



## **Some notes on the genus *Spinidrupa* Habe and Kosuge, 1966 (Muricidae: Ergalataxinae), with the description of *Habromorula* gen. nov. (Muricidae: Rapaninae) and four new species from the Indo-West Pacific**

### **Algunos datos sobre el género *Spinidrupa* Habe y Kosuge, 1966 (Muricidae: Ergalataxinae), con la descripción de *Habromorula* gen. nov. (Muricidae: Rapaninae) y cuatro nuevas especies del Indopacífico Oeste**

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#### ABSTRACT

The genus *Spinidrupa* Habe and Kosuge, 1966 is considered to be monotypic and is transferred from the Rapaninae (ex Thaidinae) to the Ergalataxinae. A new genus, *Habromorula*, is described to include the species usually assigned to *Spinidrupa s. l.* Four new species are described: *Habromorula ambrosia* and *H. aglaos* from the Marshall Islands, *H. euryspira* from New Caledonia, and *H. lepida* from New Caledonia, Midway Island, Hawaii and Papua New Guinea.

#### RESUMEN

El género *Spinidrupa* Habe y Kosuge, 1966 se considera monotípico y se transfiere de Rapaninae (ex Thaidinae) a Ergalataxinae. Se describe un nuevo género, *Habromorula*, para incluir en él las especies tradicionalmente adscritas a *Spinidrupa s. l.* Se describen cuatro especies nuevas: *Habromorula ambrosia* y *H. aglaos* de las Islas Marshall, *H. euryspira* de Nueva Caledonia, y *H. lepida* de Nueva Caledonia, Isla Midway, Hawaii y Papúa Nueva Guinea.

KEY WORDS: Gastropoda, Muricidae, new genus, new species, Indo-West Pacific.

PALABRAS CLAVE: Gastropoda, Muricidae, nuevo género, nuevas especies, Indopacífico Oeste.

## INTRODUCTION

The genus *Spinidrupa* has been used for several small species with a short-spined shell, a narrow aperture, and a very short siphonal canal. They occur in the tropical Indo-West Pacific. They are

somewhat similar to species of *Morula* Schumacher, 1817 (Rapaninae) (KOOL, 1993). While studying specimens of the type species of *Spinidrupa* (*Murex eura-canthus* A. Adams, 1853), it became clear

that shell and radular characters would place the genus in the Ergalataxinae, somewhere between the genera *Orania* Pallary, 1900 and *Pascula* Dall, 1908, rather than in Rapaninae. After removing *Spinidrupa* from Rapaninae to Ergalataxinae, a number of species that are usually included in *Spinidrupa* had also to be removed, and proved to belong to a new genus of the Rapaninae.

This contribution is based on material from private collections and from the authors collection, and also on mate-

rial collected in New Caledonia by ORSTOM and Muséum National d'Histoire Naturelle, Paris.

Abbreviations:

BMNH: The Natural History Museum, London.

MNHN: Muséum National d'Histoire Naturelle, Paris.

MNZ: Museum of New Zealand, Wellington.

RH: Roland Houart collection.

lv: live-taken specimen(s).

dd: empty shells.

## SYSTEMATICS

### Family MURICIDAE Rafinesque, 1815

#### Subfamily ERGALATAXINAE Kuroda and Habe, 1971

#### Genus *Spinidrupa* Habe and Kosuge, 1966

*Spinidrupa* Habe and Kosuge, 1966, *Venus* 24 (3): 330. Type species (by original designation): *Murex euracanthus* A. Adams, 1853. [Recent, Indo-west Pacific].

#### *Spinidrupa euracantha* (A. Adams, 1853) (Figs 9-12)

*Murex euracanthus* A. Adams, 1853, *Proc. Zool. Soc. Lond.* (1851) 19: 268

*Murex iostomus* A. Adams, 1853, *Proc. Zool. Soc. Lond.* (1851): 267 (non *Murex iostoma* Sowerby, 1834) [Type locality: Philippines].

**Remarks:** The shells of *Spinidrupa*, like most of the species of Ergalataxinae, have more or less elongate lirae within the outer apertural lip, while the other species usually included in *Spinidrupa*, and here transferred in *Habromorula* gen. nov. (described below), have denticles. The aperture in *Spinidrupa* is narrower and the spire is generally lower. The type species of *Spinidrupa* has a radula as in most species of *Orania* or *Pascula*, i. e., a rachidian with narrow, long central

cusps, with one lateral denticle and a medium sized lateral cusp. By contrast, species of *Morula* Schumacher, 1817 and *Habromorula* gen. nov. have a medium sized to long central cusp, one lateral denticle, a moderately long lateral cusp, 2-4 marginal denticles and a marginal cusp. The radula of *Spinidrupa* and other species of ergalataxine genera such as *Orania* and *Pascula* is also relatively larger than in *Morula* or *Habromorula* (Figs. 4-8 and FUJIOKA, 1985).

