Fifteen new species and ten new records of *Turbonilla* Risso, 1826 (Gastropoda, Heterobranchia, Pyramidellidae) from Brazil

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KEY WORDS: Pyramidellidae, Turbonilla, taxonomy, Brazil, South America, new species.

ABSTRACT Fifteen new species of *Turbonilla* from Brazilian coast are described: *Turbonilla farinatiae* n. sp., *T. goytacazi* n. sp., *T. farroupilha* n. sp., *T. lepta* n. sp., *T. parviscymna* n. sp., *T. fluminensis* n. sp., *T. aracruzensis* n. sp., *T. midas* n. sp., *T. maestratii* n. sp., *T. kaapor* n. sp., *T. capixaba* n. sp., *T. scapulata* n. sp., *T. paulinoi* n. sp., *T. rhachialis* n. sp., *T. uaca* n. sp. The following species are for the first time recorded from the Brazilian coast: *T. rhabdota* (Watson, 1886), *T.* aff. *zulmae* Pimenta & Absalão, 1998, *T.* aff. *enna* Bartsch, 1927, *T.* aff. *unilirata* Bush, 1899, *T. krebsii* (Mörch, 1875), *T. pupoides* (d'Orbigny, 1842), *T. portoricana* Dall & Simpson, 1901, *T. stimpsoni* Bush, 1899, *T.* aff. *riisei* (Mörch, 1875), *T.* aff. *anira* Bartsch, 1927.

RIASSUNTO Nonostante siano note ben 324 specie di "*Turbonilla*" per le coste dell'Atlantico occidentale, solo venti di queste sono state finora riportate per le coste brasiliane.Nel presente contributo, quindici nuove specie di *Turbonilla* vengono descritte per il Brasile: *Turbonilla farinatiae* n. sp., *T. goytacazi* n. sp., *T. farroupilha* n. sp., *T. lepta* n. sp., *T. parviscymna* n. sp., *T. fluminensis* n. sp., *T. aracruzensis* n. sp., *T. midas* n. sp., *T. maestratii* n. sp., *T. kaapor* n. sp., *T. capixaba* n. sp., *T. scapulata* n. sp., *T. paulinoi* n. sp., *T. rhachialis* n. sp., *T. uaca* n. sp.. Vengono inoltre riportate alcune nuove segnalazioni di specie appartenenti al genere *Turbonilla*, originariamente descritte per la Florida, i Caraibi e le coste dell'Argentina: *Turbonilla rhabdota* (Watson, 1886), *T.* aff. *zulmae* Pimenta & Absalão, 1998, *T.* aff. *enna* Bartsch, 1927, *T.* aff. *unilirata* Bush, 1899, *T. krebsii* (Mörch, 1875), *T. pupoides* (d'Orbigny, 1842), *T. portoricana* Dall & Simpson, 1901, *T. stimpsoni* Bush, 1899, *T.* aff. *riisei* (Mörch, 1875), *T.* aff. *anira* Bartsch, 1927.

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INTRODUCTION

The taxonomy of the genus *Turbonilla* from the Brazilian coast is poorly understood, in contrast to the coasts of Africa and Europe, where recent syntheses on *Turbonilla* have been carried out (e.g., AARTSEN, 1981; SCHANDER, 1994; PEÑAS *et al.*, 1996; PEÑAS & ROLÁN, 1997). This lack can be addressed to the absence of a major taxonomic review on the family Pyramidellidae, added to the fact that the family is considered one of the most taxonomically confused and poorly known families of marine gastropods. Indeed, taxonomic studies on the Pyramidellidae in a region where it is poorly studied often acknowledge the existence of several undescribed species (e.g. SCHANDER, 1994; PEÑAS & ROLÁN, 1997).

In spite of the very large number of "turbonillid" species described from the western Atlantic (324 species listed in ODÉ, 1996), only 20 species have been reported from the Brazilian coast (RIOS, 1994; ABSALÃO *et al.*, 1996; PIMENTA & ABSALÃO, 2001; PIMENTA & ABSALÃO, 2002).

Recent collections-based studies on pyramidellids from Brazil led us to recognize a large number of undescribed species of the genus *Turbonilla*, and some new records of species of the same genus, originally described from Florida, the Caribbean, and the coast of Argentina.

MATERIALS AND METHODS

Optical photographs were taken through a Zeiss SV-11 microscope. Scanning Electronic photographs were taken by: Zeiss LEO 1450 VP, at "Laboratório de Microscopia Eletrônica" from Universidade do Estado do Rio de Janeiro; Stereoscan 200, Cambridge Instruments, Inc. at ANSP; Zeiss LEO 440 at Laboratório de Microscopia Eletrônica of MZSP; Zeiss LEO 940A at Laboratório de Tribologia e Materiais of the Universidade Federal de Uberlândia; and Zeiss DSM 960 at Departamento de Ciências dos Materiais e Metalurgia of the Pontifícia Universidade Católica do Rio de Janeiro.

In the "Material examined" lists, numbers betweens square brackets refer to the number of shells.

Abbreviations used: --Collections: ANSP - Academy of Natural Sciences of Philadelphia, Philadelphia; BMNH - British Museum Natural History, London; DF - Private collection Daniel Forcelli; IBUFRJ - Instituto de Biologia / Universidade Federal do Rio de Janeiro, Rio de Janeiro; MACN – Museu Argentino de Ciencias Naturales, Buenos Aires; MNHN - Muséum National d'Histoire Naturelle, Paris; MNRJ – Museu Nacional / Universidade Federal do Rio de Janeiro, Rio de Janeiro; MORG - Museu Oceanográfico "Eliézer de Carvalho Rios", Rio Grande; MZSP - Museu de Zoologia da Universidade de São Paulo, São Paulo; MMUFRPE - Museu de Malacologia da Universidade Federal Rural de Pernambuco, Recife; USNM – National Museu of Natural History, Washington, DC; ZMA – Zoölogish Museum Amsterdam, Amsterdam; --Expeditions: AMASSEDS - A Multidisciplinary Amazon Shelf Sedimentary Study; CFVII - Comissão Oceanográfica Cabo Frio VII; GEOMAR XII – Comissão Oceanográfica Geologia Marinha XII; PADCT Programa de Apoio ao Desenvolvimento Científico e Tecnológico; REVIZEE - Recursos Vivos da Zona Econômica Exclusiva; --Collectors: NOAG – Navio Oceanográfgico Astro Garoupa / Petrobras S.A.; AS - Navio Oceanográfico Atlântico Sul / Brazilian Navy; Eq.Zoo. - Equipe do Departamento de Zoologia / IBUFRJ; NOAN - Navio Oceanográfico Antares /

Brazilian Navy; NOAS - Navio Oceanográfico Almirante Saldanha / Brazilian Navy; NOWB - Navio Oceanográfico Professor W. Besnard / Universidade de São Paulo; RVCI - Research Vessel Columbus Iseling, University of Miami.

Systematic

Genus *Turbonilla* Risso, 1826

Turbonilla Risso, 1826: 224. Type species: *Turbonilla costulata* Risso, 1826: 224, fossil, Pliocene, France. Subsequent designation by HERMANNSEN (1852).

Remarks

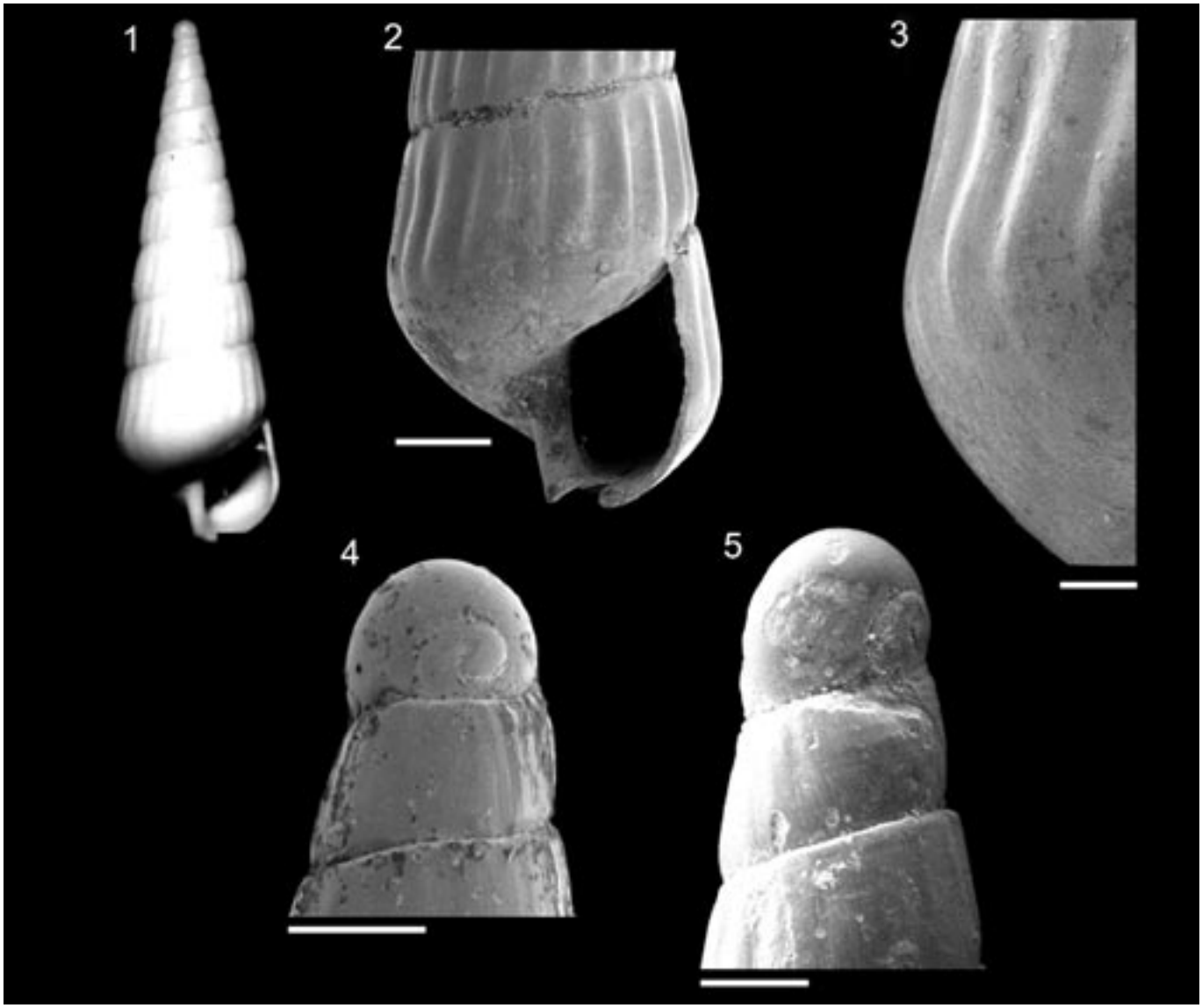
The genus *Turbonilla* is taken herein in an wide concept, as used by AARTSEN (1981), SCHANDER (1994), PEÑAS *et al.* (1996), and PEÑAS & ROLÁN (1997). In view of the confused and poorly established subgeneric classification, with many artificial and poorly defined subgenera in need of major revision (SCHANDER, 1994), we adopted no subgeneric classification.

Turbonilla farinatiae n. sp. (figs 1-5)

Turbonilla (Turbonilla) atypha Bush, 1899: FARINATI (1993: 299, fig. 2).

Description

Shell tall, strictly conical; color milk-white. Teleoconch whorls almost flat-sided, slightly concave on middle of latter whorls. Suture shallow and straight. Protoconch heterostrophic planispiral; diameter about 320 µm. Axial ribs low, broad, straight and orthocline or slightly opisthocline, fairly distinct on initial 2-4 whorls; 22 ribs on body whorl of holotype; interspaces narrow, about half as wide as the ribs, bearing microscop-



Figs 1-5. *Turbonilla farinatiae* n. sp. 1-4: holotype (MNRJ 8931); 5: paratype (ZMA 4.02.019). Fig. 1: whole shell (length 6.4 mm); fig. 2: last whorl; fig. 3: detail of periphery of base; figs 4, 5: protoconch. Scale bars: 200 µm.

Figg. 1-5. *Turbonilla farinatiae* n. sp. 1-4: olotipo (MNRJ 8931); 5: paratipo (ZMA 4.02.019). Fig. 1: conchiglia intera (lunghezza 6,4 mm); fig. 2: ultimo giro; fig. 3: dettaglio della periferia della base; figure 4, 5: protoconca. Scala di riferimento: 200 µm.

ic axial growth lines, especially visible below the sutures. Spiral sculpture absent, except for microscopic striations. Base rounded with evanescent axial ribs that project a little over it, but do not reach the umbilical region. Aperture rhomboid. Columella straight, without fold. Outer lip thin. No umbilical fissure.

Dimensions

Holotype with 9.25 teleoconch whorls; height 6.4 mm; width 2.0 mm

Type material

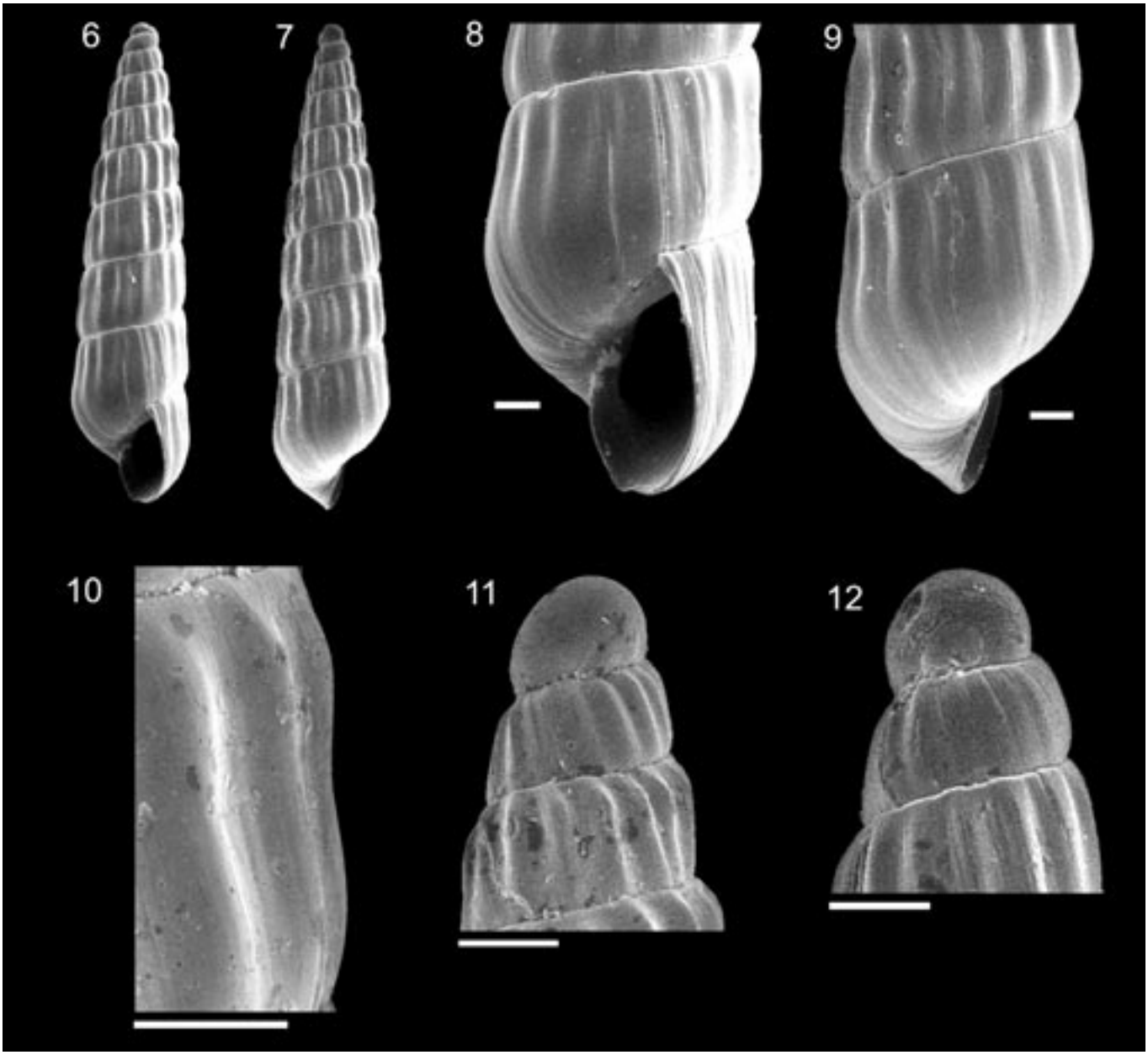
Holotype: MNRJ 8931, off Cabo Frio, Rio de Janeiro State, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. Paratypes: MORG 41037, type locality; IBUFRJ 11898; ANSP 410339, Monte Alto, Espírito Santo State, 28/i/1986; MNRJ 8930; MNHN; ZMA 4.02.019, off Rio de Janeiro State CFVII # 6165 (23°02.8'S, 042°46'W, 56 m), 23/iii/1983, NOAS coll.; MZSP 35856, Arquipélago de Santana, Macaé, Rio de Janeiro State, v/1993, NOAG coll.

Type locality

Off Cabo Frio, north coast of Rio de Janeiro State (22°53.7'S, 041°50.5'W, 50 m), southeast coast of Brazil.

Additional material

--Espírito Santo State: IBUFRJ 8859, off Camburi (45 m),



Figs 6-12. *Turbonilla goytacazi* n. sp. holotype (MNRJ 8935). Figs 6, 7: whole shell (length 6.6 mm); figs 8, 9: last whorl; fig. 10: detail of periphery of whorl; figs 11, 12:protoconch. Scale bars: 200 µm.

Figg. 6-12. *Turbonilla goytacazi* n. sp. olotipo (MNRJ 8935). Figg. 6, 7: conchiglia intera (lunghezza 6,6 mm); figure 8, 9: ultimo giro; fig. 10: dettaglio della periferia di un giro; figg. 11, 12: protoconca. Scala di riferimento: 200 µm.

10/vi/1986, Eq.Zoo coll. [1]; IBUFRJ 8858, off Camburi (60 m), 15/i/1987, Eq.Zoo coll. [1]; --Rio de Janeiro State: IBUFRJ 6488, Arquipélago de Santana, Macaé, v/1993, NOAG coll. [3]; IBUFRJ 8853, off Cabo Frio, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. [7]; IBUFRJ 8854, off Cabo Frio, CFVII # 6199 (23°17'S, 044°15'W, 48 m), 02/iv/1983, NOAS coll. [1]; MORG 13576, off Rio de Janeiro State (40-50 m), "barco de pesca" coll. [1]; IBUFRJ 8855, CFVII # 6165 (23°02.8'S, 042°46'W, 56 m), 23/iii/1983, NOAS coll. [9].

Distribution
Southeast of Brazil (Espírito Santo and Rio de Janeiro States); Holocene of Bahia Blanca, Argentina.

