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**The family Colubrariidae Dall, 1904 in the western Atlantic,
including the description of two new species**

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Abstract: The Recent species belonging to the genus *Colubraria* Schumacher, 1817 and the genus *Cumia* Bivona-Bernardi, 1838 that occur in the western Atlantic region are discussed. *Colubraria harryleei* and *Colubraria margarethae* are introduced as new to science and compared with their closest congeners. *Colubraria antillana* Sarasúa, 1978 is transferred to the genus *Cumia*. Species commonly considered as *Colubraria*, but in fact belonging to other families are mentioned for completeness' sake, but are beyond the scope of the present article.

Introduction: The western Atlantic is host to 5 known species of **Colubrariidae**: *Colubraria antillana* Sarasúa, 1978, *Cumia clavula* Watters, 2009, *Colubraria kathiewayana* Fittkau & Parth, 1993, *Cumia sunderlandi* (Petuch, 1995) and *Colubraria testacea* (Mørch, 1852). All of these are poorly understood: *Colubraria antillana* because of its rarity and the difficult accessibility of its distributional range (Cuba), *Cumia sunderlandi* and *C. clavula* because of their rarity, and both *Colubraria kathiewayana* and *C. testacea* because of the confusion with *C. obscura* (Reeve, 1844). For a detailed

discussion of the confusion with *C. obscura*, we refer to Parth (1992) and Monsecour & Monsecour (2004). In order to reach a better understanding of all western Atlantic species of **Colubrariidae**, we hereby present a detailed discussion of all known species.

The genus *Cumia* Bivona-Bernardi, 1838 was long considered a synonym of *Colubraria*, but is now widely considered a valid genus within the family **Colubrariidae**, with well-known representatives like the European *Cumia intertexta* (Helbling, 1779) (= "*Colubraria*" *reticulata* (De Blainville, 1826)) and the Australian *Cumia janlochi* (Parth, 1991), which was likewise originally described within *Colubraria*. *Cumia* stands out from *Colubraria* by the protoconch which arises as a small, papillate point from the teleoconch. For a more detailed discussion, we refer to Watters (2009).

While studying worldwide **Colubrariidae**, we acquired two specimens of a *Colubraria* species from Venezuela in May 2008 and May 2009. A close comparison with the three western Atlantic species mentioned above lead to the conclusion that we were dealing with an undescribed species. It is hereby introduced as *Colubraria margarethae* sp. nov. During the search for the true identity of *Cumia sunderlandi*, we established contact with Dr. Harry G. Lee (Jacksonville, Florida, USA), who kindly provided us with a specimen of this taxon for study, as well as further material from his private collection, amongst which more specimens of *C. margarethae* sp. nov. were found, together with 3 samples of another, yet unidentified species. We hereby introduce the latter as *Colubraria harryleei* sp. nov.

Abbreviations:

- BMSM: Bailey-Matthews Shell Museum, Sanibel, Florida, USA.
 FLMNH: Florida Museum of Natural History, University of Florida, Gainesville, Florida, USA.
 MNHN: Muséum National d'Historie Naturelle, Paris, France.
 NHMUK: The Natural History Museum, London, United Kingdom.
 DM: private collection David Monsecour.
 HGL: private collection Harry G. Lee, Jacksonville, Florida, USA.
 ICZN: International Commission on Zoological Nomenclature.

Systematic part:

Family COLUBRARIIDAE Dall, 1904

Genus *Colubraria* Schumacher, 1817

Type species by subsequent designation (Harris, 1897): *Colubraria granulata* Schumacher, 1817 (= *Buccinum muricatum* Lightfoot, 1786 = *Murex maculosus* Gmelin, 1791). Recent, Indo-West Pacific. For a detailed discussion of the type species designation, we refer to Beu & Maxwell (1987).

Colubraria harryleei sp. nov.

Type material: Holotype FLMNH: 23.5 x 8.3 mm; Paratype 1 HGL (from type locality): 28.2 x 10.2 mm; Paratype 2 NHMUK (from type locality): 19.5 x 7.0 mm; Paratype 3 HGL (La Parguera, SW Puerto Rico. In shallow water): 17.0 x 6.4 mm.

Material studied: Apart from the type material, a dead-taken shell from Playa de Ponce, Puerto Rico (DM, *ex* HGL) was studied

Type locality: St. Georges Parish, Bermuda. In drift from dredge spoil.

Range: Known from Bermuda (type locality) and Puerto Rico (La Parguera, SW Puerto Rico and Playa de Ponce, south central Puerto Rico). Probably also elsewhere in the Caribbean, especially in adjacent islands and intervening waters.

