

# Nine new species of Muricidae Rafinesque, 1815 (Mollusca, Gastropoda) from the French Antilles

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## ABSTRACT

Nine new species of Muricidae from Guadeloupe, mainly collected during the 2012 KARUBENTHOS expedition, are described. *Typhinellus lamyi* n. sp. is compared with the similar species *T. labiatus* (Cristofori & Jan, 1832) from the Mediterranean Sea and *T. oclusus* (Garrard, 1963) from the Philippines. *Dermomurex* (*Trialatella*) *pruvosti* n. sp., *D. (T.) boucheti* n. sp., *D. (T.) fajouensis* n. sp. and *D. (T.) tararensis* n. sp. are compared with *D. abyssicola* (Crosse, 1865) occurring in the same area and with *D. (T.) oxum* Petuch, 1979 which ranges from Panama to Brazil. *Pygmaepterys pointieri* n. sp. and *P. karukerensis* n. sp. are compared with *P. germainae* Vokes & D'Attilio, 1980 and *P. aliciae* (Petuch, 1987). *Muricopsis guadalupensis* n. sp. is compared with *M. caribbaea* (Bartsch & Rehder, 1939) occurring throughout the Tropical West Atlantic and to *M. marcusii* Vokes, 1994 from Brazil. *Lindapterys domlamyi* n. sp. is compared with *L. sanderi* Petuch, 1987 from Barbados and Brazil and to the type species of the genus, *L. vokesae* Petuch, 1987 from the Early Miocene of Florida (USA). The name *Murex hexagonus* Lamarck, 1816, usually considered to be a primary homonym of *Murex hexagonus* (Gmelin, 1791), is rehabilitated (article 23.9.5, ICZN 1999). A lectotype of this species, is designated from the two syntypes housed in the MNHNG. *Murex hexagonus* is compared with other related *Murexsul* from the Caribbean area including *M. oxytatus* (Smith, 1938), *M. zylmanae* (Petuch, 1993), *M. huberti* (Radwin & D'Attilio, 1976), *M. chesleri* Houart, 2006, *M. sunderlandi* (Petuch, 1987), *M. warreni* (Petuch, 1993) and *M. jahami* Merle & Garrigues, 2011.

## KEY WORDS

Mollusca,  
Gastropoda,  
Muricidae,  
Caribbean,  
lectotypification,  
new species.

## RÉSUMÉ

*Neuf espèces nouvelles de Muricidae Rafinesque, 1815 (Mollusca, Gastropoda) des Antilles Françaises.*

Neuf espèces nouvelles de Muricidae de Guadeloupe, principalement récoltées lors de l'expédition KARUBENTHOS en 2012, sont décrites. *Typhinellus lamyi* n. sp. est comparé à des espèces similaires : *T. labiatus* (Cristofori & Jan, 1832) de Méditerranée et *T. oculus* (Garrard, 1963) des Philippines. *Dermomurex* (*Trialatella*) *pruvosti* n. sp., *D. (T.) boucheti* n. sp., *D. (T.) fajouensis* n. sp. et *D. (T.) tararensis* n. sp. sont comparés à *D. abyssicola* (Crosse, 1865) qui est présent dans la même région et à *D. (T.) oxum* Petuch, 1979 connu du Panama au Brésil. *Pygmaepterys pointieri* n. sp. et *P. karukerensis* n. sp. sont comparés à *P. germainae* Vokes & D'Attilio, 1980 et à *P. aliciae* (Petuch, 1987). *Muricopsis guadalupensis* n. sp. est comparé à *M. caribbaea* (Bartsch & Rehder, 1939) présent dans l'ensemble de l'ouest Atlantique tropical et à *M. marcusii* Vokes, 1994 du Brésil. *Lindapterys domlamyi* n. sp. est comparé à *L. sanderi* Petuch, 1987, connu de la Barbade au Brésil et à l'espèce type du genre, *L. vokesae* Petuch, 1987 connu dans le Miocène inférieur de Floride (USA). *Murex hexagonus* Lamarck, 1816, nom généralement considéré comme homonyme primaire de *Murex hexagonus* Gmelin, 1791 est réhabilité (article 23.9.5, CIZN 1999). Un lectotype de cette espèce est désigné à partir des deux syntypes conservés au MHNG. *Murexsul hexagonus* est comparé à d'autres espèces proches de *Murexsul* des Caraïbes : *M. oxytatus* (Smith, 1938), *M. zylmanae* (Petuch, 1993), *M. huberti* (Radwin & D'Attilio, 1976), *M. chesleri* Houart, 2006, *M. sunderlandi* (Petuch, 1987), *M. warreni* (Petuch, 1993) et *M. jahami* Merle & Garrigues, 2011.

## MOTS CLÉS

Mollusca,  
Gastropoda,  
Muricidae,  
Caraïbes,  
lectotypification,  
espèces nouvelles.

## INTRODUCTION

The Lesser Antilles is an area of the Caribbean displaying a very rich muricid fauna, with 84 presently known species (Lamy & Pointier, in press). Since the year 2000, five new species have been described from this region (Merle *et al.* 2001; Houart 2006; Merle & Garrigues 2011). Recent marine malacological research carried out in Guadeloupe (Fig. 1) has led to the discovery of ten additional muricid species described here as new and belonging to the genera *Typhinellus* Jousseaume, 1880, *Dermomurex* Monterosato, 1890, *Pygmaepterys* Vokes, 1978, *Muricopsis* Bucquoy & Dautzenberg, 1882, *Murexsul* Iredale, 1915 and *Lindapterys* Petuch, 1987. The majority of these species were discovered in May 2012, during the KARUBENTHOS expedition (Principal Investigator: Philippe Bouchet), organized jointly by the National Park of Guadeloupe, MNHN, UAG, and UPMC. This paper follows

other papers updating the biodiversity of this area thanks to the KARUBENTHOS expedition (Ortea *et al.* 2012; Espinosa & Ortea 2013; Pelorce & Faber 2013).

## MATERIAL AND METHODS

## ABBREVIATIONS

The descriptive methodology used here follows that of Merle (1999, 2001, 2005) and Merle *et al.* (2011) and the text conventions used to describe the spiral sculpture and the internal denticles of the outer lip are given below.

*Morphology*

|      |                                       |
|------|---------------------------------------|
| ABP  | abapical siphonal primary cord;       |
| abis | abapical infrasutural secondary cord; |
| abs  | abapical siphonal secondary cord;     |
| ADP  | adapical siphonal primary cord;       |



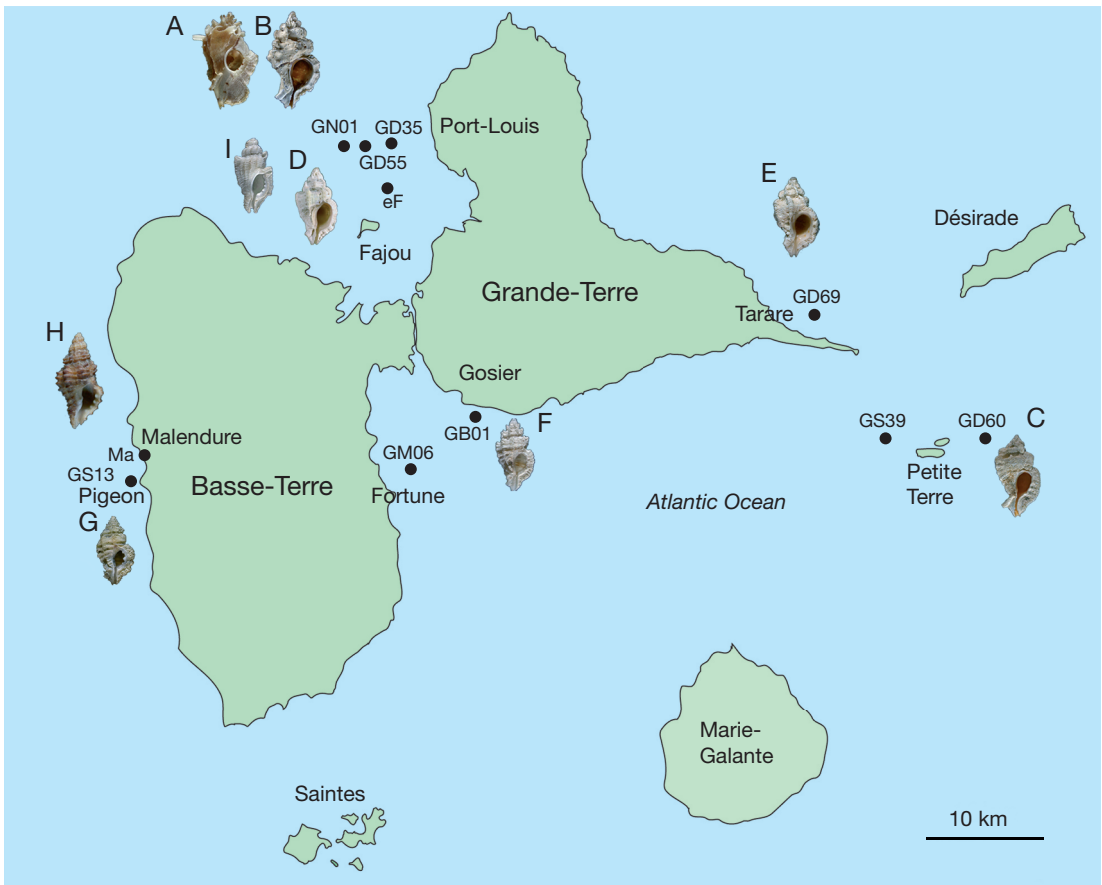


FIG. 1. — Geographical map of the Guadeloupe with the stations KARUNBENTHOS (GB, GD, GM and GS, see also the website of the MNHN (<http://expeditions.mnhn.fr/campaign/karubenthos2012>) for more details concerning the stations), the other stations (eF: East of Fajou in 80-90 m deep and Ma: Malendure at 10 m) and the localization of the new species. **A**, *Typhinellus lamyi* n. sp.; **B**, *Dermomurex (Tyalatella) pruvosti* n. sp.; **C**, *D. (T.) boucheti* n. sp.; **D**, *D. (T.) fajouensis* n. sp.; **E**, *D. (T.) tararensis* n. sp.; **F**, *Pygmaepterys pointieri* n. sp.; **G**, *P. karukerensis* n. sp.; **H**, *Muricopsis guadalupensis* n. sp.; **I**, *Lindapterys domlamyi* n. sp.

adis      adapical infrasutural secondary cord;  
 ads      adapical siphonal secondary cord;  
 EAB1    extreme abapical siphonal primary cord;  
 D1-D6   abapical apertural denticles;  
 ID      infrasutural apertural denticle;  
 IP      infrasutural primary cord;  
 MP      median siphonal primary cord;  
 ms      median siphonal secondary cord;  
 P      primary cord (cord appearing in first order);  
 P1      shoulder cord;  
 P2-P6   primary cords of the convex part of the teleoconch whorl;  
 s      secondary cord (cord appearing in second order);  
 s1-s6   secondary cords of the convex part of the teleoconch whorl;

t      tertiary cord (cord appearing in third order).  
 D      diameter;  
 H      height.