Etymology
This species is named after Dr. Ester Farinati, who contributed a lot to the knowledge of pyramidellids from South America.

Remarks
FARINATI (1993) reported *T. atypha* Bush, 1899 from the Holocene of Bahia Blanca, Argentina. However, the illustration provided does not correspond to *T. atypha*, which is more slender and has more convex whorls and somewhat sinuous axial ribs. The figure in FARINATI (1993) indicates, rather, an exemplar of *Turbonilla farinatiae* with a slightly wider than normal shell.
The most similar species from the southwest Atlantic is *Turbonilla uruguayensis* Pilsbry, 1897, which has a very similar shell shape, but is larger and bears stronger axial ribs which end abruptly on the periphery of the last whorl. In *T. farinatiae* the ribs project slightly over the base (figs 2, 3). Moreover, both *T. uruguayensis* and *T. atypha* have helicoid protoconchs, while *T. farinatiae* has a planispiral one (figs 4, 5). *Turbonilla paucistriata* (Jeffreys, 1884: 361, pl. 27, fig. 6), described from the Mediterranean, has a very similar sculpture pattern and a planispiral protoconch, but it is less conical than *T. farinatiae* (fig. 1), having a somewhat pupoid shell shape. Moreover, the ribs of *T. paucistriata* are less marked and the inner lip is much more developed than in *T. farinatiae*..

Turbonilla goytacazi n. sp. (figs 6-12)

Description
Shell tall, moderately conical; color milk-white with yellow spiral band above the sutures. Teleoconch whorls almost straight in profile, but slightly concave on middle, slightly shouldered below the sutures, specially on initial whorls. Suture somewhat deep, straight. Protoconch heterostrophic planispiral; diameter about 330 µm. Axial ribs broad, low, straight and orthocline or prosocline with a spiral line of constriction on the middle; 17 on last whorl of holotype; interspaces narrow, about half as wide as the ribs, bearing microscopic axial growth lines. Spiral sculpture absent, except for very thin spiral striae. Base rounded, with evanescent axial ribs that project a little over the it, but do not reach the umbilical region. Aperture rhomboid, tending to pyriform. Columella obliquely straight, with obsolete fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 8 teleoconch whorls; height 6.6 mm; width 1.7 mm.

Type material
Holotype: MNRJ 8935, Bacia de Campos, Rio de Janeiro State (22°15'25"S, 040°19'39"W, 100 m), NOAG coll.; Paratypes: MNHN; ANSP 410340, off Rio de Janeiro State, REVIZEE # 38C (22°00'24"S, 040°05'13"W, 100 m), 08/ii/1997, NOAG coll.; MORG 41038, Bacia de Campos, Rio de Janeiro State (22°15'20"S, 040°19'45"W, 100 m), NOAG coll.; MNRJ 8936, Bacia de Campos, Rio de Janeiro State (22°15'07"S, 040°19'56"W, 95 m), NOAG coll.; IBUFRJ 11899, off Bacia de Campos, Rio de Janeiro State, NOAG coll.; MZSP 28877, 23°57.5'S, 044°53'W, 75 m, 27/vii/1986, NOWB coll.; ZMA 4.02.020, Bacia de Campos, Rio de Janeiro State (22°15'26"S, 040°19'41"W, 105 m), NOAG coll.

Type locality
Bacia de Campos, Rio de Janeiro State (22°15'25"S, 040°19'39"W, 100 m), southeast coast of Brazil.

Additional material
IBUFRJ 11003, off Espírito Santo State, REVIZEE # EO 532 (19°43.857'S, 039°26.653'W, 359 m), Navio Thalassa coll. [1]; MORG 38641, off Santa Catarina (28°44'S, 047°38'W, 200 m), ii/1987, AS coll. [1].

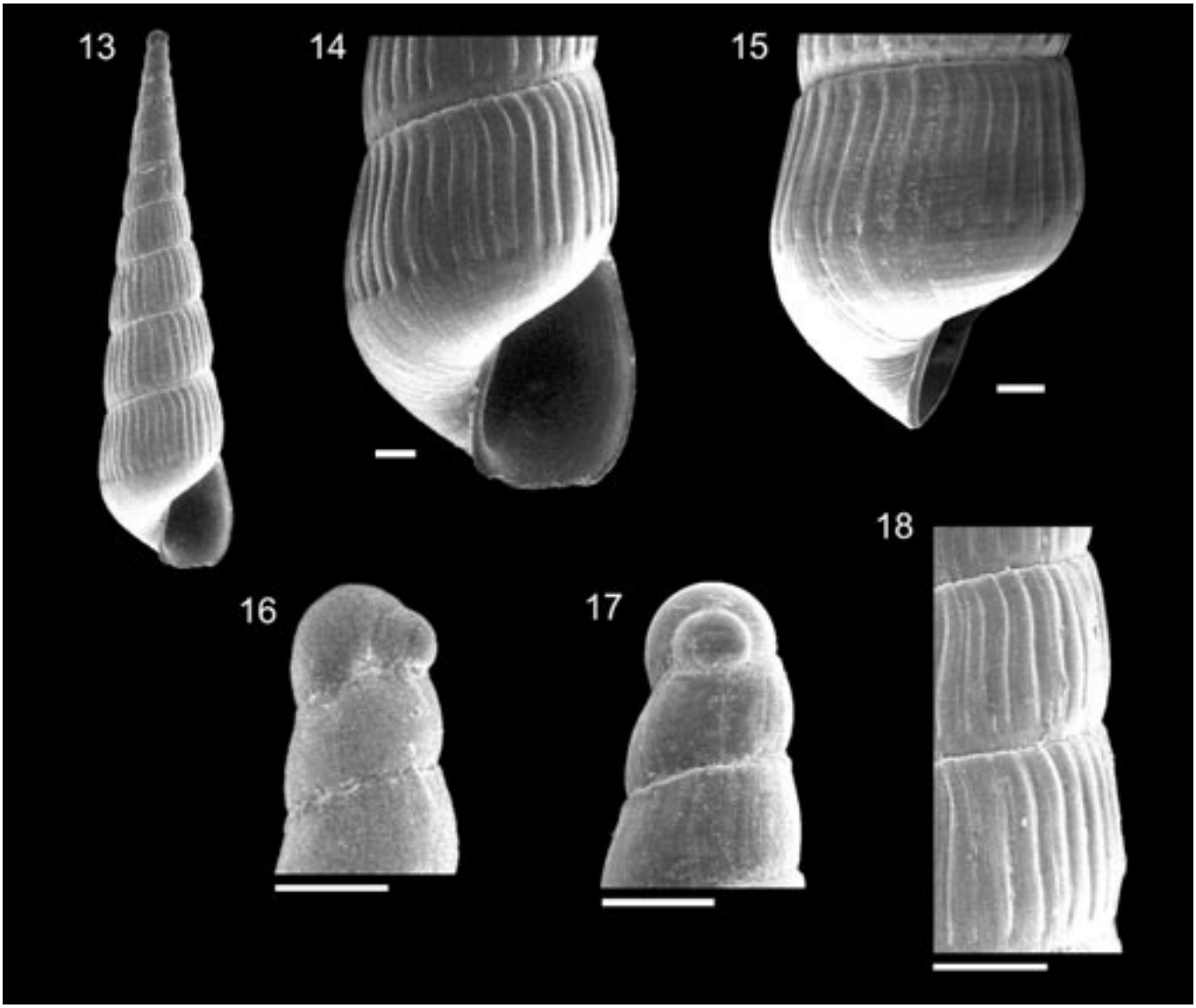
Distribution
Coast of Espírito Santo to north coast of Rio de Janeiro State and Santa Catarina State.

Etymology
This species is named after the Brazilian Indian tribe Goytacaz (Portuguese term to the Brazilian Indian word Waitacá, great runners) that inhabited the land area in Campos Bay.

Remarks
Turbonilla goytacazi (figs 6-12) resembles *T. farinatiae* (figs 1-5) in the shape of the axial ribs, the degree of their projection over the base (figs 8, 9), and protoconch type (figs 11, 12). The species can be distinguished by the general shape of the shell, which is less conical and narrower in *T. goytacazi* (figs 6, 7) and by the yellow spiral band, absent in *T. farinatiae*.

Turbonilla farroupilha n. sp. (figs 13-18)

Description
Shell tall, strictly conical, with acuminate apex; color milk-white. Teleoconch whorls slightly pyriform in profile, with accentuated convexity in the anterior half, above the suture. Suture somewhat deep, delicately sinuous by ribs projection. Protoconch heterostrophic helicoid; diameter about 260 µm. Axial ribs orthocline or opisthocline, sinuous, slender and very close each other; not distinct on initial 3-4 whorls; summits of the ribs projected over anterior suture; 40 ribs on body whorl of holotype; interspaces very narrow, about half as wide as the ribs, ending abrupt-



Figs 13-18. *Turbonilla farroupilha* n. sp. 13, 14, 17, 18: holotype (MORG 41049); 15: paratype (IBUFRJ 11900); 16: paratype (MNHN). Fig. 13: whole shell (length 7.8 mm); figs 14, 15: last whorl; figs 16, 17: protoconch; fig. 18: detail of sculpture. Scale bars: 250 µm.
Figg. 13-18. *Turbonilla farroupilha* n. sp. 13, 14, 17, 18: olotipo (MORG 41049); 15: paratipo (IBUFRJ 11900); 16: paratipo (MNHN). Fig. 13: conchiglia intera (lunghezza 7,8 mm); figg. 14, 15: ultimo giro; figure 16, 17: protoconca; fig. 18: dettaglio della scultura. Scala di riferimento: 250 µm.

ly at periphery of last whorl and some distance posterior to the summit of the succeeding whorl, thus leaving a rather broad, plain band above the suture. Spiral sculpture absent, except for microscopic spiral striations. Base rounded, smooth. Aperture rhomboid, well rounded anteriorly. Columella obliquely arcuate, without fold. Outer lip thin. No umbilical fissure.

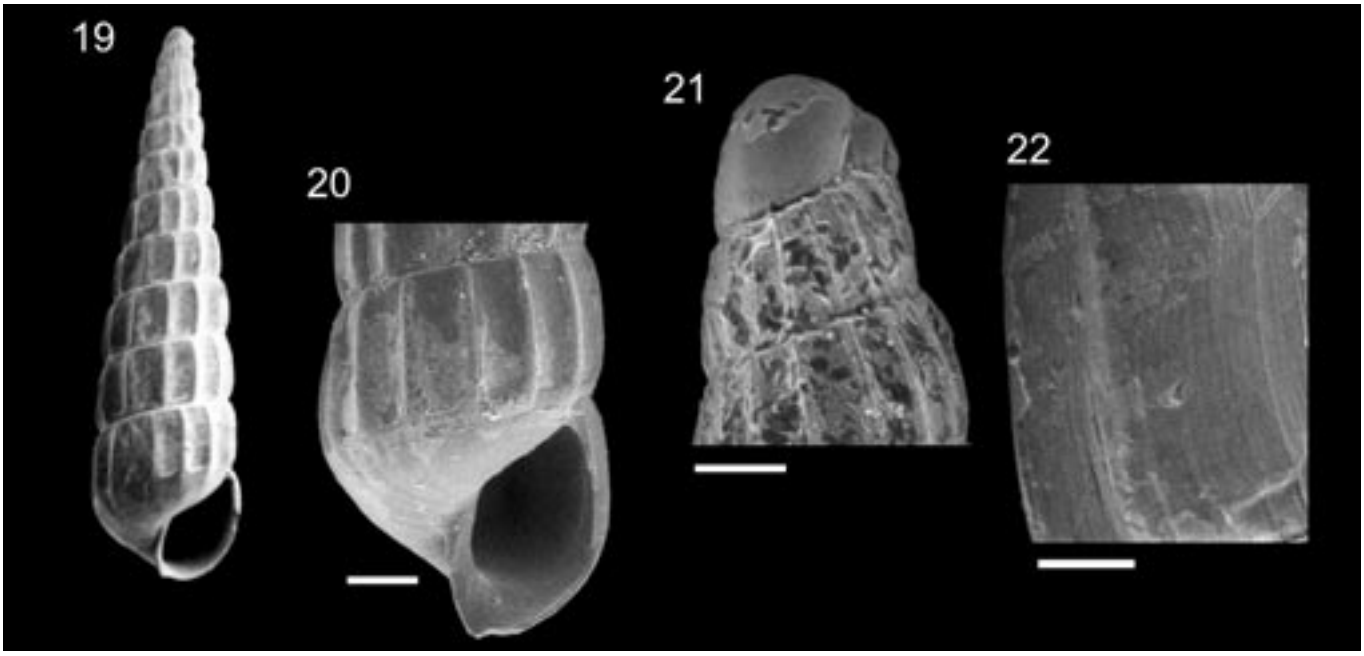
Dimensions
Holotype with 10.5 teleoconch whorls; height 7.8 mm; width 1.8 mm

Type material
Holotype: MORG 41049 off Rio Grande, Rio Grande do Sul State (42 m), iii/1972, AS coll.; Paratypes: MNRJ 8919; ANSP 410341; MORG 41049; MNHN, type locality; IBUFRJ 11900; MZSP 35859 Armação, Santa Catarina State, Daniel Forcelli leg.

Type locality
Off Rio Grande (42 m), Rio Grande do Sul State, south coast of Brazil.

Additional material
--Rio de Janeiro State: IBUFRJ 9423, Arquipélago de Santana, Macaé, v/1993, NOAG coll. [3]; --Santa Catarina State: IBUFRJ 9399, Armação, D.Forcelli leg. [1]; IBUFRJ 9410, CFVII # 6165 (23°02.8'S, 042°46'W, 56 m), 23/iii/1983, NOAS coll. [2]; --Rio Grande do Sul State: MORG 21914, off Rio Grande (42 m), iii/1972, AS coll. [5]; MORG 27031, Parcel do Carpinteiro, 25/xi/1988, AS coll. [6].

Distribution
Southeast-souht coast of Brazil (Rio de Janeiro, Santa Catarina and Rio Grande do Sul States).



Figs 19-22. *Turbonilla rhabdota* (Watson, 1886). 19: (IBUFRJ 8899); 20-22 (IBUFRJ 5229); Fig. 19: whole shell (length: 5.6 mm); fig. 20: last whorl; fig. 21: protoconch; fig. 22: detail of whorl. Scale bars: fig. 20: 300 µm; figs 21, 22: 100 µm.
Figg. 19-22. *Turbonilla rhabdota* (Watson, 1886). 19: (IBUFRJ 8899); 20-22 (IBUFRJ 5229); Fig. 19: conchiglia intera (lunghezza: 5,6 mm); fig. 20: ultimo giro; fig. 21: protoconca; fig. 22: dettaglio di un giro. Scala di riferimento: fig. 20: 300 µm; figg. 21, 22: 100 µm.

Etymology
This species is named after the "Guerra dos Farrapos", a civil war that took place in Rio Grande do Sul State (1835-1845).

Remarks
Turbonilla farroupilha is well characterized by its acuminate apex (fig. 13), and the sigmoid ribs which are very closely packed (figs 14, 15) and faint in the earlier whorls (figs 13, 16, 17).
The most similar species from the southwest Atlantic are *Turbonilla uruguayensis* Pilsbry, 1897 and *Turbonilla atypha* Bush, 1899. Both have a conical shell shape and lack spiral sculpture, and *T. uruguayensis* also bears faint ribs on the earlier whorls. However, in *T. farroupilha*, the earlier whorls narrow abruptly, giving rise to an acuminate apex (fig. 13), and the ribs are more sinuous, slender, and closely packed (figs 14, 15). *Turbonilla turris* (d'Orbigny, 1840), the holotype of which was illustrated by Pimenta & Absalão (2001), has the same kind of microscopic spiral striae and also a somewhat acuminate apex, but the ribs and the profile of the whorls are straight.

Turbonilla rhabdota (Watson, 1886) (figs 19-22)

Odostomia (Turbonilla) rhabdota Watson, 1886. Challenger Reports, Zoology 15: 491-492, pl. 32, fig. 4.
Turbonilla rhabdota (Watson, 1886): Odé (1996: 56).

Types
Holotype: presumably at BMNH, not examined.

Type locality
Off Cuebra Island, West Indies (Chalenger St. 24: 18°38'30"N, 065°05'30"W, 700 m).

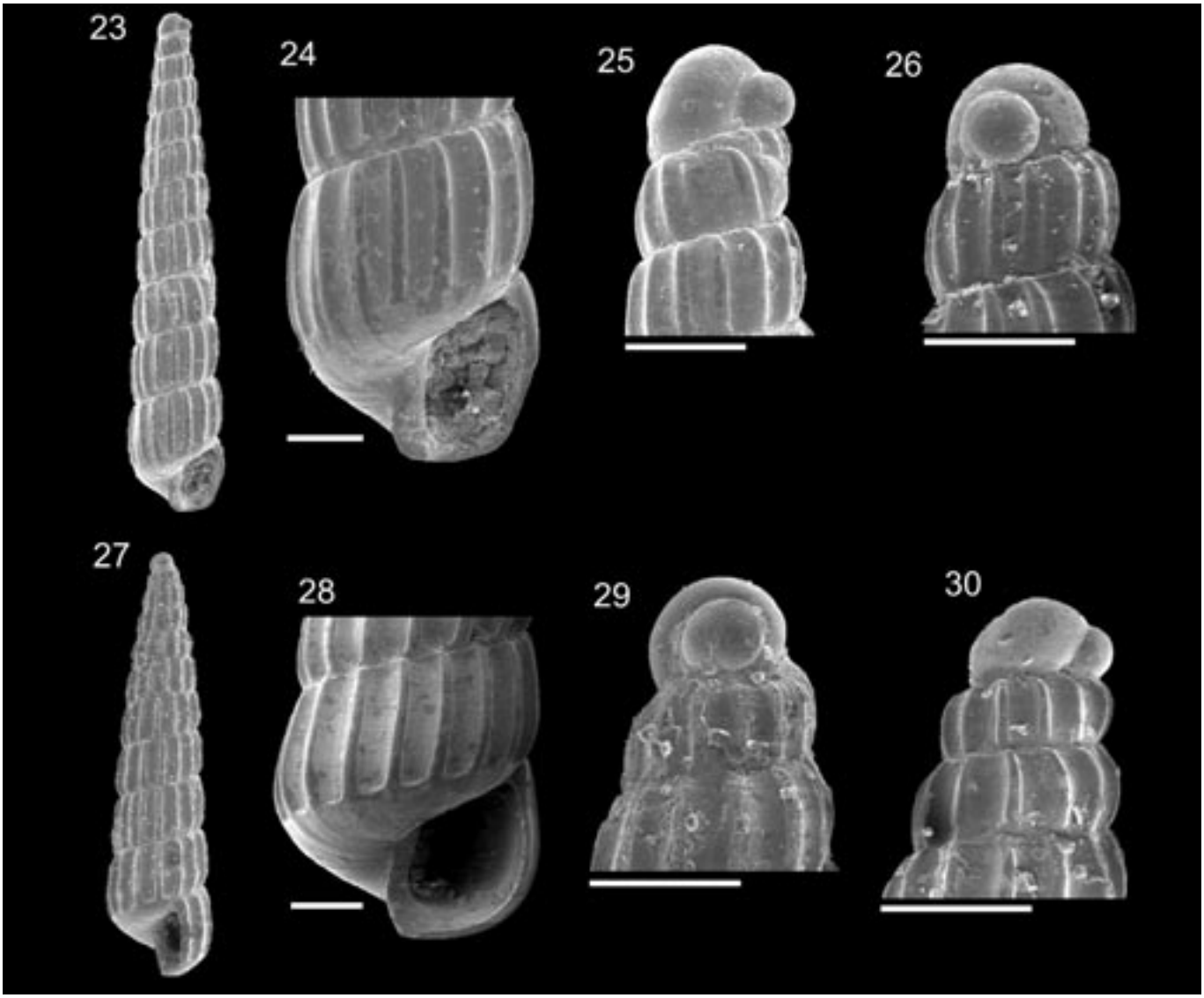
Material examined
--Pará State: IBUFRJ 8898, AMASSEDS # 4134 (off Pará), x/1991, RVCI coll. [1]; --Espírito Santo State: IBUFRJ 9009, off Camburi, 15/x/1997, Eq.Zoo. coll. [1]; IBUFRJ 5929, off Camburi #11A, 18/iii/1991, Eq.Zoo. coll. [2]; --Rio de Janeiro State: IBUFRJ 8899, Arquipélago de Santana, Macaé, v/1993, NOAG coll. [4]; --São Paulo State: MZSP 30908, Praia do Goes, Ilha de Santo Amaro, 04/i/21970, J.Vaz coll. [2]; MORG 38613, off São Vicente, vii/1974, J. Cololle coll. [1]; --Paraná State: MORG 15927, off Camboriu, viii/1971, E.Vokes & H.Vokes coll. [2]; MZSP28862, Praia de Caiobá, 15/xii/1948, J.P.Carvalho coll. [2].