Description: Shell small-sized for the genus (largest specimen known: 28.8 mm, paratype 1), slender, elongate. Protoconch multispiral, consisting of $2^{3/4}$ very bulbous, semi-translucent whorls adorned with microscopic pits. Transition to teleoconch clearly visible, marked by a thickened rim and the appearance of both axial and spiral sculpture. Teleoconch consisting of $8^{1/2}$ -9 whorls, rapidly increasing in size towards the body whorl. Spiral sculpture consisting of 4 fine cords on first teleoconch whorl, a fifth one appears in the lower suture of the second teleoconch whorl, 5-6 on further teleoconch whorls, sometimes with most adapical one or most abapical one partly hidden under the suture, 8-9 on the penultimate whorl, and 17-19 on the last whorl, including the basal cords. Axial sculpture of 12 strong varices (including the final one), rapidly increasing in strength. Last varix situated at 360° from penultimate varix, at 270° intervals on the preceding 3-4 teleoconch whorls, and at about 180° on the uppermost 3-4 teleoconch whorls. Further axial sculpture of fine axial cords, forming low, rounded, beadlike chains on the intersections with the spiral sculpture: 17-18 on first teleoconch whorl, increasing in number towards 30-32 on penultimate whorl and last whorl. Axial varices adorned with very fine axial grooves and the continuation of the whorl's spiral sculpture. Siphonal canal short, narrow, with only the utmost tip slightly recurved. Columella with 16-19 fine, pustulous lirae along its entire length. Parietal shield almost straight, thickened, attached to final whorl, but demarcated by a very strong, thickened rim. Lip with 12 inner denticles, slightly extending into the aperture. Aperture elongate.

Shell colour light golden brown to tan with darker patches at about midwhorl. Varices darker, usually with one, occasionally two off-white bands on the final varix. Protoconch off-white to pale tan. Lip with tiny brown dots in line with the inner denticles. Aperture off-white.

Operculum and soft parts unknown.

Comparison: *Colubraria harryleei* sp. nov. stands out from its sympatric congeners by the number of teleoconch whorls (about 9 as opposed to 8 in *C. kathiewayana* and 10 in both *C. margarethae* and *C. testacea*), the very bulbous protoconch consisting of $2\frac{3}{4}$ whorls (conical and with $3-3\frac{1}{2}$ whorls in *C. kathiewayana*, the closest congener), and the number of axial varices (the only species with 12 strong axial varices). It shares the pustulous lirae on the columella with *C. testacea*, but they are less strong, yet stronger than in *C. kathiewayana*.

Etymology: This species is named in honour of Dr. Harry G. Lee (Jacksonville, Florida, USA) because he allowed us to study unidentified *Colubraria* specimens in his collection and kindly donated the holotype.



Fig. A: protoconch of *Colubraria harrylei*



Fig. B: protoconch of *Colubraria kathiewayana*

Colubraria kathiewayana Fittkau & Parth, 1993

Type material: Holotype in the Zoologische Staatssammlung München, Germany; 2 paratypes: 1 in coll. Fittkau and 1 in coll. Parth.

Material studied: Holotype (Zoologische Staatssammlung München, Germany); Brazil: Barra, Salvador, Bahia State, Brazil (4 shells, 20-24 mm), DM; Alcobaca City, Bahia State, Brazil (1 shell, 19 mm), DM; Natal, Brazil (1 shell, 22 mm), DM.

Range: From Natal and Bahia state, Brazil northwards to the Gulf of Mexico (Lee, 2009: 107).

Diagnosis: Shell small-sized for the genus (adult size 17-ca 30 mm), elongate. Protoconch multispiral, consisting of 3-3^{1/2} smooth whorls. Transition to teleoconch clearly visible, marked by a strong, smooth varix. Teleoconch of about 8-8^{1/2} slightly convex whorls. Spiral sculpture consisting of 3-4 strong cords on first two teleoconch whorls, 5-6 on the next whorls, 7 on the penultimate, and 8-10 strong primary cords on the last whorl. Secondary spiral cords only visible on last whorl, exactly in the middle of the interspaces between the primary spiral cords. Axial sculpture of 10 strong varices (including the final one), rapidly increasing in strength. Last varix situated at 360° from penultimate varix, at 270° intervals on the preceding 2-3 teleoconch whorls, and at about 180° intervals on the uppermost 3-4 teleoconch whorls. Further axial sculpture of numerous strong axial cords, forming beadlike chains on the intersections with the spiral sculpture: 10-11 on first teleoconch whorl, slightly increasing in number and strength towards 19-22 on penultimate whorl, where they are strongest, and 29-32 on last whorl. Two or three very fine axial grooves between axial cords on final half of last whorl. Axial varices with many fine axial lines and stronger spiral cords. Siphonal canal short, slightly turned backwards. Columella with 4-5 faint abapical lirae, the lowest two ending in a pustule, and 1-2 stronger lirae near the onset of the upper lip; parietal shield almost straight, abapical half not attached to final whorl and extending towards about midwhorl of the final whorl. Lip somewhat ovate, with a sharp turn towards the siphonal canal and with 9-10 inner denticles, slightly extending into the aperture. Aperture smooth.

Shell colour golden yellow to dark reddish brown, often with a spiral band of darker or lighter blotches at about midwhorl, sometimes with an extra band just below the suture. Protoconch pale pink to reddish brown. Varices paler, almost white, with a darker band, except on the final varix on the outer lip, where a second and sometimes even a third paler band is present. Lip with small dark brown dots at the end of the spiral cords. Aperture creamy to dark beige.

