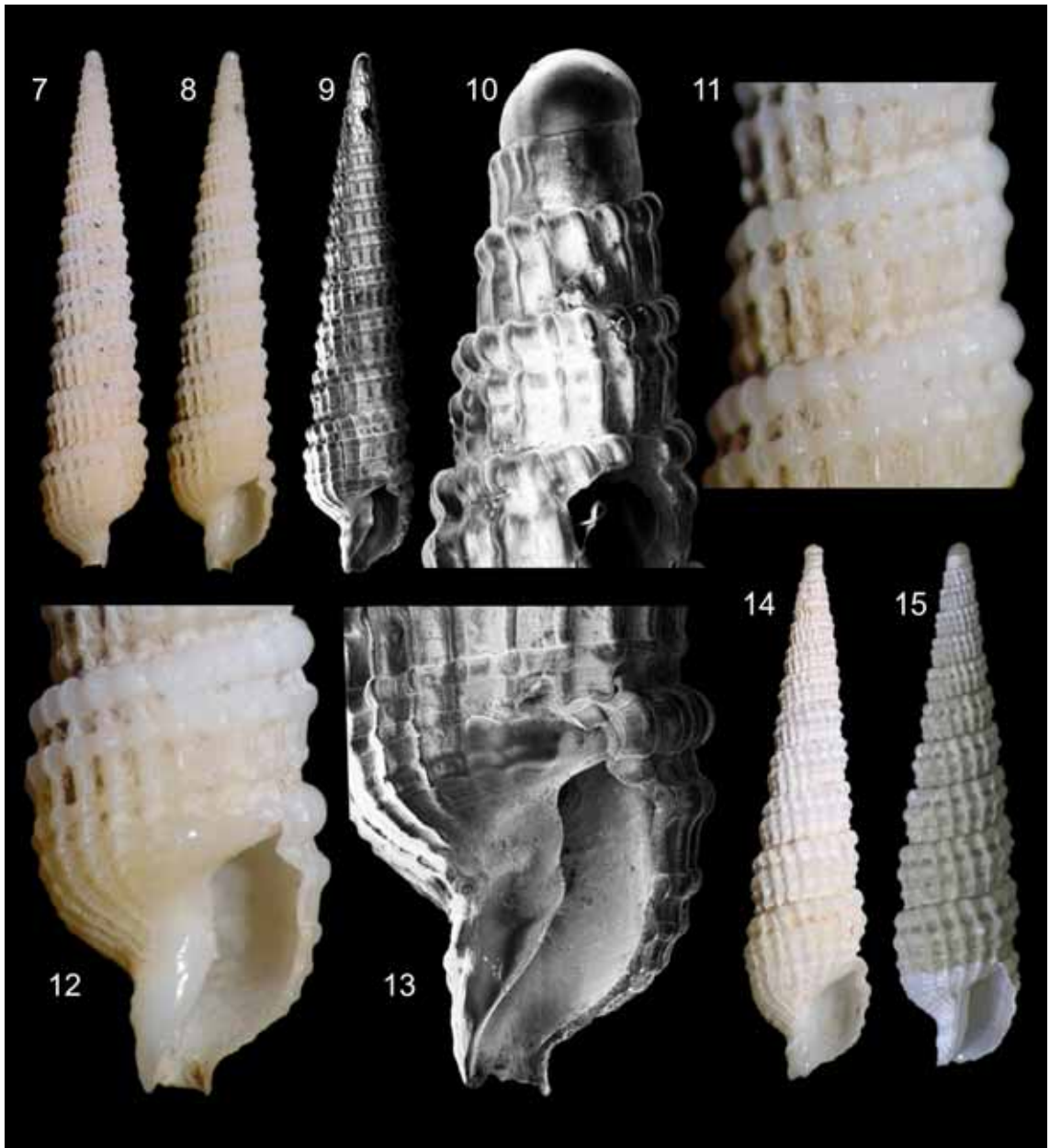


**Figuras 1-6.** *Terebra colombiensis* paratype INVMOL 1963, as an example of a specimen with uniform sculpture: **1)** frontal view; **2)** dorsal view; **3)** frontal view in SEM; **4)** detail of apical region of shell, SEM; **5)** detail of aperture, frontal-slightly oblique view; **6)** detail of last whorl, SEM, frontal view. Total length = 15.45 mm.