Distribution
West Indies; north, southeast and south coasts of Brazil (Pará, Espírito Santo, Rio de Janeiro, São Paulo and Paraná States).

Remarks
Odé (1996) listed *T. valida* Verrill & Bush, 1900 and *Turbonilla kymatoessa* (Watson, 1886) in synonymy with *T. rhabdota*. We do not agree with this statement. *Turbonilla valida* has more convex whorls, and its ribs are not straight and do not have the same characteristics of sharpness and spacing as *T. rhabdota*. *Turbonilla kymatoessa* has spiral striae in the interspaces and a planispiral protoconch (Watson, 1886).

Turbonilla lepta n sp. (figs 23-26)

Description
Shell small, moderately tall, very slender, elongate-conic to almost cylindrical in shape; fresh shells transparent, older ones white. Teleoconch whorls somewhat straight in profile. Suture



Figs. 23-26. *Turbonilla lepta* n. sp. 23-25: holotype (MNRJ 8939); 26: paratype (MNHN). Fig. 23: whole shell (length 4.6 mm); fig. 24: last whorl; figs 25, 26:protoconch. Scale bars: 200 µm.
Figs 27-30. *Turbonilla parviscymna* n. sp. 27-29: holotype (MNRJ 8922); 30: paratype (IBUFRJ 11902). Fig. 27: whole shell (length 3.8 mm); fig. 28: last whorl; figs 29, 30:protoconch. Scale bars: 200 µm.
Figg. 23-26. *Turbonilla lepta* n. sp. 23-25: olotipo (MNRJ 8939); 26: paratipo (MNHN). Fig. 23: conchiglia intera (lunghezza: 4,6 mm); fig. 24: ultimo giro; figg. 25, 26: protoconca. Scala di riferimento: 200 µm.
Figg. 27-30. *Turbonilla parviscymna* n. sp. 27-29: olotipo (MNRJ 8922); 30: paratipo (IBUFRJ 11902). Fig. 27: conchiglia intera (lunghezza 3,8 mm); fig. 28: ultimo giro; figg. 29, 30: protoconca. Scala di riferimento: 200 µm.

shallow, straight. Protoconch heterostrophic heliocoid; diameter about 230 µm. Axial ribs straight, slender orthocline; 16 on body whorl of holotype; interspaces about as wide as the ribs, ending abruptly at periphery of last whorl. Spiral sculpture absent. Base rounded, smooth. Aperture rhomboid. Columella straight, without fold. Outer lip thin. No umbilical fissure.

Dimensions

Holotype with 10.5 teleoconch whorls; height 4.6 mm; width 0.8 mm.

Type material

Holotype: MNRJ 8939, off Cabo Frio, Rio de Janeiro State, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll.; Paratypes: IBUFRJ 11901; MORG 41039; MZSP 35851, type locality; MNHN off Espírito Santo State; ANSP 410342, off north coast of Rio de Janeiro State, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll.; MNRJ 8940, Bacia de Campos, Rio de Janeiro State (22°15'36"S, 040°20'16"S, 100 m).

Type locality

Off Cabo Frio, north coast of Rio de Janeiro State (22°53.7'S, 041°50.5'W, 50 m), southeast coast of Brazil.

Additional material

--Espírito Santo State: IBUFRJ 8907, off Espírito Santo State [2]; -- Rio de Janeiro State: IBUFRJ 9440, off Cabo Frio, CFVII

6174 (23°16.8'S, 043°02.7'W, 92 m), 29/iii/1983, NOAS coll. [1]; IBUFRJ 9441, off Cabo Frio, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. [5]; IBUFRJ 10350, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll. [2].

Distribution
Southeast coast of Brazil (Espírito Santo and Rio de Janeiro States).

Etymology
This species is named after its slender, thin shell (*leptos*, Gr. = fine, small, thin, delicate).

Remarks
Turbonilla lepta (figs 23-26) is similar in dimensions and sculpture to *Turbonilla coomansi* Aartsen, 1993, with the same protoconch type and number of whorls (figs 25, 26). *Turbonilla lepta*, however, is more slender, tall, and has an almost cylindrical shape (fig. 23), while *T. coomansi* is more conical. Moreover, *T. coomansi* has somewhat curved and sharper axial ribs and convex whorls profile, while in *T. lepta*, the ribs and whorls profile are straight (fig. 23).

Turbonilla parviscymna n. sp. (figs 27-30)

Description
Shell small, conical; color white. Teleoconch whorls straight. Suture shallow, slightly sinuous by ribs projection. Protoconch heterostrophic helicoid; diameter about 200 µm. Axial ribs slender, straight, orthocline or slightly opisthocline; 17 on body whorl of holotype; interspaces about twice as wide as the ribs, ending abruptly at periphery of last whorl. Spiral sculpture absent. Base rounded, smooth. Aperture rhomboid. Columella straight, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 8.25 teleoconch whorls; height 3.8 mm; width 0.7 mm.

Type material
Holotype: MNRJ 8922, off Pará State, AMASSEDS # 3209 (01°20.93'N, 048°00.20'W, 53 m), RVCI coll.; Paratypes: ANSP 410343; MNHN; IBUFRJ 11902, type locality.

Type locality
Off Pará State, north coast of Brazil, AMASSEDS # 3209 (01°20.93'N, 048°00.20'W, 53 m).

Distribution
Known from type locality only.

Etymology
This species is named after its small protoconch in relation to shell width (parvus, L. = little; scymnus, L. = a young animal).

Remarks
Turbonilla parviscymna (figs 27-30) has the same sculpture and protoconch type (figs 29, 30) as *T. lepta* (figs 25, 26), but can be easily distinguished by its strictly conical shape (fig. 27), with a larger shell width in relation to the shell length, while *T. lepta* has an almost cylindrical shell shape, being very slender and tall (fig. 23).

Turbonilla fluminensis n. sp. (figs 31-34)

Description
Shell tall, slender, slightly conical; color white. Teleoconch whorls convex in profile. Suture somewhat deep, straight. Protoconch heterostrophic helicoid; diameter about 300 µm. Axial ribs slender, slightly sinuous, opisthocline; ending abruptly at periphery of last whorl; 18 on body whorl of holotype; interspaces as wide as the ribs. Spiral sculpture absent. Base rounded, smooth. Aperture rhomboid. Columella obliquely straight, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 10.25 teleoconch whorls; height 4.7 mm; width 0.9 mm.

Type material
Holotype: MNRJ 8943, off Macaé, Rio de Janeiro State, REVIZEE # D1 (22°48'S, 041°09'W, 69 m), 23/ii/1996, NOAN coll.; Paratypes: ZMA 4.02.021; MNRJ 8923; MZSP 35861, off north coast of Rio de Janeiro State, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll.; ANSP 410344, type locality; IBUFRJ 11903, Bacia de Campos, Rio de Janeiro State (22°47'47"S, 40°45'32"W), NOAG coll.; MNRJ 8924, Bacia de Campos, Rio de Janeiro State (22°15'20"S, 040°19'54"W, 100 m); MORG 41040, Bacia de Campos, Rio de Janeiro State (22°15'07"S, 040°19'56"W, 95 m); MNHN Espírito Santo I # 6446, 22/viii/1984, NOAS coll.

Type locality
Off Macaé (22°48'S, 041°09'W), Rio de Janeiro State, southeast coast of Brazil.

Additional material
-- Rio de Janeiro State: IBUFRJ 9443, off Cabo Frio, CFVII # 6147 (22°53,7'S, 041°50,5'W, 50 m), 24/iii/1983, NOAS coll. [1]; IBUFRJ 10349, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll. [1]; IBUFRJ 8906, off Bacia de Campos (22°15'25"S, 040°19'39" W, 100 m), NOAG coll. [1].

Distribution
Southeast coast of Brazil (off Espírito Santo and Rio de Janeiro States).

Etymology
"Fluminense" is the general determination to those people that was born in Rio de Janeiro State, Brazil.

Remarks
Turbonilla fluminensis (figs 31-34) is very similar in shell shape and sculpture to *Turbonilla coomansi* Aartsen, 1993, *Turbonilla penistoni* Bush, 1899, and *Turbonilla enna* Bartsch, 1927. However, *T. fluminensis* can be distinguished by its larger protoconch (mean diameter 300 µm) which has about three whorls well projected in a helicoid type (figs 33, 34). The helicoid protoconchs of *T. coomansi* and *T. penistoni* bear about two whorls of medium size (mean diameters 210 and 200 µm, respectively), and *T. enna* has a planispiral protoconch (figs 39, 40).
The whorls profile of *T. fluminensis* (figs 31, 32) is more regularly convex than *T. penistoni* (the holotype was illustrated by ABSALÃO & PIMENTA, 1999). The latter has a somewhat sinuous whorl profile, with the ribs projecting over the anterior suture.

Turbonilla aff. *enna* Bartsch, 1927 (figs.35-40)

Turbonilla enna Bartsch in Dall, 1927: 81-82; ODÉ (1996: 40).

Type locality
Off Fernandina, Florida (530 m).

Types
Holotype: USNM 360175; paratype: USNM 360176.

Material examined
The holotype and: --Rio de Janeiro State: IBUFRJ 9465, off Cabo Frio, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. [2]; IBUFRJ 9466, off Prainha, Arraila do Cabo, 1989, T.Almeida coll. [1]; IBUFRJ 10351, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll. [10]; IBUFRJ 7202, CFVII # 6194 (24°03.6'S, 044°07.6'W, 134 m), 01/iv/1983, NOAS coll. [2]; IBUFRJ 9463, off Bacia de Campos (22°15'20"S, 040°19'45"W, 100 m), NOAG coll. [4]; IBUFRJ 9464, Bacia de Campos (22°15'26"S, 040°19'41"W, 105 m), NOAG coll. [1].

Distribution
Fernandina (Florida); southeast coast of Brazil (off Rio de Janeiro State).

Remarks
The ribs of the Brazilian specimens determined herein as *Turbonilla* aff. *enna* Bartsch, 1927 (figs 36-40) are stronger and less straight than in the holotype (fig. 35). Our determination of these specimens as *T.* aff. *enna* is based on the strong similarity in the protoconch type and general shell shape. Both the holotype and the Brazilian specimens have very similar dimensions and convex whorls. The most striking similarity, however, lies in the protoconch, which is planispiral (figs 35, 39, 40) in contrast to all other species without spiral sculpture discussed herein (*T. lepta, T. parviscymna, T. penistoni, T. fluminensis, T. coomansi, and T. unilirata* Bush, 1899).

Turbonilla zulmae Pimenta & Absalão, 1998 (figs 41-44)

Turbonilla zulmae Pimenta & Absalão, 1998: 63 nom. nov. for *Turbonilla elongata* Castellanos, 1982 non Pease, 1967.
Turbonilla elongata Castellanos, 1982: 66-67, fig. 8; FARINATI (1993: 301, fig. 5).

Type locality
Pto. Quequén (40°25'S, 61°34'W, 30 m), Argentina.

Types
Holotype not located (probably lost). Paratypes: MACN 30807, Pto. Quequén, Est. Hidrobiologica, vii/1937, Carcelles, Parodiz coll. [13]; MACN 34015, Est. 16 del Shinkai Marú (38°31'S, 057°25'W, 50 m)[1].

Material examined
--Rio de Janeiro State: IBUFRJ 11896, off Cabiúnas, 21/iv/1993, NOAG coll. [1]; --Rio Grande do Sul State: MORG 17858, off Chuí, # 405 (65 m), 29/x/1968, NOWB coll. [4]; MZSP19301, off Chuí (34°32'S, 052°27'W, 65 m), 19/x/1968, NOWB coll. [5];

Remarks
Turbonilla zulmae Pimenta & Absalão, 1998 was proposed as a new name for *Turbonilla elongata* Castellanos, 1982 non Pease, 1967. Although the holotype of this species is probably lost, we were able to examine its paratypes, on which we base our discussion (fig. 41). This species is very similar to *Turbonilla atypha* Bush, 1899, but is more slender, with more marked and numerous axial ribs.
The specimens from Brazil (figs 42-44) have very similar general shell shape and axial ribs, but are less slender and have a more convex whorls outline than the illustrated paratype of *T. zulmae* (fig. 41).

Turbonilla aff. *unilirata* Bush, 1899 (figs 45-48)

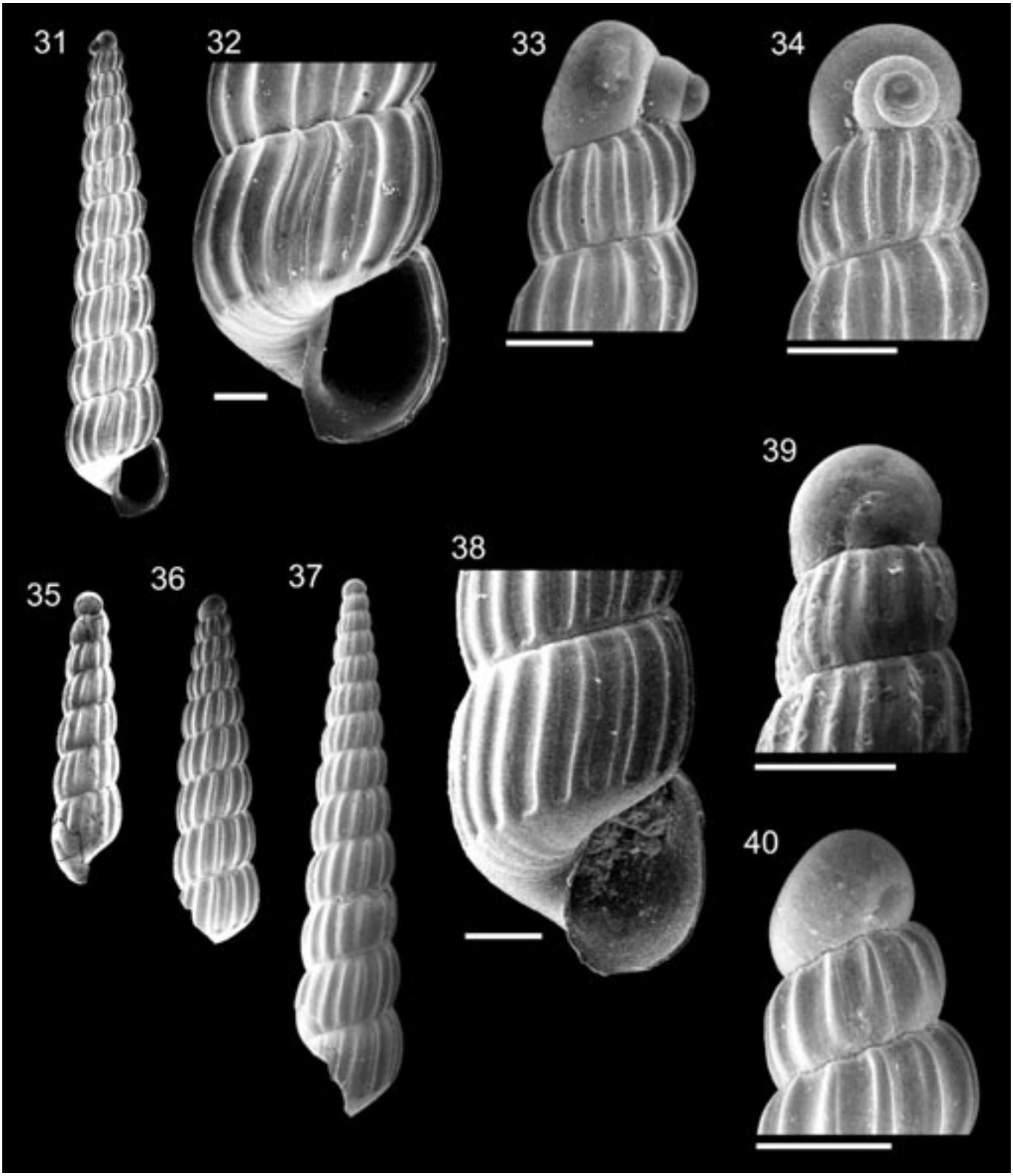
Turbonilla unilirata Bush, 1899: 165, pl. 8, fig. 6; WARMKE & ABBOTT (1962: 149); JONG & COOMANS (1988: 127, pl. 20, figs. 660); JOHNSON (1989: 72); ODÉ (1996: 60); ABSALÃO & PIMENTA (1999: 83, fig. 11).
Turbonilla (Pyrgiscus) unilirata Bush, 1899: VOKES & VOKES (1983: 33, pl. 31, fig. 8).
Turbonilla cf. *unilirata* Bush, 1889: DIAZ & PUYANA (1994: 239, fig. 957).

Type locality
Saint Thomas, West Indies.

Types
Holotype by original designation: ANSP 79010; paratypes: ANSP 79010 (three specimens, missing).

Material examined
The holotype and: MZSP 30907, off Rio de Janeiro State, PADCT 6627 (23°57.990'S, 043°52.560'W, 133 m) [5].

Distribution
West Indies; southeast coast of Brazil (off Rio de Janeiro State).