Colubraria margarethae sp. nov.

Type material: Holotype MNHN 23348: 64.8 x 21.1 mm; Paratype 1 DM (los Taques, Paraguana peninsula, Venezuela. In muddy sand at 90 m): 72.8 x 23.6 mm; Paratype 2 FLMNH (S. Castle Roads, SE Bermuda. In trap at about 450 m): 53.8 x 18.1 mm; Paratype 3-4 HGL (same locality): 59.2 x 20.2 mm and 61.3 x 21.1 mm; Paratype 5 HGL (off St. James, Barbados. In trap at about 100 m): 41.8 x 14.7 mm.

Material studied: Limited to the type material.

Type locality: Venezuela, Paraguana peninsula, off Cabo Romana. In muddy sand at 40-60 m.

Range: Caribbean Province: known from Paraguana Peninsula, Venezuela (type locality), Barbados and Bermuda.

Description: Shell rather large for the genus (largest specimen known: 72.8 mm, paratype 1), slender, elongate. Protoconch multispiral, consisting of $2^{1/2}$ - $2^{3/4}$ smooth, bulbous whorls. Transition to teleoconch clearly visible, marked by a strong axial varix. Teleoconch of 10 whorls, rapidly increasing in size towards the body whorl. Spiral sculpture consisting of 4 fine cords on first teleoconch whorl, a fifth one appears in the lower suture of the second teleoconch whorl, 6-7 on further teleoconch whorls, sometimes with most adapical one or most abapical one partly hidden under the suture, 8 on the penultimate whorl, of which the abapical 4 are hardly raised and 10 on the last whorl, likewise diminishing in strength in abapical direction. No spiral sculpture below midwhorl of body whorl, except for 4-5 basal cords. Axial sculpture of 17 strong varices (including the final one), rapidly increasing in strength. Last varix situated at 360° of penultimate varix, at 270° intervals on the preceding 4 teleoconch whorls, and at about 180° intervals on the uppermost 3-4 teleoconch whorls. Further axial sculpture of fine axial cords, forming low, rounded, beadlike chains on the intersections with the spiral sculpture: 17-18 on first teleoconch whorl, slightly increasing in number towards 29-30 on penultimate whorl and 23 on last whorl. Axial sculpture increasing in strength until the sixth teleoconch whorl and then diminishing in strength, leaving the ventral side of the final whorl without axial sculpture. Axial varices adorned with very fine axial grooves and the continuation of the whorl's spiral sculpture, with the 4 most adapical spiral cords on every varix especially raised along the entire varix (less visible on final varix of holotype). Siphonal canal rather short, half-open, slightly turned backwards. Columella with one strong adapical rim, rest provisionally smooth, but with up to 9 microscopic lirae in abapical half. Parietal shield almost straight, strongly thickened, abapical half not attached to final whorl. Lip with 12 inner denticles, slightly extending into the aperture. Aperture elongate, ovate, smooth.

Shell colour beige to light brown with some white patches and with a pale band adorned with brown blotches just below midwhorl of the final whorl and a row of darker brown blotches just below the suture. Varices darker brown with usually one, but sometimes 3 off-white bands on the final varix. Raised spiral sculpture on varices white. Protoconch off-white to pale yellowish. Lip with tiny brown dots aligned with the inner denticles. Aperture off-white.

Operculum and soft parts unknown.

Comparison: *Colubraria margarethae* sp. nov. stands out from its sympatric congeners by its size, the slenderer overall shape, the number of varices (17 as compared to 13-14 in *C. testacea*, its closest sympatric congener), the smoother and more thickened columella, the general number of spiral and axial cords, which render a much less reticulate effect than in both *C. kathiewayana* and *C. testacea* due to the diminishing strength of the axial sculpture from the sixth whorl onwards, the lack of spiral sculpture on the anterior half of the body whorl, and the broader siphonal canal.

Yet, its closest congener is *Colubraria canariensis* Nordsieck & Talavera, 1979, which occurs from Funchal Bay (Madeira) southwards along the West African coasts down to northern Angola (Monsecour & Monsecour, 2006 and Monsecour & Ryall, 2008). This eastern Atlantic species differs by its smaller size (average adult size about 42 mm), the paler colour, the smaller number of varices (up to 15 as compared to 17 in *C. margarethae* sp. nov.), the less bulbous whorls with shallower suture, and the more conical, reddish brown protoconch consisting of 3-3^{1/2} whorls.



Fig. C: protoconch of
Colubraria canariensis



Fig. D: protoconch of
Colubraria margarethae

Etymology: This species is named in honour of the late Margaretha Van Hove, the authors' grandmother.

Colubraria testacea (Mørch, 1852)

Type material: unknown.