### Repository

ANSP      Academy of Natural Sciences of Philadelphia, Pennsylvania;  
 CMNH    Carnegie Museum of Natural History, Pittsburgh, Pennsylvania;  
 MNHN    Muséum national d'Histoire naturelle (sector: Recent molluscs), Paris;  
 MHNG    Muséum d'Histoire naturelle, Geneva;  
 SDNHM   San Diego Natural History Museum, California;

|          |                                                                             |
|----------|-----------------------------------------------------------------------------|
| UAG      | Université des Antilles et de la Guyane, Pointe-à-Pitre;                    |
| UF       | University of Tampa, Florida;                                               |
| UPMC     | Université Pierre et Marie Curie, Paris;                                    |
| USNM     | National Museum of Natural History, Smithsonian Institution, Washington DC; |
| coll. BG | Bernard Garrigues collection (Castelmoron, France);                         |
| coll. DL | Dominique Lamy collection (Baie Mahault, Guadeloupe);                       |
| coll. JP | Jacques Pellorce collection (Le Grau du Roi, France).                       |

## SYSTEMATICS

Family MURICIDAE Rafinesque, 1815  
Subfamily TYPHINAE Cossmann, 1903

Genus *Typhinellus* Jousseaume, 1880

TYPE SPECIES. — *Typhis sowerbii* Broderip, 1833 (by original designation), junior synonym of *Murex labiatus* Cristofori & Jan, 1832. Middle Miocene: Eastern Atlantic; Pliocene to Pleistocene: eastern and western Atlantic; Recent: eastern and western Atlantic, Somalia and Oman Gulf (Landau *et al.* 2007).

*Typhinellus lamyi* n. sp.  
(Figs 2A-F; 11A)

TYPE MATERIAL. — Holotype (MNHN-IM-2013-7776), DNA sequenced (GenBank no. KJ591665), KARUBENTHOS: stn GD35, Port Louis, 16°22.77'N, 61°34.19'W, at 66 m deep; one paratype (MNHN-IM-2013-20576), DNA sequenced (not tissue-clipped), KARUBENTHOS: stn GD55, Fajou Island, 16°22.48'N, 61°35.46'W, at 85 m deep; one paratype (coll. DL), East of Fajou Island, in 80-90 m deep; one paratype (coll. BG), East of Fajou Island, in 80-90 m deep.

TYPE LOCALITY. — Guadeloupe, Port Louis, 16°22.77'N, 61°34.19'W (stn GD35) at 66 m deep.

ETYMOLOGY. — Named in honour of Dominique Lamy.

### DESCRIPTION OF THE HOLOTYPE

Protoconch of 1.75 whorls. Teleoconch, H 13.1 mm, D 5.9 mm. Low spire of four whorls. Last whorl of 81% of the total length. Shoulder angulation sharp.

Apical angle of 85°. Suture impressed crossed by a laminar extension connecting the shoulder spine to the preceding teleoconch whorl. Spiral sculpture: IP on the sutural ramp, P1 corresponding to anal tube, P2, P3, P4 and P5 on convex part of the whorl, P6, ADP, MP on siphonal canal. Primary cords slightly marked near the varices. P1 and P2 appearing since the first whorl. Primary cord spines on IP, P2, P3, P4 and P5. On the last whorl, broad varical flange up to the extremity of siphonal canal. Four ventrally sealed anal tubes (P1 spine), abapically and dorsally recurved, forming an angle of 30° with the axis of the shell. Last tube intact, others cut down. Axial sculpture: four varices since the first whorl. Aperture rounded. Columellar lip smooth, erected. No anal sulcus. Outer lip erected and smooth within. Siphonal canal winding, ventrally sealed, dorsally curved, up to 40.4% of the total length. Microsculpture of growing grooves. Shell chocolate, beige and white. Anal tubes (P1), siphonal canal and aperture whitish. Several dark blotches on the ventral part of the siphonal canal (3 blotches) and the outer lip (4 blotches). Operculum and radula unknown.

### COMPARISON

Because of its moderately high shape and its developed cords spines, *Typhinellus lamyi* n. sp. should be compared with *T. ocellus* (Garrard, 1963) recorded from the Philippines and New Caledonia (80-200 m deep) and with *T. labiatus* (Cristofori & Jan, 1832). Specimens of *T. ocellus* can resemble *T. lamyi* n. sp. in bearing three dark blotches on the siphonal canal (Fig. 2I and Hardy 2014); however, *T. ocellus* (Fig. 2I) differs mainly by a smaller aperture, a longer siphonal canal (45.6% of the total length) and a larger size up to 25-35 mm (instead 9.5-13 mm). On the biogeographical point of view, *T. labiatus* is closer to *T. lamyi* n. sp., both species living in the Atlantic Ocean. The shape of *T. labiatus* is rather similar to that of *T. lamyi* n. sp. and as for *T. ocellus*, several specimens of *T. labiatus* can resemble *T. lamyi* n. sp. in bearing three dark blotches on the siphonal canal (Hardy 2014). *T. labiatus* (Fig. 2G, H) differs by its spiral sculpture; it displays secondary cords spines s2 and s4 missing in *T. lamyi* n. sp. (Fig. 11A).

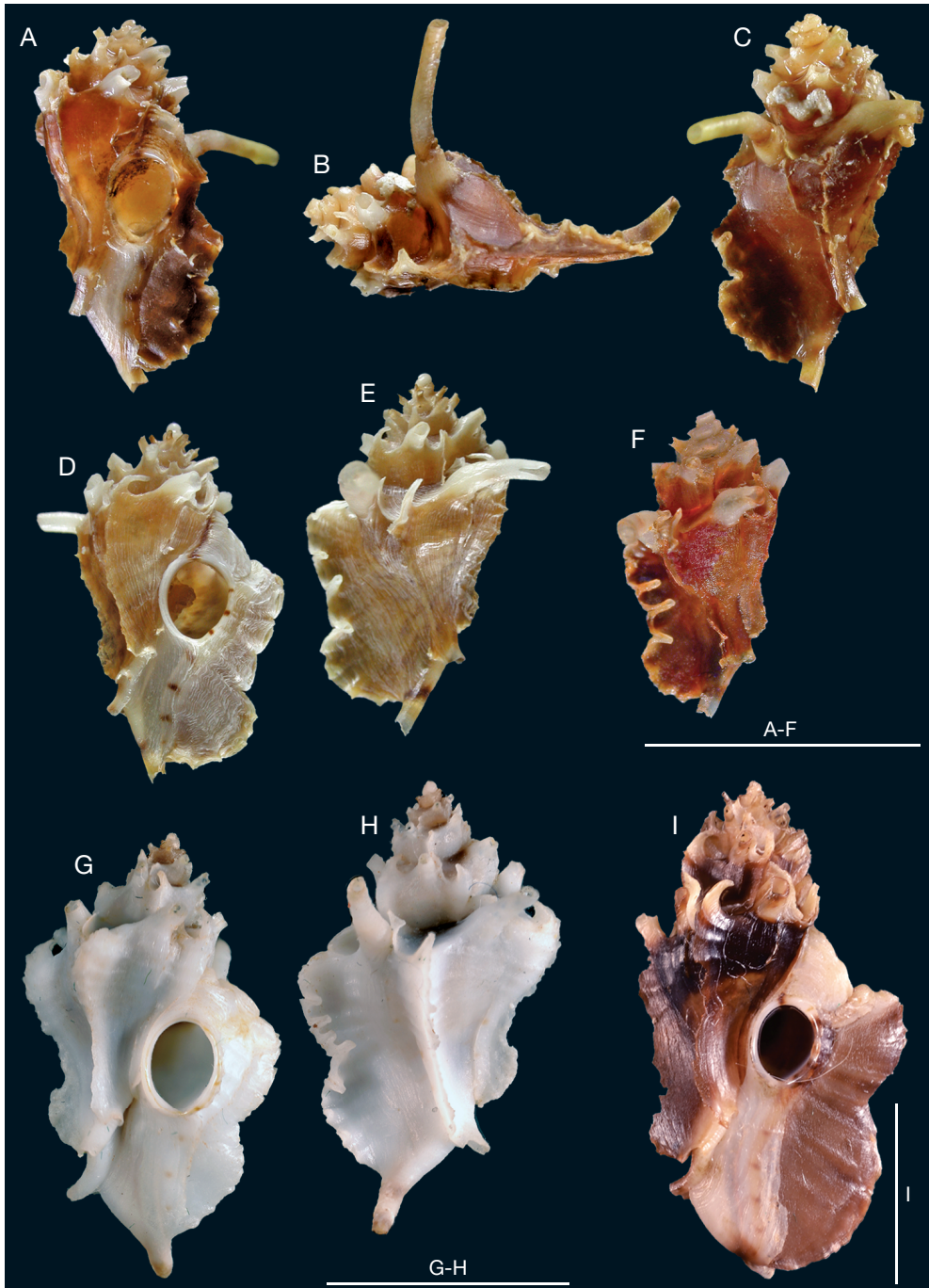


FIG. 2. — **A-F**, *Typhinellus lamyi* n. sp.: **A-C**, ventral, profil and dorsal views holotype MNHN-IM-2013-7776, Port Louis (stn GD35) at 66 m deep; **D, E**, ventral and dorsal views paratype, coll. DL, East of Fajou Island, in 80-90 m deep; **F**, dorsal view paratype MNHN-IM-2013-20576, Fajou Island, at 85 m deep; **G, H**, ventral and dorsal views *T. labiatus* (Cristofori & Jan, 1832), coll. BG, Kerkennah (Tunisia), at 1 m deep; **I**, (ventral view) *T. occlusus* (Garrard, 1963), coll. BG, Balut Island (Philippines), in 80-150 m deep. Scale bars: 10 mm.

Subfamily MURICINAE Rafinesque, 1815  
Incertae sedis

Genus *Dermomurex* Monterosato, 1890

TYPE SPECIES. — *Murex scalarinus* Bivona-Bernardi, 1832 (by original designation) junior synonym of *Murex scalaroides* Blainville, 1829. Pliocene: Mediterranean Sea; Recent, Mediterranean Sea and Senegal (see Merle *et al.* 2011).

REMARKS

In their muricid phylogeny based on molecular data, Barco *et al.* (2010) strongly suggested the polyphyly of the Muricinae sensu Vokes (1996), but, as the relationships with the clade Muricinae (s.s.) are not resolved, we cannot be totally sure of the lack of relationships between the *Dermomurex* subclade and the *Attiliosa*-Muricopsinae subclade and the clade Muricinae (s.s.). Considering these results, Merle *et al.* (2011) assigned *Dermomurex* to an informal Aspeloid group, for which the status among the clade of the Muricinae (s.s.) remains uncertain or needs to be verified.

Subgenus *Trialatella* Berry, 1964

TYPE SPECIES. — *Trialatella cunningghamae* Berry, 1964 by original designation. Recent: west coast of Central America from Gulf of California, Mexico to Panama.