Figs 31-34. *Turbonilla fluminensis* n. sp. 31, 32: holotype (MNRJ 8943); 33, 34: paratype (MORG 41040). Fig. 31: whole shell (length 4.7 mm); fig. 32: last whorl; figs 33, 34: protoconch. Scale bars: 200 µm.
Figs 35-40. *Turbonilla* aff. *enna* Bartsch, 1927. 35: holotype (USNM 360175); 36-40 (IBUFRJ 10351). Figs 35-37: whole shells (lengths: 35: 4.2 mm, 36: 2.8 mm, 37: 5.0 mm); fig. 38: last whorl; figs 39, 40: protoconch. Scale bars: 200 µm.
Figg. 31-34. *Turbonilla fluminensis* n. sp. 31, 32: olotipo (MNRJ 8943); 33, 34: paratipo (MORG 41040). Fig. 31: conchiglia intera (lunghezza 4,7 mm); fig. 32: ultimo giro; figure 33, 34: protoconca. Scala di riferimento: 200 µm.
Figg. 35-40. *Turbonilla* aff. *enna* Bartsch, 1927. 35: olotipo (USNM 360175); 36-40 (IBUFRJ 10351). Figg. 35-37: conchiglie intere (lunghezza: 35: 4,2 mm, 36: 2,8 mm, 37: 5,0 mm); fig. 38: ultimo giro; figure 39, 40: protoconca. Scala di riferimento: 200 µm..

Remarks
For description, see BUSH (1899) and ABSALÃO & PIMENTA (1999). *Turbonilla unilirata* lacks spiral sculpturing, but can be clearly distinguished by a single spiral cord just below the suture, as seen in the holotype (fig. 45). As discussed by ABSALÃO & PIMENTA (1999: 83, fig. 12), a possible intraspecific variation of *T. unilirata* is characterized by shells with a more tapered outline and fewer axial ribs, with larger interspaces. The Brazilian specimens studied herein (figs 46-48) resemble this variation more closely, with the same tapered whorls and ribs pattern (fig. 46). However, the spiral cord (figs 46, 47) is not as marked as in the holotype of *T. unilirata* (fig. 45) and in its variation (ABSALÃO & PIMENTA, 1999: fig, 12), which led us to determine these specimens as *T.* aff. *unilirata*.

Turbonilla krebsii (Mörch, 1875) (figs 49-54)

Chemnitzia (Elusa) krebsii Mörch, 1875: 159-160.
Turbonilla krebsii (Mörch, 1875): JONG & COOMANS (1988: 128, pl. 20, fig. 668); ODÉ (1996: 47); REDFERN (2001: 150, pl. 67, figs 626A, 626B, 626C).
Turbonilla palmerae Aguayo & Jaume, 1936. synonymized by JONG & COOMANS (1988)

Type locality
Saint Thomas.

Types
Two syntypes: ANSP 19983.

Material examined
The types above and: Grand Bahama Islands: ANSP 369280, Southwest Corner, Sweetings Cay, (26°36'45"N, 077°54'30"W), J.Worsfold coll. [2]; ANSP 370037, Fleming Road, Mosquito Point, (26°37'30"N, 078°54'W), J.Worsfold coll. [2]; ANSP 371818, 4 miles of Burmah Oil, (26°40'N, 078°09'W), J.Worsfold coll. [47]; --Bahia State: IBUFRJ 8860, off Bahia State, L.Trinchão coll. [1]; MNHN, Rio Vermelho, São Salvador, 1989, P.Maestrati coll. [2].

Distribution
Saint Thomas; Bahama Islands; northeast coast of Brazil (off Bahia State).

Remarks
Turbonilla krebsii (Mörch, 1875) is characterized by its pupoid shell (figs 49, 50), golden brown shell color, and spiral sculpture of about six rectangular pits in the interspaces (figs 51, 52). In contrast to these characters, which show very little variation, the axial ribs may be very faint in the last whorl, as in the holotype (fig. 49).

Turbonilla pupoides (d'Orbigny, 1842) (figs 55-60)

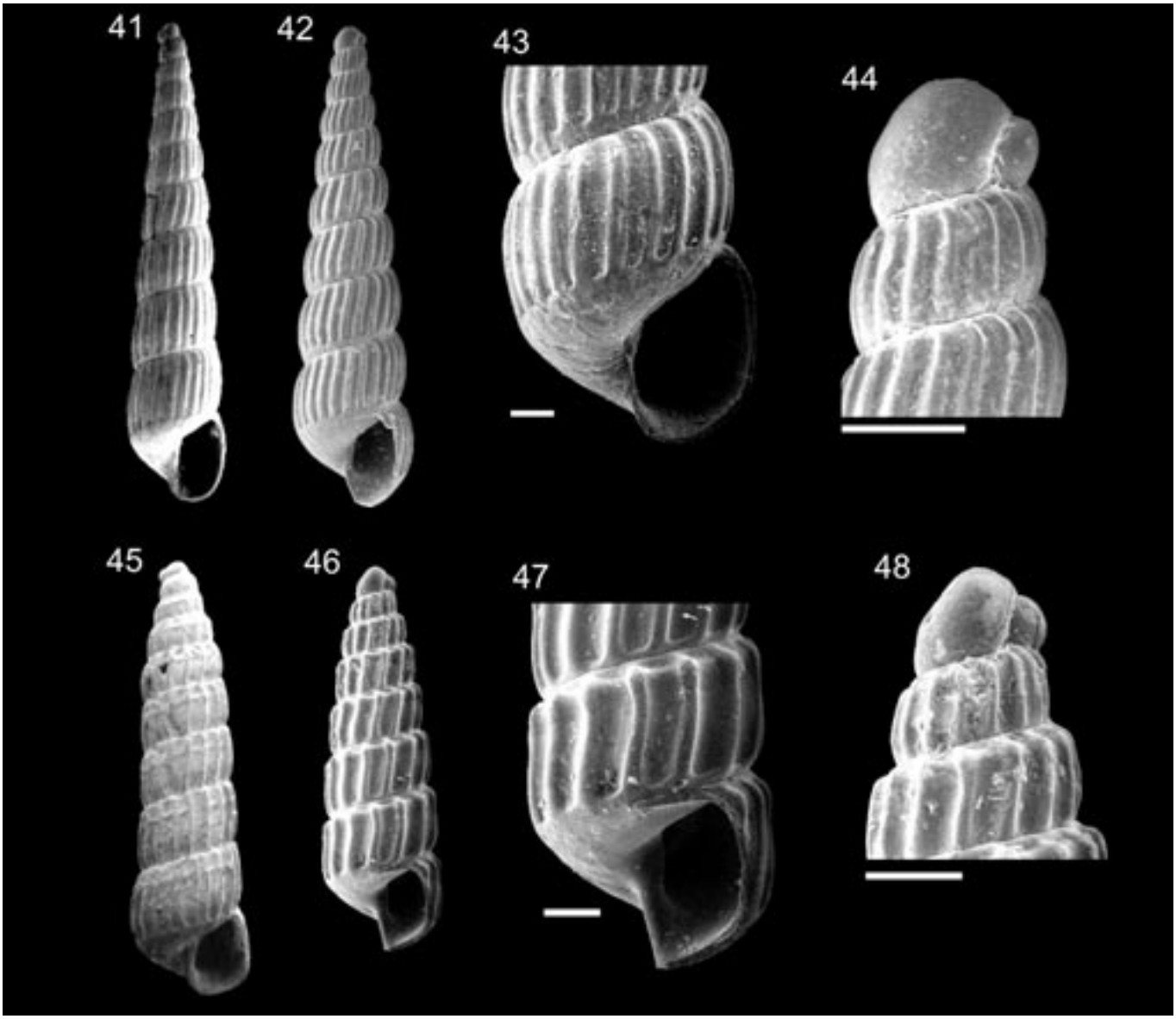
Chemnitzia pupoides d'Orbigny, 1842: 224, 225. Atlas (1853): pl. 16, fig 32, 36.
Turbonilla pupoides var. *ischna* Bush, 1899: 153-154, pl. 8, fig. 5; ABSALÃO & PIMENTA (1989: 82, fig. 21).
Pyrgostelis (Mormula) pupoides var. *ischna* (Bush, 1899): VERRILL & BUSH (1990: 351, pl. 65, figs. 21, 22).
Turbonilla (Pyrgiscus) pupoides (d'Orbigny, 1842): VOKES & VOKES (1983: 33, pl. 31, fig. 13).
Turbonilla pupoides ischna Bush, 1899: JONHSON (1898: 44).
Turbonilla pupoides (d'Orbigny, 1842): WARMKE & ABBOTT (1962: 148, pl. 26, fig. d); JONG & COOMANS (1988: 130, pl. 20, fig. 676); DIAZ & PUYANA (1994: 238, fig. 950); ODÉ (1996: 54); REDFERN (2001: 148, pl. 66, figs 616A, 616B).
Chemnitzia flavocincta C.B.Adams (1850). synonymyzed by JONG & COOMANS (1988).

Type Locality
Cuba.

Types
Syntypes: BMNH 1854.10.4.148.

Material Examined
The types and: holotype of *Turbonilla pupoides* var. *ischna* Bush, 1899: ANSP 79014, no locality data; three paratypes of *Turbonilla pupoides* var. *ischna* Bush, 1899: ANSP 372507, no locality data; -- Grand Bahama Island: ANSP 371277, Dead Man's Reef [20]; --Bermuda: MORG 17506, off Bermuda [3]; --Bahia State: MORG 23909, Abrolhos bank, i/1985, Eq.MORG coll. [1]; MZSP28864, Abrolhos bank, v/1958, L.Pini Neto coll. [2]; MORG 23908, Abrolhos bank, i/1985, Eq. MORG coll. [90]; MORG 16401, off Itapuã, 17/vii/1967, E. Rios coll. [14]; IBUFRJ 11068, off Guarajuba, Itapuã, 1989, L.Trinchão coll. [4]; -- Espírito Santo State: IBUFRJ 8864, REVIZEE # VV38 (19°28'S, 038°22'W), 29/ii/1996, NOAN coll. [5]; IBUFRJ 7542, GEOMAR XII # 21 (20°49'80"S, 040°16'20"W, 37 m), 26/viii/1979, NOAC coll. [2]; IBUFRJ 7541, GEOMAR XII # 34 (21°15'30"S, 040°20'40"W, 46 m), 27/viii/1979, NOAC coll. [1]; IBUFRJ 8627, off Piúma, 1993 [5]; IBUFRJ 8865, off Espírito Santo State, 23/vi/1993 [2]; IBUFRJ 9779, REVIZEE # VV16 (21°10'S, 040°27'W, 27.65 m), 26/ii/1996, NOAN coll. [1]; IBUFRJ 10219, REVIZEE # C62 (20°30'02"S, 037°28'51"W, 96 m), 25/iv/1996, NOAN coll. [1]; IBUFRJ 10316, off Aracruz, 01/viii/1987 [1]; IBUFRJ 8862, off Espírito Santo State [3]; -- Rio de Janeiro State: IBUFRJ 7548, GEOMAR XII # 41 (21°21'S, 040°53'W, 12 m), viii/1979, NOAC coll. [2]; IBUFRJ 7543, GEOMAR XII # 76 (21°57'60"S, 040°51'W, 15 m), 28/viii/1979, NOAC coll. [1]; IBUFRJ 8863, REVIZEE # D1 (22°48'S, 041°09'W), 23/ii/1996, NOAN coll. [1]; IBUFRJ 7641, GEOMAR XII # 97 (22°07'50"S, 040°20'50"W, 67 m), 29/viii/1979, NOAC coll. [3].

Distribution
Cuba; Bahama Island; Yucatan Peninsula, Mexico; Colombian Caribbean; northeast and southeast coasts of Brazil (Bahia, Espírito Santo and Rio de Janeiro States).



Figs 41-44. *Turbonilla zulmae* Pimenta & Absalão, 1998. 41: paratype (MACN 34051); 42, 44 (MZSP 19301); 43 (IBUFRJ 7216). Figs 41, 42: whole shells (lengths: 41: 4.2 mm; 42: 4.0 mm); fig. 43: last whorl; fig. 44: protoconch. Scale bars: 200 µm.
Figs 45-48. *Turbonilla aff. unilirata* Bush, 1899. 45: holotype of *T. unilirata* (ANSP 79010); 46-48 (MZSP 30907). Figg. 45, 46: whole shells (lengths: 45: 2.8 mm, 46: 2.8 mm); 47: last whorl; 48: protoconch. Scale bars: 200 µm.
Figg. 41-44. *Turbonilla zulmae* Pimenta & Absalão, 1998. 41: paratipo (MACN 34051); 42, 44 (MZSP 19301); 43 (IBUFRJ 7216). Figg. 41, 42: conchiglie intere (lunghezza: 41: 4,2 mm; 42: 4,0 mm); fig. 43: ultimo giro; fig. 44: protoconca. Scala di riferimento: 200 µm.
Figg. 45-48. *Turbonilla aff. unilirata* Bush, 1899. 45: olotipo di *T. unilirata* (ANSP 79010); 46-48 (MZSP 30907). Figg. 45, 46: conchiglie intere (lunghezze: 45: 2,8 mm, 46: 2,8 mm); 47: ultimo giro; 48: protoconca. Scala di riferimento: 200 µm.

Remarks

Turbonilla pupoides (figs 55-60) is easily distinguished from the other *Turbonilla* species in the western Atlantic by its pupoid shell (figs 55-57) and spiral sculpture (fig. 58), with two wider striae, one in the middle of the whorl and another above the suture, and many fine, crowded spirals in the interspaces.

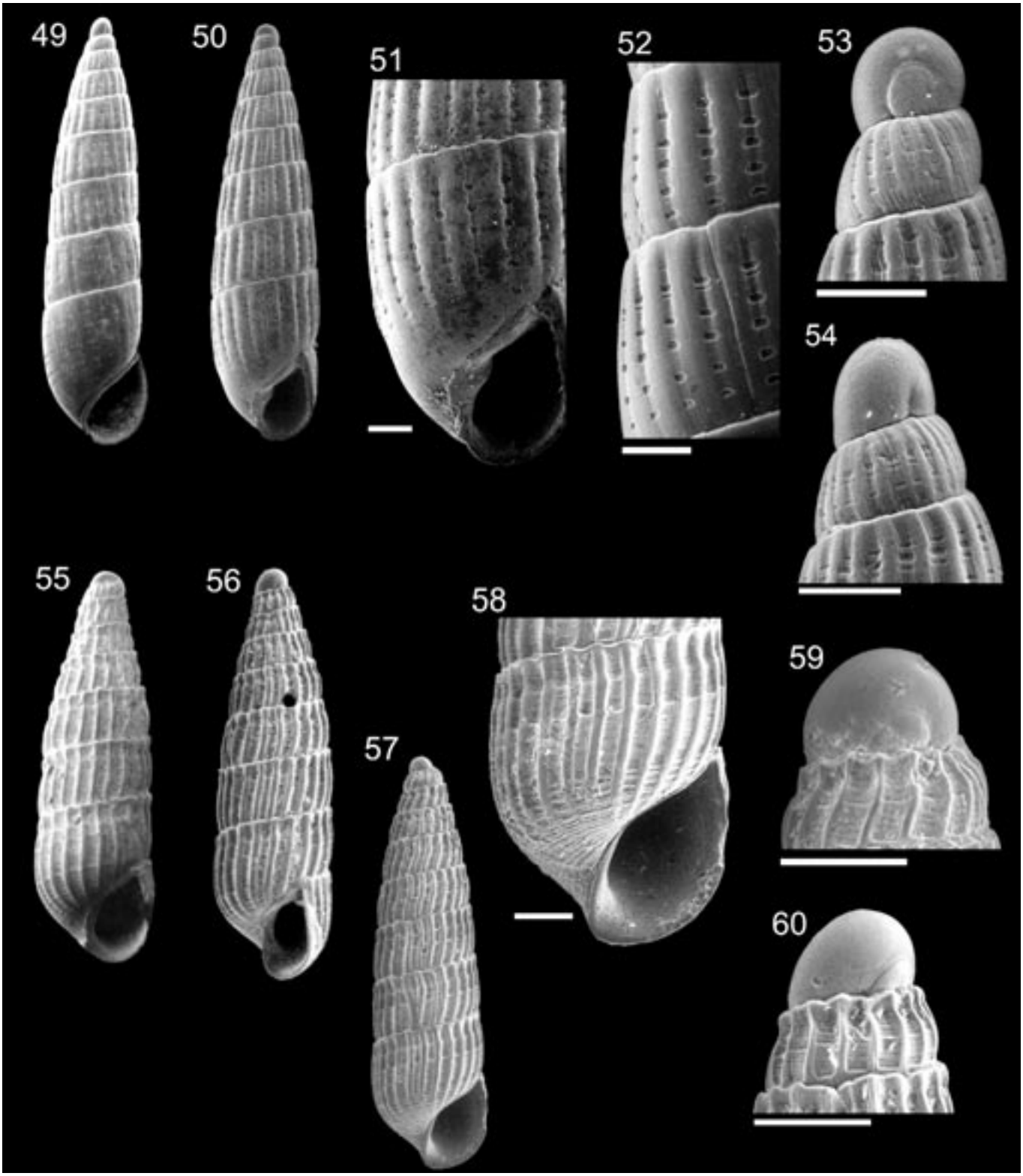
Absalão & Pimenta (1999) considered *Turbonilla pupoides* var. ischna Bush, 1899 as a synonym of *Turbonilla pupoides*. Based on the abundant material of this species studied herein, we could verify that the shell described by Bush (1899) is part of an intraspecific variation of *T. pupoides*, especially the shape of the shell, which may be somewhat slender in some specimens (fig. 57).

Turbonilla pupoides is very common along the Brazilian coast, but does not reach localities below 23o S. It is especially well represented off the coast of Bahia State, but is also present off the states of Rio de Janeiro and Espírito Santo. There are many other records from several localities in the Caribbean region (Bush, 1899; Verrill & Bush, 1900; Vokes & Vokes, 1983; Warmke & Abbott, 1964; Diaz & Puyana, 1994).