Material studied: Alcobaga City, Bahia, Brazil (1 subadult shell, 22 mm), DM; Barra, Salvador, Bahia, Brazil (3 shell, 32-42 mm), DM; off Cartagena, Colombia (3 shells, 26-47 mm), DM; southern Roatan Island, Honduras (1 shell, 37 mm), DM; Cap Salomon, Martinique (3 shells, 43-56 mm), HGL; Panama (1 shell, 33 mm), DM; Boca Raton, Florida, USA (1 shell, 42 mm), DM; Boynton Beach, Palm Beach County, Florida, USA (2 shells, 27-38 mm), DM.

Range: From North Carolina throughout the Caribbean and eastern South America southwards to Bahia State, Brazil. Bermuda records need confirmation.

Diagnosis: Shell of average size for the genus (adult size 25-55 mm). Protoconch consisting of $2^{1/4}$ to $2^{1/2}$ bulbous, semi-translucent whorls, adorned with microscopic pits. Transition to teleoconch clearly visible, marked by a weak varix and the appearance of the axial sculpture. Teleoconch of 10 convex whorls, the penultimate whorl clearly more swollen than the last whorl. Spiral sculpture consisting of 4 fine cords on first 2 teleoconch whorls, 5 on the next teleoconch whorls, 6-7 on the penultimate and 15 on the last whorl. Axial sculpture of 13-14 strong varices (including the final one), rapidly increasing in strength. Last varix situated at 360° from the penultimate varix, further varices at 270° intervals on the 4-5 preceding teleoconch whorls, and at intervals of about 180° on the uppermost 3-4 teleoconch whorls. Further axial sculpture of numerous fine axial cords, forming beadlike chains on the intersections with the spiral sculpture: 12-15 on first teleoconch whorl, slowly increasing in number and strength towards 29-34 on penultimate whorl and 36-40 on last whorl. Varices adorned with many very fine axial grooves and the continuation of the whorls' spiral sculpture, yet weaker. Siphonal canal rather short, slightly turned backwards. Columella with 9-12 rows of granules or lirae along the siphonal canal and extending into the aperture and 3 lirae near the onset of the outer lip of which the one in the middle is the strongest. Parietal shield almost straight, abapical half not attached to final whorl and only leaving a non-thickened glossy area on the ventral side of the last whorl. Lip with 10-12 inner denticles, extending over a short distance into the aperture. Aperture smooth.

Shell colour creamy or beige with randomly placed darker brown patches. Protoconch pale yellowish. Three off-white bands on the final varix and one off-white band on other varices. Lip with tiny brown dots aligned with the inner denticles. Aperture creamy.



Fig. E: protoconch of *Colubraria testacea*

Remarks: Even though Mørch (1877) already clearly described the differences from the Indo-Pacific species *C. obscura* (Reeve, 1844), shells from the Caribbean are often identified as such. They can most easily be distinguished by means of the columella: the columella in *C. obscura* is completely smooth, whereas it is granulous and lirate in *C. testacea*.

Family COLUBRARIIDAE Dall, 1904

Genus *Cumia* Bivona-Bernardi, 1838

= *Fusus* Helbling, 1779 (rejected name, see Petit & Wilson, 1991 and ICZN, 1994)

Type species by original designation: *Cumia decussata* Bivona-Bernardi, 1838 (= *Murex intertextus* Helbling, 1779). Recent, Mediterranean Province.

Cumia antillana (Sarasúa, 1978) **comb. nov.**

Type material: Holotype and 1 paratype, both in Poeyana Instituto de Zoología, academia de ciencias de Cuba.

Material studied: 2 shells in the coll. Sarasúa (through photographs made available by Raúl Fernández-Garcés).

Range: Only known from Cuba (La Habana Province), where it lives at a depth of about 20 m.

Diagnosis: Shell of average size for the genus: 17-25 mm. Protoconch consisting of about 1 ½, translucent whorl with a fine radial cord appearing from about half of the first whorl onwards, extending on the first teleoconch whorl for about 50% of this whorl. Transition to teleoconch clearly visible by a strong axial varix and the appearance of the axial sculpture. Teleoconch of about 8 slightly convex whorls, regularly increasing in size. First teleoconch whorl semi-translucent, bulbously flattened. Spiral sculpture consisting of hardly visible cords on first teleoconch whorl, 7 very fine cords on next 2 teleoconch whorls of which the most abapical one is the strongest one, 8-10 on following whorls and 23 on the last whorl. Axial sculpture of 8 strong varices (including the final one), rapidly increasing in strength. Last varix situated at 360° of penultimate varix, the antepenultimate one at 270° and at about 180° and 270° alternatively on the preceding teleoconch whorls. Further axial sculpture of numerous fine axial cords, forming beadlike chains on the intersections with the spiral sculpture: 6 translucent, wavy cords on first teleoconch whorl, then rapidly increasing in number and strength to about 45 on last whorl. Axial varices likewise adorned with spiral cords: many fine cords on the final varix on the outer lip, and 6-8 cords on further teleoconch varices. Siphonal canal straight, short, half-open and slightly turned backwards. Columella with 2-3 microscopic adapical lirae, smooth centre and 5 hardly raised, microscopic abapical lirae. Parietal shield straight, attached to final whorl, but marked by a distinct rim. Lip with 15 slightly extended inner denticles. Aperture smooth.