*Dermomurex (Trialatella) pruvosti* n. sp.  
(Figs 3A-D; 4B; 11C)

TYPE MATERIAL. — Holotype (MNHN IM-2000-27726); one paratype (MNHN IM-2000-27727) KARUBENTHOS 2012: stn GN01, 16°22.4'N, 61°35.6'W, at 80 m deep, Fajou Island; one paratype (coll. DL), East of Fajou Island, in 80-90 m deep.

TYPE LOCALITY. — Guadeloupe, Fajou Island, 16°22.4'N, 61°35.6'W (stn GN01), at 80 m deep.

ETYMOLOGY. — Named in honour of Laurent Pruvost.

DESCRIPTION OF THE HOLOTYPE

Protoconch of 1.25 whorls. Teleoconch biconic, H 10.2 mm, D 5.7 mm. High spire of five whorls.

Last whorl rounded, 73% of the total length of teleoconch. Apical angle of 55°. Spiral sculpture consisting in marked primary cords. Appearance of P1 and P2 since the third whorl. IP on the sutural ramp. Convex part of the whorl: P1, P2, P4 well developed, P5 smaller, P3 atrophied. Siphonal canal: P6, ADP and MP. On four first whorls: six protovarices. On fourth whorl: gradual appearance of three varices and three intervarical ribs (intercalated between two varices). On last whorl: four varices and three intervarical ribs (intercalated between two varices). Aperture ovate. Columellar lip smooth and slightly erected anteriorly. Outer lip crenulated and flared. Internal denticles D1, D2, D3, D4 and D5 simple. Siphonal canal open, dorsally recurved and up to 23% of total length of teleoconch. Microsculpture: thin spiral threads on the whole surface of the shell. Intritacalx cancellate. Shell brown under a creamy intritacalx. Aperture brown with darker denticles. Operculum and radula unknown.

COMPARISON (SEE ALSO TABLE 1)

In comparison with *Dermomurex (Trialatella) abyssicola* (Crosse, 1865) (Fig. 3I, J), a species ranging from Bahamas to Brazil between 0.5 m and 20 m deep, *D. (T.) pruvosti* n. sp. differs by a nodulose sculpture formed by small protuberances at the intersection between the varices and the primary cords. *Dermomurex (T.) pruvosti* n. sp. is also distinguishing from *D. (T.) abyssicola* by developed wing-like varices and by an atrophied P3 on the convex part of the whorl. *D. (T.) pruvosti* n. sp. is brown, instead yellow-whitish in *D. (T.) abyssicola*.

*Dermomurex (Trialatella) boucheti* n. sp.  
(Figs 3N-P; 4C; 11D)

TYPE MATERIAL. — Holotype (MNHN-IM-2013-8857), DNA sequenced (GenBank no. KJ591660), KARUBENTHOS 2012, stn GD60, 16°12.05'N – 61°03.9'W, at 95 m deep.

TYPE LOCALITY. — East of Petite Terre Island, Guadeloupe, 16°12.05'N – 61°03.9'W (GD60), at 95 m deep.

ETYMOLOGY. — Named in honour of Philippe Bouchet.





FIG. 3. — **A-D**, *Dermomurex (Trialatella) pruvosti* n. sp.: **A-C**, ventral, profil and dorsal views, holotype MNHN IM-2000-27726, Fajou Island, at 80 m deep; **D**, ventral view, paratype, coll. DL, East of Fajou Island, in 80-90 m deep; **E, F**, *D. (T.) fajouensis* n. sp.; **E, F**, ventral and dorsal views, holotype MNHN IM-2000-27733, East of Fajou Island, at 80 m deep; **G, H**, ventral and dorsal views, paratype MNHN IM-2000-27734, East of Fajou Island, at 80 m deep; **I, J**, ventral and dorsal views, *D. (T.) abyssicola* (Crosse, 1865), coll. DL, South Rocroy, Guadeloupe, at 7 m deep; **K, L**, ventral and dorsal views, *D. (T.) tararensis* n. sp., holotype MNHN IM-2000-27728, Anse Tarare, at 60 m deep; **M**, ventral view, *D. (T.) oxum* Petuch, 1979, holotype USNM 780648, Abrolhos Archipelago, Bahia State, Brazil, at 25 m deep, photo courtesy of E. Strong (USNM); **N-P**, ventral, profil and dorsal views *D. (T.) boucheti* n. sp., holotype MNHN-IM-2013-8857, East of Petite Terre Island, at 95 m deep. Scale bars: 5 mm.

## DESCRIPTION OF THE HOLOTYPE

Protoconch of 1.25 whorls. Teleoconch ovate, H 15.4 mm, D 7.7 mm. Spire moderately high of five subcarinate whorls. Last whorl rounded, of 73% of the total length of teleoconch. Apical angle of 70°. Spiral sculpture consisting in primary cords slightly more marked on the varices than on the intervarical space. Wing-like varices flattened with a varical extension along the siphonal canal. Appearance of P1 and P2 cords since the third whorl. IP on the sutural ramp. On the convex part of the whorl: P1, P2, P3 and P4 well developed, P5 smaller. On the siphonal canal: P6 and ADP. On the first whorl: six protovarices; on the second whorl: seven protovarices; on the third and fourth whorl: three varices and three intervarical ribs (intercalated between two varices); on the last whorl: three varices and five small of intervarical ribs (intercalated between two varices). Aperture ovate. Columellar lip smooth and adherent. Outer lip erected and lacking denticles within. Siphonal canal open, dorsally recurved and up to 23% of the total length of teleoconch. Microsculpture: thin spiral threads on the whole surface of the shell, when the intritacalx is removed. Intritacalx marked by a latticework of axial and spiral lines. Shell colour unknown under a creamy intritacalx. Aperture orange. Operculum and radula unknown.

## COMPARISON (SEE ALSO TABLE 1)

*Dermomurex (Trialatella) boucheti* n. sp. should be compared with *D. (T.) abyssicola*, to *D. (T.) oxum* Petuch, 1979 (Fig. 3M) from Panama to Brazil between 25 and 52 m deep and to the type species. *Dermomurex (T.) boucheti* n. sp. differs from *D. (T.) abyssicola* by a shorter spire, a broader shell and by more developed varical extensions. In addition, the axial sculpture of *D. (T.) boucheti* n. sp. bears five small intervarical ribs (intercalated between two varices) on the last whorl, whereas that of *D. (T.) abyssicola* bears only a single intervarical rib (intercalated between two varices). *D. (T.) boucheti* n. sp. is distinguished from *D. (T.) oxum* by lacking intervarical rib. Moreover, its shape is ovate instead biconical. The outer lip of *D. (T.) boucheti* n. sp. is smooth, whereas it bears five denticles (D1 to D5) in *D. (T.) cunningghamiae* (Merle *et al.* 2011, fig. 76A).

*Dermomurex (Trialatella) fajouensis* n. sp.  
(Figs 3E-H; 4D; 11E)

TYPE MATERIAL. — Holotype (MNHN IM-2000-27733), one paratype (MNHN IM-2000-27734), one paratype (coll. DL) East of Fajou Island, in 80-90 m deep, one paratype (coll. BG), East of Fajou Island, in 80-90 m deep.

TYPE LOCALITY. — East of Fajou Island, Guadeloupe, in 80-90 m deep.

ETYMOLOGY. — From Fajou Island, Guadeloupe.

## DESCRIPTION OF THE HOLOTYPE

Protoconch of 1.25 whorls. Teleoconch biconic, H 7.5 mm, D 3.8 mm. Spire high, of four whorls. Last whorl rounded, of 70% of the total length of teleoconch. Apical angle of 55°. Spiral sculpture displaying marked primary cords. Since the second whorl: appearance of P1 and P2. Last whorl: on the sutural ramp, IP; on the convex part of the whorl P1, P2, P3, P4 and P5 well developed; on the siphonal canal, P6 smaller than the other primary cords, ADP, MP and ABP. Axial sculpture: six varices from the first to the last whorl. No intervarical rib. Aperture ovate. Columellar lip smooth, slightly erected anteriorly. Outer lip erected and lacking internal denticles. Siphonal canal open, dorsally recurved and of 25% of the total length of teleoconch. Microstructure: fine spiral threads on the whole surface of the shell. Rough intritacalx drawing the spiral sculpture. Shell color light brown under a creamy intritacalx. Yellow aperture. Operculum with apical nucleus. Radula unknown.

## COMPARISON (SEE ALSO TABLE 1)

*Dermomurex (T.) fajouensis* n. sp. and *Dermomurex (T.) abyssicola* are two sympatric species, but they live at different depth (respectively 80-90 m deep and 0.5-20 m deep). *Dermomurex (T.) fajouensis* n. sp. displays a rough intritacalx layer drawing the spiral sculpture, whereas it corresponds to fine spiral threads in *D. (T.) abyssicola*. *D. (T.) pruvosti* n. sp. differs by an atrophied P3, a cancellate intritacalx (instead rough in *D. (T.) fajouensis* n. sp.) and by four varices on the last whorl with five intervarical ribs intercalated between two varices (instead six



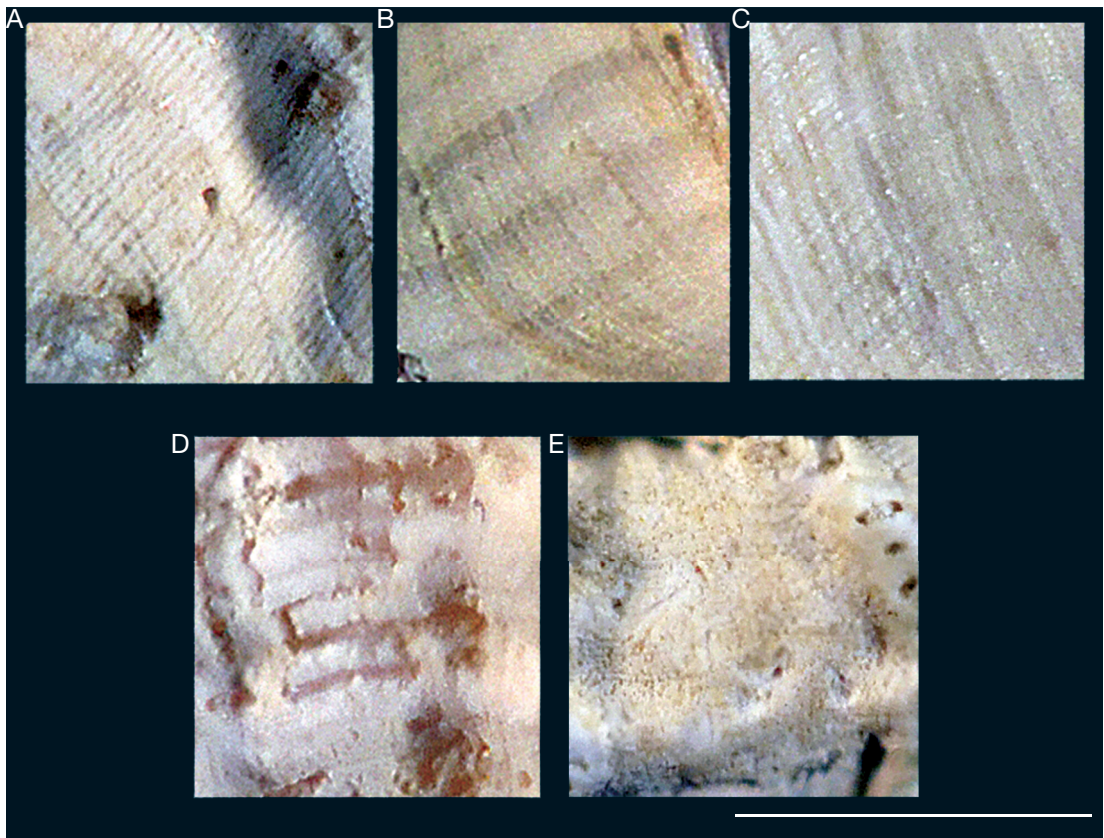


FIG. 4. — Intritacalx of *Dermomurex* (*Triatella*): **A**, *D. (T.) abyssicola* (Crosse, 1865), coll. DL, South Rocroy, Guadeloupe, 7 m deep. **B**, *D. (T.) pruvostii* n. sp., holotype MNHN IM-2000-27726, Fajou Island, at 80 m deep; **C**, *D. (T.) boucheti* n. sp., holotype MNHN-IM-2013-8857, East of Petite Terre Island, at 95 m deep; **D**, *D. (T.) fajouensis* n. sp., holotype MNHN IM-2000-27733, East of Fajou Island, at 80 m deep; **E**, *D. (T.) tararensis* n. sp., holotype MNHN IM-2000-27728, Anse Tarare, at 60 m deep. Scale bar: 1 mm.

