

***Collatus*, a new genus of the family Vitrinellidae (Gastropoda: Truncatelloidea) from the Pacific Ocean, with the description of 6 new species**

***Collatus*, un género nuevo de la familia Tornidae (Gastropoda: Truncatelloidea) del Océano Pacífico, con la descripción de 6 especies nuevas**

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Abstract: A new genus and 6 new species belonging to the family **Vitrinellidae** (Caenogastropoda: Truncatelloidea) are described. The species studied are from the southeastern tropical Pacific and were collected during the Tropical Deep-Sea Benthos expeditions conducted by IRD and MNHN in New Caledonia, the Marquesas Islands, Papua New Guinea and the Philippines. The new genus *Collatus* is based on unique morphological features that are present in the six newly described species; their systematic position is discussed and the new genus is compared with other genera presenting similar morphological characteristics. Each species is illustrated by scanning electron microscope photographs; their specific variability is discussed and information on their habitat, geographical distribution and bathymetric range is provided.

Resumen: Se describen un nuevo género y 6 nuevas especies pertenecientes a la familia **Vitrinellidae** (Caenogastropoda: Truncatelloidea). Las especies estudiadas proceden del sudeste del Pacífico tropical y fueron recolectadas durante las expediciones Tropical Deep-Sea Benthos, dirigidas por IRD y MNHN en Nueva Caledonia, las Islas Marquesas, Papua Nueva Guinea y Filipinas. El nuevo género *Collatus* se ha basado en caracteres morfológicos únicos presentes en las seis nuevas especies descritas; se discute su posición sistemática y se compara con otros géneros de caracteres morfológicos similares. Cada una de las especies se ilustra mediante fotografías al microscopio electrónico de barrido, discutiendo su variabilidad específica y aportando datos sobre el hábitat, distribución geográfica y rango batimétrico.

Introduction: After the examination of the “vitrinelli-

form” gastropods from the tropical Pacific mostly collected during the Tropical Deep-Sea benthos and our Planet Reviewed expeditions conducted respectively by IRD and MNHN, and MNHN and Pro-natura international, our attention was attracted by some groups displaying unique sets of characteristics, leading us to describe them as new genera: *Monodosus* (Rubio & Rolán, 2016), *Circuitus* (Rubio & Rolán, 2017a) and *Tuberes* (Rubio & Rolán, 2017b).

For their great resemblance to species such as *Circulus choshiensis* (Habe, 1961), a further small group of species could belong to the genus *Circulus* Philippi, 1836, considering their general appearance, but it was finally retained as distinct and is the object of the present paper. They have a turbiniform, depressed to high-spired shell, with two clearly differentiated types of spiral cords, a thickened outer lip and microgranules in the inter-spaces.

Ponder (1994: 258) defined the genus *Circulus* as: “vitrinellids having a spirally ridged shell with a simple non varicose aperture,...”. The main characteristics of the new genus are: multispiral protoconch with flexuous oblique riblets; two different types of regularly distributed spiral cords and an external lip with a thickened, pronounced border. These characteristics are found in the species described below and absent from species belonging to the genus *Circulus*, so we decided to define a new genus based on the unique, shared characteristics of these species, as presented below.

Material and methods: The material studied in this paper essentially originates from several expeditions conducted by MNHN and Pronatura international (PNI)

in partnership with university of Papua New Guinea (UPNG) as part of the *Our Planet Reviewed* programme (PAPUA NIUGINI 2012); by MNHN and Institut de Recherche pour le Développement (IRD) as part of the *Tropical Deep-Sea Benthos* programme (MUSORSTOM 9, see BOUCHET ET AL. 2008).

Material from the central Philippines: Panglao, Dauis, Cortes, Tagbilaran and Baclayon, and the Bohol and Sulu Seas, is also included.

The abovementioned expeditions are detailed as follows: **MONTRouZIER** (1993). A land-based expedition in Touho and Koumac areas, New Caledonia.

MARQUISES 1997. A land-based research campaign at Ua Huka (Marquesas Islands).

MUSORSTOM 9 (1997). On board R/V *Alis*, exploring the Marquesas Archipelago.

PANGLAO 2004 (Panglao Marine Biodiversity Project). Exploring the Central Philippines: Panglao, Dauis, Cortes, Tagbilaran and Baclayon.

PAPUA NIUGINI 2012. Expedition to the Madang lagoon and the adjacent part of the Bismarck Sea, Papua New Guinea.

KAVIENG (2014). Workshop and oceanographic campaign to explore the lagoon, surface and deep waters of this region of Papua New Guinea.

Illustrations for all the studied species were prepared using a Scanning Electron Microscope (SEM) Quanta 200 and EVO LS15. Measurements of the teleoconch: the maximum height (H) and maximum diameter (D) are based on the scale bar of the SEM micrographs.

The protoconch was measured by Verduin's (1976) method in which a nucleus is considered at the beginning of the spire.

Abbreviations:

MNHN: Muséum national d'Histoire naturelle, Paris

D: maximum diameter of the shell, measured perpendicular to the axis of coiling

H: total height of the shell

Stn: station

s: clearly empty shells

SYSTEMATIC PART

Superfamily TRUNCATELLOIDEA Gray, 1840
Family VITRINELLIDAE Bush, 1897

Collatus n. gen.

Type species: *Collatus* n. sp.

Description: Shell turbiniform with a depressed or a little high spire; protoconch multispiral, ornamented with thick, flexuous, oblique riblets; teleoconch totally covered by spiral cords, adapically thicker and separated from each other, and abapically much thinner and numerous. Growth lines strongly prosocline. Spaces between cords totally covered by microgranules. Aperture rounded; margin of the outer lip modified by spiral cords. Umbilicus widely opened, totally covered by fine spiral cords inside.

Remarks: The shells included in this genus are rather similar, all sharing the main characteristics, being the protoconch with about 2 whorls, ornamented with thick, flexuous, oblique riblets and the teleoconch totally covered by two types of regularly distributed spiral cords and a thickened outer lip.

Circulus Jeffreys, 1865 is the genus whose species *C. chosiensis* has a similar shape to that of the *Collatus* species. However, the genus *Circulus* is very different, its differential morphological characteristics being: protoconch without axial folds, teleoconch with uniformly thick spiral cords, both adapically and abapically, and a wide and deep umbilicus.

Monodosus Rubio & Rolán, 2016 is the only genus whose species have a similar protoconch, but the rest of the morphological characteristics are totally different (shell discoidal, much flattened and strongly keeled, with adapical nodes on the teleoconch whorls).

Etymology: The name of the new genus is derived from the past participle of the Latin verb *confero*, *confers*, *conferre*, *contuli collatum*, which means "bring, transport together many things, to heap" alluding to the very numerous spiral cords and cordlets which cover its whole surface.