### Subfamily RAPANINAE Gray, 1853

#### *Habromorula* gen. nov. (Fig. 1)

**Type species:** *Purpura biconica* Blainville, 1832, *Nouv. Ann. Mus. Hist. nat.*, I: 203, pl. 9, fig. 1. [Recent, Indo-West Pacific].

**Etymology:** From *Habros* (Greek): pretty, graceful, and *Morula* (related genus in the Rapaninae).

**Diagnosis:** Shell biconical, up to 30 mm in length at maturity. Spire high.

Protoconch conical with 2.5+, smooth, polished whorls. Axial sculpture of 7-12

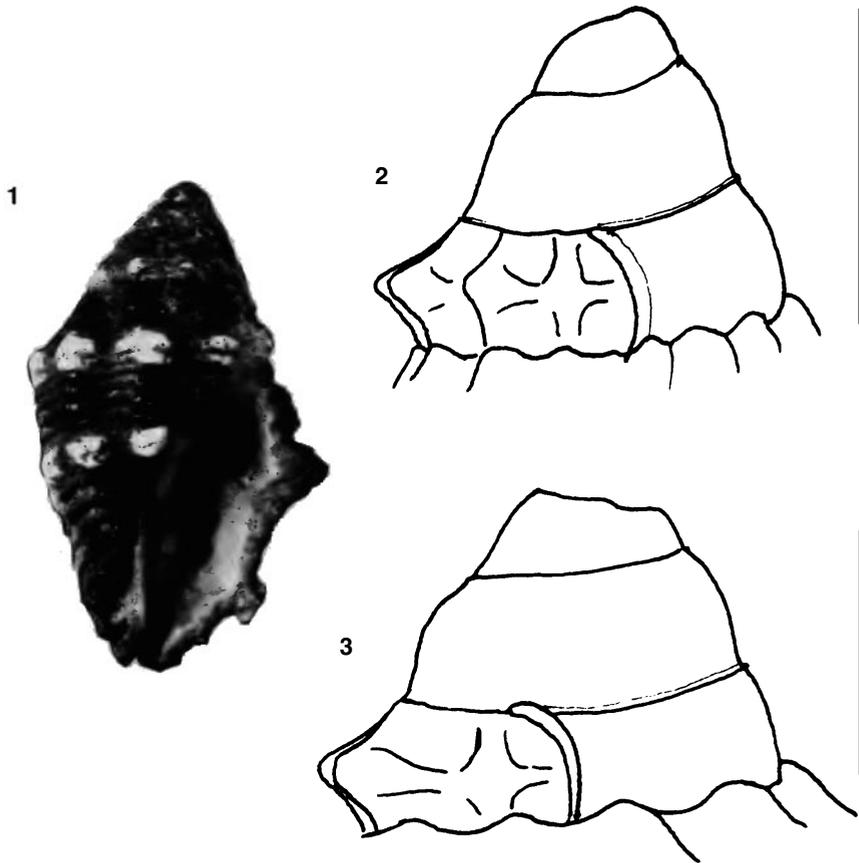


Figure 1. *Habromorula biconica* (Blainville, 1832), holotype MNHN, 18.9 mm. Figure 2. Protoconch of *Habromorula aglaos* spec. nov. Figure 3. Protoconch of *H. ambrosia* spec. nov. Scale bars 0.5 mm.

Figura 1. *Habromorula biconica* (Blainville, 1832), holotipo MNHN, 18,9 mm. Figura 2. Protoconcha de *Habromorula aglaos* spec. nov. Figura 3. Protoconcha de *H. ambrosia* spec. nov. Escalas 0,5 mm.

rounded, usually spinose or squamous ribs. Spines short, acute, narrowly open. Spiral sculpture of numerous, primary, secondary, and tertiary, squamous cords over entire surface. Aperture elongate, narrow; anal notch broad, shallow; outer lip with 5-9 nodes within. Siphonal canal very short, open.

Rachidian radular tooth with a medium-sized to long, triangular, central cusp and, on each side, one lateral denticle, a moderately long lateral cusp, 2-4 marginal denticles, and a marginal cusp.

**Remarks:** Compared with *Morula* species, species of *Habromorula* differ in having a more elongate and usually more spiny, rather than nodulose shell, a narrower aperture, and more numerous, narrower, spiral cords and/or threads. The radular morphology is identical in both genera (FUJIOKA, 1985, figs 51-52 and the present paper, Figs 4-6, 8).

All known species of *Habromorula* have a conical protoconch of 2.5+ whorls, and are presumed to have planktotrophic larval development.