varices and no intervarical rib in *D. (T.) fajouensis* n. sp.). *Dermomurex (T.) boucheti* n. sp. differs by its intritacalx marked by a latticework of axial and spiral lines and by three varices with five intervarical ribs (intercalated between two varices).

*Dermomurex (Triatella) tararensis* n. sp.  
(Figs 3K, L; 4E; 11F)

TYPE MATERIAL. — Holotype (MNHN IM-2000-27728), KARUBENTHOS 2012, stn GD69, 16°16.0'N, 61°10.2'W, at 60 m deep.

TYPE LOCALITY. — Anse Tarare, Grande Terre, Guadeloupe, 16°16.0'N, 61°10.2'W (GD69), at 60 m deep.

ETYMOLOGY. — From “Anse Tarare”, Guadeloupe.

DESCRIPTION OF THE HOLOTYPE

Protoconch of 1.25 whorls. Teleoconch biconic, H 7.6 mm, D 4.3 mm. Spire low of four whorls. Last whorl rounded, 75% of the total length of teleoconch. Apical angle of 62°. Spiral sculpture consisting in primary cords, more marked near the varix. On the last whorl: sutural ramp, IP; the convex part of the whorl, P1, P2, P4 well developed, P5 smaller than P4 and P3 atrophied; siphonal canal, P6 and ADP. Axial sculpture with seven varices from the first to the third whorl. Last whorl: six varices and one intervarical rib (between two varices). Aperture ovate. Columellar

TABLE 1. — Comparative table of the morphological characters for **A**, *Dermomurex* (*Trialatella*) *abyssicola* (Crosse, 1865); **B**, *D. (T.) oxum* Petuch, 1979; **C**, *D. (T.) pruvosti* n. sp.; **D**, *D. (T.) boucheti* n. sp.; **E**, *D. (T.) fajouensis* n. sp. and **F**, *D. (T.) tararensis* n. sp.

|                                               | <b>A</b>            | <b>B</b>       | <b>C</b>            | <b>D</b>            | <b>E</b>                           | <b>F</b>            |
|-----------------------------------------------|---------------------|----------------|---------------------|---------------------|------------------------------------|---------------------|
| Number of protoconch whorls                   | 1                   | 1.25           | 1.25                | 1.25                | 1.25                               | 1.5                 |
| Number of teleoconch whorls                   | 5                   | 5              | 5                   | 5                   | 4                                  | 4                   |
| Number of protovarices                        | 6                   | 6              | 6                   | 6-7                 | 6                                  | 7                   |
| Number of varices on the last whorl           | 3                   | 3              | 3                   | 3                   | 6                                  | 7                   |
| Number of intervarical ribs on the last whorl | 3                   | 3              | 3                   | 5                   | 0                                  | 0                   |
| Atrophy of P3                                 | No                  | Yes            | Yes                 | No                  | No                                 | Yes                 |
| Adult size (H)                                | 9-13.7 mm           | 9.5-13.1 mm    | 8-11 mm             | 15.4 mm             | 7.5 mm                             | 7.6 mm              |
| Internal denticles of the outer lip           | Present             | Present        | Present             | Absent              | Absent                             | Present             |
| Intritalcalx                                  | Thin spiral threads | Spiral threads | Minutely cancellate | Thin spiral threads | Rough drawing the spiral sculpture | Thin spiral threads |

lip smooth, slightly erected anteriorly. Flaring outer lip with five denticles (D1 to D5). Siphonal canal open, dorsally recurved and up to 27% of the total length of teleoconch. Intritalcalx of fine spiral threads. Shell yellow white under a creamy intritalcalx. Yellow aperture with orange denticles. Operculum and radula unknown.

#### COMPARISON (SEE ALSO TABLE 1)

*Dermomurex (T.) tararensis* n. sp. differs from *D. (T.) abyssicola* by a lower spire and by an atrophied P3 on the convex part of the whorl. *Dermomurex (T.) pruvosti* n. sp. differs from *D. (T.) tararensis* n. sp. by a more shouldered shell and an acute spire. In addition, the shell of *D. (T.) pruvosti* n. sp. is brown, whereas it is yellow white in *D. (T.) tararensis* n. sp. A lower spire, an atrophied P3 and a denticulated outer lip distinguish *D. (T.) tararensis* n. sp. from *D. (T.) fajouensis* n. sp. which lacks internal denticles. Moreover, the intritalcalx of *D. (T.) tararensis* n. sp. displays fine spiral threads lacking in *D. (T.) fajouensis* n. sp. (Fig. 4D, E). *Dermomurex (T.) tararensis* n. sp. is distinguishing from *D. (T.) boucheti* n. sp. by an atrophied P3, by a denticulate outer lip and by seven varices instead three varices with five intervarical ribs on the last whorl.

Subfamily MURICOPSINAE  
Radwin & D'Attilio, 1971

Genus *Pygmaepterys* Vokes, 1978

TYPE SPECIES. — *Murex alfredensis* Bartsch, 1915 by original designation. Recent: South Africa.

*Pygmaepterys pointieri* n. sp.  
(Figs 5A-F; 12A)

TYPE MATERIAL. — Holotype (MNHN-IM-2013-8488), DNA sequenced (GenBank no. KJ591662), KARUBENTHOS 2012, stn GB01, 16°11.8'N, 61°29.66'W, at 6 m deep; paratype A (MNHN-IM-2013-7767), DNA sequenced (GenBank no. KJ591664), KARUBENTHOS 2012, stn GB01; paratype B (MNHN-IM-2013-7985), DNA sequenced (GenBank no. KJ591661), KARUBENTHOS 2012, stn GB01; paratype C (MNHN-IM-2013-8433), DNA sequenced (GenBank no. KJ591663), KARUBENTHOS 2012, stn GB01; paratype D (MNHN-IM-2000-27729), KARUBENTHOS 2012, stn GS39, 16°09.5'N, 61°10.5'W, at 16 m deep; one paratype (coll. BG), Gosier Island, 16°11.8'N, 61°29.66'W, at 6 m deep.

TYPE LOCALITY. — Gosier Island, Guadeloupe, 16°11.8'N, 61°29.66'W (stn GB01), at 6 m deep.



FIG. 5. — **A-F**, *Pygmaepterys pointieri* n. sp.: **A, B**, ventral and dorsal views, holotype MNHN-IM-2013-8488, Gosier Island, at 6 m deep; **C**, ventral view, paratype A, MNHN-IM-2013-7767, Gosier Island, at 6 m deep; **D, E**, ventral and dorsal views, paratype D, Petite Terre, 15 m deep; **F**, dorsal view, paratype B, MNHN-IM-2013-7985, Gosier Island, at 6 m deep; **G, H**, ventral and dorsal views, *P. karukerensis* n. sp., holotype MNHN IM-2000-27730, Pigeon Island, at 50 m deep; **I**, ventral view, *P. aliceae* (Petuch, 1987), holotype USNM 859846, Southern coast of Bonaire Island, Netherlands Antilles, at 2 m deep; photo courtesy of E. Strong (USNM); **J-M**, *P. germainae* Vokes & D'Attilio, 1980; **J**, ventral view, holotype USNM 783319, off Pta. Higüero, northwestern Puerto Rico in 12-90 m deep; photo courtesy of E. Strong (USNM); **K-M**, ventral, dorsal views and protoconch, coll. DL, Fajou Island, Guadeloupe, 80-90 m deep. Scale bars: A-L, 5 mm; M, 0.5 mm.



ETYMOLOGY. — Named in honour of Jean-Pierre Pointier.

#### DESCRIPTION OF HOLOTYPE

Protoconch 1, 75 whorls. Teleoconch biconic, H 7.6 mm, D 3.9 mm. Spire high of 4.5 whorls. Last whorl rounded, 73% of the total length of teleoconch. Apical angle of 49°. Spiral sculpture consisting in marked primary cords. First whorl: appearance of a shoulder spine and later formation of P1 and P2. Last whorl: sutural ramp, appearance of IP; convex part of the whorl, P1, P2, P3, P4 and P5 well developed; siphonal canal, P6 placed on the top, ADP and MP present. Axial sculpture with lamellose varices since the first whorl. Aperture ovate. Columellar lip smooth, slightly erected anteriorly. Outer lip erected and undulated. Internal denticles ID, D1, D2, D3, D4 and D5. Siphonal canal open and dorsally recurved, of 23% of the total length of teleoconch. Squamous microsculpture with erected growing lamellae. Shell creamy with brown bands in P3 and between P5 and P6. Aperture creamy. Operculum and radula unknown.

#### COMPARISON

*Pygmaepterys pointieri* n. sp. differs from *P. germainae* Vokes & D'Attilio, 1980 (Fig. 5J-M) by a higher spire, a narrower shape, the lack of columellar folds and a brown notch near the suture. The holotype of *P. aliciae* (Petuch, 1987) is an eroded shell with a somewhat eroded ornamentation (Fig. 5I). However, *P. pointieri* n. sp. is distinguishing from *P. aliciae* by a more shouldered shell with a P1 spine which is adapically turned. The brown bands of *P. pointieri* n. sp. are lacking in *P. aliciae* which is entirely white.

#### *Pygmaepterys karukerensis* n. sp. (Figs 5G, H; 12B)

TYPE MATERIAL. — Holotype (MNHN IM-2000-27730), KARUBENTHOS: stn GS13, 16°02.4'N, 61°45.6'W, at 50 m.

TYPE LOCALITY. — Pigeon Island, Guadeloupe, 16°02.4'N, 61°45.6'W (stn GS13), at 50 m deep.

ETYMOLOGY. — From Karukera, name of the Guadeloupe Island in the Caribbean language.