Collatus regularis n. sp.

Fig. 1A-G

Type material: Holotype (Figs 1A-C) in MNHN IM-2000-33889.

Type locality: New Caledonia, Secteur de Touho, Récif Extérieur, Passe de Touho, 20°50.4'S-165°22.8'E, 20 m.

Material examined: 1 s: New Caledonia, Secteur de Touho, Récif Extérieur, Passe de Touho, 20°50.4'S-165°22.8'E, 20 m, hard bottom with sand areas [MONTRouZIER: Stn 1273].

Description: Shell very small (<2.00 mm), turbiniform, high spire formed by 4.6 moderately umbilicate whorls. Protoconch wide, with 2.2 whorls, and about 450 μm in diameter; a smooth surface except for about 19-20 thick curved, oblique riblets that extend from the suture to the periphery, although most of them are not complete. Near the lower suture there are some tubercles. Teleoconch of 2.5 whorls separated by an impressed suture; periphery rounded. At the beginning there are 3 spiral cords, and a 4th close the the upper one appears a little later. The ornamentation is formed by spiral cords, axial ribs and microgranules, very dense between the interspaces of the cords and cordlets; the spaces between the cords are concave. On the first whorl of the teleoconch, the axial ribs cross the spiral cords adapically, forming more or less pointed tubercles; on the following whorls the tubercles fade until they disappear, with only fine axial ribs visible in the spaces between the cords. In apertural view, 4-5 spiral cords can be seen in the first whorl of the teleoconch and 32 on the last whorl; from these, 8-9 cords are separated by wide spaces distributed between the suture and the periphery, and 22-23 fine and very dense cords between the periphery and the umbilical margin. Near the umbilicus they are a little wider, extending into it. Aperture rounded, peristome entire. Parietal area covered by a fine callous coat; columella strong, arched and reflected towards the umbilicus. External lip thick, with a crenulated margin, modified by the spiral cords. Umbilicus wide and deep, with 10-12 strong spiral cords inside, crossed by marked growth lines. There is no marked infundibular border.

Dimensions: The holotype is 1.9 mm in diameter x 1.46 in height (H/D: 0.76).

Habitat: Infralittoral species collected at 20 m in hard bottoms with sand spots.

Distribution: Only known from the type locality.

Remarks: *Collatus regularis* n. sp. is characterised by the presence of the typical characteristics of the genus, protoconch with 20 oblique subsutural folds, about 6 spiral cords in the upper part of the last whorl and 22-23 very fine and closed cordlets in the lower part, a thick modified external border of the aperture, and the presence of microtubercles on the entire teleoconch whorls.

The differences from the other species will be mentioned in the remarks for each one of them.

Etymology: The species' name refers to the regular presence of the typical characteristics of the genus.

Collatus conversus

Fig. 2A-G

Type material: Holotype (Fig. 2A-C) and a paratype in MNHN IM-2000-33891.

Type locality: Marquesas Islands, Nuka Hiva Island, 8°49.3'S-140°03.6'W, 23-30 m.

Material examined: 2 s: Marquesas Islands, Nuka Hiva Island, 8°49.3'S-140°03.6'W, 23-30 m [MUSORSTOM 9: Stn DW1184].

Description: Shell small (<2.50 mm), turbiniform, wider than high, depressed spire formed by 4.6 whorls, very convex and widely umbilicate. Protoconch wide with 2.2 whorls, about 400 μm in diameter, smooth surface except for 12-13 flexuous, oblique riblets that extend from the suture to the periphery. Teleoconch of 2.6 whorls separated by a widely impressed suture; periphery rounded. Ornamentation formed by spiral cords, slightly oblique axial ribs and microgranules in the interspaces; the spaces between the cords are concave. Adapically, in the first teleoconch whorl, the axial ribs (about 50) cross the spiral cords forming reticules of rectangular spaces with tubercles at the points of intersection; in the following whorls the axial ribs are softened, but do not disappear completely, and are more marked and numerous near the thickening in the external lip. The entire surface of the shell is covered by microtubercles. In apertural view, 2-3 spiral cords can be seen in the first teleoconch whorl; in the second whorl there are 5, all of them large and separate. In the last whorl, 5-7 in the upper part, also large, and below the level of the end of the spire, in the lower part, 36-38 very fine cords can be seen, closed ones among them, which get to the umbilical margin; from this point these cords penetrate into the umbilicus and are a little larger and separated. Umbilicus wide and deep, on the inside up to 14-16 spiral cords can be seen, not very wide, crossed by the growth lines. Aperture rounded, peristome entire. Parietal area covered by a strong callous coat; columella curved and slightly reflected towards the umbilicus. External lip with an externally curved and thickened margin.

Dimensions: The holotype is 2.23 in diameter x 1.34 in height (H/D: 0.60).

Habitat: Infralittoral species dredged at 23-30 m deep.

Distribution: Only known from the type locality.