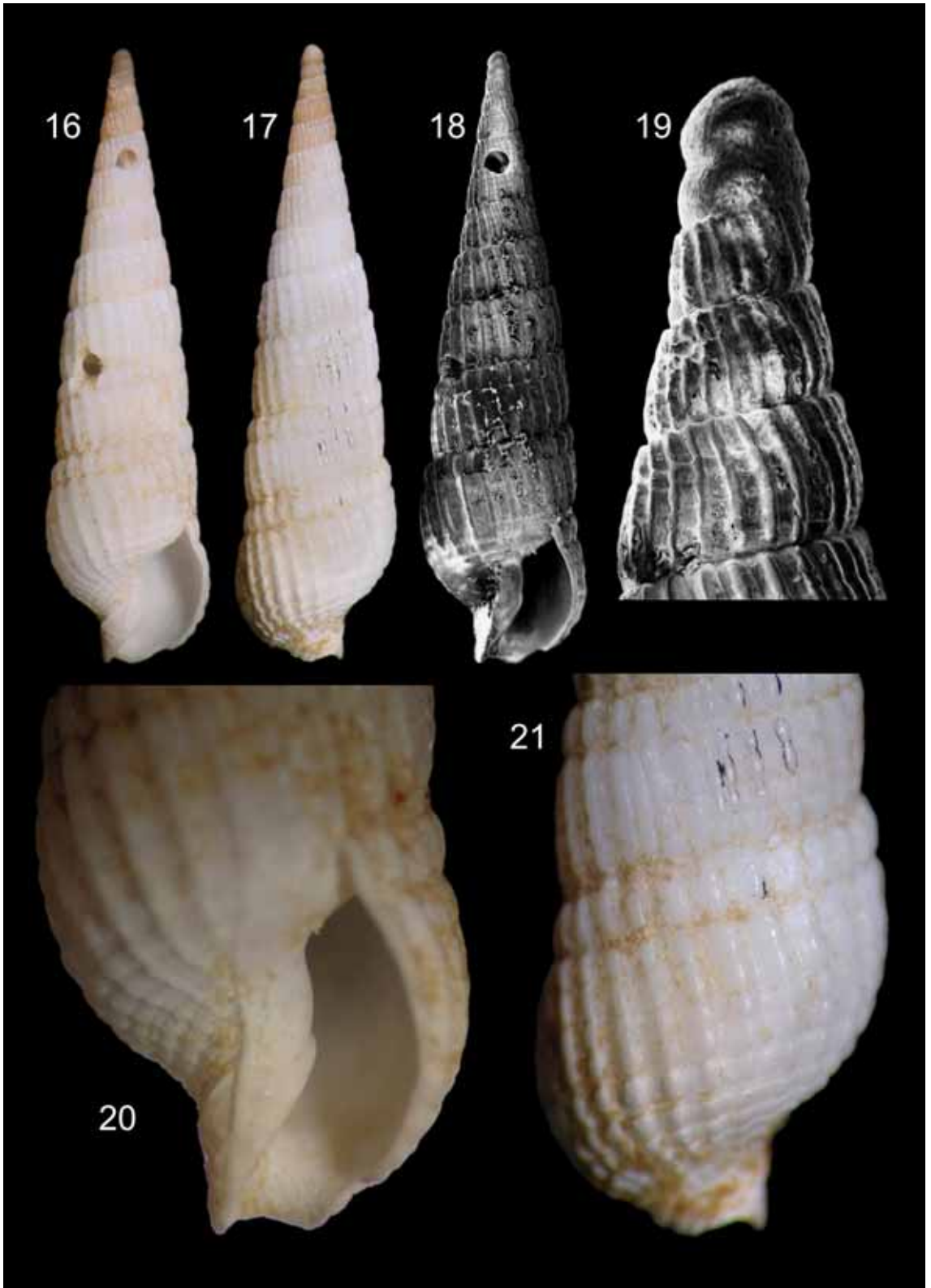
*Types* – Holotype INV MOL2388. Paratypes: Sucre; off San Bernardo Islands, 9°48'50.1"N 76°10'24.2"W, 94 m depth, INV MOL5482, 3 shells (Sta. D18, 29/iv/2005); 9°48'05.1"N 76°11'08.0"W, 95 m depth, INV MOL5481, 5 shells (Sta. D19, 29/iv/2005); 9°47'21.8"N 76°11'52.2"W, 98 m depth, INV MOL5480, 3 shells (Sta. D20,