Shell colour beige to golden brown with a few darker brown flammules ranging from just below the suture to about midwhorl. Varices with white bands: 1 central white band on all varices, except for the final varix, which bears 2 white bands and has a darker band at midwhorl. Lip with tiny brown spots on the edge. Aperture off-white.

Discussion: Even though this species was described in the genus *Colubraria* and Sarasúa (1978) described the protoconch as “propia del subgénero *Colubraria*” [characteristic for the subgenus *Colubraria*], the shape of the protoconch, the transition to the teleoconch, the wavy axial cords on the first teleoconch whorl and the overall sculpture turn it into a perfect example of the genus *Cumia* (see Watters (2009)). We hereby transfer *Colubraria antillana* to the genus *Cumia*: ***Cumia antillana* comb. nov.**

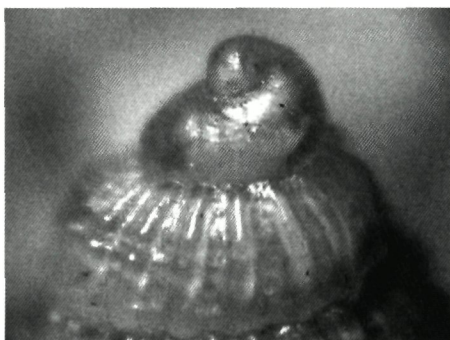


Fig. F: protoconch of *Cumia antillana* comb. nov.
(photo: Raúl Fernández-Garcés)

Cumia clavula Watters, 2009

Type material: Holotype FLMNH: UF 341080. Paratypes: 1 in BMSM and 1 in HGL.

Material studied: No material was available for study. The present diagnosis is based on Watters (2009).

Range: Only known from Costa Rica (type locality: Moín Bay, Limon Province) and the Dominican Republic, where it lives in shallow water.

Diagnosis: Shell rather small-sized for the genus (adult size up to about 18 mm). Protoconch consisting of 1.5 papillate whorls. Transition to teleoconch marked by a distinct rim. Teleoconch of 8 convex whorls. Spiral sculpture on final whorl consisting of about 25 fine spiral threads. Axial sculpture of 7 strong varices (including the final one), rapidly increasing in strength, the penultimate one at 360° from the terminal varix, and the more adapical ones 270° apart. Further axial sculpture of numerous axial cords on all whorls, with about 50 cords on final whorl and 35-60 on penultimate whorl. Siphonal canal short, open, almost straight, with a weak denticle delimiting the canal on the outer lip. Columella smooth. Outer lip with 17 denticles that do not extend into the aperture .

Shell colour tan with a paler band below the periphery and vague spots below the suture. Protoconch pale tan-coloured. Varices white with tan bands: 3 on terminal varix and usually only one above suture of lower whorl in later whorls. Lip, columella and aperture off-white.

Cumia sunderlandi (Petuch, 1995)

Type material: Holotype in the Florida Museum of Natural History, Gainesville, Florida, USA. Catalogue number UF225165. Two paratypes in the Sunderland collection.

Material studied: Tryall Reef, Jamaica (1 shell, 18 mm), DM (*ex* HGL).

Range: Only known from Jamaica (Montego Bay, Tryall Reef).

Diagnosis: Shell of average size for the genus (adult size up to about 27 mm). Protoconch consisting of $1^{1/2}$ -2 high, semi-translucent whorls adorned with microscopic growth lines. Transition to teleoconch gradual, faintly marked by the appearance of the first fine axial cords. Teleoconch of 8-8^{1/2} convex whorls; first 3 whorls equally wide, further whorls rapidly increasing in size towards final whorl. First teleoconch whorl semi-translucent, bulbously flattened. Spiral sculpture always weak, consisting of very fine spiral threads: 5 on first teleoconch whorl, 6 on 3 further whorls, 10 on fifth whorl, 12 on sixth whorl, 15 on penultimate whorl and about 45 on last whorl, including the basal cords. Axial sculpture of 7-8 strong varices (including the final one), rapidly increasing in strength, all situated at 360° from each other in the holotype, but sometimes at 360° for the lowest 3 varices and earlier varices more randomly placed. Further axial sculpture of numerous axial cords: 15 translucent, wavy cords on first teleoconch whorl, straight and less sharp on all other whorls. Number rapidly increasing up to about 50 on final whorl. Siphonal canal short, slightly turned backwards. Columella mostly smooth, but with 1 microscopic rim ending in a small pustule adapically and 5-6 elongated granules extending into the aperture abapically. Two more prominent lirae on beginning of siphonal canal. Parietal shield almost straight, with a very strong, sharp rim at the edge. Inner lip with 18 lirae extending over a short distance into the aperture.

Shell colour brownish orange with a paler band at about midwhorl on the final whorl. All teleoconch whorls with subsutural band of light brown flammules. Protoconch yellowish creamy. Three white bands on the final varix and just one band on other varices. Lip and columella off-white. Inside of aperture pale brownish, because of translucent nature of the shell (external shell colour showing through).