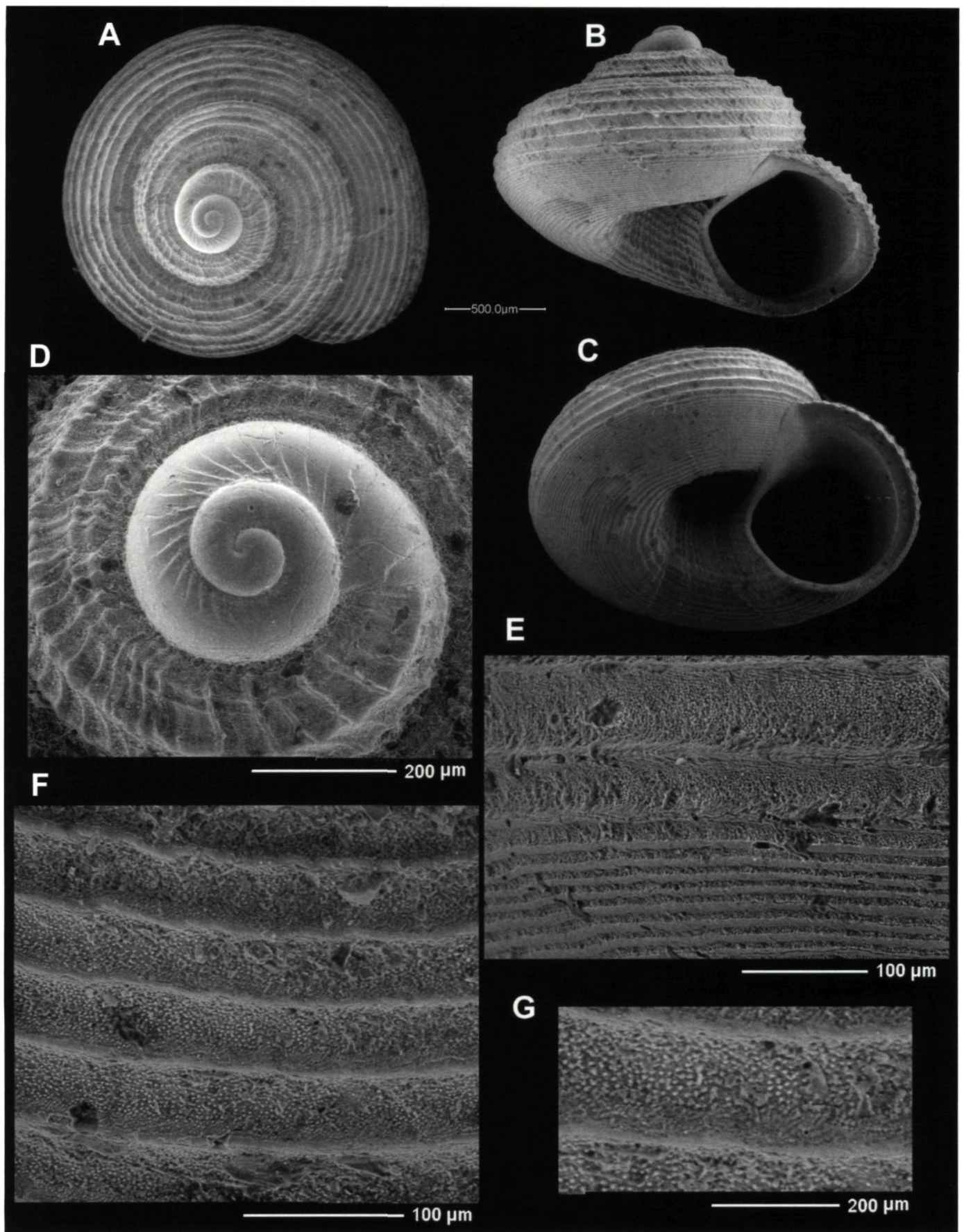


Figure 1

A-G: *Collatus regularis* n. sp.

A-C: holotype, 1.9 mm in diameter, New Caledonia, Secteur de Touho, 20 m (MNHN).

D: protoconch.

E-G: microsculpture and detail.

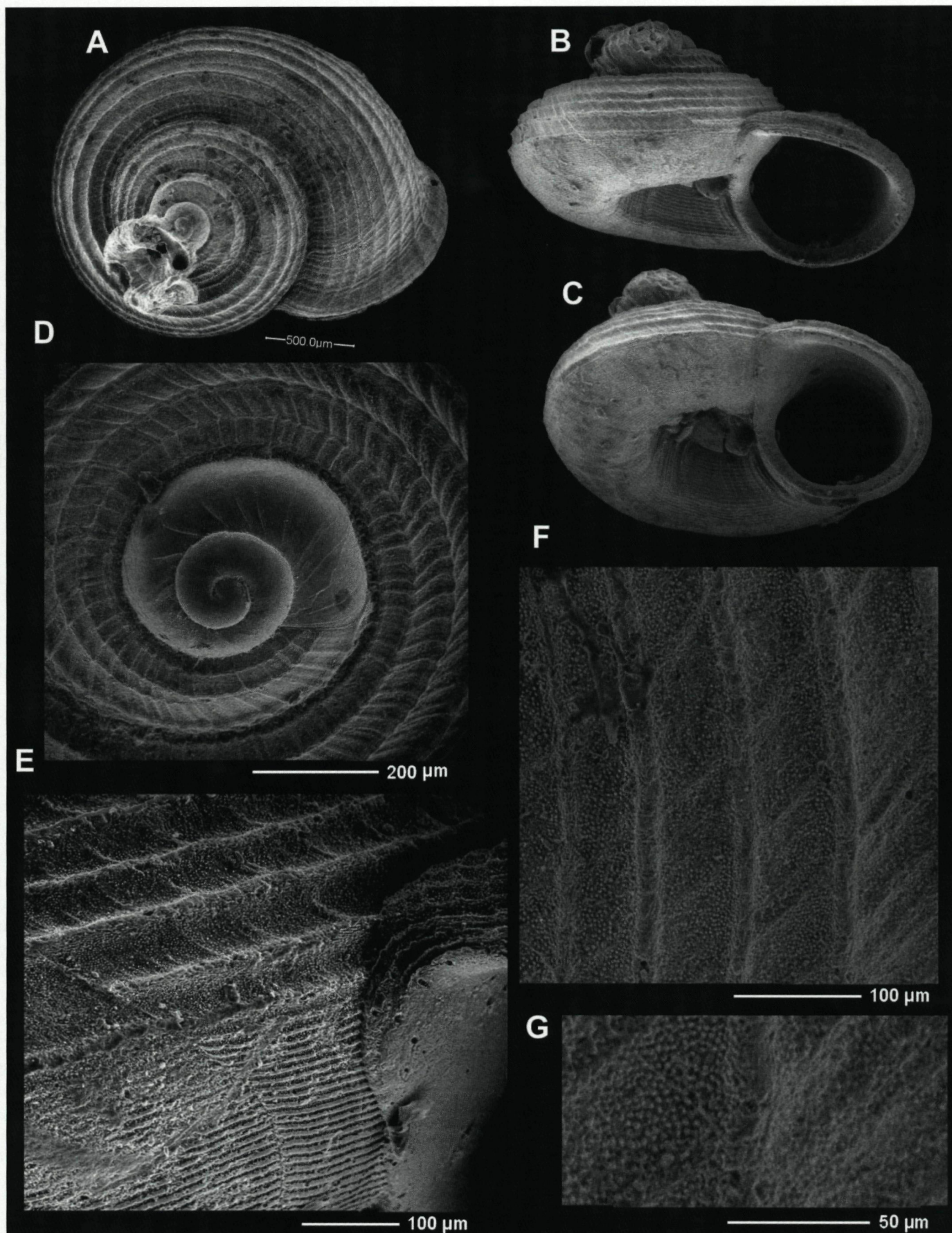


Figure 2

A-G: *Collatus conversus* n. sp.

A-C: holotype, 2.23 mm in diameter, Marquesas Islands, Nuka Hiva Island, 8°49.3'S-140°03.6'W, 23-30 m (MNHN).

D: protoconch of the paratype

E-G: microsculpture and details.

Remarks: *Collatus conversus* n. sp. is characterised by the presence of axial sculpture in the beginning of the teleoconch, which almost disappears towards the end of the spire; also by the reflected external border of the aperture, 36-38 fine cordlets in the lower part of the last whorl, and a relation H/D = 0.6.