I propose the following 14 species to be included in the genus *Habromorula*: *Habromorula andrewsi* (Smith, 1909), occurring throughout the Tropical Indo-West Pacific; *H. bicatenata* (Reeve, 1846), a small species reaching 10 mm in length, known from scattered localities in the Indian and Pacific Oceans; *H. biconica* (Blainville, 1832), the type species; *H. coronata* (H. Adams, 1869), originally described as a coralliophilid, from the Western Indian Ocean; *H. dichrous* (Taparone Canefri, 1880), a small species described from Mauritius, but also known from the Coral Sea and the Phi-

lippine Islands; *H. fuscoimbricata* (Sowerby, 1915) from Hawaii; *H. japonica* (Sowerby, 1903) from Japan; *H. porphyrostoma* (Reeve, 1846), which is apparently endemic to French Polynesia; *H. spinosa* (H. and A. Adams, 1853), a large species reaching more than 25 mm in length, occurring commonly throughout the tropical Indo-West Pacific; *H. striata* (Pease, 1868) from the tropical Indo-West Pacific, and the four new species described below.

The known species of *Habromorula* live in 3-40 m, on and under corals and/or rocks.

### *Habromorula ambrosia* spec. nov. (Figs 3, 17-19)

**Type material:** Off Carlson Island, Kwajalein Atoll, Marshall Islands, on coral rock, 9 m, holotype MNHN (lv), 1 paratype RH coll. (lv).

**Other material examined:** 2 specimens from the type locality, E. H. Vokes coll. (lv).

**Etymology:** *Ambrosia* (Latin): divine, lovely.

**Description:** Shell medium sized for the genus, up to 16.6 mm in length at maturity, spinose. Spire high, acute, with 3+ protoconch whorls (partially broken) and up to 5 weakly convex, narrow, spinose teleoconch whorls, suture impressed. Protoconch conical, acute, smooth, glossy; terminal varix thin, raised, apparently of sinusigera type (abapical part covered by succeeding teleoconch whorl).

Axial sculpture of first to third teleoconch whorls consisting of 7 high, strong, ribs, each with 1 short, strong spine; fourth and fifth whorls with 8 or 9 ribs bearing short, blunt, narrowly open spines. Spiral sculpture of last whorl consisting of high, rounded, squamous primary, secondary and tertiary cords; primary and secondary cords with short, blunt spines at intersections with axial ribs. Earlier whorls with squamous, rounded, primary and secondary cords, some with short spines on the axial ribs.

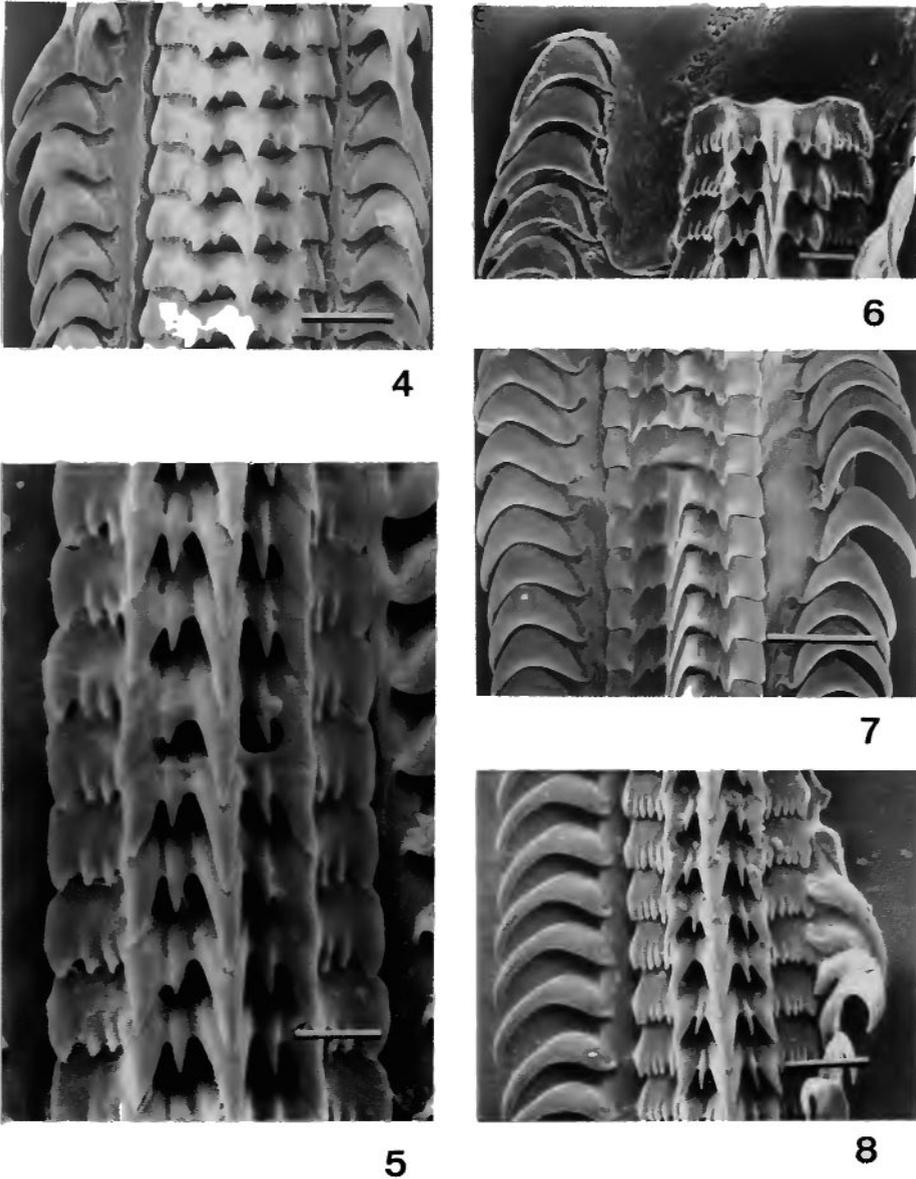
Aperture moderately large, ovate. Columellar lip generally smooth, occasionally with 2 small nodules abapically; lip partially and weakly erect. Anal notch shallow, broad. Outer lip