Turbonilla aracruzensis n. sp. (figs 61-65)

Description

Shell moderately tall, slender, conical; color light brown. Teleo-



Figs 49-54. *Turbonilla krebsii* (Mörch, 1875). 49: syntype (ANSP 19983); 50, 51 (IBUFRJ 8860); 52-54 (MNHN). Figs 49, 50: whole shells (lengths: 49: 4.1 mm, 50: 3.8 mm); fig. 51: last whorl; fig. 52: detail of sculpture; figs 53, 54: protoconch. Scale bars: 200 µm.
Figs 55-60. *Turbonilla pupoides* (d'Orbigny, 1842). 55: syntype (BMNH 1854.10.4.148). 56-60: (MORG 23908). Figs 55-57: whole shells (lengths: 55: 2.5 mm, 56: 3.0 mm, 57: 3.2 mm); fig. 58: last whorl, figs 59, 60: protoconch. Scale bars: 200µm.
Figg. 49-54. *Turbonilla krebsii* (Mörch, 1875). 49: sintipo (ANSP 19983); 50, 51 (IBUFRJ 8860); 52-54 (MNHN). Figure 49, 50: conchiglia intera (lunghezza: 49: 4,1 mm, 50: 3,8 mm); fig. 51: ultimo giro; fig. 52: dettaglio della scultura; figg. 53, 54: protoconca. Scala di riferimento: 200 µm.
Figg. 55-60. *Turbonilla pupoides* (d'Orbigny, 1842). 55: sintipo (BMNH 1854.10.4.148). 56-60: (MORG 23908). Figg. 55-57: conchiglie intere (lunghezze: 55: 2,5 mm, 56: 3,0 mm, 57: 3,2 mm); fig. 58: ultimo giro, figure 59, 60: protoconca. Scala di riferimento: 200 µm.

conch whorls slightly convex in profile. Suture shallow and straight. Protoconch heterostrophic planispiral; diameter about 360 µm. Axial ribs low, straight, orthocline or slightly opisthocline, becoming evanescent before reaching anterior suture; fairly distinct on first whorl; 20 on body whorl of holotype; interspaces narrow, heath the width of the ribs. Spiral sculpture formed by about 20 rows of very thin striae irregularly spaced. Base elongate, with evanescent ribs and very thin spirals. Aperture pyriform. Columella somewhat arcuate, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 8.5 teleoconch whorls; height 5.4 mm; width 1.2 mm.

Type material
Holotype: MNRJ 8928, Aracruz, Espírito Santo State, viii/1987; Paratypes: ANSP 410346, off Espírito Santo State, REVIZEE # VV16 (21°10'S, 040°27'W, 27.65 m), 26/ii/1996, NOAN coll.; IBUFRJ 11904, off Macaé, Rio de Janeiro State, REVIZEE # D1 (22°48'S, 041°09'W, 69 m), 23/ii/1996, NOAN coll.; MNHN; ZMA 4.02.022, Cabiúnas, Espírito Santo State, 20/iv/1993, NOAG coll.; MNRJ 8921, Camburi, Espírito Santo State, 12/ii/1987, Eq.Zoo. coll.; MORG 41041, Camburi, Espírito Santo State, 30/x/1986, Eq.Zoo. coll.; MNRJ 8929, type locality; MZSP 35850, Arquipélago de Santana, Macaé, Rio de Janeiro State, v/1993, NOAG coll.

Type locality
Off Aracruz, Espírito Santo State, southeast coast of Brazil.

Additional material
-- Espírito Santo State: IBUFRJ 10315 off Aracruz, viii/1987, V.Abud coll. [1]; IBUFRJ 8934 Camburi, 14/iii/1986, Eq.Zoo. coll. [1]; IBUFRJ 10298 off Cabiúnas, 20/iv/1993, NOAG coll. [5]; IBUFRJ 10307 off Cabiúnas, 21/iv/1993, NOAG coll. [3]; --Rio de Janeiro State: MORG 27884, off Cabo Frio, 2/xii/1986, NOAS coll. [1]; IBUFRJ 8931, Arquipélago de Santana, Macaé, v/1993, NOAG coll. [1]; --Rio Grande do Sul State: MORG 38603, off Rio Grande, (30-45 m), 1983, NOAS coll. [1]; -Uruguay: MORG 20068, off La Paloma (40 m), ii/1978, L.Alvarez coll. [1].

Distribution
Southeast and south coasts of Brazil (Espírito Santo, Rio de Janeiro and Rio Grande do Sul States); coast of Uruguay.

Etymology
The species is named after the city of Aracruz, type locality.

Remarks
Turbonilla aracruzensis (figs 61-65) shares with *T. krebsii* (figs 49-54), *T. pupoides* (figs 55-60), and *T. midas* n. sp. (see next species description) the same light brown, lustrous shell surface, but is distinguished by its shape, with a somewhat acuminate apex (fig. 61) and semi-pyriform whorls profile (figs 61-63).

Turbonilla midas n. sp. (figs 66-71)

Description
Shell tall, slender and conical; color light brown. Teleoconch whorls strictly straight in profile. Suture shallow, straight. Protoconch heterostrophic planispiral; diameter about 300 µm. Axial ribs low, straight, orthocline or slightly opisthocline; evanescent on anterior whorls; 26 on body whorl of holotype; interspaces about as wide as the ribs, with microscopic axial striae. Spiral sculpture formed by about 17 thin striae that cross the ribs on anterior whorls. Base elongate with evanescent axial ribs and very thin spiral striae. Aperture pyriform. Columella obliquely straight, with obsolete fold. Outer lip thin. No umbilical fissure.

Dimensions.
Holotype with 12 teleoconch whorls; height 8.5 mm; width 1.5 mm.

Type material. Holotype: MORG 41042 off Santos, São Paulo State (45 m), 24/ix/1969, NOAS coll.; Paratypes: MNRJ 8925; MNHN type locality; ANSP 410345; MORG 41043, off Rio Grande, Rio Grande do Sul State, (30-45 m), 1983, AS coll.; IBUFRJ 11905, Prainha, Arraial do Cabo, Rio de Janeiro State, 1989, T.Almeida coll.

Type locality
Off Santos (45 m), São Paulo State, southeast coast of Brazil.

Additional material
-- São Paulo State: MORG 15100, off Santos (45 m), 24/ix/1969, NOAS coll. [1]; --Rio de Janeiro State: IBUFRJ 6783 off Prainha, Arraial do Cabo, 1989, T. Almeida coll. [2]; IBUFRJ 9424 Arquipélago de Santana, Macaé, v/1993, NOAG coll. [1]; -- Rio Grande do Sul state: MORG 38570 off Rio Grande, # 4 (50 m), x/1983, NOAS coll. [1].

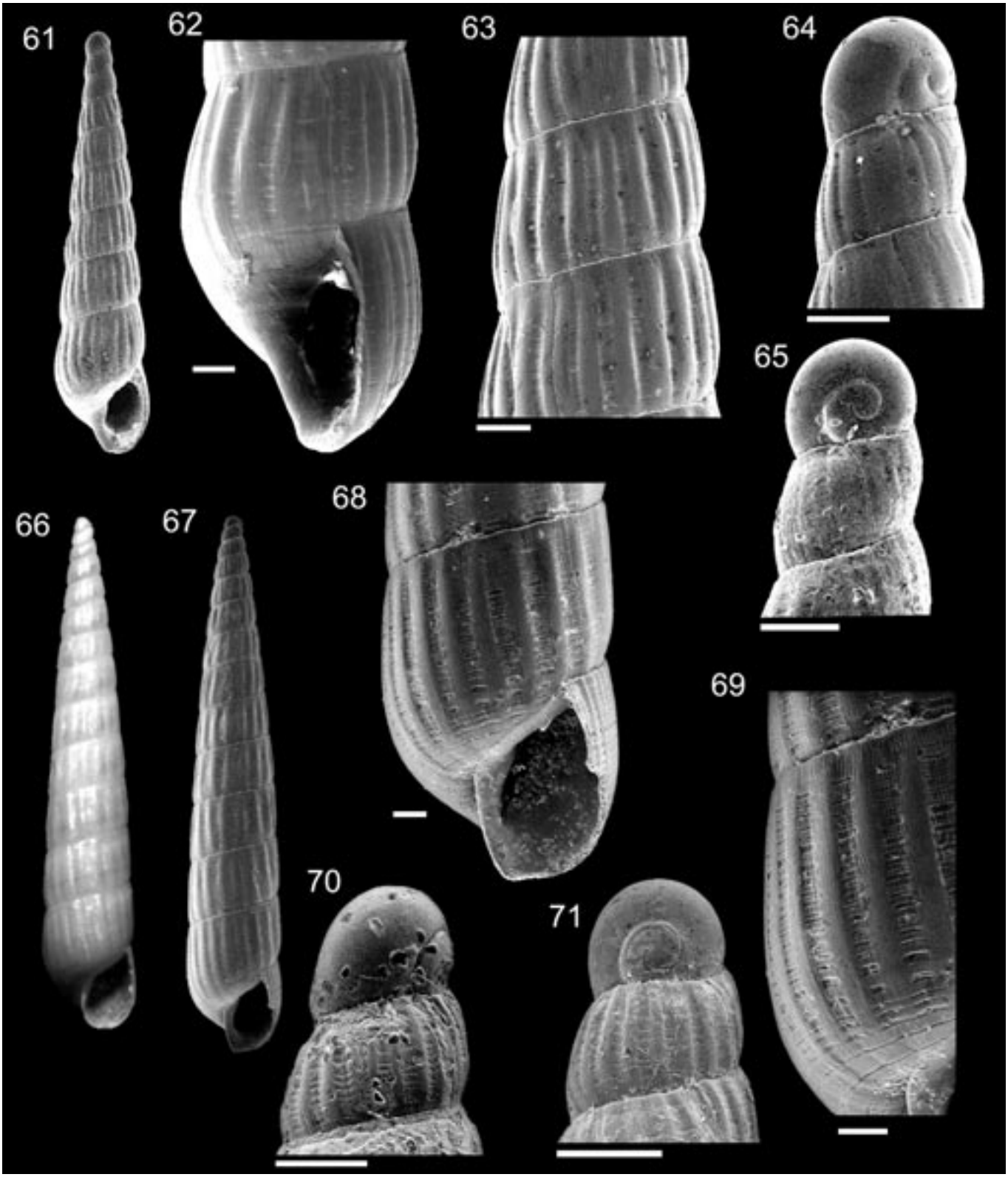
Distribution
Southeast and south coasts of Brazil (Rio de Janeiro, São Paulo and Rio Grande do Sul States).

Etymology
The species is named after Midas, king of Frígia, whose touch, according to the legend, changed anything into gold. An allusion to the somewhat golden shell surface.

Remarks
Turbonilla midas (figs 66-71) has the same shell surface color as *T. aracruzensis* (figs 61-65) but with the addition of a light golden tone. It can also be distinguished by its shell shape, with a strictly straight whorls profile (figs 66-68); in *T. aracruzensis* the whorls profile is slightly convex. The spiral sculpturing (figs 68, 69) is stronger and numerous in *T. midas*.

Turbonilla portoricana Dall & Simpson, 1901 (figs 72-78)

Turbonilla portoricana Dall & Simpson, 1911: 414-415, pl. 53,



Figs 61-65. *Turbonilla aracruzensis* n. sp. 61-64: holotype (MNRJ 8928); 65: paratype (IBUFRJ 11904). Fig. 61: whole shell (length 5.4 mm); fig. 62: last whorl; fig. 63: detail of sculpture on last whorl; figs 64, 65: protoconch. Scale bars: 200 µm.
Figs 66-71. *Turbonilla midas* n. sp. 66, 71: paratype (MNHN); 65, 67-70: holotype (MORG 41042). Figs 66, 67: whole shell (lengths: 66: 8.2 mm, 67: 8.5 mm); fig. 68: last whorl; fig. 69: detail of sculpture on last whorl; figs 70, 71: protoconch. Scale bars: 200 µm.
Figg. 61-65. *Turbonilla aracruzensis* n. sp. 61-64: olotipo (MNRJ 8928); 65: paratipo (IBUFRJ 11904). Fig. 61: conchiglia intera (lunghezza 5,4 mm); fig. 62: ultimo giro; fig. 63: dettaglio della scultura dell'ultimo giro; figg. 64, 65: protoconca. Scala di riferimento: 200 µm.
Figg. 66-71. *Turbonilla midas* n. sp. 66, 71: paratipo (MNHN); 65, 67-70: olotipo (MORG 41042). Figg. 66, 67: conchiglia intera (lunghezza: 66: 8,2 mm, 67: 8,5 mm); fig. 68: ultimo giro; fig. 69: dettaglio della scultura dell'ultimo giro; figure 70, 71: protoconca. Scala di riferimento: 200 µm.

fig. 15; WARMKE & ABBOTT (1962: 149, pl 29, fig. i); JONG & COOMANS (1988: 128); DIAZ & PUYANA (1994: 238, fig. 952); ODÉ (1996: 52-53).

Type locality
Mayaguez, Porto Rico.

Types
Holotype: USNM 160204.

Material examined
The type and: --Espírito Santo State: IBUFRJ 8840, off Camburi, # 6 (60 m), 30/ix/1986, Eq.Zoo coll. [8]; IBUFRJ 8841, off Camburi (45 m), 15/i/1987, Eq.Zoo.coll. [1]; IBUFRJ 8842, off Camburi (60 m), 18/xi/19/86, Eq.Zoo.coll. [11]; IBUFRJ 8843, off Camburi (60 m), 25/xi/1987, Eq.Zoo.coll. [1]; IBUFRJ 8844, off Camburi (60 m), 12/ii/1987, Eq.Zoo.coll. [1]; --Rio de Janeiro State: IBUFRJ 9728, Arquipélago de Santana, Macaé, v/1993, NOAG coll. [35]; IBUFRJ 8836, off Cabo Frio, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. [22]; IBUFRJ 7197, CFVII # 6174 (23°16.8'S, 043°02.7'W, 92 m), 29/iii/1983, NOAS coll. [1]; IBUFRJ 7204, CFVII # 6197 (23°54.2'S, 044°12.4'W, 103 m), 02/iv/1983, NOAS coll. [5]; IBUFRJ 8837, CFVII # 6178 (23°39.7'S, 043°14.2'W, 119 m), 30/iii/1983, NOAS coll. [14]; IBUFRJ 8838, CFVII # 6172 (23°42.2'S, 043°01.1'W, 129 m), 28/03/1983, NOAS coll. [5]; IBUFRJ 8839, off Cabo Frio, CFVII # 6165 (23°02.8'S, 042°46'W, 56 m), 23/iii/1983, NOAS coll. [23]; MORG 11259, off Rio de Janeiro State, vi/1966, S. Paes coll. [2]; MORG 16557, off Rio de Janeiro State (100 m), xi/1969, 100 m, NOAS coll. [1]; MORG 19860, Praia dos Anjos, Cabo Frio, vi/1972, NOAS coll. [1]; MORG 27096, off Cabo Frio (55 m), xi/1988, NOAS coll. [1]; MZSP19451, off Cabo Frio (23°S, 042°10'W, 64 m), 10/iii/1971, NOWB coll. [4]; --Rio Grande do Sul State: MORG 23011, off Rio Grande # 13 (23 m), x/1983, AS coll. [1]; MORG 23064, off Rio Grande # 30, 26 m, x/1983, AS coll. [2]; MORG 23091, off Rio Grande # 38 (38 m), x/1983, AS coll. [10].

Distribution
Mayaguez, Porto Rico; West Indies; Colombian Caribbean; southeast and south coasts of Brazil (Espírito Santo, Rio de Janeiro and Rio Grande do Sul States).

Remarks
Although described from the Caribbean region, where it was recorded from several localities (JONG & COOMANS, 1988; DIAZ & PUYANA, 1994), along the Brazilian coast, *T. portoricana* is restricted to localities below 19° S (Espírito Santo State). In spite of this apparently disjunct distribution, the Brazilian specimens (figs 74-78) doubtless belong to this species (holotype in figs 72, 73). The similarities in the shell shape, with a conical outline and straight whorl profiles (figs 72, 74), and in the sculpturing (figs 73, 75, 76) are remarkable. Also, the rhomboid aperture with a well-developed columellar fold and reflected inner lip (fig. 75) is exactly the same as in the holotype (figs 73). Indeed, the spiral sculpture formed by six or seven deep rectangular furrows (fig. 76) is very constant in the several Brazilian exemplars studied.

Turbonilla maestratii n. sp. (figs 79-84)

Description
Shell moderately tall, slender, slightly conical to subcilindrical; fresh shells transparent, older ones white. Teleoconch whorls almost flat-sided in profile. Suture shallow, somewhat sinuous by ribs projection. Protoconch heterostrophic planispiral; diameter about 290 µm. Axial ribs slender, straight and orthocline; slightly projected over anterior suture; ending abruptly at periphery of last whorl; 19 on body whorl of holotype; interspaces as wide as the ribs. Spiral sculpture formed by about 17 rows of rectangular, deep furrows of regular width and spacing. Base rounded tending to elongate, with 4-5 thin spiral striae. Aperture slightly pyriform tending to rhomboid. Columella somewhat arcuate, with obsolete fold. Outer lip thin. No umbilical fissure.

Dimensions.
Holotype with 11 teleoconch whorls; height 5.3 mm; width 0.9 mm.

Type material
Holotype: MNRJ 8934 Praia do Despacho, Itaparica, Bahia State, 1984-99, P. Maestrati coll.; Paratypes: ANSP 410347; MNHN; ZMA 4.02.023; MORG 41044; MNRJ 8927; MZSP 35852; MNRJ 8933; IBUFRJ 11906, type locality.

Type locality
Praia do Despacho, Itaparica, Bahia State, northeast coast of Brazil.

Additional material
--Pará State: IBUFRJ 8905, off Pará, AMASSEDS # 4134, RVCI coll. [2]; --Pernambuco State: MMUFRPE, off Itaparica [8]; --Bahia State: MNHN, Praia do Despacho, Itaparica, 1984-99, P.Maestrati coll. [27]; IBUFRJ 9781, Bom Despacho, Itaparica, L.Trinchão coll. [2]; -- Espírito Santo State: IBUFRJ 9427, Camburi # 2 (45 m), 04/ix/1986, Eq.Zoo coll. [1]; --Rio de Janeiro State: IBUFRJ 9467, off Cabo Frio, CFVII # 6147 (22°53.7'S, 041°50.5'W, 50 m), 24/iii/1983, NOAS coll. [2]; IBUFRJ 10297, off Prainha, Arraial do Cabo, 1990, T.Almeida coll. [1].

Distribution
North, northeast and southeast coasts of Brazil (Pará, Bahia, Espírito Santo and Rio de Janeiro States).

Etymology
The species is named after Dr. Phillippi Maestrati (MNHN), who collected mollusks along the northeast coast of Brazil, including the material of this new species.

Figs 72-78. *Turbonilla portoricana* Dall & Simpson, 1901. 72, 73: holotype (USNM 160204); 74, 76, 78: (IBUFRJ 8837); 75: (IBUFRJ 8839); 77: (IBUFRJ 8836). Figs 72, 74: whole shells (lengths: 72: 4.4 mm; 74: 5.5 mm); figs 73, 75: last wholrs; fig. 76: detail of sculpture; figs 77, 78: protoconch. Scale bars: 200 µm.
Figg. 72-78. *Turbonilla portoricana* Dall & Simpson, 1901. 72, 73: olotipo (USNM 160204); 74, 76, 78: (IBUFRJ 8837); 75: (IBUFRJ 8839); 77: (IBUFRJ 8836). Figg. 72, 74: conchiglie intere (lunghezze: 72: 4,4 mm; 74: 5,5 mm); figg. 73, 75: ultimo giro; fig. 76: dettaglio della scultura; figg. 77, 78: protoconca. Scala di riferimento: 200 µm.