Collatus regularis n. sp. can be differentiated by having a wider protoconch (450 μm versus 400 in *C. conversus*) with more curved riblets (20 versus 12-13 in *C. conversus*), with less numerous oblique riblets and tubercles on the lower part of the whorls (22-23 in *C. regularis* versus 36-38 in *C. conversus*); the teleoconch has 3 spiral cords at the beginning, and in *C. regularis*, a fourth one appears later between the first and the second cords (while this appears between the third and the fourth cord in *C. conversus*), the axial riblets are more irregular in *C. regularis*; finally, the external border of the aperture is curved and thick; the umbilicus has a clear, wide border, which is not that clear in *C. regularis*.

Etymology: The species' name derives from the past participle of the Latin verb *convertus, is, ere, verti, versum*, which means "twist", referring to the external border of the aperture.

***Collatus surrectus* n. sp.**

Fig. 3A-F

Type material: Holotype (Figs 3A-C) and 1 paratype in MNHN IM-2000-33893.

Type locality: Philippines, Bohol Island, Baclayon, 9°37.24'N-123°54.30'E, 4-5 m, hard bottom with small pockets of sediment [PANGLAO 2004: Stn S2].

Material examined: 2 s: Philippines, PANGLAO 2004: 2 s, Bohol Island, Baclayon, Stn S2, 9°37.24'N-123°54.30'E, 4-5 m, hard bottom with small pockets of sediment.

Description: Shell small (<2.50 mm), turbiniform, elevated, almost as high as it is wide, high spire formed by about 5.0 very convex and moderately umbilicate whorls. Protoconch wide, with 2.3 whorls, about 410 μm in diameter, the flexuous, oblique ribs cannot be observed due to the poor condition of its surface. Teleoconch of 3 whorls separated by an impressed suture; periphery rounded. At its beginning, 4 spiral cords appear and near the end of the first whorl there are 8 spiral cords. Ornamentation formed by spiral cords, feeble axial

prosocline riblets, scarcely visible on most of the surface, except in the first whorl; microgranules in the inter-spaces; these spaces between the cords are concave. In the first whorl of the teleoconch, the axial ribs cross the spiral cords adapically, forming a reticule of quadrangular spaces with small nodules at the crossing points; on the subsequent whorls, these nodules are reduced till they disappear, leaving only fine axial riblets in the spaces between the cords. In apertural view, in the first teleoconch whorl only 2-3 spiral cords can be seen; on the last one, it is possible to see 9-10 cords in the upper part and 20-22 cordlets on the lower part; the latter are fine and closer together. When they reach the umbilical infundibulum, their size increases and they are more separate. Umbilicus not very wide and deep, with 10-13 spiral cords, not crossed by growth lines, but by strong axial folds which correspond with the labial thickening of the last quarter of the whorl. Aperture rounded, very prosocline, with an entire peristome. Parietal area covered by a fine callous coat; columella strong, arched and reflected towards the umbilicus. External lip thick, with the margin finely crenulated, modified by the spiral cords.

Dimensions: The holotype is 2.38 in diameter x 2.00 in height (H/D: 0.84).

Habitat: Infralittoral species collected by scuba in hard bottom with small pockets of sediment at 4-5 m.

Distribution: Only known from the type locality.

Remarks: *Collatus surrectus* n. sp. is characterised by being almost as high as it is wide (H/D: 0.84), but having 4 spiral cords at the beginning of the teleoconch and 8 at the end of the first whorl; having strong axial folds inside the umbilicus corresponding to the lip thickenings in the last quarter of whorl; the narrower umbilicus and by lacking the infundibular border.

C. regularis n. sp. has a wider protoconch (450 μm versus 410 in *C. surrectus*), fewer spiral cords on its upper part (6 versus 9-10 in *C. surrectus*) and also 3 cords at the beginning of the teleoconch (4 in *C. surrectus*), the umbilicus is rather wider, the shell is smaller for the same number of whorls, the end of the spire is slightly thicker and a little more marked; the ratio H/D is smaller (0.77 for *C. regularis* as opposed to 0.84 in *C. surrectus*).

C. conversus n. sp. has a protoconch with marked riblets, and more evident and regular axial ribs in the first and second whorls of the teleoconch, the number of spiral cords is smaller on its upper part (6 in *C. conversus* versus 9-10 in *C. surrectus*); the end of the spire has a thicker and everted border, and more numerous fine