weakly crenulate, with 6-8 weak, small nodules within. Siphonal canal very short, relatively narrow, open, with 1 or 2 short, open spinelets. Colour pinkish-white, protoconch darker, aperture pink. Operculum and radula unknown.

**Distribution:** Kwajalein Atoll, Marshall Islands.

**Remarks:** The specimens of *Habromorula ambrosia* were initially identified as *H. andrewsi* (Smith, 1909) (Figs 6, 15), but that species has a larger, relatively broader shell, with fewer spines on the last teleoconch whorl, narrower secondary spiral cords, narrower and more numerous spiral threads on the shoulder, a broader columellar lip, and fewer, broader nodules within the outer lip. The colour of *H. andrewsi* is ivory-white to light brown, with darker siphonal canal and mauve aperture.

*Habromorula coronata* (H. Adams, 1869) (Fig. 16), resembles *H. ambrosia* in colour and shape, but has narrower and more numerous spiral threads, fewer primary cords, and long carinal spines only.



Figures 4-8. Radulae. 4: *Habromorula spinosa* (H. and A. Adams, 1853), New Caledonia. 5: *H. bicatenata* (Reeve, 1846), Tahiti. 6: *H. andrewsi* (Smith, 1909), New Caledonia. 7: *Spinidrupa euracantha* (A. Adams, 1853), Red Sea. 8: *Morula uva* (Röding, 1798), Madagascar. Scale bars, 4: 50  $\mu\text{m}$ ; 5: 10  $\mu\text{m}$ ; 6: 20  $\mu\text{m}$ ; 7: 100  $\mu\text{m}$ ; 8: 20  $\mu\text{m}$ .

*Figuras 4-8. Radulas.* 4: *Habromorula spinosa* (H. y A. Adams, 1853), Nueva Caledonia. 5: *H. bicatenata* (Reeve, 1846), Tahití. 6: *H. andrewsi* (Smith, 1909), Nueva Caledonia. 7: *Spinidrupa euracantha* (A. Adams, 1853), Mar Rojo. 8: *Morula uva* (Röding, 1798), Madagascar. Escalas, 4: 50  $\mu\text{m}$ ; 5: 10  $\mu\text{m}$ ; 6: 20  $\mu\text{m}$ ; 7: 100  $\mu\text{m}$ ; 8: 20  $\mu\text{m}$ .

*Habromorula aglaos* spec. nov. (Figs 2, 20, 21)

**Type material:** Ocean side of west reef, Kwajalein Atoll, Marshall Islands, under dead coral, 15 m, holotype MNHN (lv); 1 juvenile paratype, RH (lv).

**Etymology:** *Aglaos* (Greek): splendid, beautiful.

**Description:** Shell medium sized for the genus, up to 14.2 mm in length at maturity, spinose. Spire high, with 2.5-2.75 protoconch whorls and up to 6 broad, spinose teleoconch whorls, suture impressed. Protoconch conical, whorls weakly convex, smooth, glossy. Terminal varix delicate, erect, partly obscured by the following teleoconch whorls.

Axial sculpture of first to fourth teleoconch whorls consisting of 10 low, rounded ribs, fifth whorl with 10-12 ribs, last whorl with 11 ribs, crossed by numerous, squamous, spiral cords and threads. Carinal cord of first to third teleoconch whorl with small nodules, nodules transforming to become short open spines on fourth and fifth whorls, and long, open, blunt spines on last whorl. Primary cords of last whorl with shorter, open, blunt spines at the intersection with axial ribs.

Aperture moderately large, ovate. Columellar lip narrow, smooth, fully adherent. Anal notch shallow, broad.

Outer lip crenulate, with 5 nodules within. Siphonal canal very short, open, with 1 short, open spinelet. Ivory-white, siphonal canal dark brown, aperture pink or light mauve. Operculum and radula unknown.

**Distribution:** Kwajalein Atoll, Marshall Islands.

**Remarks:** *Habromorula aglaos* spec. nov. is highly distinctive among *Habromorula* species. Compared with *H. andrewsi*, *H. aglaos* is smaller with more teleoconch whorls, the spines are longer and more numerous relative to the shell width, and the spiral threads are more numerous and more squamous. It differs from *H. ambrosia* spec. nov. in having a broader shell with fewer axial ribs and more numerous spiral threads, while the aperture is broader with fewer, stronger knobs within the outer lip. It differs further in that the protoconch is lower, with fewer, more convex whorls.