Discussion: Even though this species was described in the genus *Colubraria*, the shape of the protoconch, the transition to the teleoconch, the wavy axial cords on the first teleoconch whorl, the structure of the first teleoconch whorls, which do not grow in size and the overall sculpture turn it into a perfect example of the genus *Cumia*. For more information on the genus *Cumia*, we refer to Watters (2009).

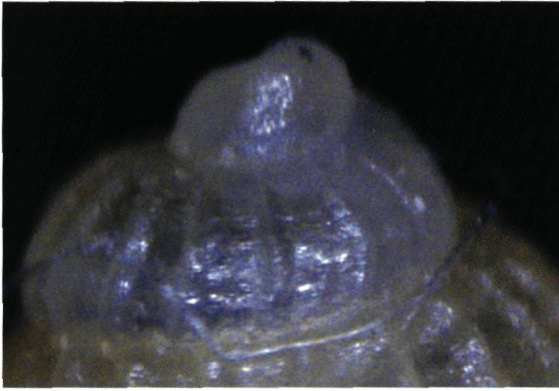


Fig. G: protoconch of *Cumia sunderlandi*

Non-*Colubraria* species

Other species often considered as belonging to *Colubraria* or described as *Colubraria* in fact belong to other genera and families. For the western Atlantic, these include *Minibraria monroei* (McGinty, 1962) (**Muricidae**), *Colubraria swifti* (Tryon, 1881), in fact a junior synonym of *Monostolium tessellatum* (Reeve, 1844) (**Buccinidae**), *Tritonoharpa bayeri* (Petuch, 1987) *T. cubapatriae* (Sarasúa, 1975), *T. lanceolata* (Menke, 1828), and *T. leali* Harasewych, Petit, and Verhecken, 1992 (**Cancellariidae**).

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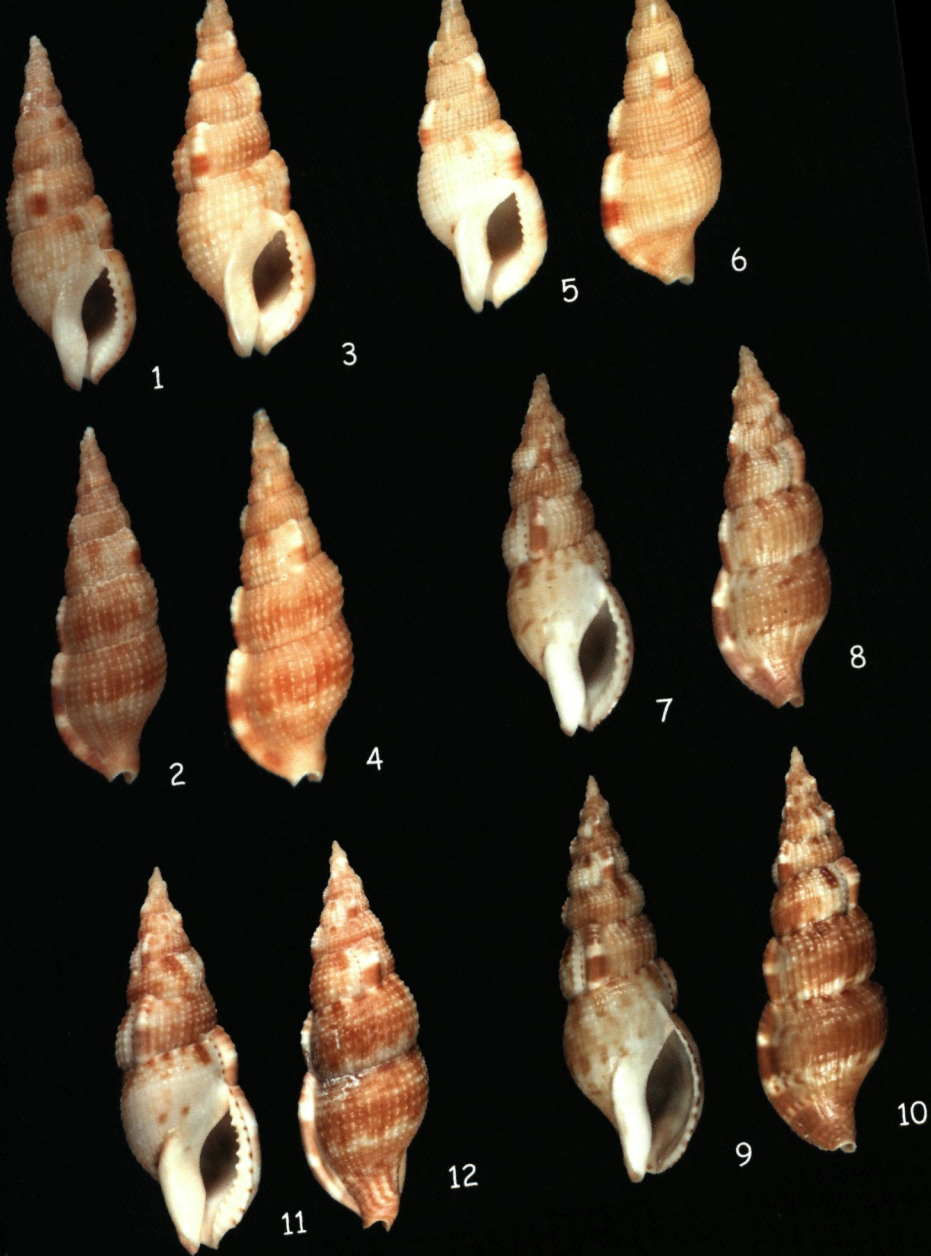


Plate 1: *Colubraria harryleei* sp. nov. and *Colubraria margarethae* sp. nov.