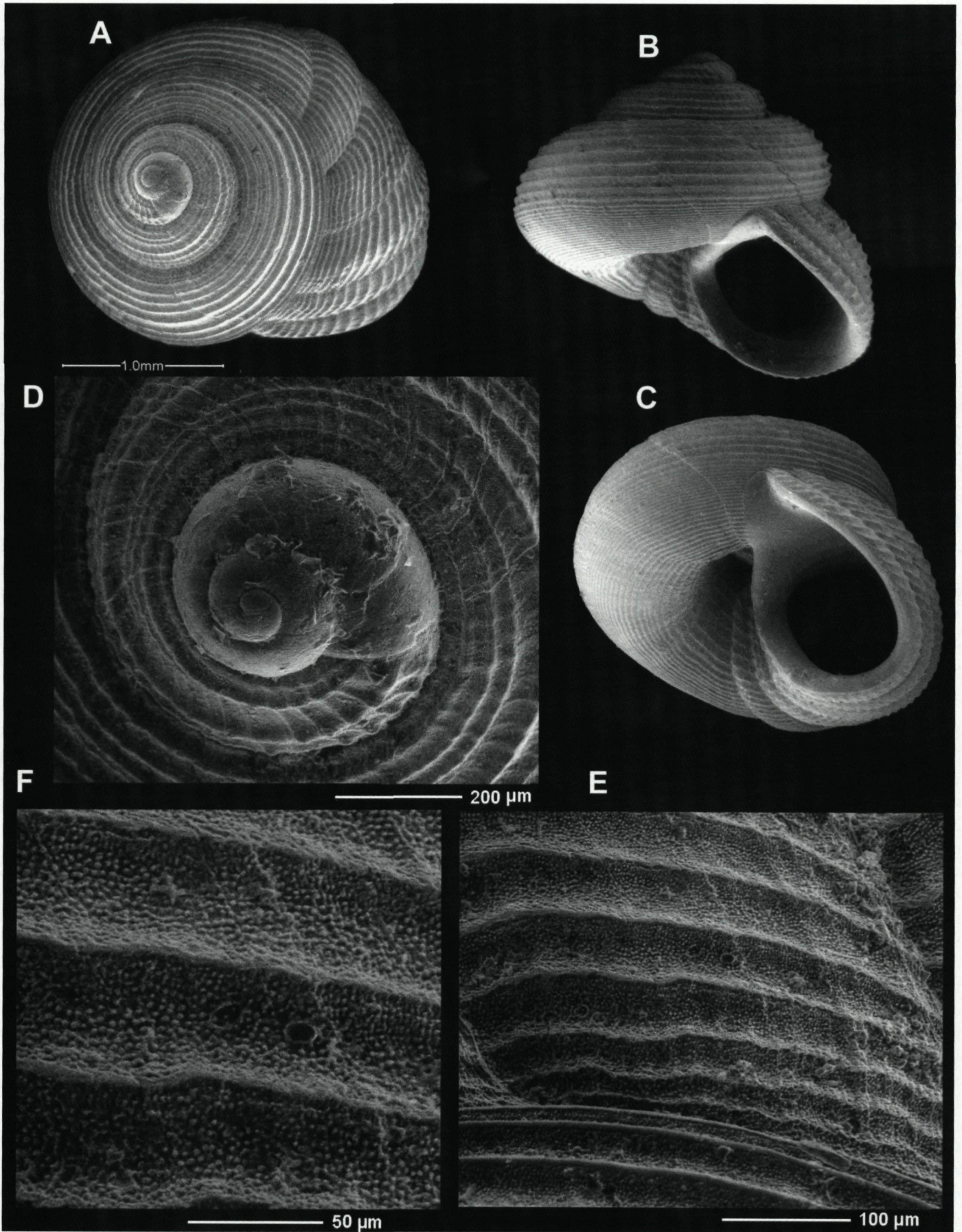


Figure 3

A-F: *Collatus surrectus* n. sp.

A-C: holotype, 2.38 mm in diameter, Philippines, Bohol Island, Baclayon, 3-5 m (MNHN).

D: protoconch.

E-F: microsculpture and detail.

cordlets on the last whorl (36-38 in *C. conversus* as opposed to 20-22 in *C. surrectus*). The umbilicus is wider and has an infundibular border, which does not exist in *C. surrectus*; the ratio H/D is of 0.6 in *C. conversus* and 0.84 in *C. surrectus*).

Etymology: The species' name is the past participle of the Latin verb *surgo, is, ere, surrexi, surrectum* which means "raise, erect" alluding to the larger height of the present species.

Collatus labri n. sp.
Fig. 4A-F

Type material: Holotype (Fig. 4A-C) in MNHN IM-2000-33894.

Type locality: Marquesas Islands, Ua Huka, Hiniaehi-B. Hinitaihava, 8°56.0'S-139°32.8'W, 0 m.

Material examined: 1 s: Marquesas Islands, MARQUISES 1997: Ua Huka, Hiniaehi-B. Hinitaihava, Stn 12, 8°56.0'S-139°32.8'W, 0 m, platform with sand caves.

Description: Shell small (<3.0 mm), turbiniform, wider than high, with a slightly depressed spire formed by 5 whorls; very convex and widely umbilicate. Protoconch with 2 whorls, about 400 µm in diameter, the flexuous oblique ribs cannot be observed due to the poor condition of its surface. Teleoconch of 2.75 whorls separated by a widely impressed suture; periphery rounded. At the beginning there are 4 spiral cords and a little later one more subsutural cord appears. Ornamentation formed by spiral cords; light, clearly prosocline axial ribs with microgranules on the interspaces, which are concave. On the first teleoconch whorl, the axial ribs cross the spiral cords adapically, forming a reticule of rectangular spaces and scarcely prominent tubercles at the crossing points; in the following whorls the axial ribs are softened but do not disappear; later, near the external thickening of the lip they are again more evident and numerous. In apertural view, 3 spiral cords can be seen on the first teleoconch whorl, while 8 larger spiral cords are present on the upper part and below the periphery of the last whorl, 30-33 very fine and closer-spaced cords appear down to the umbilical border. Aperture rounded, but with an internal angular depression in its upper part. Parietal area covered with a very strong callous coat; columella strong, arched and reflected towards the umbilicus. External lip with a margin modified by the spiral cords, forming a strong internal angle close to the parietal area,

channel-shaped. Umbilicus wide and deep; umbilical margin thick; umbilical walls concave in which 5-6 not very strong spiral cords crossed by fine and numerous growth lines can be seen.

Dimensions: The holotype is 2.66 mm in diameter x 2.00 in height (H/D: 0.75).

Habitat: Infralittoral species collected at 0 m bottom in platforms with small spaces with sand.

Distribution: Only known from the type locality.

Remarks: *Collatus labri* n. sp. is characterised by the strong, channel-shaped internal apertural angle in the upper part of the aperture, and the thickening marking the limit of the umbilical infundibulum, the 4 cords at the beginning of the teleoconch: one more which begins subsuturally, and the very irregular axial ribs.

The previously mentioned species can be differentiated by the following characters: *C. regularis* n. sp. has a wider protoconch (450 µm versus 400 µm in *C. labri*); it has 22-23 spiral cordlets on the lower part of the last whorl (versus 30-33 in *C. labri*); 3 cords at the beginning of the teleoconch (versus 4 in *C. labri*); *C. regularis* also lacks the umbilical border.

C. conversus n. sp. has more marked axial sculpture in the first whorls of the teleoconch, fewer spiral cords on the first whorls of the teleoconch, the aperture has a scarcely visible angle in the upper part, and finally the ratio H/D is 0.6 (versus 0.77 in *C. labri*).

C. surrectus n. sp. is more elevated, with fewer fine spiral cordlets on the lower part of the last whorl (20-22 versus 30-33 in *C. labri*); the umbilicus lacks a cord marking its limit and is also narrower, and the ratio H/D is 0.9 in *C. surrectus* (versus 0.75 in *C. labri*).

Etymology: The species' name derives from the Latin name *labrum, i* which means "border, flange" alluding to the wide border of the umbilical infundibulum.

Collatus parvus n. sp.
Fig. 5A-G

Type material: Holotype (Figs 5A-C) in MNHN IM-2000-22895.

Type locality: Marquesas Islands, coast of S. Baie, Haamamao, 8°55.9'S-139°31.45'W, 0 m.