#### DESCRIPTION OF HOLOTYPE

Protoconch 1.5 whorls. Teleoconch biconic, H 9 mm, D 5 mm. Spire high of five whorls. Last whorl rounded, 70% of the total length of teleoconch. Apical angle of 50°. Spiral sculpture consisting in marked primary cords. First whorl: appearance of P1, P2 and IP on the the sutural ramp; last whorl: sutural ramp; convex part of the whorl, IP; P1, P2, P3, P4 and P5 well developed; siphonal canal, P6 placed on the top, ADP and MP. Axial sculpture with eight lamellose varices since the first whorl. Aperture ovate. Columellar lip slightly erected anteriorly with three folds on the anterior part of the lip and two folds posteriorly. Outer lip erected and crenulated. Internal denticles: ID, D2, D3, D4 and D5 simple. Siphonal canal of 25% of the total length of teleoconch and dorsally recurved. Squamous microsculpture with growing lamellae. Shell creamy white with irregular dark intervarical band on the sutural band. Aperture creamy. Operculum and radula unknown.

#### COMPARISON

*Pygmaepterys karukerensis* n. sp. differs from *P. germainae* (Fig. 5J-M) by a higher spire and a narrower shape. In addition, *P. germainae* exhibits a shoulder spine lacking in *P. karukerensis* n. sp. Compared with *P. aliciae* (Fig. 5I), *P. karukerensis* n. sp. bears well developed columellar folds and lacks D1. *Pygmaepterys pointieri* n. sp. differs also from *P. karukerensis* n. sp. by its shoulder spines (P1), by a well developed D1 and by lacking folds on the columellar lip.

#### Genus *Muricopsis* Bucquoy & Dautzenberg, 1882

TYPE SPECIES. — *Murex blainvillei* Payraudeau, 1826 (by original designation), junior synonym of *Murex cristatus* Brocchi, 1814. Middle Miocene: Paratethys. Late Miocene to Pliocene: Mediterranean Sea. Recent: Mediterranean Sea, Eastern Atlantic (Portugal and the Canaries). Fossil range from Landau *et al.* (2007).



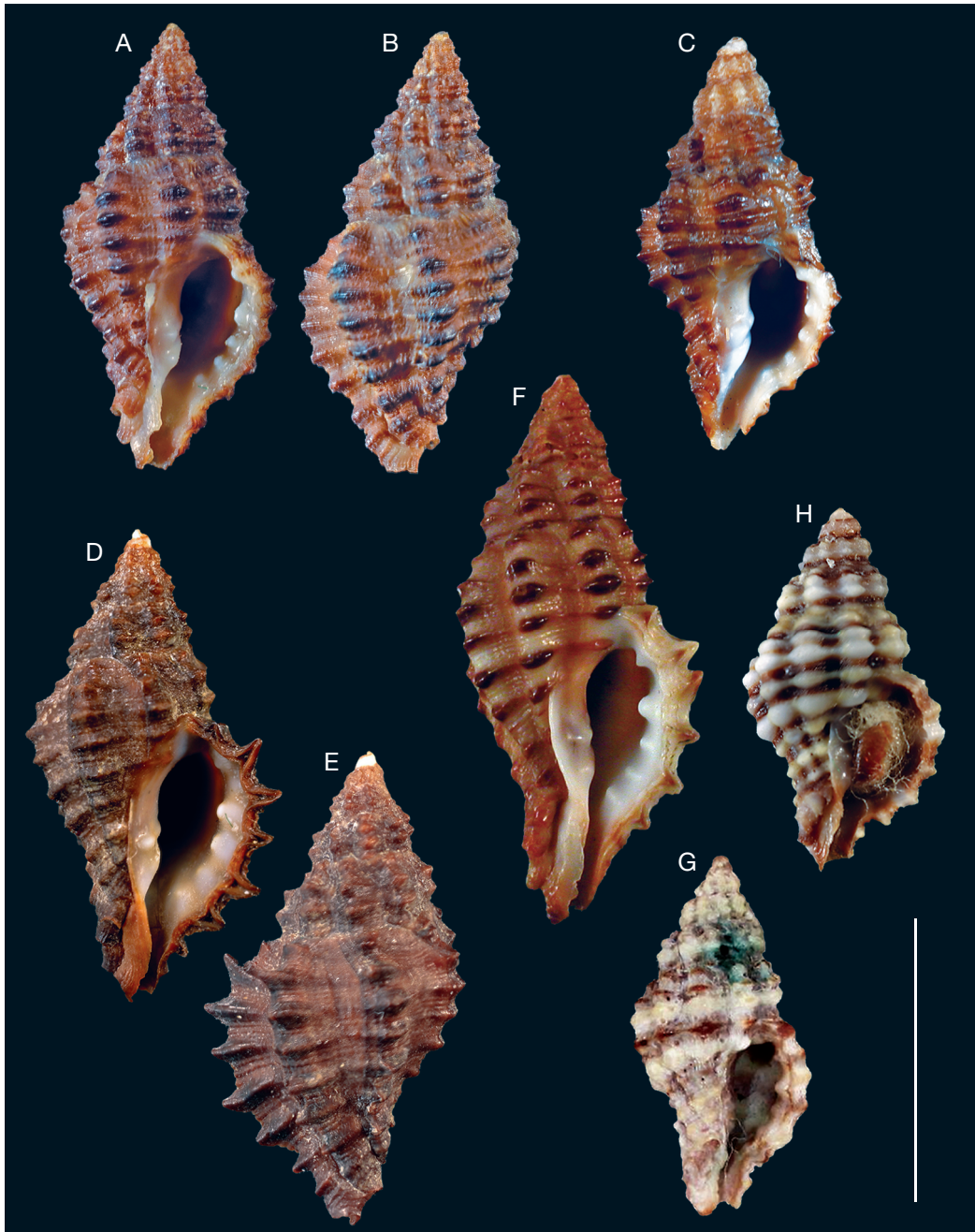


FIG. 6. — **A-C**, *Muricopsis guadalupensis* n. sp.: **A**, **B**, ventral and dorsal views, holotype, MNHN IM-2000-27731, Malendure, at 10 m deep; **C**, ventral view, paratype DL. **D-F**, *M. marcusii* Vokes, 1994: **D**, **E**, ventral and dorsal views, coll. BG, Guarapari Channel, Espírito Santo State, Brazil, on rocks at low tide; **F**, ventral view, coll. BG, Guarapari Channel, Espírito Santo State, Brazil, scuba under rocks in 8-12 m deep; **G**, **H**, *M. caribbaea* (Bartsch & Rehder, 1939): **G**, ventral view, holotype USNM 472617, Old Providence Island, Colombia, photo courtesy of E. Strong (USNM); **H**, ventral view, coll. BG, St Anne, Guadeloupe, on reef. Scale bar: 10 mm.

TABLE 2. — Comparative table of the morphological characters for *Muricopsis guadalupensis* n. sp., *M. caribbaea* (Bartsch & Redher, 1939) and *M. marcusi* Vokes, 1994.

|                                            | <i>M. guadalupensis</i> n. sp.        | <i>M. caribbaea</i>                            | <i>M. marcusi</i>                         |
|--------------------------------------------|---------------------------------------|------------------------------------------------|-------------------------------------------|
| Number of protoconch whorls                | unknown                               | 1.5 whorls                                     | Unknown                                   |
| Number of teleoconch whorls                | 6                                     | 6                                              | 7                                         |
| Number of varices on the four first whorls | 11-12                                 | 9                                              | 8                                         |
| Nb of varices on the last whorl            | 7                                     | 8-9                                            | 8                                         |
| Primary cords spines                       | Absent                                | Absent                                         | Present on IP, P1, P2, P3, P4, P5 and ADP |
| Apical angle                               | 45°                                   | 45°                                            | 50°                                       |
| Internal denticles of the outer lip        | ID, D1 (reduced or missing), D2 to D5 | ID, D1 (reduced or missing), D2 to D5          | ID, D1 (reduced or missing), D2 to D5     |
| Columellar folds                           | 2                                     | 2-3                                            | 2                                         |
| Shell colour                               | Red brown with darker patches         | Dark brown with white, yellow or orange strips | Brown with darker patches on varices      |

*Muricopsis guadalupensis* n. sp.  
(Figs 6A-C; 12D)

TYPE MATERIAL. — Holotype (MNHN IM-2000-27731), Malendure, Guadeloupe, at 10 m deep, one paratype (coll. DL), same locality, one paratype (coll. BG), same locality.

TYPE LOCALITY. — Malendure, Guadeloupe, at 10 m deep.

ETYMOLOGY. — From *Guadalupa* (latin name of Guadeloupe).

DESCRIPTION OF HOLOTYPE

Protoconch unknown. Teleoconch biconic, H 16.1 mm, D 7.7 mm. Six teleconch whorls. Spire acute of 4.5 whorls. Last whorl of 71% of the total length of teleoconch. Apical angle of 45°. Spiral sculpture consisting in marked primary cords. First whorl: appearance of IP and P1. Second whorl: IP, P1 and P2. Last whorl: sutural ramp, IP and the secondary cord abis; convex part of the whorl: P1, P2, P3, P4, P5 well developed and the secondary cords s1, s2, s3, s4, s5; siphonal canal, P6 atrophied, ADP, MP and the secondary cord s6. Axial sculpture: twelve varices on the first whorl, eleven varices from the second to the fourth whorl, nine varices on the fifth whorl and seven varices on the last whorl. Aperture ovate. Columellar lip adherent, with two anterior folds. Outer lip strongly crenulated with denticles ID, D2, D3, D4 and D5.

D1 missing, D2 hypertrophied. Siphonal canal open, of 21% of the total length of teleoconch, dorsally and the left turned. Microsculpture with small punctae at the intersection between the spiral cords and the growing lamellae. Shell red brown, darker patches when the primary cords cross the varices. Aperture beige. Operculum and radula unknown.

COMPARISON (SEE ALSO TABLE 2)

*Muricopsis guadalupensis* n. sp. is compared with *M. caribbaea* (Bartsch & Rehder, 1939) (Fig. 6G, H) occurring from Florida to the north coast of South America and to *M. marcusi* Vokes, 1994 (Fig. 6D-F) from the Northern Brazil. The last whorl of *M. caribbaea* is more rounded. It displays broader primary cords, white P2 and P4 and orange IP, P1, P3, P5, P6 and ADP, whereas *M. guadalupensis* n. sp. is monochromatic. *Muricopsis marcusi* possesses eight varices on the four first whorls, instead eleven to twelve in *M. guadalupensis* n. sp. Primary cord spines are present on the last whorls of *M. marcusi*, whereas they are missing in *M. guadalupensis* n. sp.

Genus *Murexsul* Iredale, 1915

TYPE SPECIES. — *Murexsul octogonus* (Quoy & Gaimard, 1833) by original designation. Recent: New Zealand.