1-6: *Colubraria harryleei* sp. nov.

1-2: Holotype, FLMNH. 23.5 x 21.1 mm. St. Georges Parish, Bermuda. In drift from dredge spoil. [ex HGL]

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9-10: Paratype 1, DM. 72.8 x 23.6 mm. Los Taques, Paraguana peninsula, Venezuela. In muddy sand at 90m.

11-12: Paratype 2, FLMNH. 53.8 x 18.1 mm. S. Castle Roads, SE Bermuda. In trap at about 450 m. [ex HGL]

Plate 2: *Colubraria* and *Cumia* in the western Atlantic

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3-4: *Colubraria kathiewayana* Fittkau & Parth, 1993. DM. 22.0 x 12.4 mm. Barra, Salvador, Bahia State, Brazil. Under rocks at 10-15 m.

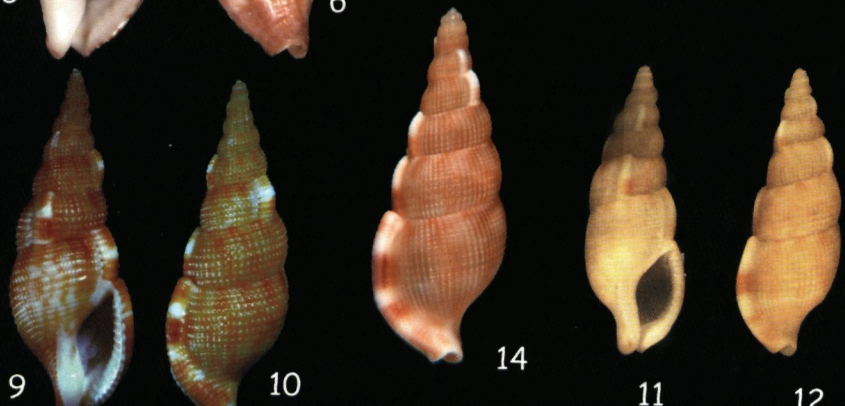
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11-12: *Cumia clavula* Watters, 2009. Holotype FLMNH: UF 341080. 18.1 mm. Moín Bay, Limon Province, Costa Rica. After Watters (2009). Photo by courtesy of Dr. Watters and Dr. Leal, editor of *The Nautilus*.

13-14: *Cumia sunderlandi* (Petuch, 1995). DM (ex HGL). 17.2 x 6.6 mm. Tryall Reef, Jamaica. By SCUBA-diving.



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**A new, distinct endemic *Africonus* species (Gastropoda, Conidae)
from São Vicente Island, Cape Verde Archipelago, West Africa**

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Keywords: CONIDAE, *Africonus denizi*, new species, Cape Verde Archipelago.

Abstract: *Africonus denizi* sp. nov. is described from shallow water in São Vicente Island in the Cape Verde Archipelago, West Africa. It is characterized by a small shell size from 8 to 13 mm, an unmistakable olive-green background shell colour with 3 interrupted spiral bands formed by white blotches, 9-10 spiral grooves on the lower body whorl and dark brown markings on the anterior tip in the siphonal canal. The radular tooth is of the vermivorous type, showing a basal spur reduced in size. The new species is compared to *Africonus miruchae* (Röckel, Rolán & Monteiro, 1980) and *Africonus grahami* (Röckel, Cosel & Burnay, 1980), from which it can easily be separated based upon distinct shell and radular features.

Introduction: São Vicente Island, located on the northwest tip of the Cape Verde Archipelago's windward island group, is characterized by fewer endemic Cone species and populations when compared to geologically older islands like Sal, Boavista and Maio (Cunha *et al.*, 2005; Cunha *et al.* 2008; Duda & Rolán, 2005). São Vicente Island was a matter of intense study and sampling during the 70s and 80s, with several researchers

and amateur collectors carrying out surveys in many coastal locations along the island's coast (Röckel *et al.*, 1980; Röckel *et al.*, 1985; Rolán, 1990a; Rolán, 1990b; Rolán, 1992; Rolán, 2005). It is interesting to note that most of the endemic Cone species were described during this period. Only one species, *Africonus lugubris* (Reeve, 1849), was described much earlier. In spite of the relatively easy access that São Vicente Island offers, its endemic Cone populations have not been as thoroughly studied as in other islands of the Archipelago such as Sal or Boavista (Afonso & Tenorio, 2004). Most of the localities in São Vicente Island which were almost inaccessible by land years ago are easier to reach now. Recent field trips by the first author to this island have revealed several new endemic populations not yet cited in the most recent literature dealing with the West African **Conidae** fauna (Monteiro *et al.*, 2004; Rolán, 2005). These deserve a more thorough study. One of these is a well-defined species which is a new member of the Cape Verde Island endemic genus *Africonus* (Petuch, 1975).