29/iv/2005); 9°46'36.9"N 76°12'48.1"W, 102 m depth, INV MOL5479, 3 shells (Sta. D21, 29/iv/2005).

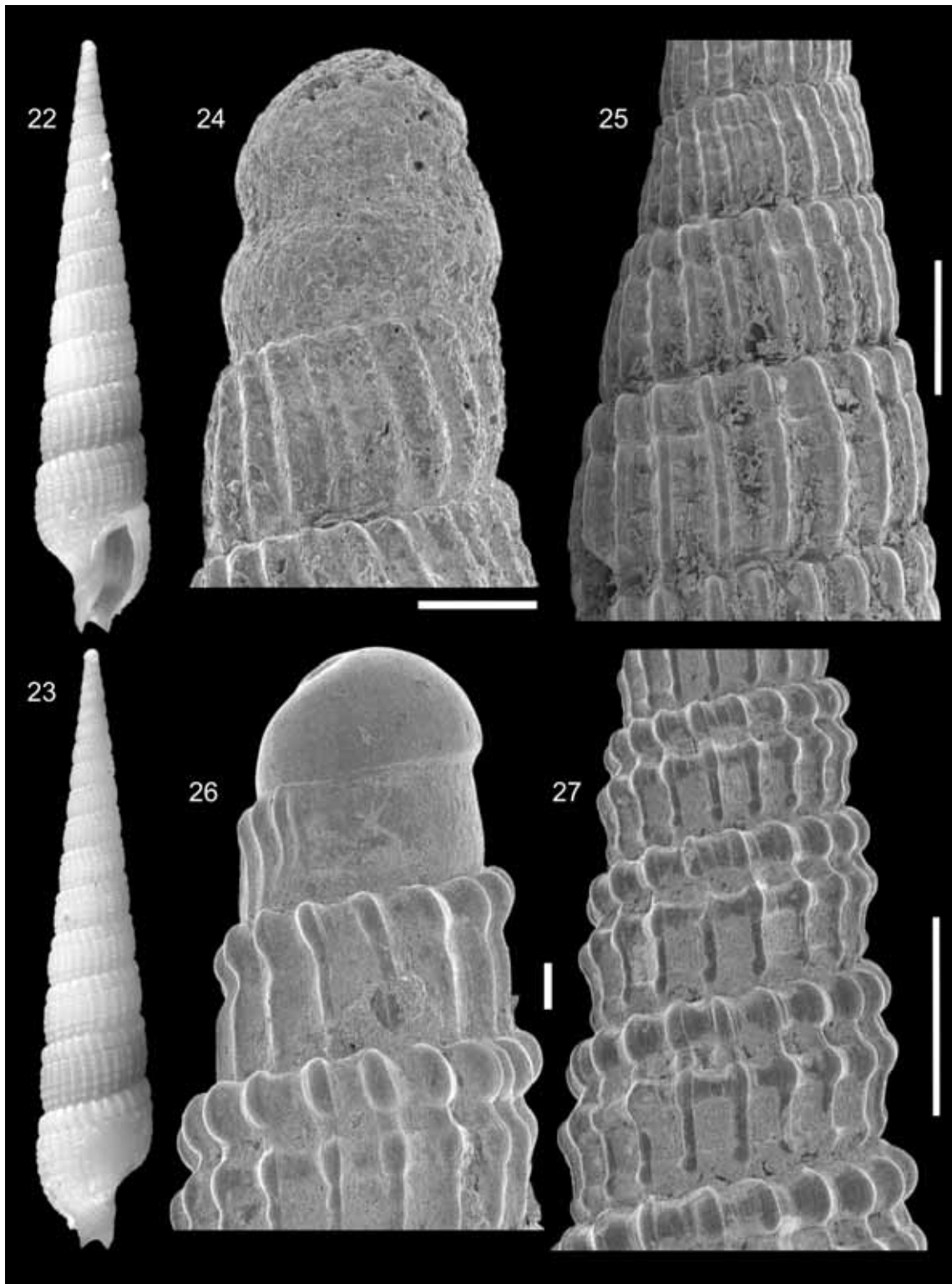
*Type locality* – COLOMBIA. La Guajira; off Manaure, 11°53'05"N 72°36'39"W, 21 m depth (sta. E98, 16/iii/2001).