*Habromorula euryspira* spec. nov. (Fig. 22)

**Type material:** Off New Caledonia, north lagoon, "programme LAGON", stn 521, 19° 05' S, 163° 38' E, 39 m (lv), holotype MNHN.

**Etymology:** From *eurys* (Greek): broad, and *spira* (Latin): spire. Named for its broad spire.

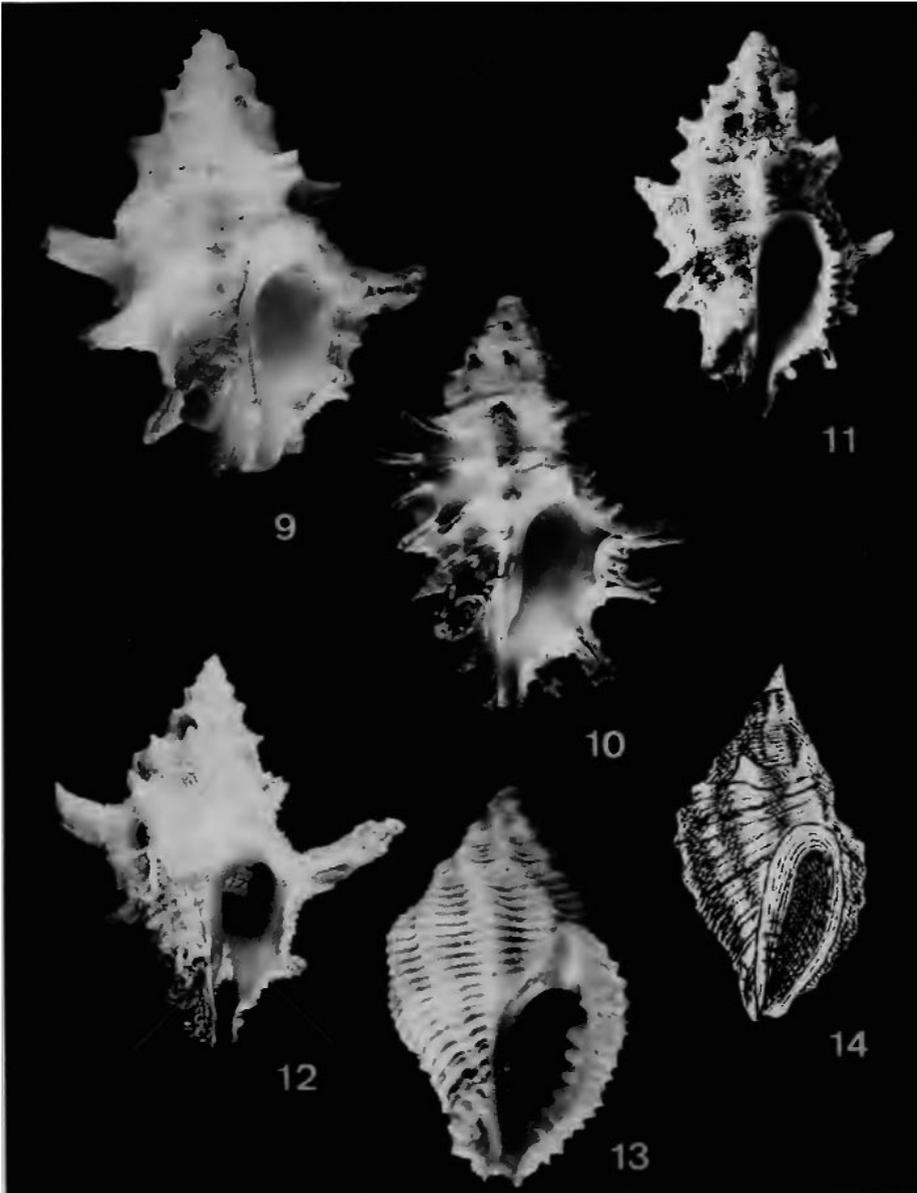
**Description:** Shell medium sized for the genus, 15.5 mm in length at maturity, heavy, squamous. Spire high, with 5 convex teleoconch whorls, with impressed suture. Protoconch unknown.

Axial sculpture consisting of moderately squamous, rounded ribs: 9 on first and second teleoconch whorls, 8 on third and fourth whorls, 9 on last whorl. Spiral sculpture of high, squamous, primary, secondary and tertiary cords. Last whorl with 6 primary cords, with 1 or 2 secondary and/or tertiary cords

between each pair of primary cords. Other whorls with primary cords, and secondary cords on shoulder only.

Aperture large, narrow, ovate. Columellar lip weakly erect, adherent at adapical extremity. Anal notch shallow, broad. Outer lip weakly crenulate, with 9 weak nodules within. Siphonal canal very short, open, with one small, short spine. Creamy-white, aperture light pink. Operculum and radula unknown.