The taxonomy used in the present article follows Tucker & Tenorio (2009). For the description of the shell morphometry we use the terminology established in Röckel, Korn & Kohn (1995).

Abbreviations:

Museums and institutions

MNCN: Museo Nacional de Ciencias Naturales de Madrid, Spain.

NMHUK: Natural History Museum, London, United Kingdom.

MNHN: Muséum National d'Histoire Naturelle, Paris, France.

CMLA: Carlos M. L. Afonso collection

MJT: Manuel J. Tenorio collection

Shell morphometry

L maximum shell length

RD relative diameter

RSH relative spire height

HMD height of the maximum diameter

PMD relative position of the maximum diameter

LC/DR shell length/radular tooth size

Radular morphometry

DR/PA radular tooth size/apical portion length

DR/APA radular tooth size/apical portion width

100F/PA 100 x blade length/apical portion length

BW/L base width/radular tooth size

Other

coll. collection

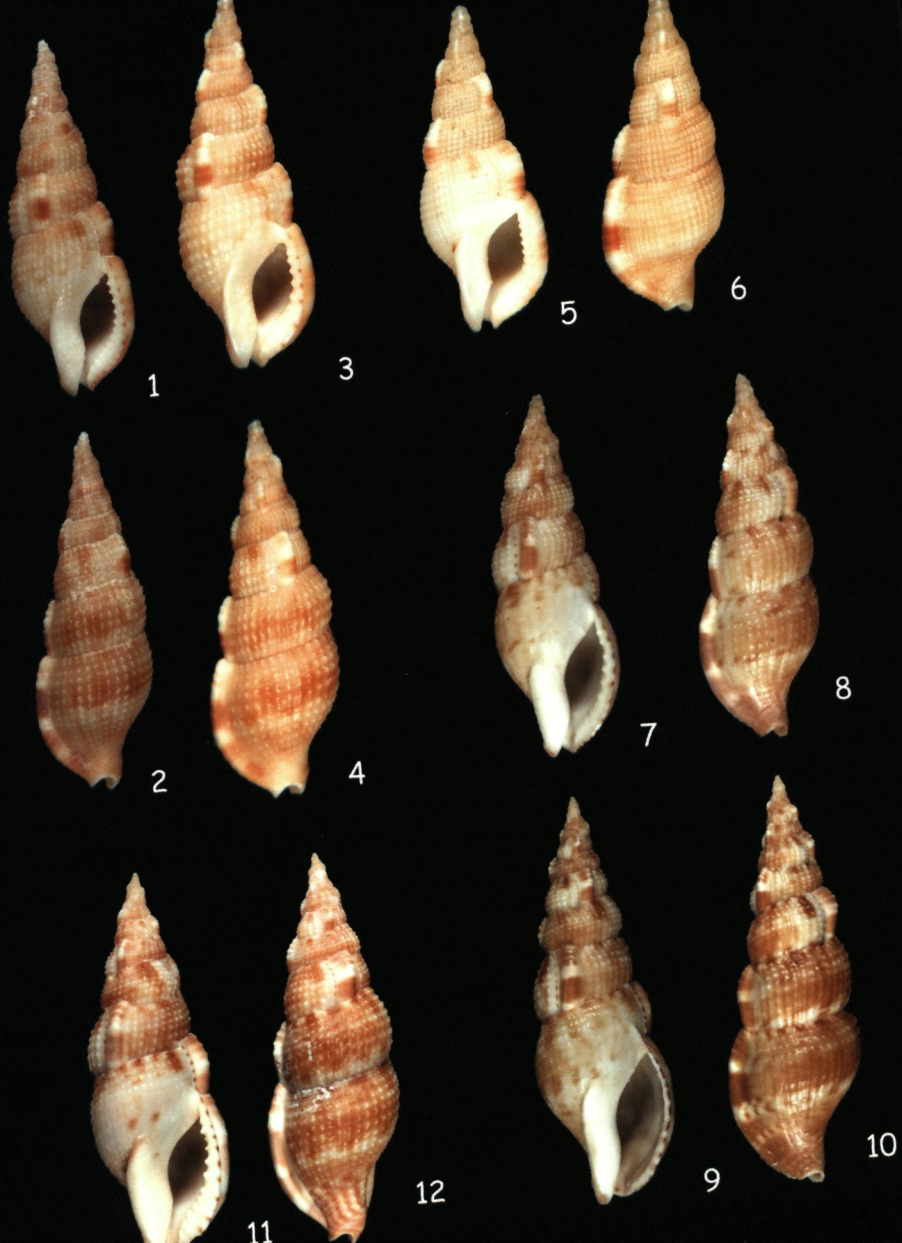


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