**Figuras 7-15.** *Terebra colombiensis* holotype and paratypes: 7-13) Holotype; 7) dorsal view; 8) frontal view; 9) frontal view in SEM; total length = 16.6 mm; 10) detail of apical region of shell, SEM; 11) detail of middle region of shell, showing sculpture; 12) detail of penultimate whorl, frontal view; 13) same, SEM, slightly oblique view; 14) paratype INV MOL 1962, frontal view, length = 15.66 mm; 15) paratype INV MOL 3427, length = 12 mm.



**Figuras 16-21.** *Terebra sterigmoides* holotype: **16)** frontal view; **17)** dorsal view; **18)** frontal view in SEM; **19)** apical region in SEM; **20)** detail of aperture, frontal-slightly oblique view; **21)** detail of last whorl, dorsal view. Length = 13.7 mm.



**Figuras 22-27.** *Terebra* spp shells: **22-25)** *Terebra sterigmoides* paratypes; **22-23)** INV MOL5479, frontal and dorsal views, length = 24.23 mm; **24)** INV MOL5480, SEM, detail of protoconch and first teleoconch whorl in profile, scale = 0.1 mm; **25)** same, detail of middle region of spire, scale = 1 mm; **26-27)** *T. cobombiensis* holotype, SEM; **26)** shell apex in profile, scale = 0.1 mm; **27)** detail of middle region of spire, scale = 1 mm.

## Diagnosis

Protoconch with two whorls. Teleoconch sculptured by narrow axial and weak spiral ribs, axial ribs stronger; presence of subsutural furrow; about 26 axial and 6 spiral ribs in penultimate whorl. Subsutural set of nodes well-marked. A pair of middle columellar folds.

## Description

*Shell (Figs. 16-25)* – Long, slender, turritiform, small size (about 14 mm), up to 16 convex whorls; color whitish to pale beige. Spire angle approximately of 24°. Protoconch (Figs. 19, 24) with two similar sized whorls, convex, smooth; somewhat cylindrical; transition with teleoconch clear. Sculpture of firsts teleoconch whorls (Figs. 9, 10, 24) narrow axial ribs (lyrate), each one lacking nodes; spiral ribs gradually appearing in third teleoconch whorl (Fig. 25), 6 in penultimate whorl, with about 1/3 of the width of axial ribs; practically no node at intersection of spiral and axial ribs (Figs. 22, 23, 25); subsutural nodes clearly larger than others, marked by spiral shallow furrow; about 26 axial ribs in penultimate whorl; interval between axial ribs about same as rib width. Aperture simple (Figs. 20, 22); outer lip edged; inner lip smooth, sigmoid, possessing pair of oblique, low folds located in middle region, inferior fold continuous with inner edge of canal (Figs. 18, 20, 22). Canal short, somewhat widely opened, weakly curved.

*Measurements (in mm)* – Holotype INV MOL2388, 13.7 by 3.8; INV MOL5479 (3 shells): length 24.23; 22.49; 17.91 respectively; INV MOL5480 (3 shells): length 11.46; 8.91; 7.75; 5.44 resp.; INV MOL5481 (5 shells): length 10.06; 7.53; 6.61; 6.52; 4.07 resp.; INV MOL5482 (4 shells): length 8.84; 7.00; 5.58; 4.72 resp.