FIG. 7. — **A–F**, *Murexsul hexagonus* (Lamarck, 1816): **A**, **B**, ventral and dorsal views, lectotype (MHNG 1099/41/1); **C**, ventral view, paralectotype (MHNG 1099/41/2); **D**, ventral view, coll. BG, Cuba; **E**, ventral view, coll. DL, Saint-Barthélemy Island, 30–40 m deep; **F**, ventral view, coll. BG, Bimini, Bahama, 90 m deep. **G**, **H**, *M. oxytatus* (Smith, 1938): **G**, ventral view, paratype UF no. 5946, Caloosahatchee Formation, Plio-Pleistocene, Hendry County, Florida, photo courtesy of John Slapcinsky (UF); **H**, ventral view, coll. BG, Rosalind Bank, Honduras, on coral reef at 20 m deep. **I**, ventral view, *M. zylmanae* (Petuch, 1993), holotype CMNH no. 47379, Great Isaacs Cay, Bahamas, photo courtesy of M. Paustian (CMNH). **J**, ventral view, *M. huberti* (Radwin & D’Attilio, 1976), holotype SDNHM, no. 63078, west side of Grenada, West Indies, at 4.5 m deep, photo courtesy of Carole Hertz, Jim Berrian, Michael Wall and Paul Tuskes (SDNHM). **K**, ventral view, *M. chesleri* Houart, 2006, paratype MNHN no. 7008, Roatan Island, Honduras, on dead coral at 2 m deep. **L**, ventral view, *M. sunderlandi* (Petuch, 1987), holotype, USNM 859848, Cay Sal, Cay Sal Bank, Bahamas, under coral rubble at 10 m deep, photo courtesy of E. Strong (USNM). **M**, ventral view, *M. warreni* (Petuch, 1993), holotype CMNH, Montego Bay, Jamaica, Greater Antilles, 20–30 m deep, photo courtesy of M. Paustan (CMNH). **N**, ventral view, *M. jahami* Merle & Garrigues, 2011, holotype MNHN.IM.24630, Peninsula Caravelle, Eastern Martinique. Scale bars: 10 mm.

TABLE 3. — Comparative table of the morphological characters for *Murexsul hexagonus* (Lamarck, 1816), *M. oxytatus* (Smith, 1938), *M. zylmanae* (Petuch, 1993), *M. huberti* (Radwin & D'Attilio, 1976) and *M. chesleri* Houart, 2006.

|                                       | <i>M. hexagonus</i>                                                   | <i>M. oxytatus</i>                                      | <i>M. zylmanae</i>                         | <i>M. huberti</i>                                            | <i>M. chesleri</i>                                           |
|---------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Number of protoconch whorls           | 1.5                                                                   | (probably paucispiral)                                  | (probably paucispiral)                     | 1.25                                                         | 1.75                                                         |
| Number of teleoconch whorls           | 7                                                                     | 7                                                       | c. 6-7                                     | 6-7                                                          | 7                                                            |
| Number of varices on the last whorl   | 6                                                                     | 6                                                       | 6                                          | 7                                                            | 6                                                            |
| Primary cord spines on the last whorl | P1 longer, P2 atrophied, P3, P4, P5                                   | P1, P2 atrophied, P3, P4, P5                            | P1, P2 atrophied, P3, P4, P5 atrophied     | P1, P2 (atrophied or no), P3, P4, P5                         | P1, P2 atrophied, P3 longer, P4, P5                          |
| Apical angle                          | 44°                                                                   | 43°                                                     | 39°                                        | 54°                                                          | 46°                                                          |
| Relative length of siphonal canal     | 28% of the total length                                               | 24% of the total length                                 | 33% of the total length                    | 20% of the total length                                      | 22% of the total length                                      |
| Internal denticles of the outer lip   | ID simple, D1 simple atrophied, D2 simple, D3 split, D4 and D5 simple | ID simple, D1 missing or fused with D2, D2 to D5 simple | ID, D1 to D5 simple                        | ID simple, D1 missing, D2 simple, D3 split, D4 and D5 simple | ID simple, D1 missing, D2 simple, D3 split, D4 and D5 simple |
| Columellar folds                      | Absent                                                                | Present                                                 | Absent                                     | Present                                                      | Polymorph                                                    |
| Shell colour                          | Cream with tan varices and spines                                     | Pink                                                    | Rosy pink with white revolving white bands | White with tan spiral bands                                  | White with brown spots                                       |

*Murexsul hexagonus* (Lamarck, 1816)  
(Figs 7A-F; 12E)

*Murex hexagonus* Lamarck, 1816: 5, pl. 418, fig. 3a, b.

*Murex hexagonus* Lamarck, 1822: 169.

*Murex hexagonus* — Smith 1939: 11, pl. 6, fig. 3.

*Muricopsis oxytata* sensu Abbott, 1974: 187, fig. 1957, non *Murex hexagonus oxytatus* Smith, 1938; sensu Radwin & D'Attilio 1976: 169, pl. 27, fig. 5, non *Murex hexagonus oxytatus* Smith, 1938; sensu Fair 1976: 122, pl. 17, n° 226, non *Murex hexagonus oxytatus* Smith, 1938; sensu Abbott & Dance 1982: 144, non *Murex hexagonus oxytatus* Smith, 1938; Vokes 1994: 62, pl. 4, fig. 4a-b, non *Murex hexagonus oxytatus* Smith, 1938.

*Murexsul oxytatus* sensu Merle & Houart, 2003: fig. 4F, non *Murex hexagonus oxytatus* Smith, 1938; sensu Houart 2006: 52, figs 19, 21-22, non *Murex hexagonus oxytatus* Smith, 1938.

TYPE LOCALITY. — « Antilles ». The locality Antilles is given on the label of the type material (Y. Finet MHNG, written communication).

TYPE MATERIAL. — In the margin of the exemplar of *Animaux sans Vertèbres* (Lamarck 1822) belonging to Lamarck, his daughter indicated the number of specimens stored in his collection. For *Murex hexagonus* Lamarck, 1822, she wrote four specimens and now only two are retrieved. They represent two syntypes and have the following register number: MHNG INVE 51843 (corresponding to the old numbers MHNG 1099/ 41/1, H: 43.4 mm and MHNG 1099/41/2, H: 34.6 mm) MHNG 1099/ 41/1, H: 43.4 mm and MHNG 1099/41/2, H: 34.6 mm). In order to avoid confusion with other species, a lectotype of *Murex hexagonus* Lamarck, 1816 is hereby designated from the syntype MHNG 1099/ 41/1. Thus, the syntype MHNG 1099/41/2 becomes a paralectotype.

OTHER MATERIAL EXAMINED. — 1 spm, coll. BG, Palm Beach, Florida, USA, H: 33.3 mm; 1 spm, coll. BG, Florida, at 18 m deep, H: 39.9 mm; 1 spm, coll. BG, Bimini, Bahamas, at 90 m deep, H: 19 mm; 1 spm, coll. BG, Cuba, H: 41 mm; 2 spm, coll. BG, Dominican Republic, H: 25.6 and 16.6 mm; 2 spm, coll. BG, Anse Colombier, St Barthelemy Island, H: 26 and 2.8 mm; 2 spm, coll. DL, Anse Colombier, St Barthelemy Island, H: 31.5 and 34 mm; 1 spm, coll. DL, St Barthelemy Island., in 30-40 m deep, H: 39.5 mm; 1 spm, coll. JP, Le Remorqueur, Saint Martin Island, at 14 m deep,





FIG. 8. — Map showing the geographic range of *Murexsul hexagonus* (Lamarck, 1816) and *Murexsul oxytatus* (Smith, 1938). Symbols: \*, *M. hexagonus*; O, *M. oxytatus*.

H: 14.7 mm; 1 spm, coll. JP. Rocher Créole, Saint Martin Island, at 6 m deep, H: 30.4 mm.

**GEOGRAPHIC RANGE.** — Bahamas, Florida, Cuba, Puerto Rico, Turks and Caicos, Lesser Antilles, Dominican Republic, Saint Barthélemy and Saint Martin, from 3 to 90 m deep. See Fig. 8 for a comparison with the geographic range of *M. oxytatus* (Smith, 1938).

#### DESCRIPTION OF THE LECTOTYPE

Protoconch unknown. Teleoconch biconic, H 43.4 mm, D 24 mm. Spire acute of seven carinate whorls. Last whorl of 70% of the total height. Apical angle of 42°. Spiral sculpture consisting in marked primary and secondary cords. First whorl: appearance of IP and P1. Second whorl to penultimate whorl: IP, P1, P2 and P3. Last whorl: sutural ramp, adis, IP and abis; convex part of the whorl, P1, P3, P4 and P5 well developed and P2 atrophied; siphonal canal, P6 atrophied, ADP, MP and ABP well developed. Secondary cords s1 to s5 (on convex part of the whorl). Longest shoulder spines (P1) distally acute. Axial sculpture with six varices. Aperture oval, Columellar lip smooth, slightly erected anteriorly and lacking columellar fold. Outer lip crenulated, with denticles ID simple, D1 + D2 (fused denticles), D3, D4 and D5 simple. Siphonal canal open, of 29% of the total

length, dorsally and left turned. Microsculpture with growing lamellae. Shell cream, varices and spines tan, primary cords P1, P3, P4 and P5 white. Aperture white. Operculum and radula unknown.

**ADDITIONAL DESCRIPTION BASED ON OTHER MATERIAL**  
Protoconch 1.5 whorls. H: between 18.9 mm and 43.4 mm for adult specimens. In large specimens: D1 and D2 not fused, D3 and D4 splitted. Microsculpture squamous or cancellate in juveniles. Sometimes, a darker spiral band between P3 and P4. Operculum with apical nucleus.

#### REMARKS

Lamarck (1816) figured *Murex hexagonus* Lamarck, 1816 among shells coming from the Antilles and gave a description in 1822. Unfortunately, this name had previously been proposed by Gmelin (1791) and is usually unaccepted, because it is considered to be a junior primary homonym. However, the article 23.9.5 of the ICZN (1999) stipulates that: "When an author discovers that a species-group name in use is a junior primary homonym [Art. 53.3] of another species-group name also in use, but the names apply to taxa not considered congeneric after