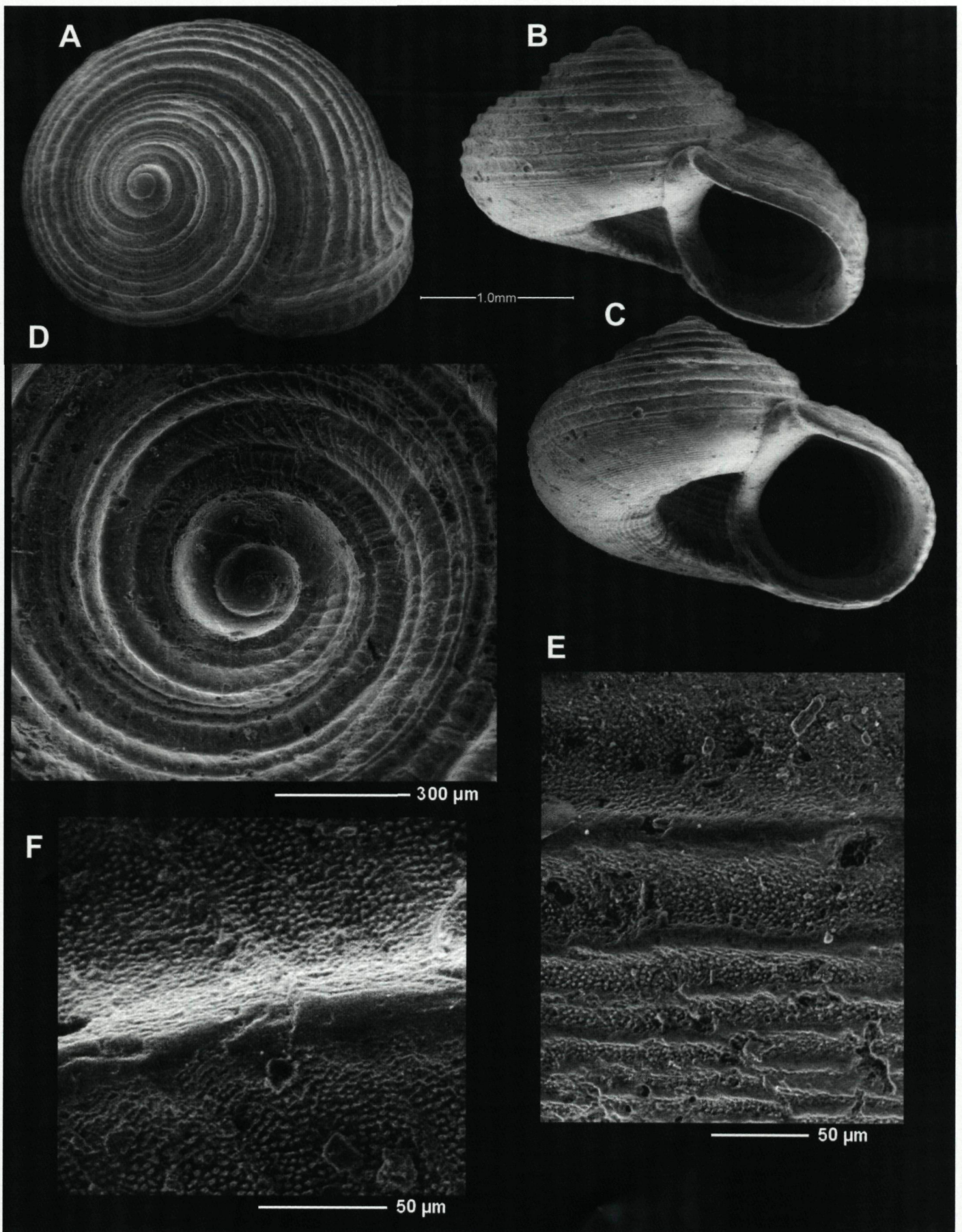


Figure 4

A-F: *Collatus labri* n. sp.

A-C: holotype, 2.66 mm in diameter, Marquesas Islands, Ua Huka, Hiniachi-B, 0 m (MNHN).

D: protoconch.

E-F: microsculpture and detail.

Material examined: 1 s: Marquesas Islands: 1 s, cote S. Baie Haamamao, 8°55.9'S-139°31.45'W, 0 m, platform with small spaces with sand and pebble [MARQUISES 1997: Stn 23].

Description: Shell very small (<2.00 mm), turbiniform, wider than high, depressed spire formed by 4.4 whorls; very convex and widely umbilicate. Protoconch with 2.1 whorls, about 420 µm in diameter, the flexuous oblique ribs cannot be observed due to the poor condition of its surface. Teleoconch of 2.25 whorls separated by a widely impressed suture; 3 cords at the beginning of the teleoconch; periphery rounded. Ornamentation formed by spiral cords, axial riblets slightly oblique and microgranules in the interspaces, which are concave. On the first teleoconch whorl, the axial ribs are very fine apically, scarcely noticeable, crossing the spiral cords, forming a fine reticle of rectangular spaces and small nodules at the crossing points; on the following whorls the axial ribs almost disappear, becoming more evident again near the thickening of the external lip. In apertural view, only 2 or 3 spiral cords can be seen on the first teleoconch whorl; on the last one, there are 5-6 strong and separate cords on the upper part, while about 33-34 very fine and closed cords are present below the periphery down to the umbilical infundibulum. The spiral cords are closed near the suture; below they are more separate till the periphery and then change to be fine and closed. Aperture rounded, a little angular on the upper part. Parietal area covered with a strong callous coat; columella strong, arched and reflected towards the umbilicus. External lip with its outer margin modified by the spiral cords. Umbilicus wide and deep; umbilical infundibulum angled; umbilical wall concave in which about 12 not very strong spiral cords crossed by fine axial riblets and growth lines can be seen.

Dimensions: The holotype is 1.84 mm in diameter x 1.23 in height (H/D: 0.67).

Habitat: Infralittoral species collected at 0 m in platforms with sand and pebble caves.

Distribution: Only known from the type locality.

Remarks: *C. parvus* n. sp. is characterized by the small number of the large spiral cords, while the fine cordlets are more numerous, by the widening of the border of the umbilical infundibulum and the presence of axial riblets inside the umbilicus on the umbilical walls.

The differences from the other studied congeneric species are as follows: *C. regularis* n. sp. is also small, but it has more teleoconch whorls, and has numerous

curved folds and tubercles on the protoconch; the fine spiral cordlets are 22-23 (versus 33-34 in *C. parvus*).

C. conversus n. sp. has a larger shell, with well-marked axial sculpture on the first whorls and a reflected external border in the aperture; the ratio H/D = 0.6 (versus 0.67 in *C. parvus*).

C. surrectus n. sp. is larger with a higher spire, attenuated axial sculpture, and persistence of the several external lips; ratio H/D = 0.9 (versus 0.67 in *C. parvus*); 4 cords at the teleoconch's beginning (versus 3 in *C. parvus*).

C. labri n. sp. has a marked border of the umbilical infundibulum and an angulation on the upper part of the aperture; ratio H/D = 0.77 (versus 0.67 in *C. parvus*); also has about 8 cords on the upper part of the last whorls (5-6 on *C. parvus*).