Remarks

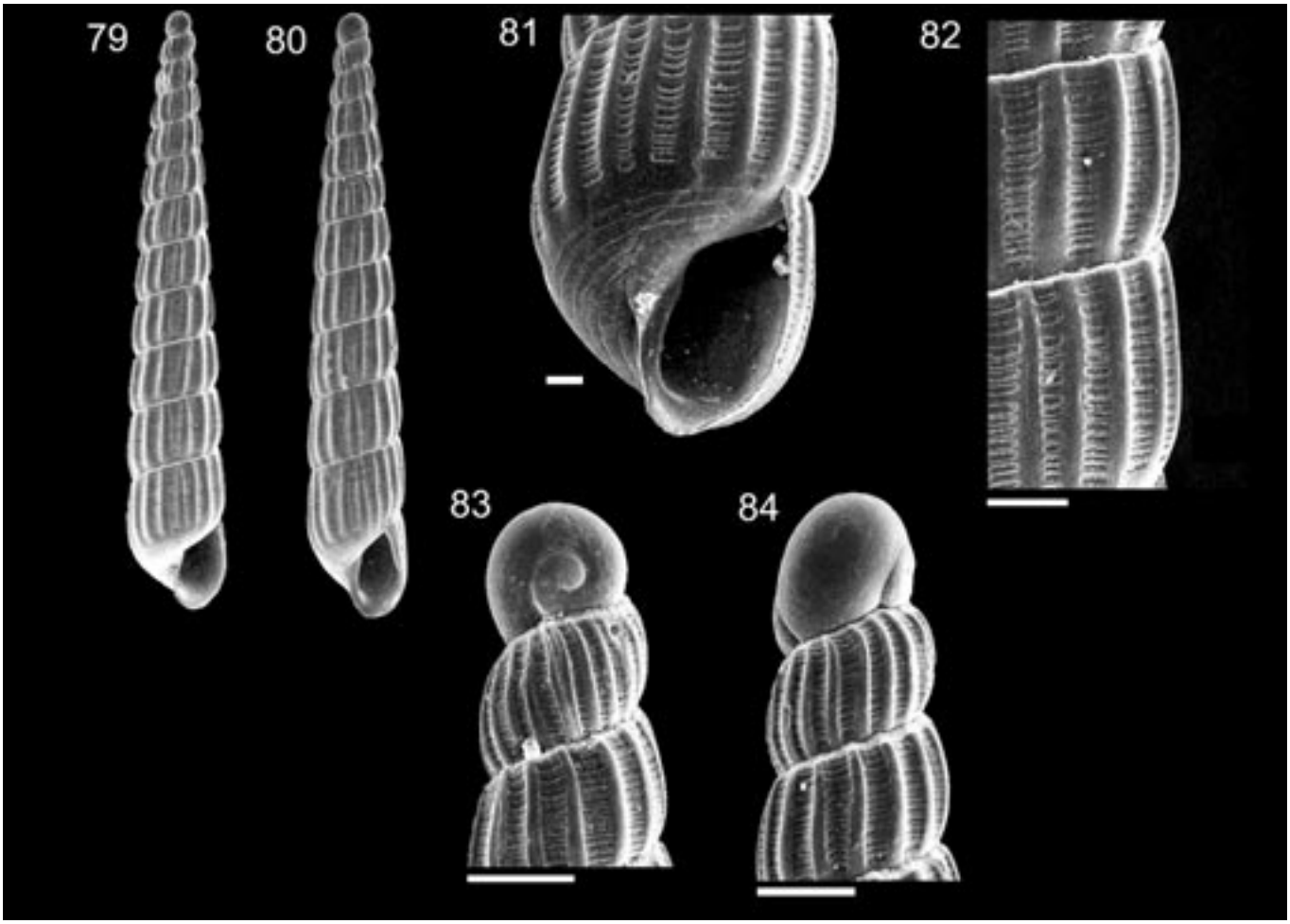
Turbonilla maestratii (figs 79-84) shows some resemblance to *T. portoricana* (figs 72-78), especially in the conical shell shape, straight whorl profile, and axial ribs. It can be distinguished, however, by the spiral striae (figs 81, 82), much more numerous and narrow in *T. maestratii*, and by the aperture (fig. 81), which does not show the columellar fold. In addition, the axial ribs do not extend over the base (fig. 81), as they do in *T. portoricana* (figs 73, 75).

Turbonilla insularis Dall & Simpson, 1901 and *Turbonilla santodomingensis* Gabb, 1873 (figure in Pilsbry, 1922) are similar in their slender conical shell shape, but in both species the spiral sculpturing is composed of fewer striations than in *T. maestratii* (7 in *T. santodomingensis* and 11 in *T. insularis*, while there are about 15 in *T. maestratii*) (figs 81, 82). Moreover, *T. insularis* has more axial ribs on the last whorl (28), which invade the base; in *T. maestratii*, there are fewer axial ribs (19 on the last whorl of the holotype), which end abruptly before entering the base (fig. 81).

Turbonilla kaapor n. sp. (figs 85-89)

Description

Shell moderately tall, slender, slightly conical to subcilindrical; color white. Teleoconch whorls slightly convex in profile. Suture somewhat deep and sinuous by ribs projection. Protoconch heterostrophic planispiral elevated; diameter about 240 µm. Axial ribs well marked, broad, straight and slightly prosocline; projected over anterior suture; fairly distinct on first teleoconch whorl; ending abruptly at periphery of last whorl; 25 on body whorl of holotype; interspaces as wide as the ribs. Spiral sculpture formed by 6-7 rows of rectangular, deep furrows regularly spaced. Base rounded-elongate, with 4-5 thin spiral striae. Aperture pyriform tending to rhomboid. Columella somewhat arcuate, without fold. Outer lip thin. No umbilical fissure.



Figs 79-84. *Turbonilla maestratii* n. sp. 79, 81, 82: holotype (MNRJ 8934); 80: paratype (MNRJ 8927), 83: paratype (MNRJ 8927); 84: paratype (MNRJ 8927). Figs 79, 80: whole shells (lengths: 79: 5.3 mm, 80: 4.4 mm); fig. 81: last whorl; fig. 82:detail of sculpture; figs 83, 84: protoconchs. Scale bars: 200 µm.
Figg. 79-84. *Turbonilla maestratii* n. sp. 79, 81, 82: olotipo (MNRJ 8934); 80: paratipo (MNRJ 8927), 83: paratipo (MNRJ 8927); 84: paratipo (MNRJ 8927). Figg. 79, 80: conchiglie intere (lunghezze: 79: 5,3 mm, 80: 4,4 mm); fig. 81: ultimo giro; fig. 82: dettaglio della scultura; figg. 83, 84: protoconche. Scala di riferimento: 200 µm.

Dimensions
Holotype with 7.25 teleoconch whorls; height 4.1 mm; width 0.9 mm.

Type material
Holotype: MZSP 35853, off São Paulo State, PADCT # 6631 (25°46'S, 045°28.8'W, 164 m), NOWB coll. Paratypes: MNRJ 8932; IBUFRJ 11907; ANSP 410348; MNHN, type locality; MZSP 35854, off Santa Catarina State, PADCT # 6611 (28°24.3'S, 047°21.6'W, 195 m).

Type locality
Off São Paulo State, PADCT # 6631 (25º46'S, 045º28.8'W, 164 m), southeast coast of Brazil.

Distribution
Southeast-south costs of Brazil (São Paulo and Santa Catarina States).

Etymology
This species is named after the Brazilian Indian tribe Kaapor.

Remarks
Turbonilla kaapor (figs 85-89) is somewhat similar to *T. portoricana* (figs 72-78) in the axial and spiral sculpture, but the axial ribs are faint in the first teleoconch whorl (figs 85, 88, 89), the shell is pupoid in outline (fig. 85), and the protoconch is elevated (figs 88, 89), with its whorl somewhat detached from the teleoconch (fig. 89). This kind of protoconch is also present in *Turbonilla stimpsoni* Bush, 1899 (figs 92, 93), which is also similar in having faint ribs on the first teleoconch whorl; but the shell of the latter is taller, with a more acuminate apex (figs 90, 91) and the spiral sculpture is more complex, with more numerous and irregular striae (fig. 94) than *T. kaapor*, which has about seven rectangular pits per interspace (figs 86, 87).

Turbonilla stimpsoni Bush, 1899 (Figs 90-94)

Turbonilla stimpsoni Bush, 1899: 156, pl. 8, fig. 7; Jong & Coomans (1988: 130, pls. 20, 26, fig. 677); Johnson (1989: 65); Odé (1996: 57); Absalão & Pimenta (1999: 82-83, figs. 16, 16a).

Type locality
Coasts of North and South Carolina.

Types
Holotype by monotypy: ANSP 72042.

Material examined
The type and: --Amapá State: IBUFRJ 8861, AMASSEDS # 3210 (01°52.45'N, 016.02'W, 47 m), 12/v/1990, RVCI coll. [18]; IBUFRJ 8939, AMASSEDS # 3209 (01°20.9'N, 048°00.2'W, 53 m), 12/v/1990, RVCI coll. [5].

Distribution.
Coasts of North and South Carolina; north coast of Brazil (Amapá State).

Remarks
For description, see BUSH (1899) and ABSALÃO & PIMENTA (1999). This species is compared with *T. kaapor* (figs 85-89) in the section dealing with the latter.

Turbonilla cf. *riisei* (Mörch, 1875) (figs 95-100)

Chemnitzia riisei Mörch, 1875: 165.
Turbonilla riisei: JONG & COOMANS (1988: 129, pl. 7fig. 673); ODÉ (1996: 56); ABSALÃO & PIMENTA (1999: 81-82, fig. 20); REDFERN (2001: 150, pl. 67, figs 623A, 623B).
Turbonilla pilsbryi Bush, 1899: 151, pl. viii, fig. 9; JOHNSON (1989: 58).

Type locality.
Saint Thomas, West Indies.

Types
Types not located. Holotype of *T. pilsbryi* by monotypy: ANSP 72045.

Material examined
The type and: --Amapá State: MORG 38581, off Amapá State (56 m), 01/v/1968, NOAS coll. [1]; --Pará State: IBUFRJ 8979, off Pará State, RVCI coll. [2]; --Bahia State: IBUFRJ 9459, off Guarajuba, Itapuã, 1990, L.Trinchão coll. [1]; --Espírito Santo State: IBUFRJ 8975, off Espírito Santo State [7]; IBUFRJ 8976, off Aracruz, 01/viii/1988, V.Abud coll. [8]; IBUFRJ 9790, off Camburi, 19/iii/1993, Eq.Zoo. coll. [4]; --Rio de Janeiro State: IBUFRJ 8978, off Prainha, Arraial do Cabo, T.Almeida coll. [1]; MZSP 30906, off Bacia de Campos # 01 (21°21'05"S, 040°47'25"W, 20 m) [2].

Distribution
Bermuda; West Indies; north, northeast and southeast coasts of Brazil (Amapá, Pará, Bahia, Espírito Santo and Rio de Janeiro States).

Remarks
For descriptions and discussions, see BUSH (1899), JONG & COOMANS (1988), and ABSALÃO & PIMENTA (1999). JONG & COOMANS (1988) pointed out that *T. pilsbryi* Bush, 1899 is a junior synonym of *T. riisei*, a position followed by ODÉ (1996). This was based on the fact that the holotype of *T. pilsbryi* (photograph in ABSALÃO & PIMENTA, 1999: fig. 20) encompasses the variation found by JONG & COOMANS (1988) in *T. riisei*.
The shell of *Turbonilla riisei* from the West Indies illustrated by JONG & COOMANS (1988), and also the holotype of *T. pilsbryi*, are more inflated and wider than the Brazilian specimens. In fact, the Brazilian material shows wide variation in shell form (figs 95-97), with some specimens (fig. 95) almost as wide as the material from the Caribbean, but others (fig. 97) more slender. Since the spiral and axial sculptures are in the same pattern in the Brazilian specimens (fig. 98) and in the holotype, and we could not correlate the variation in shell form of the Brazilian specimens with any geographical distribution, we regard all of them as belonging to the taxon *T.* cf. *riisei*.

Turbonilla capixaba n. sp. (figs 101-106)

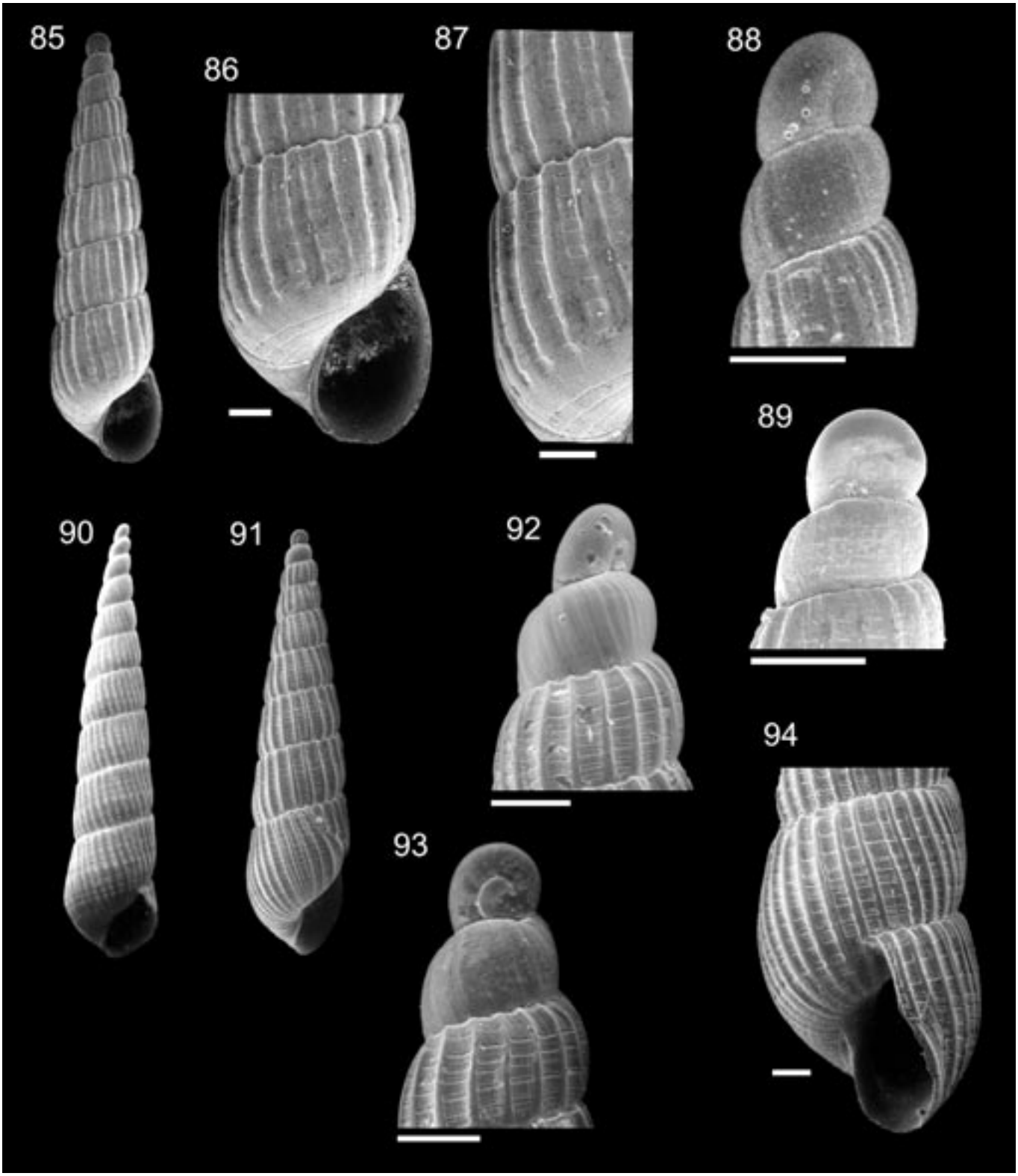
Description
Shell small, slightly conical to slightly subcilindrical; color white with yellow spiral band on middle of each whorl. Teleoconch whorls straight to slightly convex in profile. Suture somewhat deep, slightly sinuous by ribs projection. Protoconch heterostrophic planispiral; diameter about 290 µm. Axial ribs slender, straight or slightly sinuous, orthocline or slightly opisthocline; 21 on body whorl of holotype; interspaces about twice the width of the ribs, sculptured by microscopic axial striae. Spiral sculpture formed by about 16 rows of furrows of irregular width and spacing along interspaces. Base rounded, with evanescent ribs and very thin spiral furrows. Aperture pyriform tending to rhomboid. Columella obliquely straight, with very obsolete fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 7 teleoconch whorls; height 3.8 mm; width 1.1 mm.

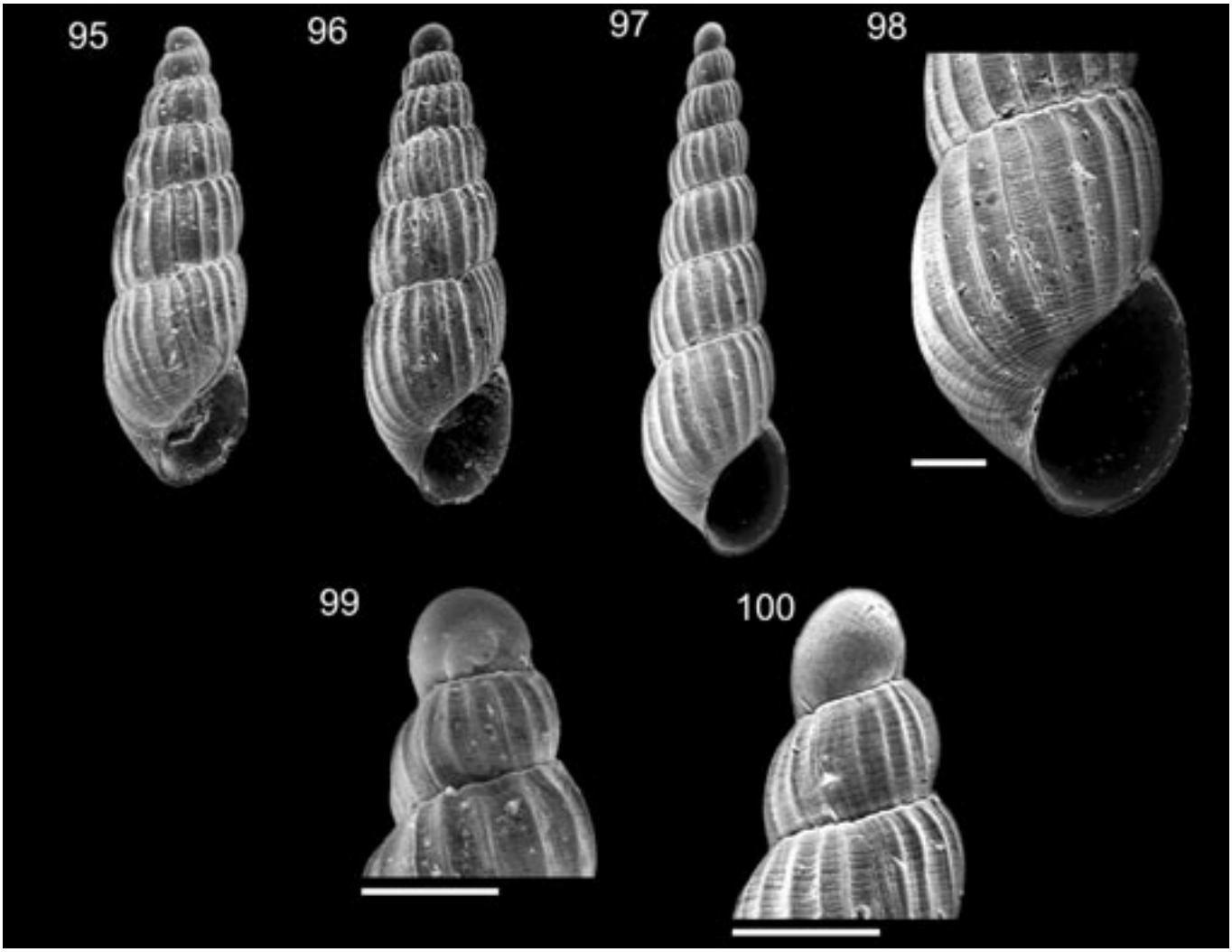
Type material
Holotype: MNRJ 8926, off Espírito Santo State, REVIZEE # VV38 (19°28'S, 038°22'W, 71.4 m), 29/ii/1996, NOAN coll.; Paratypes: MNRJ 8937; MORG 41045; MZSP 35857; IBUFRJ 11908; ZMA 4.02.024; ANSP 410349; MNRJ 8938; MNHN, type locality.