**Distribution:** Off New Caledonia, north lagoon.



Figures 9-12. *Spinidrupa euracantha* (A. Adams, 1853). 9: syntype BMNH 19763, locality unknown, 22.5 mm. 10: syntype of *Murex iostoma* A. Adams, 1853, BMNH 196572, Philippines, 23 mm. 11: Vairo, Tahiti, RH, 17 mm. 12: New Caledonia, MNHN, 19.6 mm. Figure 13. *Habromorula porphyrostoma* (Reeve, 1846), lectotype BMNH 1980128/1, Marquesas, 17.2 mm. Figure 14. Type-figure of *Purpura dumosa* Conrad, 1837 (from CERNOHORSKY, 1982).  
*Figuras 9-12. Spinidrupa euracantha* (A. Adams, 1853). 9: sintipo BMNH 19763, localidad desconocida, 22,5 mm. 10: sintipo de *Murex iostoma* A. Adams, 1853, BMNH 196572, Filipinas, 23 mm. 11: Vairo, Tahití, RH, 17 mm. 12: Nueva Caledonia, MNHN, 19,6 mm. Figura 13. *Habromorula porphyrostoma* (Reeve, 1846), lectotipo BMNH 1980128/1, Marquesas, 17,2 mm. Figura 14. Figura tipo de *Purpura dumosa* Conrad, 1837 (de CERNOHORSKY, 1982).

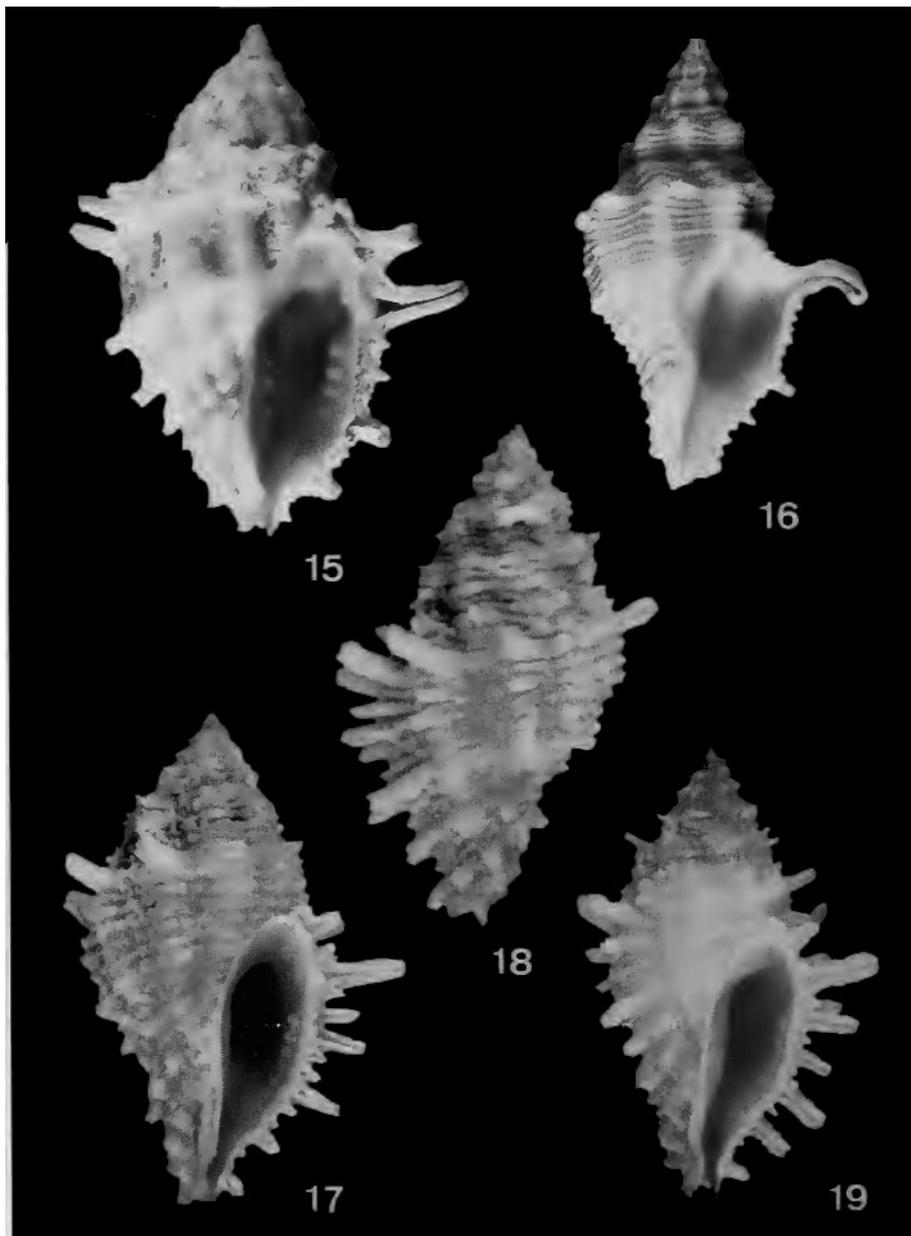


Figure 15. *Habromorula andrewsi* (E. A. Smith, 1909), syntype BMNH 1909.8.62-64, Christmas Island, 25 mm. Figure 16. *H. coronata* (H. Adams, 1869), holotype BMNH 1902.11.26.73, Mauritius, 19.2 mm. Figures 17-19. *H. ambrosia* spec. nov. 17-18: holotype MNHN, Marshall Islands, 16.6 mm. 19: Marshall Islands, E. H. Vokes coll., 14.9 mm.