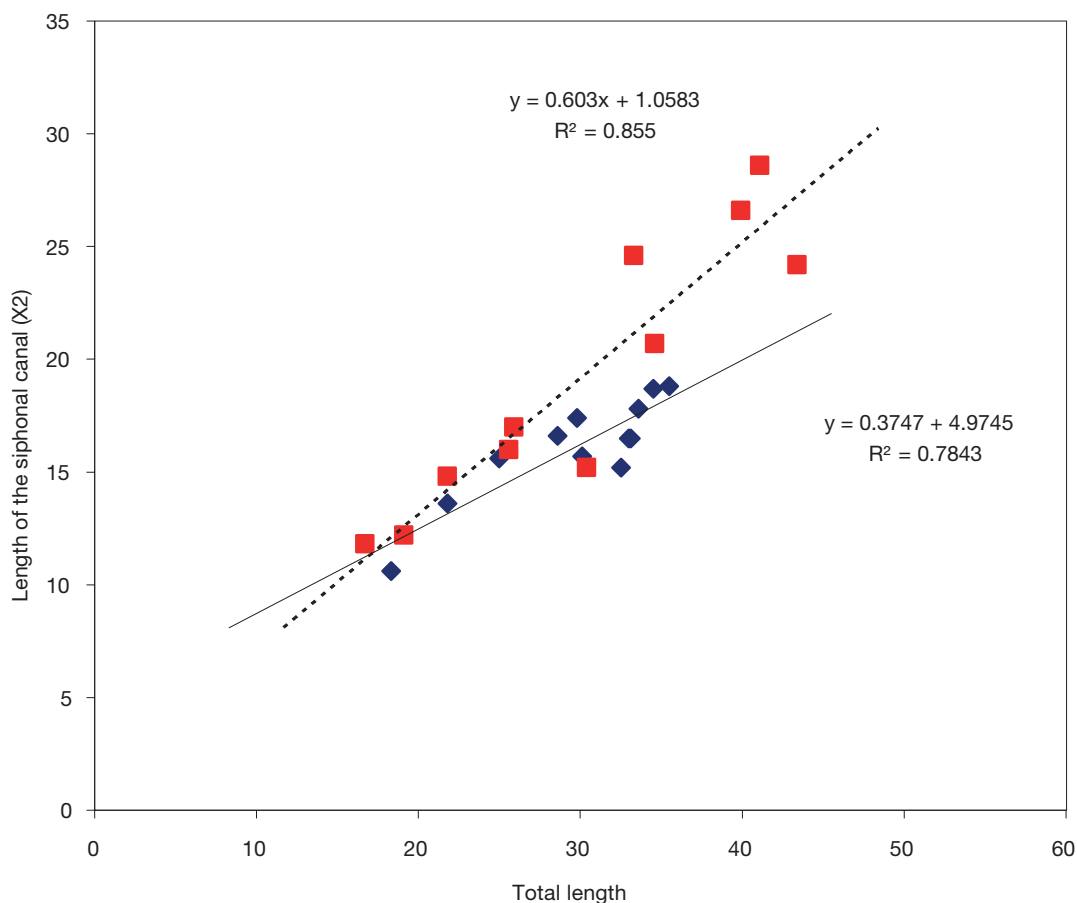


FIG. 9. — Scatterplot showing the relationship between the length of the siphonal canal (x2) and the total shell length in *Murexul hexagonus* and in *Murexul oxytatus* (Smith, 1938). Symbols: ◆, *Murexul oxytatus*; ■, *Murexul hexagonus* Lamarck, 1816; —, Linéaire (*Murexul oxytatus*; --, Linéaire (*Murexul hexagonus*).

1899, the author must not automatically replace the junior homonym” – the case should be referred to the Commission for a ruling under the plenary power and meanwhile prevailing usage of both names is to be maintained.” In respect to this article, these two names are not considered congeneric after 1899 and the prevailing usage is maintained for *Murex hexagonus* Lamarck, 1816 and *Cerithium hexagonum* (Gmelin, 1791). *Murex hexagonus* Gmelin, 1791, from the Middle Eocene of Europe, has been transferred in genus *Cerithium* (Bruguière 1792). *Murex hexagonus* Gmelin, 1791 is a junior synonym of *Murex angulatus* Solander in Brander 1766 and belongs to the genus *Pyrazopsis* Akopjan, 1972 (Harzhauser *et al.* 2013).

In conclusion, the name *Murex hexagonus* Lamarck, 1816 should be rehabilitated.

Later, Smith (1938) described a subspecies *Murex hexagonus oxytatus* from a Plio-Pleistocene fossil (Caloosahatchee Formation, Florida, USA) and since Abbott (1958), *M. oxytatus* is usually used for Recent material (Abbott 1974, Fair 1976, Radwin & d’Attilio 1976, Abbott & Dance 1982, Vokes 1994, Houart 2006 see above the synonymic list). However, the case of *M. hexagonus* Lamarck, 1816 was not reconsidered and Vokes (1994) discussing *M. zylmanae* (Petuch, 1993) suggested that the figure of *Murex hexagonus* Lamarck, 1816 displays more similarities with *M. zylma-*

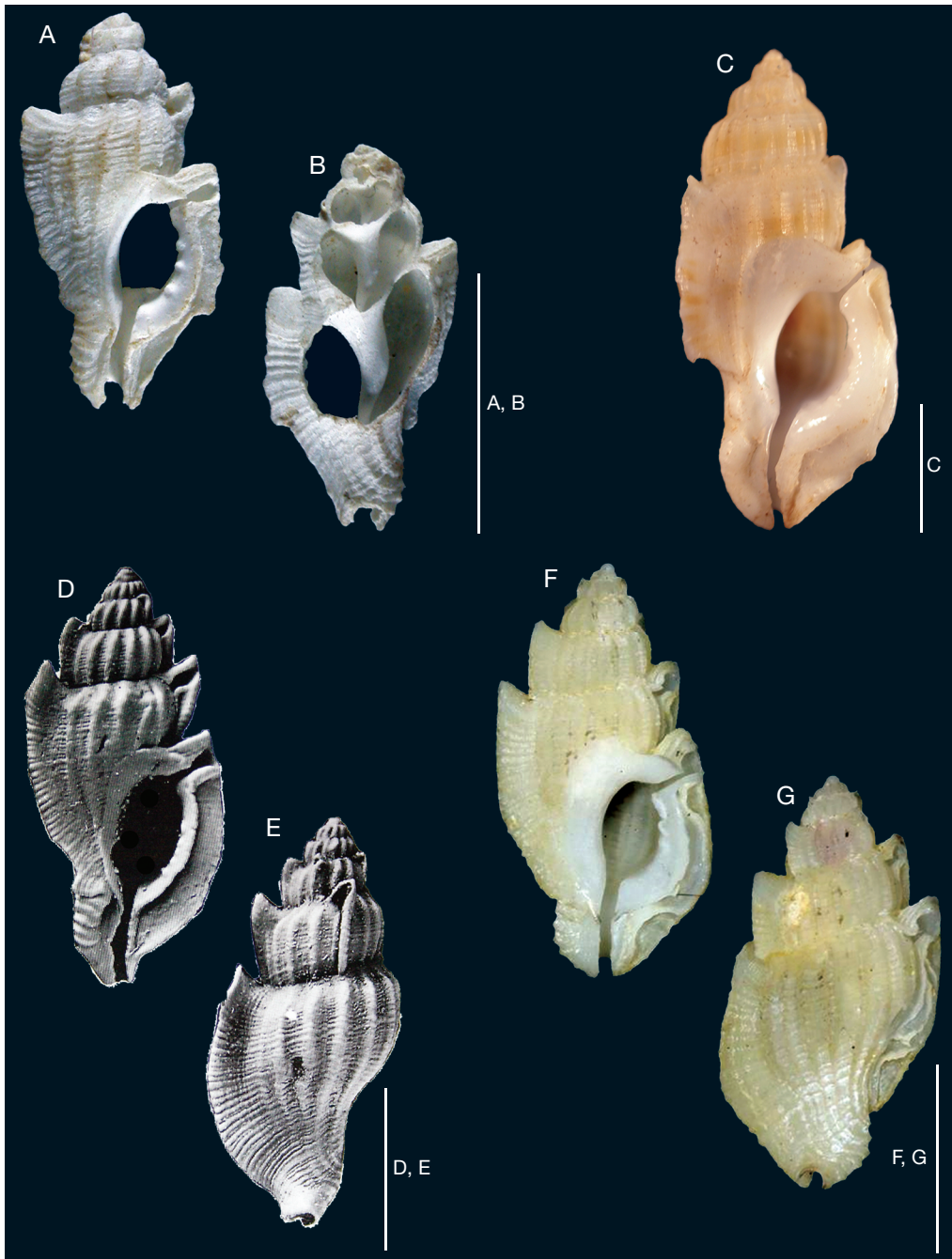


FIG. 10. — **A, B**, ventral and dorsal views, *Lindapterys domlamiyi* n. sp., holotype MNHN IM-2000-27732; **C, F, G**, *L. sanderi* Petuch, 1987; **C**, ventral view, coll. BG, Camocim, Ceara, Brazil, at 25–35 m deep; **F, G**, ventral and dorsal views, holotype USNM 859838, Barbados, 300 m deep, photo courtesy of E. Strong (USNM); **D, E**, ventral and dorsal views, *L. vokesae* Petuch, 1987, holotype USNM 647012, Chipola Formation, Early Miocene, Florida, photo courtesy of J. F. Lesport. Scale bars: 5 mm.