Type locality
Off Espírito Santo State, REVIZEE # VV38 (19°28'S, 038°22'W, 71.4 m), southeast coast of Brazil.

Additional material
-- Espírito Santo State: MORG 39059, REVIZEE # VV38 (19°28'S, 038°22'W, 71.4 m), 29/ii/1996, NOAN coll. [5]; IBUFRJ 9660, REVIZEE # VV38 (19°28'S, 038°22'W, 71.4 m), 29/ii/1996, NOAN coll. [37]; IBUFRJ 9409, REVIZEE # VV24 (20°S, 039°54'W, 45 m), 27/ii/1996, NOAN coll. [5]; --Rio de Janeiro State: IBUFRJ 9768, off Bacia de Campos



Figs 85-89. *Turbonilla kaapor* n. sp. 85-88: holotype (MZSP 35853); 89: paratype (MNRJ 8932). Fig. 85: whole shell (length 4.1 mm); fig. 86: last whorl; fig. 87: detail of sculpture on last whorl; figs 88, 89: protoconchs. Scale bars: 200 µm.
Figs 90-94. *Turbonilla stimpsoni* Bush, 1899. 90: holotype (ANSP 72042); 91-94: (IBUFRJ 8861). Figs 90, 91: whole shells (lengths: 90: 4.8 mm, 91: 4.7 mm); figs 92, 93: protoconchs; fig. 94: last whorl. Scale bars: 200 µm.
Figg. 85-89. *Turbonilla kaapor* n. sp. 85-88: olotipo (MZSP 35853); 89: paratipo (MNRJ 8932). Fig. 85: conchiglia intera (lunghezza 4,1 mm); fig. 86: ultimo giro; fig. 87: dettaglio della scultura dell' ultimo giro; figure 88, 89: protoconche. Scala di riferimento: 200 µm.
Figg. 90-94. *Turbonilla stimpsoni* Bush, 1899. 90: olotipo (ANSP 72042); 91-94: (IBUFRJ 8861). Figg. 90, 91: conchiglie intere (lunghezze: 90: 4,8 mm, 91: 4,7 mm); figg. 92, 93: protoconche; fig. 94: ultimo giro. Scala di riferimento: 200 µm.



Figs 95-100. *Turbonilla* cf. *riisei* (Mörch, 1875). 95: (IBUFRJ 8980); 96-100: (IBUFRJ 8975). Figs 95-97: whole shells (lengths: 95: 2.6 mm, 96: 2.9 mm, 97: 3.9 mm); fig. 98: last whorl; figs 99, 100: protoconchs. Scale bars: 300 µm.
Figg. 95-100. *Turbonilla* cf. *riisei* (Mörch, 1875). 95: (IBUFRJ 8980); 96-100: (IBUFRJ 8975). Figg. 95-97: conchiglie intere (lunghezze: 95: 2,6 mm, 96: 2,9 mm, 97: 3,9 mm); fig. 98: ultimo giro; figg. 99, 100: protoconche. Scala di riferimento: 300 µm.

(22°47'47"S, 040°45'32"W), NOAG coll. [1]; IBUFRJ 9410, off Cabo Frio, CFVII # 6165 (23°02.8'S, 042°46'W, 56 m), 23/iii/1983, NOAS coll. [5].

Distribution

Southeast coast of Brazil (Espírito Santo and Rio de Janeiro States).

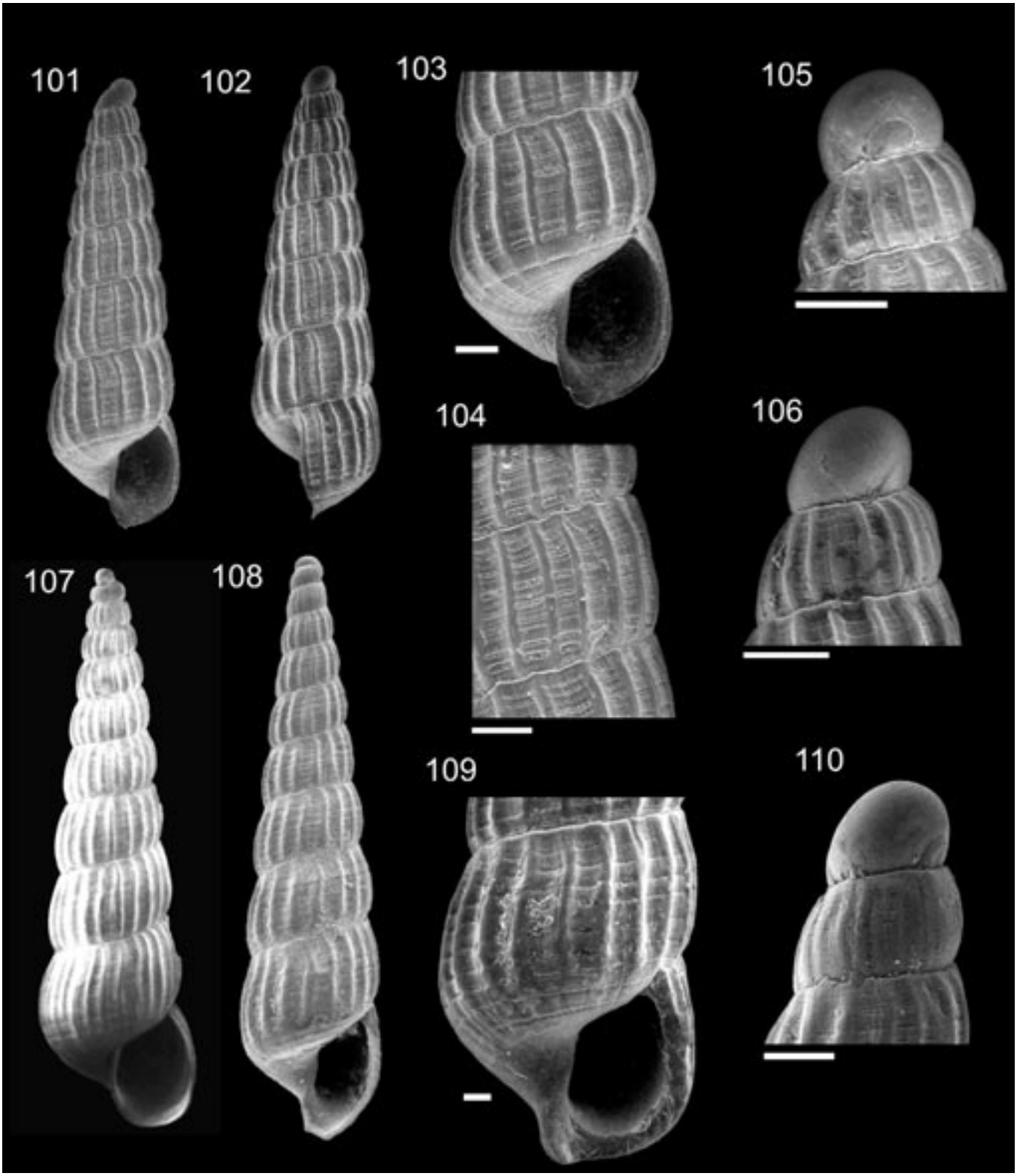
Etymology

"Capixaba" is the general determination to those people that was born in Espírito Santo State, Brazil.

Remarks

Turbonilla capixaba (figs 101-106) is somewhat similar in general shell shape to *Turbonilla interrupta* (Totten, 1835) and its many synonyms, such as *Turbonilla areolata* Verrill, 1873 and *Turbonilla buteonis* Bartsch, 1909, among others [complete lists of synonyms in ABBOTT (1974) and ODÉ (1996)]. However, there are differences in the more numerous spiral sculpture of *T. capixaba* (figs 103, 104), more marked axial ribs, and more convex whorl outline (figs 101-103).

Turbonilla capixaba shows some similarity in spiral sculpture with *Turbonilla rushii* Bush, 1899 [holotype illustrated by PIMENTA & ABSALÃO (2001: 79, fig. 17)] and *T. anira* Bartsch, 1927 (fig. 107), but the shell is not as tall as in these two species, and the whorls outline is straighter. The most similar species, however, are *Turbonilla lineolata* Bush, 1899 and *Turbonilla fasciata* (d'Orbigny, 1840). *Turbonilla lineolata* also has a yellow spiral band and similar shell shape, but the shell is larger, less slender, with more regularly convex whorls, the spiral lines are more regularly spaced, lacking the finer lines, and the axial ribs are straighter. *Turbonilla fasciata* [figures in PIMENTA & ABSALÃO (2001: 77, figs 12-16)] is also similar, especially in the spiral sculpture pattern, but *T. capixaba* has more sinuous axial ribs (figs 103, 104) and a more conical shell (figs 101, 102) than *T. fasciata*, which has scalloped whorls in a somewhat pupoid shell shape.



Figs 101-106. *Turbonilla capixaba* n. sp. 101-105: holotype (MNRJ 8926); 106: paratype (MNRJ 8937). Figs 101, 102: whole shell (length: 3.8 mm); fig. 103: last whorl; fig. 104: detail of sculpture; figs 105, 106: protoconchs. Scale bars: 200 µm.
Figs 107-110. *Turbonilla* cf. *anira* Bartsch, 1927: 107: holotype (USNM 108058); 108, 109: (IBUFRJ 9426); 110: (IBUFRJ 3151). Figs 107, 108: whole shells (lengths: 107:8.3 mm, 108: 7.8 mm); fig. 109: last whorl; figs 110: protoconch. Scale bars: 200 µm.
Figg. 101-106. *Turbonilla capixaba* n. sp. 101-105: olotipo (MNRJ 8926); 106: paratipo (MNRJ 8937). Figure 101, 102: conchiglia intera (lunghezza: 3,8 mm); fig. 103: ultimo giro; fig. 104: dettaglio della scultura; figg. 105, 106: protoconche. Scala di riferimento: 200 µm.
Figg. 107-110. *Turbonilla* cf. *anira* Bartsch, 1927: 107: olotipo (USNM 108058); 108, 109: (IBUFRJ 9426); 110: (IBUFRJ 3151). Figg. 107, 108: conchiglie intere (lunghezze: 107: 8,3 mm, 108: 7,8 mm); fig. 109: ultimo giro; fig. 110: protoconca. Scala di riferimento: 200 µm.

Turbonilla cf. *anira* Bartsch, 1927 (figs 107-110)

Turbonilla anira Bartsch, 1927: 84-85; ODÉ (1996: 35).

Type locality.
Off Fernandina, Florida (530 m).

Type material
Holotype: USNM 108058; 12 paratypes (?): USNM 360179.

Material examined
The holotype's photograph and: --Espírito Santo State: IBUFRJ 9415, off Espírito Santo State [5]; --Rio de Janeiro State: IBUFRJ 8720 off Bacia de Campos, NOAG coll. [1]; IBUFRJ 9417, CFVII # 6194 (24°03.6'S, 044°07.6'W, 134 m), 01/iv/1983, NOAS coll. [2]; IBUFRJ 3151, Prainha, Arraial do Cabo, 1989, T.Almeida coll. [2]; MZSP 28880, off Angra dos Reis, 18/ii/1968 [1]; IBUFRJ 9416, CFVII # 6178 (23°39.7'S, 043°14.2'W, 119 m), 30/iii/1983, NOAS coll. [4]; IBUFRJ 10313, REVIZEE # D3 (22°52'S, 041°09'W, 80 m), 23/ii/1996, NOAN coll. [2]; IBUFRJ 11071, off Bacia de Campos, NOAG coll. [1].

Distribution
Florida; southeast coast of Brazil (Espírito Santo and Rio de Janeiro States).

Remarks
The Brazilian specimens determined herein as *Turbonilla* cf. *anira* (figs 108-110) differ slightly from the type of *T. anira* (fig. 107). In the type there are more and more sinuous axial ribs, the first four whorls are wider (fig. 108), and the protoconch is smaller (fig. 107). In spite of these differences, the general shell shape and sculpture are very similar (figs 107, 108).
Turbonilla cf. *anira* most closely resembles *T. rushii* Bush, 1899 [holotype figured by ABSALÃO & PIMENTA (1999: fig. 17)], but the spiral sculpturing in *T. rushii* is more numerous and variable than in T. cf. anira (fig. 109).

Turbonilla scapulata n. sp. (figs 111-115)

Description
Shell moderately tall, conical with somewhat scaloned whorls; color white. Teleoconch whorls almost flat-sided, slightly concave on middle and shouldered at the summits. Suture somewhat deep and sinuous, with distinct subsutural shelf. Protoconch heterostrophic planispiral; diameter about 280 µm. Axial ribs slender, straight and orthocline; strongly shouldered apiacally, not reaching the anterior suture, leaving a spiral band that looks like a second suture; 23 on body whorl of holotype; interspaces much wider than the ribs, bearing microscopic axial growth lines. Spiral sculpture formed by about 20 rows of very thin and close furrows, with three wider furrows, below the shoulder of the whorls, on middle of whorl and just above the suture. Base rounded, with evanescent ribs and very thin spiral striae. Aperture rhomboid. Columella straight, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 8 teleoconch whorls; height 4.6 mm; width 1.3 mm.

Type material
Holotype: MZSP 35858, off São Paulo State, PADCT # 6579 (24°42.3'S, 045°18.8'W, 84 m), NOWB coll.; Paratypes: IBUFRJ 11909; ANSP 410350; MNHN; MNRJ 8920; MZSP 35862, type locality.

Type locality
Off São Paulo State, PADCT # 6579 (24°42.3'S, 045°18.8'W, 84 m), southeast coast of Brazil.

Distribution
Only known from type locality (off São Paulo State).

Etymology
This species is named after its shouldered whorls (*scapula*, L. = shoulder blade).

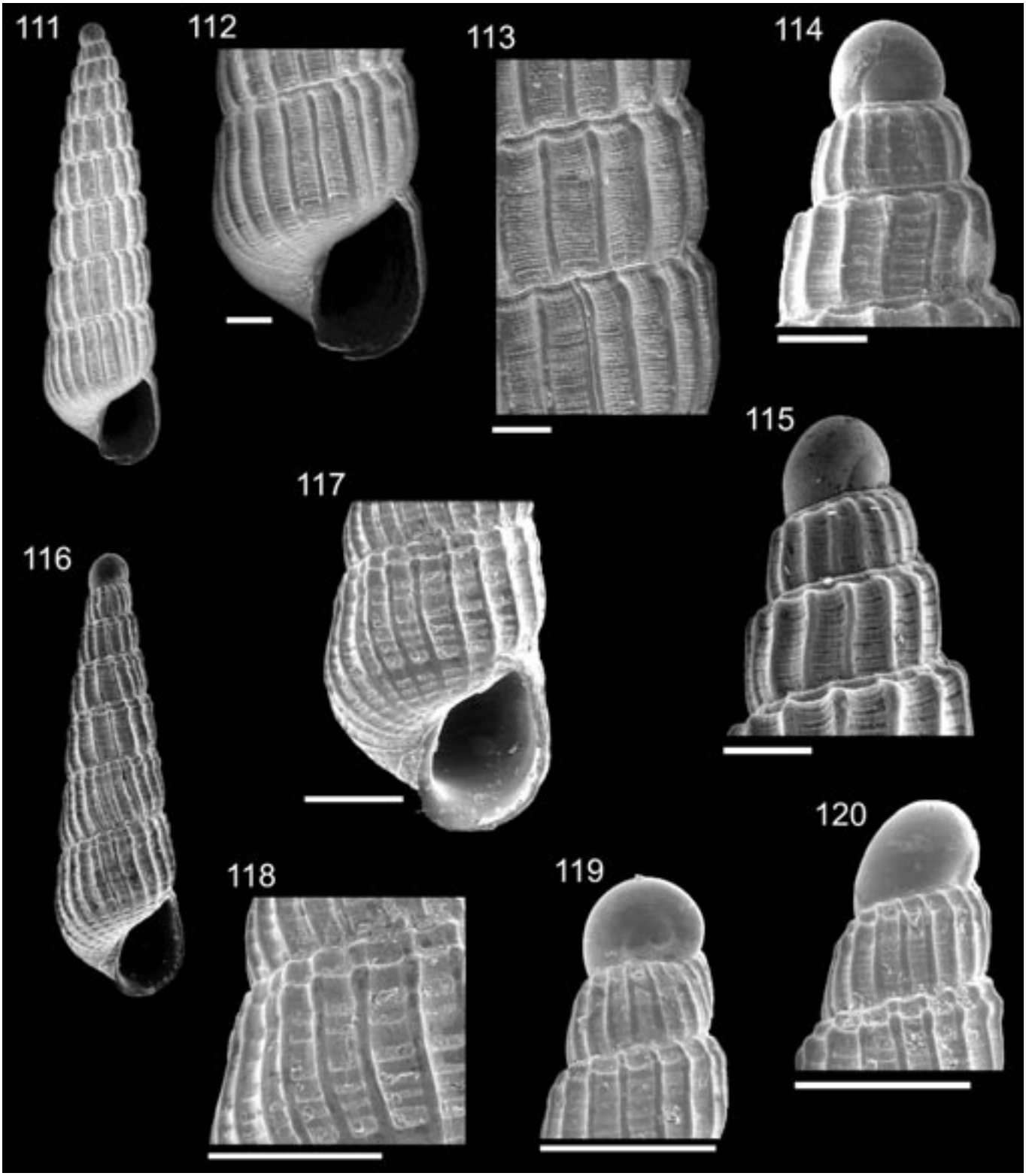
Remarks
Turbonilla scapulata (figs 111-115) shows some similarity to *Turbonilla asperula* Bush, 1899 [lectotype illustrated by ABSALÃO & PIMENTA (1999: figs. 17, 17a)] in the apically shouldered axial ribs (fig. 113) and whorls (figs 111, 112). However, it is clearly distinguished by its much more numerous and finer spiral sculpture (fig. 113).