Figura 15. *Habromorula andrewsi* (E. A. Smith, 1909), sintipo BMNH 1909.8.62-64, Isla Navidad, 25 mm. Figura 16. *H. coronata* (H. Adams, 1869), holotipo BMNH 1902.11.26.73, Mauricio, 19,2 mm. Figuras 17-19. *H. ambrosia* spec. nov. 17-18: holotipo MNHN, Marshall Islands, 16,6 mm. 19: Islas Marshall, E. H. Vokes coll., 14,9 mm.

**Remarks:** *Habromorula euryspira* most closely resembles *H. porphyrostoma* (Reeve, 1846) and *H. lepida* spec. nov. but differs from both of them in having

fewer and broader spiral cords, a shorter and broader spire, and in having a greater number of denticles within the aperture.

*Habromorula lepida* spec. nov. (Fig. 23)

*Morula dumosa* (Conrad, 1837): Kay, 1979, *Hawaiian Marine Shells*: 247, fig. 87C (non *Purpura dumosa* Conrad, 1837).

*Morula dumosa* (Conrad): Kaicher, 1980, *Card catalogue of world-wide shells*, 24 (Thaididae): card 2456 (non *Purpura dumosa* Conrad, 1837).

**Type material:** Off New Caledonia, "programme LAGON", secteur de Canala, stn 757, 21° 15' S, 165° 46' E, 44 m, holotype MNHN (dd). Paratypes: secteur de Yaté, stn 735, 22° 05' S, 166° 57' E, 15-34 m, 1 MNHN, 1 RH (lv); secteur de Pondimié, stn 770, 21° 11' S, 165° 41' E, 41-46 m, MNHN (dd); secteur des Belep, stn 1128, 19° 31' S, 163° 52' E, 26 m, 2 MNHN (lv, dd), 1 MNZ (dd).

**Other material examined:** VOLSMAR, Loyalty Ridge, southern New Caledonia, Hunter and Matthew volcanos, stn P27, 50 m (MNHN, 1 dd); Papua New Guinea, Laing Island, Hansa Bay (RH, 1 lv).

**Etymology:** *Lepida* (Latin): elegant, fine.

**Description:** Shell medium sized for the genus, up to 15 mm in length at maturity, heavy, squamous. Spire high, with 2.5+ protoconch whorls (partly broken), and up to 6 elongate teleoconch whorls, suture impressed. Protoconch conical, smooth.