*Distribution* – Known to type locality.

*Habitat* – Continental shelf soft bottoms, from 20 to 102 m depth (only shells).

*Material examined* – Types.

*Etymology* – The specific name refers to similarity with Brazilian species *Terebra sterigma* Simone, 1999. The termination “in form of” (*oides*) is added.

## DISCUSSION

*Terebra colombiensis* and *T. sterigmoides* clearly belong to a set of species that can be called as “*Terebra doellojuradoi*-complex”, owing to the fact that species of this complex are usually identified as *T. doellojuradoi* Carcelles, 1953, in collections (e.g. Rios, 1994). The *T. doellojuradoi* complex encompasses several small species (about 10 mm) with reticulated sculpture, found in the deep water of the Western Atlantic, that were revealed under more detailed analyses (Simone, 1999, 2000).

These new Colombian species differ from the Brazilian species of the same “complex” (Simone, 1999, 2000) in having the pair of columellar folds. These folds are absent or very reduced in the Brazilian species. On the other hand, this character approaches the three species from the Argentinean *T. doellojuradoi*, which also possesses the folds with the same level of development.

*Terebra colombiensis* is somewhat variable in its sculpture. Most specimens possess a differentiation of the subsutural pair of ridges, being the closest of the suture slightly stronger, as in the holotype (Figs. 7-9, 12) while others, in an approximate proportion of 1/20, the subsutural ridge is similar to the remaining (Figs. 1-3, 6). Intermediary sculptured specimens are shown in the Figs. 14, 15. *T. colombiensis* differs from *T. sterigmoides* in being slenderer (about 18° instead of 24°), in having the protoconch with fewer whorls (1.5 instead of 2) and by sculpture with fewer but stronger ribs. *T. colombiensis* has a more developed spiral sculpture, with taller nodes at the intersection with axial ribs, while in *T. sterigmoides* the spiral sculpture is weak, and the nodes at the intersection with axial ribs are very low. *T. colombiensis* possesses about 22 axial ribs in the penultimate whorl, while *T. sterigmoides* possesses about 26 in shells of equivalent size.

The shell characters of *Terebra colombiensis* are similar to those of the Brazilian *T. crassireticula* Simone, 1999, by the robustness of the sculpture, by the well-developed nodes and by the shape of the aperture (somewhat long and with a canal narrow and slightly projected forwards); however, *T. colombiensis* differs by narrower apex, in having the differentiation of the subsutural ribs, fewer spiral ribs and by the pair of well developed columellar folds.

*Terebra sterigmoides*, as indicated by its name, is most similar to *T. sterigma* Simone, 1999, with similar shell angle and sculpture. *T. sterigmoides*, however, differs from *T. sterigma* in having the spiral sculpture slightly more developed, mainly a subsutural, well-developed furrow

running all along the whorls; additionally, the whorls are somewhat more convex, the aperture is proportionally wider, and the siphonal canal is slightly longer and more curved.

Both species described here are another step in direction to resolve the systematics of the *T. doellojuradoi*-complex, started in Simone & Verissimo (1995) and continuing in Simone (1999, 2000). Certainly there are still species to be described, mainly in the north Brazilian coast, and the anatomical description of some of the species is lacking. This is an ongoing project that is still in the phase of gathering samples from some regions.

## RESUMO

*Duas novas espécies do gênero Terebra são descritas conqulilogicamente para a costa atlântica da Colômbia. As espécies são Terebra colombiensis e T. sterigmoides. Elas são diferenciáveis principalmente com base na escultura, protoconcha e ângulo da espira. Elas pertencem a um grupo de terebrídeos do Atlântico oeste informalmente chamado de "complexo T. doellojuradoi" e diferem das espécies brasileiras por ter um par de pregas bem desenvolvidas na columela. Este caráter aproxima as espécies descritas neste da argentina T. doellojuradoi.*

PALAVRAS-CHAVE: *Terebra*, Colômbia, espécies novas, taxonomia, Caenogastropoda.

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