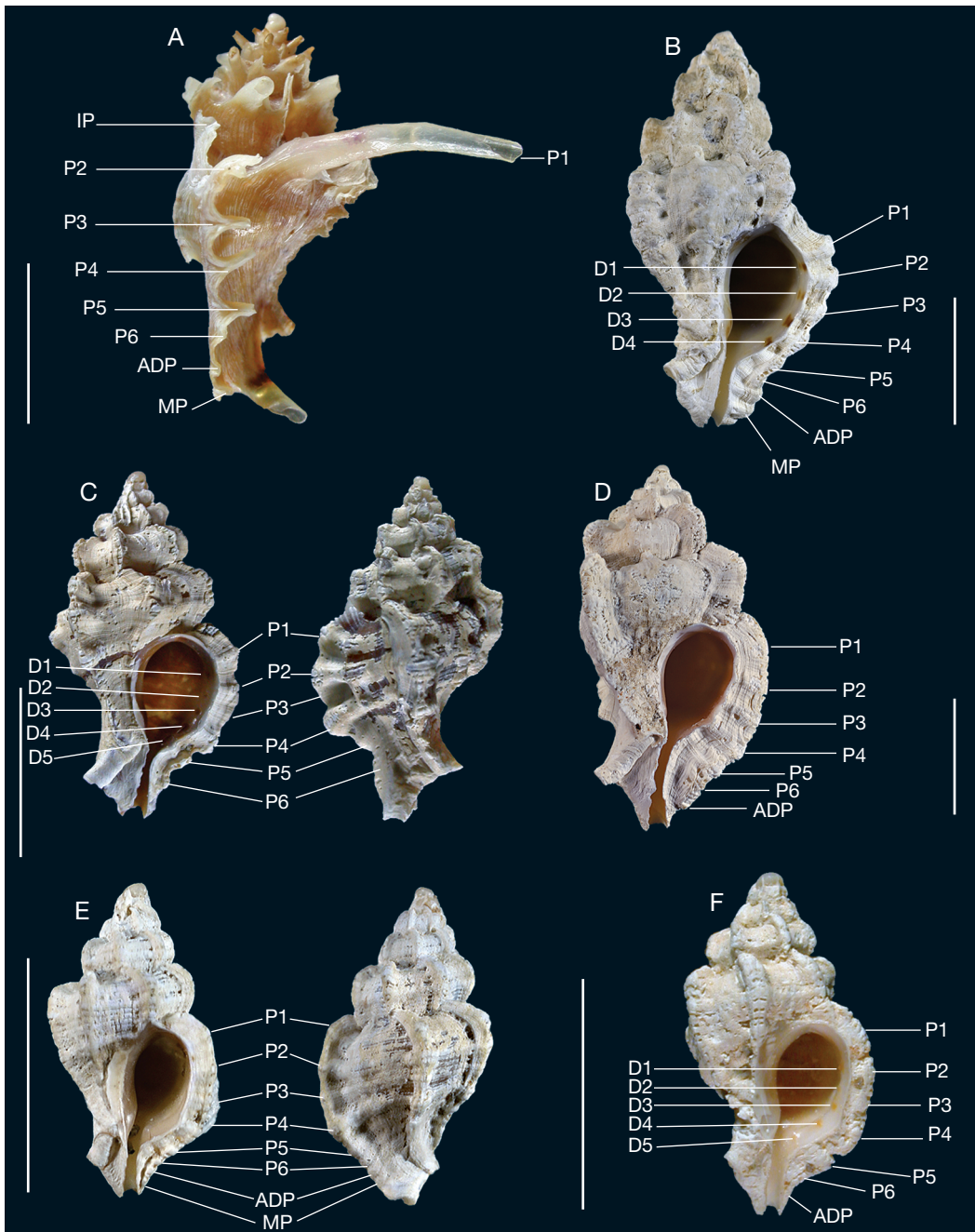


FIG. 11. — Morphology of spiral cords and denticles: **A**, *Typhinellus lamyi* n. sp., paratype, coll. DL, East of Fajou Island, in 80-90 m deep; **B**, *Dermomurex (Trialatella) abyssicola* (Crosse, 1865), MNHN, Fortune Island, at 1 m deep, KARUBENTHOS 2012, stn GM06, 16° 09'N, 61° 33.67' W; **C**, *D. (T.) pruvosti* n. sp., holotype MNHN IM-2000-27726, Fajou Island, at 80 m deep; **D**, *D. (T.) boucheti* n. sp., holotype MNHN-IM-2013-8857, East of Petite Terre Island, at 95 m deep; **E**, *D. (T.) fajouensis* n. sp., holotype IM-2000-27733, East of Fajou Island, at 80 m deep; **F**, *D. (T.) tararensis* n. sp., holotype MNHN IM-2000-27728, Anse Tarare, at 60 m deep. Abbreviations: see Material and methods. Scale bars: 5 mm.



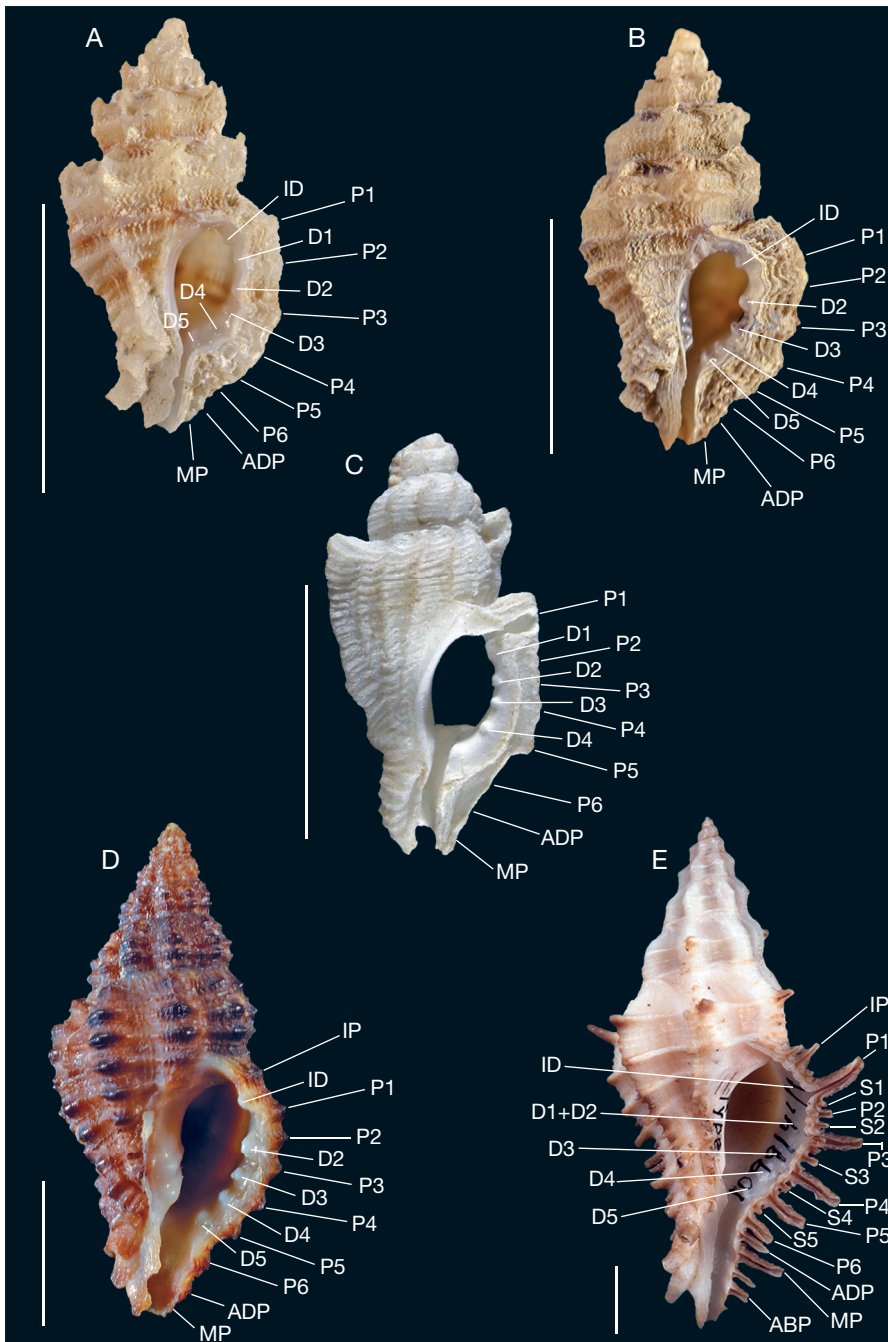


FIG. 12. — Morphology of spiral cords and denticles: **A**, *Pygmaepterys pointieri* n. sp., holotype MNHN-IM-2013-8488, Gosier Island, at 6 m deep; **B**, *P. karukerensis* n. sp., holotype MNHN IM-2000-27730, Pigeon Island, at 50 m deep; **C**, *Lindapterys domlamiyi* n. sp., holotype MNHN IM-2000-27732; **D**, *Muricopsis guadalupensis* n. sp., holotype MNHN IM-2000-27731, Malendure, Guadeloupe, at 10 m deep; **E**, *Murexsul hexagonus* (Lamarck, 1816), lectotype (MHNG 1099/41/1). Abbreviations: see Material and methods. Scale bars: 5 mm.

*nae* than with *M. oxytatus*. Thus, the question of the identity of *M. hexagonus* Lamarck, 1816 was open. The study of numerous specimens of *Murexsul* collected in the Caribbean area allows to identify seven local species: *Murexsul oxytatus* (Smith, 1938), *M. huberti* (Radwin & D'Attilio, 1976), *M. zylmanae* and *M. chesleri* Houart, 2006, *M. sunderlandi* (Petuch, 1987), *M. warreni* (Petuch, 1993), *M. jahami* Merle & Garrigues, 2011 and to distinguish an eighth species. Thanks to the collaboration of Y. Finet (MHNG), we received photos of the two syntypes of *Murex hexagonus*. These photos correspond to the species that we identified as the eighth species.

#### COMPARISON (SEE ALSO TABLE 3)

*Murexsul oxytatus* (Fig. 7G, H) is distinguished from *M. hexagonus* by columellar folds and by a shorter siphonal canal. In *M. oxytatus*, the length of siphonal canal is 24% of the total length of the teleoconch (average on 11 spm), instead of 28% for *M. hexagonus* (average on 14 spm), see also Fig. 9. In addition, the cord spines P1 of *M. hexagonus* are longer than those of *M. oxytatus*. *Murexsul zylmanae* (Fig. 7I) differs from *M. hexagonus* by hypertrophied cord spines P1, P3 and P5, an atrophied P4, a longer siphonal canal and a more acute spire. *Murexsul huberti* (Fig. 7J) has a lower spire than *M. hexagonus* with an apical angle of 54° instead of 44°. It displays seven varices on last whorl instead six. The protoconch is also shorter with 1.25 whorls instead 1.5 whorls. *Murexsul chesleri* (Fig. 7K) exhibits a shorter siphonal canal, a broader infrasutural ramp. In *M. chesleri*, the cord spine P3 is longer than the P1 cord spine whereas in *M. hexagonus*, the P1 cord spine is longer than the P3 cord spine. *Murexsul sunderlandi* (Petuch, 1987) has a more globose shell with a lower spire and a peculiar red colour with white spiral bands. In comparison with *M. warreni* (Petuch, 1993), *M. hexagonus* displays a narrower shape, a higher spire and a longer siphonal canal. *Murexsul warreni* bears a white color white with black spots. *Murexsul jahami* Merle & Garrigues, 2011, differs from *M. hexagonus* by an inflated last whorl, a P5 less developed, a more expanded columellar lip and a very scabrous surface.

Subfamily ERGALATAXINAE  
Kuroda, Habe & Oyama, 1971

Genus *Lindapterys* Petuch, 1987

TYPE SPECIES. — *Lindapterys vokesae* Petuch, 1987 by original designation. Early Miocene, Chipola Formation, Florida, USA.

*Lindapterys domlamyi* n. sp.  
(Figs 10A, B; 12C)

TYPE MATERIAL. — Guadeloupe, holotype (MNHN IM-2000-27732).

TYPE LOCALITY. — East of Fajou Island, Guadeloupe, in 80 and 90 m deep.

ETYMOLOGY. — Named in honour of Dominique Lamy.

#### DESCRIPTION OF HOLOTYPE

Protoconch unknown. Teleoconch oval, H 7.9 mm, up to 3.8 mm in width. Spire high of four rounded whorls. Last whorl of 76% of the total length of teleoconch. Apical angle of 53°. Spiral sculpture consisting in equally primary and secondary cords. On last whorl: convex part of the whorl, P1 to P5; siphonal canal, P6, ADP, MP and ABP. Axial sculpture: first whorls, eight to nine protovarices; from third to fourth whorl, appearance of two lateral varices giving to the shell a bivaricate shape, Between two varices five intervarical ribs. Aperture oval, with a adherent columellar lip. Anal canal open, tubular and formed by P1 cord spine. Outer lip flaring, slightly erected with denticles from D1 to D4. Siphonal canal open, of 26% of the total length of teleoconch and dorsally recurved. Shell white. Operculum and radula unknown.

#### COMPARISON

*Lindapterys domlamyi* n. sp. is compared with *L. sanderi* Petuch, 1987 (Fig. 10C, F, G), the single living species occurring in the western Atlantic area and to the type species of the genus, *L. vokesae* Petuch, 1987 (Fig. 10D, E). *Lindapterys sanderi* differs by the number of its protovarices on the first whorls (between 10 and 20), by a higher spire, by an outer lip widely flaring, by five denticles D1

to D5 (instead four in *L. domlamyi* n. sp.) and by a larger adult size (17.2 mm instead 7.9 mm in *L. domlamyi* n. sp.). *Lindapterys vokesae* has twelve to thirteen protovarices on the first whorls and the lateral varices appear earlier since the second whorl.

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