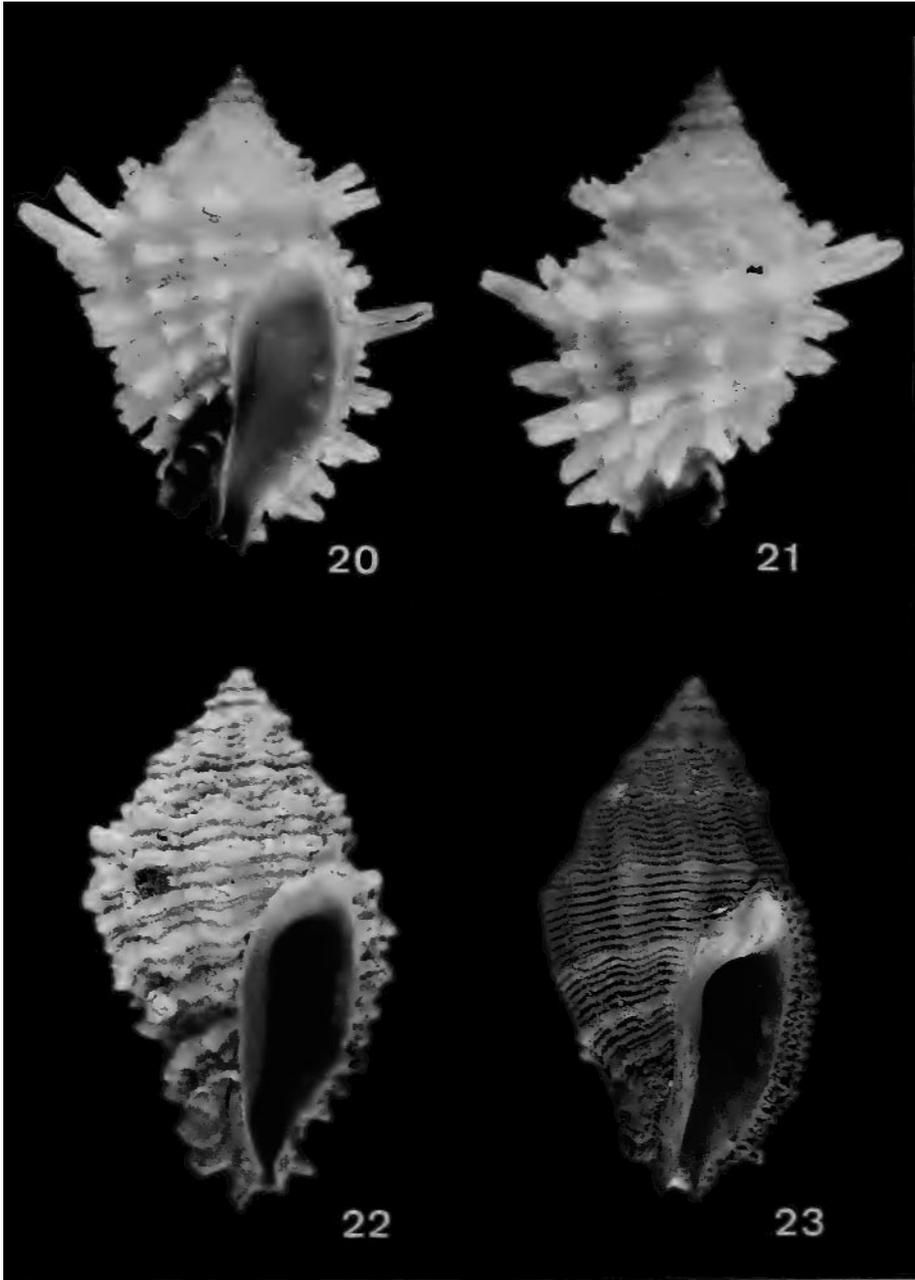
Axial sculpture consisting of moderately high, rounded ribs: 8 or 9 on first teleoconch whorl, 8 on second and third whorls, 8 or 9 on fourth whorl, 9-11 on fifth and last teleoconch whorls. Spiral sculpture of numerous, narrow, squamous cords of approximately the same size. Last teleoconch whorl with 26-28 cords; 2 or 3 cords on abapical part of last whorl slightly larger.

Aperture ovate. Columellar lip fully adherent, smooth, or with 2 or 3 small nodules abapically. Anal notch shallow, broad. Outer lip minutely crenulate, with 5 nodules within. Siphonal canal very short, open. Creamy-white, light tan or light mauve, broader spiral cords on abapical part of last whorl paler. Aperture light pink, pink or pinkish-violet. Operculum and radula unknown.

**Distribution:** New Caledonia, Loyalty Ridge, Papua New Guinea, Midway and Hawaiian Islands.

**Remarks:** *Habromorula lepida* spec. nov. was identified as *Purpura dumosa* Conrad, 1837 by KAY (1979) and KAICHER (1980). The type specimen of *Purpura dumosa* can no longer be located at the Academy of Natural Sciences, Philadelphia (CERNOHORSKY, 1982), and, as already stated by TRÖNDLE AND HOUART (1992: 106), CONRAD's original illustration (1837: pl. 20, fig. 20) could represent any species of the genus *Habromorula*, without or with few short spines, and a narrow aperture. For this reason TRÖNDLE AND HOUART (1992) interpreted *P. dumosa* as a *nomen dubium*.

CERNOHORSKY (1982: 126) considered *H. porphyrostoma* as a synonym of *Purpura dumosa* and reillustrated Conrad's original illustration (Fig. 14), and syntypes of *H. porphyrostoma*. He also quoted KAY (1979), who illustrated *H. lepida* spec. nov. under the name of *Morula dumosa*. It is thus that he interpreted *H. porphyrostoma* and *Morula dumosa* of authors (here described as *H. lepida* spec. nov.) as conspecific. *Habromorula lepida* differs from *H. porphyrostoma* (Reeve, 1846) (Fig. 13), however, in having a relatively narrower shell, a narrower, more elongate aperture, narrower and more numerous spiral cords (26-28 on last whorl, compared to 16-18); narrower axial ribs, and flatter sides.



Figures 20-21. *Habromorula aglaos* spec. nov., holotype MNHN, Marshall Islands, 14.2 mm. Figure 22. *H. euryspira* spec. nov., holotype MNHN, New Caledonia, 15.5 mm. Figure 23. *H. lepida* spec. nov., holotype MNHN, New Caledonia, 15 mm.

*Figuras 20-21. Habromorula aglaos spec. nov., holotipo MNHN, Islas Marshall, 14,2 mm. Figura 22. H. euryspira spec. nov., holotipo MNHN, Nueva Caledonia, 15,5 mm. Figura 23. H. lepida spec. nov., holotipo MNHN, Nueva Caledonia, 15 mm.*

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