Etymology: The species' name derives from the Latin adjective *parvus*, *a*, *um* which means "small" alluding to the fact that this is the smallest species among the ones studied.

Collatus papuensis n. sp.

Fig. 6A-G

Type material: Holotype (Fig. 6A-C) and paratype in MNHN IM-2000-33897.

Type locality: Papua New Guinea, N Sek Island, 05°04.6'S-145°49.2'E, 21 m.

Material examined: 5 s: Papua New Guinea, PAPUA NIUGINI: 2 s, N Sek Island, Stn PS23, 05°04.6'S-145°49.2'E, 21 m (type material); KAVIENG 2014: 1 s, Kavieng Lagoon, N side of Wadei Island, Stn KB36, 02°38.8'S-150°38.4'E, 3-8 m, sand and rubble slope; 1 s, Albatross Passage, Stn KPS02, 02°45'S-150°43'E, 14-32 m, sediment in ledges, reef wall; 1 s, Kavieng Lagoon, W entrance to Nissel Passage, Stn KB02, 02°35.2'S-150°46.2'E, 6 m, coral slabs and rubble.

Description: Shell small (<2.50 mm), turbiniform, almost as high as it is wide, high spire formed by 4.9 whorls which are very convex and widely umbilicate. Protoconch with 2.2 whorls, about 420 µm in diameter; smooth surface except for 15-17 thick, flexuous, oblique riblets that extend from the suture to the periphery. Teleoconch of 2.8 whorls separated by an impressed suture; periphery rounded. Ornamentation formed by spiral

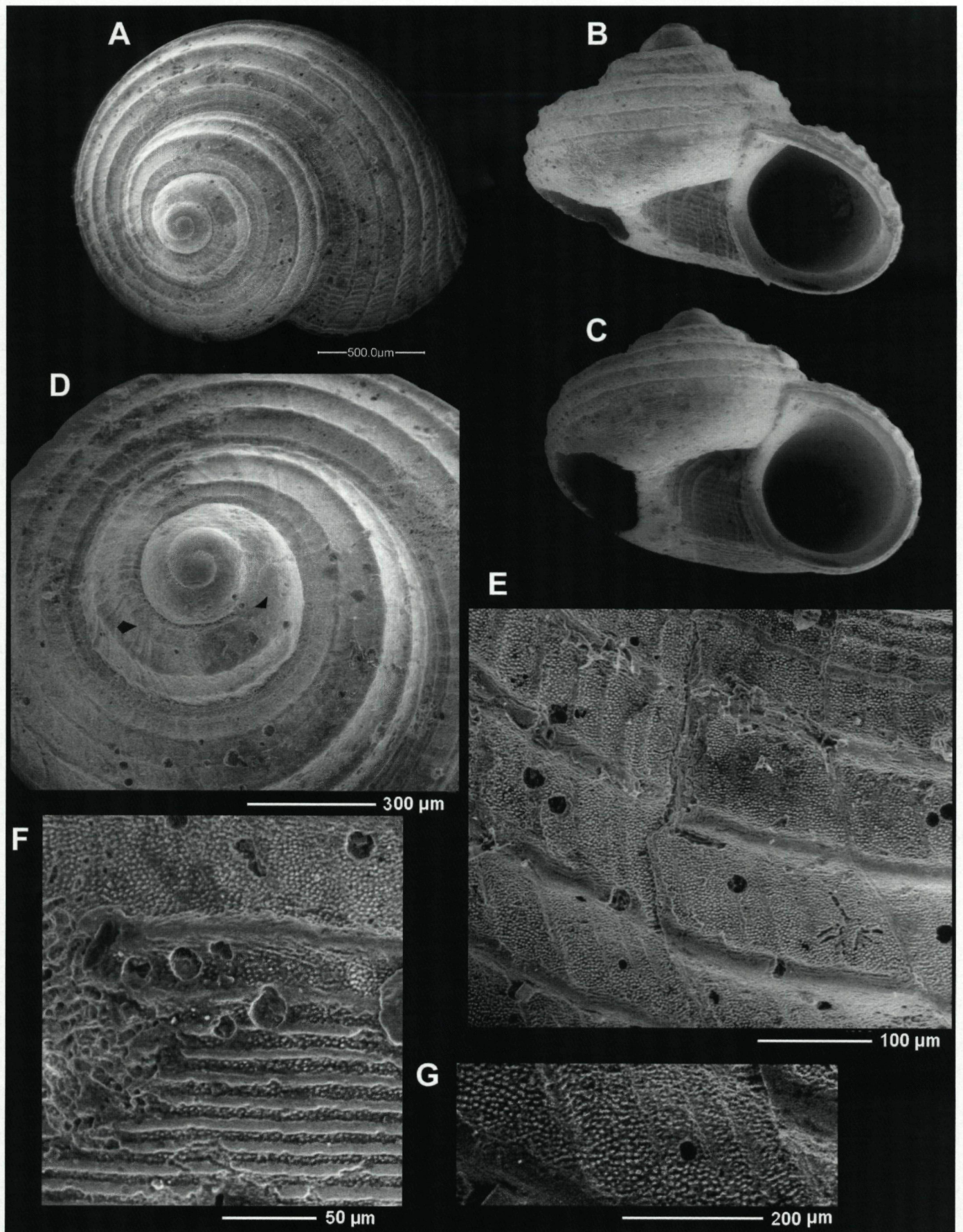


Figure 5

A-G: *Collatus parvus* n. sp.

A-C: holotype, 1.84 mm, Marquesas Islands, coast of S. Baie Haamamao, 0 m (MNHN).

D: apex and protoconch.

E-G: sculpture and detail.

cords, axial prosocline ribs and microgranules in the interspaces; these spaces between the cords are concave. In the first teleoconch whorl, there are 3 adapical spiral cords, the 4th one appearing after and close to the first one. The axial ribs cross the spiral cords forming a reticule of rectangular spaces and small nodules in the intersection points; in the following whorls the axial ribs are softened to be almost disappearing towards the spire end where they increase again near the external lip. In apertural position, about 13 spiral cords can be seen on the upper part of the last teleoconch whorl. Below the periphery, the cordlets are finer and closed; numbering about 30 to the umbilical margin. Aperture rounded, peristome entire. In its upper part there is a small angulation. Parietal area covered with a thick callous coat; columella thick, arched and reflected towards the umbilicus. External lip thick with its margin finely crenulated, modified by the spiral cords. Umbilicus wide and deep, no infundibulum cord, inside 13-14 spiral cords crossed by strong growth lines which finely modify the margin of the internal lip can be seen.