Turbonilla paulinoi n. sp. (figs. 116-120)

Description
Shell small, conical; color white. Teleoconch whorls semi-pyriform in profile. Suture somewhat deep and sinuous by ribs projection. Protoconch heterostrophic planispiral; diameter about 270 µm. Axial ribs slender, slightly sinuous and strictly prosocline; strongly shouldered apiacally and projected over anterior suture; 24 on body whorl of holotype; interspaces a little bit wider than ribs. Spiral sculpture formed by seven rows of rectangular, deep furrows regularly spaced intercaling with spiral cords that cross the axial ribs; the second cord, below the suture is wider and form small nodules when crossing the ribs. Base rounded, with ribs that continue through the parietal region and rows of spiral furrows. Aperture pyriform. Columella somewhat arcuate, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 6.5 teleoconch whorls; height 2.9 mm; width 0.8 mm.

Type material
Holotype: MNRJ 8941, off Pará State, AMASSEDS # 3209 (01°20.9'N, 48°00.2'W, 53 m), 12/v/1990, RVCI coll.; Paratypes: ANSP 410351; MNHN; MORG 41046; ZMA 4.02.025; MZSP 35860, type locality; IBUFRJ 11910, off



Figs 111-115. *Turbonilla scapulata* n. sp. 111-114: holotype (MZSP 35858); 115: paratype (MNRJ 8920). Fig. 111: whole shell (length 4.6 mm); fig. 112: last whorl; fig. 113: detail of sculpture; figs 114, 115: protoconch. Scale bars: 200 µm.
Figs 116-120. *Turbonilla paulinoi* n. sp. 116-119: holotype (MNRJ 8941); 120: paratype (MORG 41046). Fig. 116: whole shell (length 2.9 mm); fig. 117: last whorl; fig. 118: detail of sculpture; figs 119, 120: protoconchs. Scale bars: 400 µm.
Figg. 111-115. *Turbonilla scapulata* n. sp. 111-114: olotipo (MZSP 35858); 115: paratipo (MNRJ 8920). Fig. 111: conchiglia intera (lunghezza 4,6 mm); fig. 112: ultimo giro; fig. 113: dettaglio della scultura; figg. 114, 115: protoconca. Scala di riferimento: 200 µm.
Figg. 116-120. *Turbonilla paulinoi* n. sp. 116-119: olotipo (MNRJ 8941); 120: paratipo (MORG 41046). Fig. 116: conchiglia intera (lunghezza 2,9 mm); fig. 117: ultimo giro; fig. 118: dettaglio della scultura; figg. 119, 120: protoconca. Scala di riferimento: 400 µm.

Amapá State, AMASSEDS # 3228 (03°25.1'N, 49°56.4'W, 64 m), 17/v/1990, RVCI coll.

Type locality
Off Pará state (01° 20.9' N / 48° 00.2' W, 53 m), north coast of Brazil.

Additional material
--Pará State: IBUFRJ 8945, AMASSEDS # 3209 (01°20.9'N, 48°00.2'W, 53 m), 12/v/1990, RVCI coll. [2].

Distribution
Only known from two localities off Pará and Amapá states, north coast of Brazil.

Etymology
The species is named after Dr. Paulino J. S. de Souza Junior, Brazilian malacologist who collected the type material.

Remarks
The most similar species to *Turbonilla paulinoi* (figs 116-120) is *Turbonilla macaensis* Pimenta & Absalão, 2001. Both species bear a spiral cord of nodules below the sutures. However, in *T. macaensis*, the spiral cords form nodules on all the axial ribs that they cross, the strongest being the anterior one, which touches the suture above it; while in *T. paulinoi*, there are two spiral nodulose cords, the stronger being separated from the suture by a weaker cord of nodules (figs 117, 118).

Turbonilla rachialis n. sp. (figs 121-126)

Description
Shell stout, large, moderately conical; color light beige with white spiral band on middle of whorl. Teleoconch whorls broad, inflate and slightly convex in profile. Suture somewhat deep and sinuous by ribs projection. Protoconch heterostrophic planispiral; diameter about 320 µm. Axial ribs slender, somewhat sharp, straight and strictly orthocline; projected over anterior suture; 18 on penultimate whorl of holotype; interspaces very broad, about three times as wide as the ribs; entire surface of interspaces and tops of the ribs covered by axial micro striae. Spiral sculpture formed by numerous crowded micro striae that cover the interspaces and axial ribs and cross the axial striae forming a delicate reticulate pattern. Base elongate, with evanescent ribs and same spiral pattern as teleoconch whorls. Aperture pyriform. Columella somewhat arcuate, without fold. Outer lip thin. No umbilical fissure.

Dimensions
Holotype with 9 teleoconch whorls; height 10.4 mm; width 3.0 mm.

Type material
Holotype: MNRJ 8918, Prainha, Arraial do Cabo, Rio de Janeiro State, x/1998, P. de Sousa coll.; Paratypes: ANSP 410352, Prainha, Arraial do Cabo, Rio de Janeiro State, 26/ix/1998, P.M. Costa coll.; IBUFRJ 11915, off Piúma (21°10'S, 040°37'W, 16-18 m), Espírito Santo State, 1993, F. Pitombo coll.

Type locality
Prainha, Arraial do Cabo, Rio de Janeiro State, southeast coast of Brazil.

Distribution
Only known from two localities in Rio de Janeiro and Espírito Santo States.

Etymology
The species is named after its type locality, "Prainha" (small beach). Rachialis, belonging to the beach; rachia, L. = beach.

Remarks
Turbonilla rachialis (figs 121-126) is one of the largest *Turbonilla* in Brazil, with a very inflated shell (fig. 121, 122) and very low, sharp axial ribs with wide interspaces (figs 122, 123). It is also unique in its sculpture pattern, with very fine and crowded spiral sculpture crossing the microscopic axial striae, both crossing the axial ribs (figs 123, 124). These characteristics distinguish *T. rachialis* from any other Brazilian species.

Turbonilla uaca n. sp. (figs 127-132)

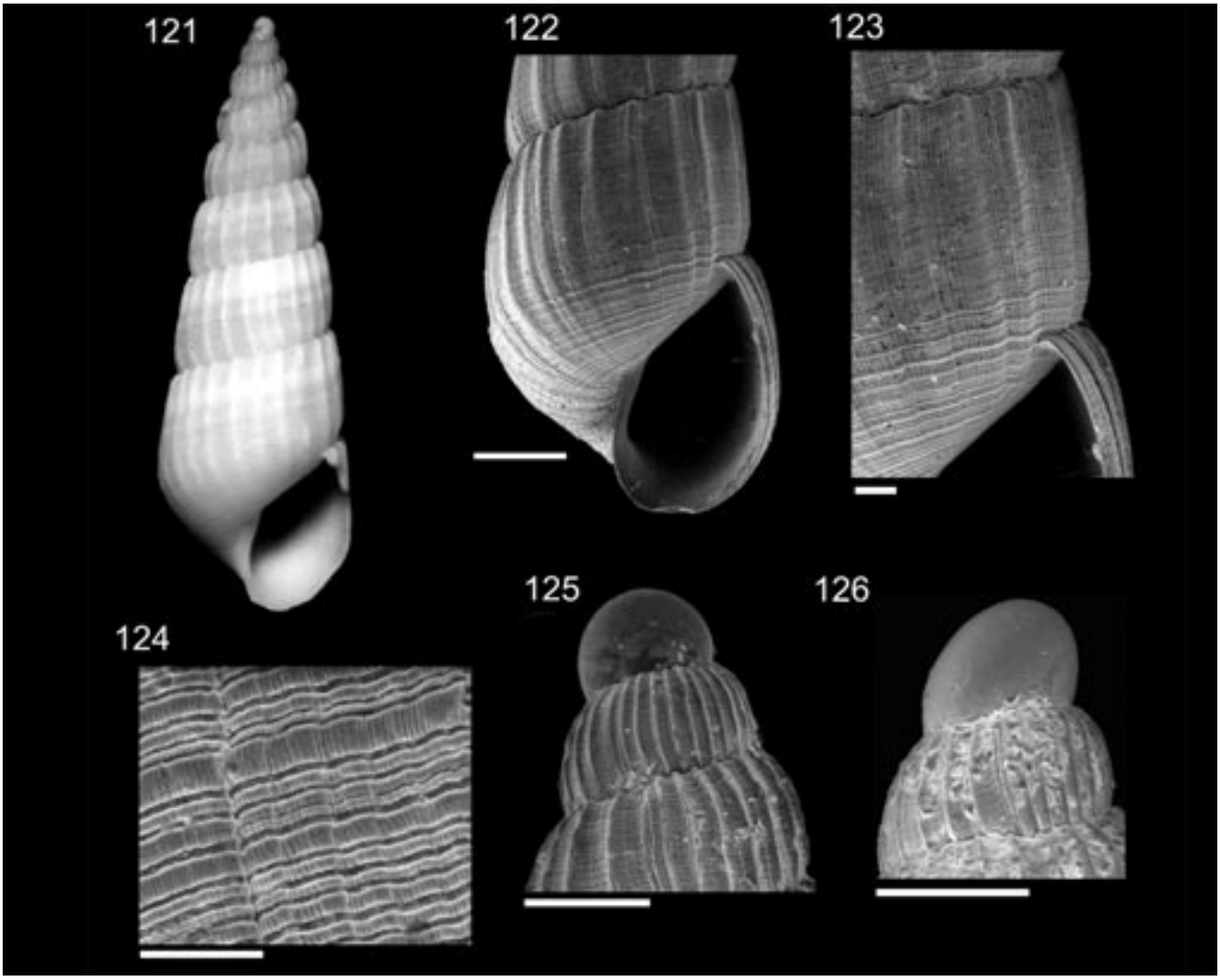
Description
Shell stout, large, tall, conical, with acuminate apex, last whorls inflated; color light brown. Teleoconch whorls straight in profile. Suture deep, sinuous by ribs projection. Protoconch heterostrophic planispiral; diameter about 300 µm. Axial ribs strictly straight and slightly prosocline; projected over anterior suture; 28 on body whorl of holotype; interspaces as wide as the ribs. Spiral sculpture formed by seven rows of deep furrows irregular both in width and spacing. Base rounded, with evanescent ribs and rows of spiral striae. Aperture pyriform tending to rhomboid. Columella somewhat arcuate, with distinct fold. Outer lip thin. Parietal callus well developed. Umbilical present.

Dimensions
Holotype with 11 teleoconch whorls; height 7.2 mm; width 1.7 mm.

Type material
Holotype: MORG 41047, off Amapá State (56 m), 01/v/1968, NOAS coll.; Paratypes: MNRJ 8942; IBUFRJ 11911; MZSP 35863; ANSP 410353; MNHN; MORG 41052, type locality; MORG 41048, off Cabo Orange, Amapá State (85 m), 1970, NOAS coll.; ZMA 4.02.026, Prefil de Caviana, Pará State (56 m), 01/v/1968, NOAS coll.

Type locality
Off Amapá State, north coast of Brazil.

Additional material
--Amapá state: MORG 15886, off Cabo Orange (85 m), 1970,



Figs 121-126. *Turbonilla rhachialis* n. sp. 121: holotype (MNRJ 8918). 122-126: paratype (ANSP 410352). Fig. 121: whole shell (length: 10.4 mm); fig. 122: last whorl; figs 123, 124: details of sculpture; figs 125, 126: protoconchs. Scale bars: figs 123, 125,126: 300 µm; fig. 122: 1.0 mm; fig. 124: 100 µm.
Figg. 121-126. *Turbonilla rhachialis* n. sp. 121: olotipo (MNRJ 8918). 122-126: paratipo (ANSP 410352). Fig. 121: conchiglia intera (lunghezza: 10,4 mm); fig. 122: ultimo giro; figg. 123, 124: dettaglio della scultura; figure 125, 126: protoconca. Scala di riferimento: figg. 123, 125, 126: 300 µm; fig. 122: 1,0 mm; fig. 124: 100 µm.

NOAS coll. [1]; MORG 14811, off Amapá State (56 m), 01/v/1968, NOAS coll. [6]; --Pará State: IBUFRJ 8871, AMASSEDS # 4134, x/1991, RVCI coll. [1]; IBUFRJ 9455, AMASSEDS # 3210 (01°52.45'N, 16.02'W, 47 m), 12/v/1990, RVCI coll. [3].

Distribution
North coast of Brazil (Amapá and Pará States).

Etymology
This species is named after the Brazilian Indian tribe Uacá that inhabits an area in Amapá State.

Remarks
Turbonilla uaca (figs 127-132) is one of the largest *Turbonilla* species of the Brazilian coast. The shell of this species is very characteristic in its acuminate apex (fig. 127) and in having a very developed umbilicus and inner lip in some specimens (fig. 129). Although a slight umbilical fissure and somewhat reflected inner lip may be present in some species, these characters are uncommon and never (at least in the South American fauna) as strong as seen in some specimens of *T. uaca*. The most similar species is *Turbonilla incisa* Bush, 1899 [paratype illustrated by Absalão & Pimenta (1999: fig. 18)], which has similar shell sculpture, though stronger in *T. uaca* (figs 128-130). They can be distinguished by the acuminate apex of *T. uaca*, in which there is a relatively greater increase in diameter from the fifth whorl on (fig. 127).

ACKNOWLEDGEMENTS
We would like to thank Dr. A. Tablado (MACN), Dr. L. Simone (MZSP), Dr. C. Miyaji (IOUSP), Dr. J. C. Barros (MMUFRPE), Dr. P. Bouchet (MNHN), Dr. M. G. Harasewych (USNM), Mr. P. Maestrati (MNHN), Mr. R. Moolenbeek (ZMA), Dr. E. Rios

(MORG) and Dr. G. Rosenberg (ANSP), Mr. D. Forcelli for the loan of part of the material examined; Dr. P. Souza Junior (MZSP), Ms. L. Guimarães (MZSP), Mr. J. Britto (Universidade do Estado do Rio de Janeiro) and Ms. M. Lopes (Pontifícia Universidade Católica do Rio de Janeiro) for their help with part of the SEM photos; and the anonymous referees who contributed with critics and suggestions. This study was partially supported by CNPq. ("Conselho Nacional de Desenvolvimento Científico e Tecnológico") and CAPES ("Conselho de Aperfeiçoamento de Ensino Superior"), from the Brazilian Government.

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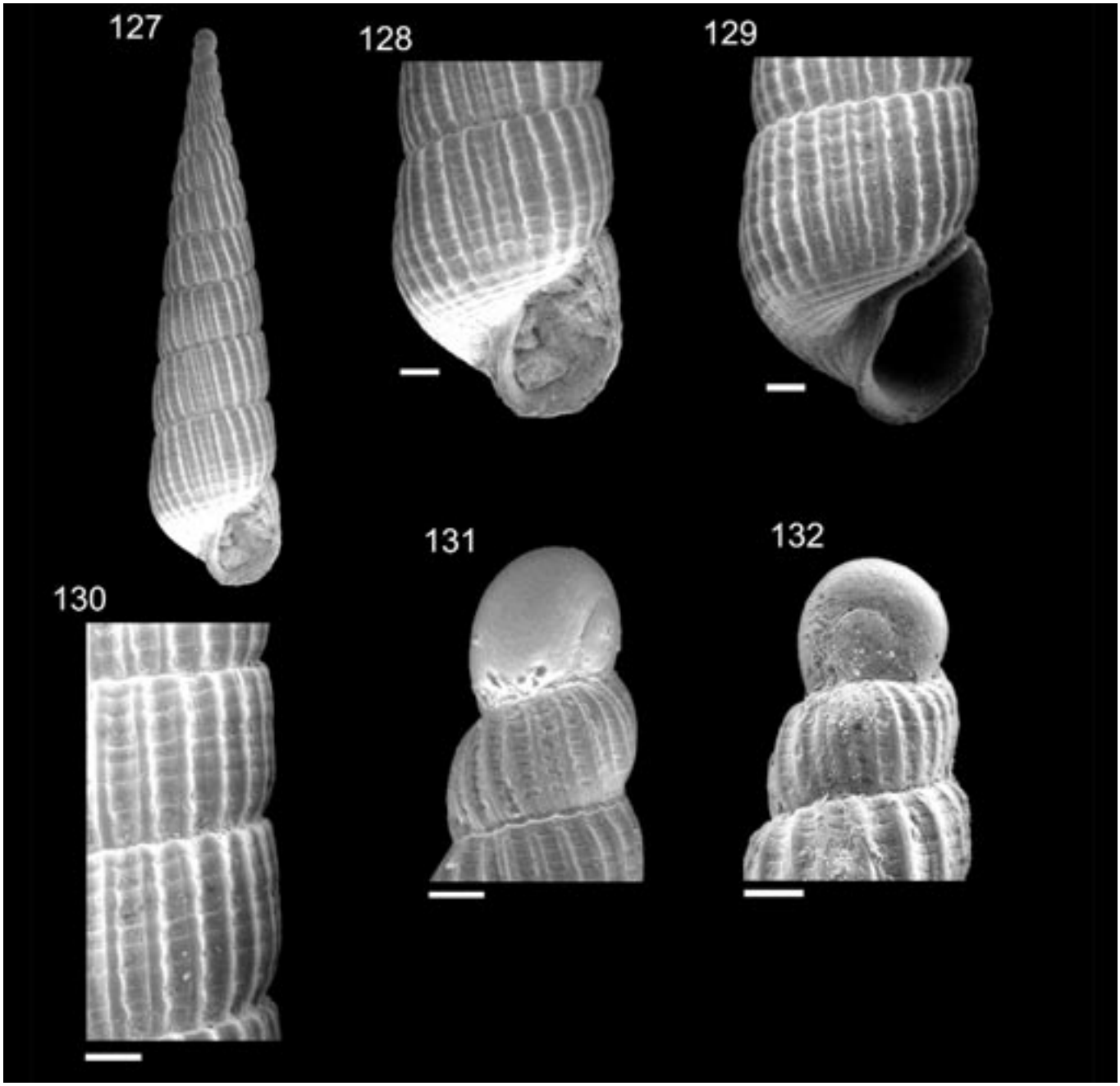

Figs 127-132. *Turbonilla uaca* n. sp. 127, 128: holotype (MORG 41047); 129-132: paratype (MNHN). Fig. 127: whole shell (length: 7.2 mm); figs 128, 129: last whorls; fig. 130: detail of sculpture; figs 131, 132: protoconchs. Scale bars: figs 128-130: 300 µm; figs 131, 132: 100 µm.
Figg. 127-132. *Turbonilla uaca* n. sp. 127, 128: olotipo (MORG 41047); 129-132: paratipo (MNHN). Fig. 127: conchiglia intera (lunghezza: 7,2 mm); figure 128, 129: ultimo giro; fig. 130: dettaglio della scultura; figg. 131, 132: protoconche. Scala di riferimento: figure 128-130: 300 µm; figg. 131, 132: 100 µm.

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Lavoro accettato il 22 Giugno 2002