Dimensions: The holotype is 2.35 mm in diameter x 1.6 mm in height (H/D: 0.68).

Habitat: Infralittoral species collected in sand and rubble slope, coral slabs and rubble and sediment in ledges, reef wall at 6-21 m.

Distribution: Only known from Papua New Guinea: Sek and Wadei Islands.

Remarks: *Collatus papuensis* n. sp. is characterised by a larger number of adapical as well as abapical spiral cords and also by the thickened lip and the fine crenulation in the external as well as in the internal lip.

The comparison with congeneric species is as follows: it can be separated from *C. regularis* because the latter has a protoconch diameter of 450 µm (versus 420 in *C. papuensis*), 20 oblique riblets on the protoconch (versus 13 in *C. papuensis*) and about 6 larger cords in the upper part of the last whorl (versus 13 in *C. papuensis*).

C. conversus has only 6 spiral cords in the upper part of the last whorl between the suture and the periphery on the last whorl, similar to *C. surrectus*, *C. labri* and *C. parvus*. (opposed to 13 in *C. papuensis*); the protoconch diameter is of 400 µm (versus 420 in *C. papuensis*). Also, there is an umbilical border in *C. conversus* (as well as in *C. labri* and *C. parvus*) which does not exist in *C. papuensis*.

The most similar species is *C. surrectus* n. sp. because both are larger in size, with many spiral cords, but *C. papuensis* n. sp. is a little more depressed and has a wider

protoconch. Furthermore, *C. surrectus* and *C. labri* have 4 spiral cords at the beginning of the teleoconch, while *C. papuensis* has 3.

Etymology: The species' name is that of the islands where it was collected.

Conclusions

The new genus presents some characteristics not usually observed in the genus *Circulus* in which the species had initially been placed.

Around the area where the species were collected, two of them (*C. labri* and *C. parvus*) were found in the intertidal area; another species (*C. surrectus*) was collected at 4-5 m; finally, three more species (*C. regularis*, *C. conversus* and *C. papuensis*) were collected between 20 and 30 m.

It is surprising that the new species have only been collected in small numbers, in spite of the fact that most of them are from shallow water. This is probably due to the fact that their habitat is hidden: for example, under rocks or buried in sand. About the number of shells for species, only in one case (*C. papuensis*) 5 shells were collected. For the other species, only 1-2 shells were collected.

The presence of this genus is also very irregular: only one species was found in New Caledonia, another one in the Philippines and yet another one in Papua New Guinea. On the other hand, 3 species were collected in the Marquesas Islands.

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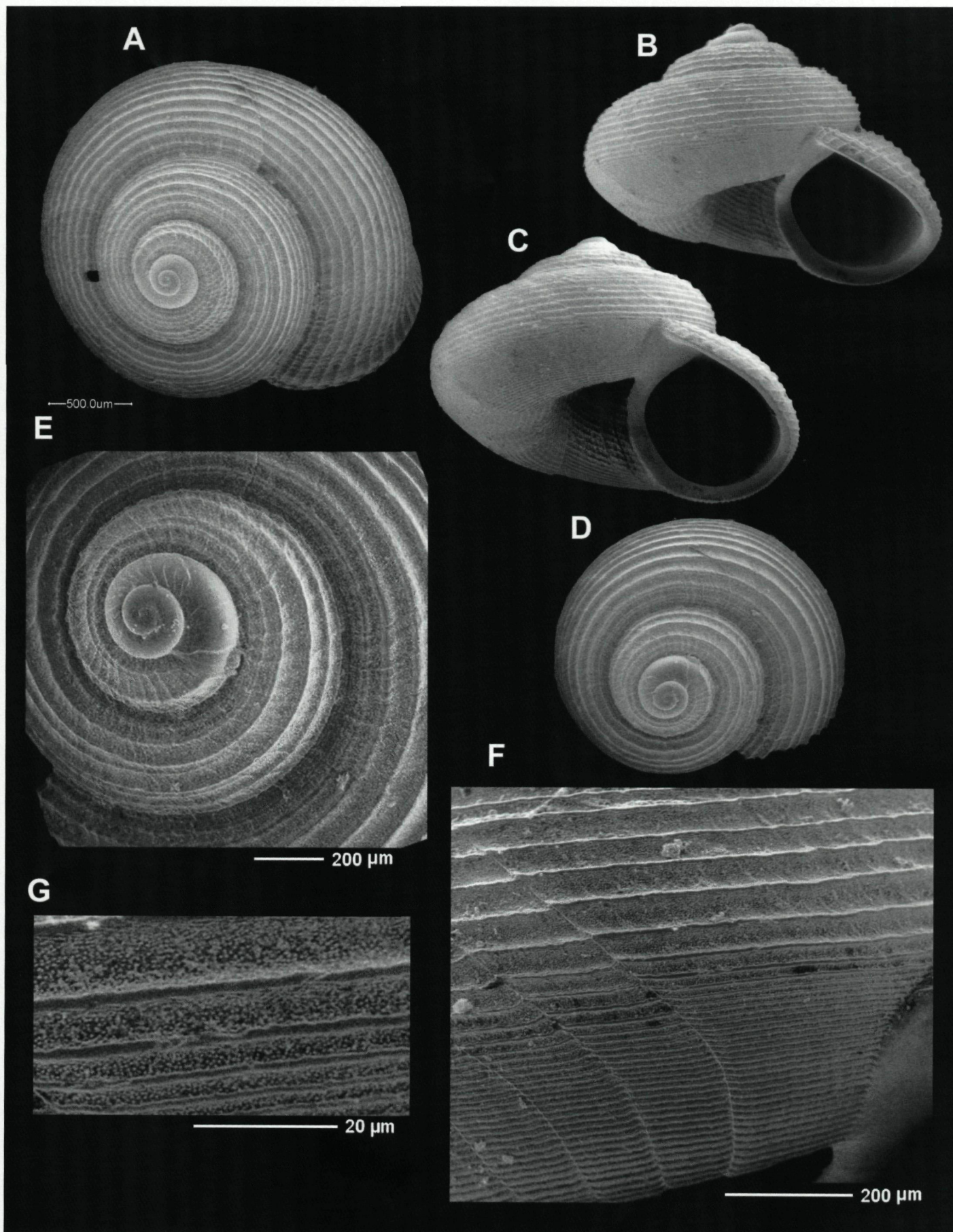


Figure 6

A-G: *Collatus papuensis* n. sp.

A-C: holotype, 2.35 mm, Papua New Guinea, N Sek Island, 21 m.

D: paratype, 1.77 mm in diameter, same locality (MNHN).

E: protoconch of the holotype; F-G: microsculpture and detail.

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