

## Description of two new *Chicomurex* species (Gastropoda: Muricidae) from the Philippine Islands

Roland HOUART

Research associate

Institut royal des Sciences naturelles de Belgique, rue Vautier, 29, B-1000 Bruxelles, Belgium

roland.houart@skynet.be

**Keywords.** Gastropoda, Muricidae, Muricinae, *Chicomurex* n. sp., Philippines.

**Abstract.** Two new muricids are described from southern Philippines. Both species belong to the genus *Chicomurex* and are compared with related species.

**Résumé.** Deux nouvelles espèces sont décrites du sud des Philippines. Les deux espèces appartiennent au genre *Chicomurex* et sont comparées aux espèces apparentées.

### INTRODUCTION

The Philippine marine mollusks were recently illustrated by several authors in a series of 4 colourful volumes edited by Conchbooks and Guido T. Poppe. Volume II contains the family Muricidae (Houart, 2008; Oliverio, 2008).

Altogether, the family then totaled more than 250 species in the Philippines, all subfamilies included, except Ocenebrinae and Haustriinae which are absent from that part of the world. Since then, new discoveries have increased that number and I now suspect the number of muricids in the Philippines to reach a total of 270-275 species.

### Material and methods

The two new species described here were taken by tangle nets in 80-250 m, north of Mindanao, south of Leyte and off Bohol, in the central Philippines (Fig. 26).

### Abbreviations

#### repositories

IRSNB: Institut royal des Sciences naturelles de Belgique, Brussels, Belgium.

MNHN: Muséum national d'Histoire naturelle, Paris, France.

NHMUK: Natural History Museum, London, United Kingdom.

RH: collection of the author.

USNM: National Museum of Natural History, Washington, D.C., U.S.A.

### Specimens

ad: adult specimen;

dd: empty shell(s);

juv: juvenile specimen;

lv: live collected specimen(s).

### Other abbreviations

Terminology used to describe the spiral cords (after Merle, 2001 and 2005) (Figs 1-2).

In parentheses: erratic feature.

**P:** primary cord

**s:** secondary cord

**t:** tertiary cord

**ad:** adapical (or adapertural)

**ab:** abapical (or abapertural)

**IP:** infrasutural primary cord (primary cord on subsutural ramp)

**adis:** adapical infrasutural secondary cord (on subsutural ramp)

**abis:** abapical infrasutural secondary cord (on subsutural ramp)

**P1:** shoulder cord

**P2-P6:** primary cords of the convex part of the teleoconch whorl

**s1-s6:** secondary cords of the convex part of the teleoconch whorl

example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.

**ADP:** adapertural primary cord on the siphonal canal

**MP:** median primary cord on the siphonal canal

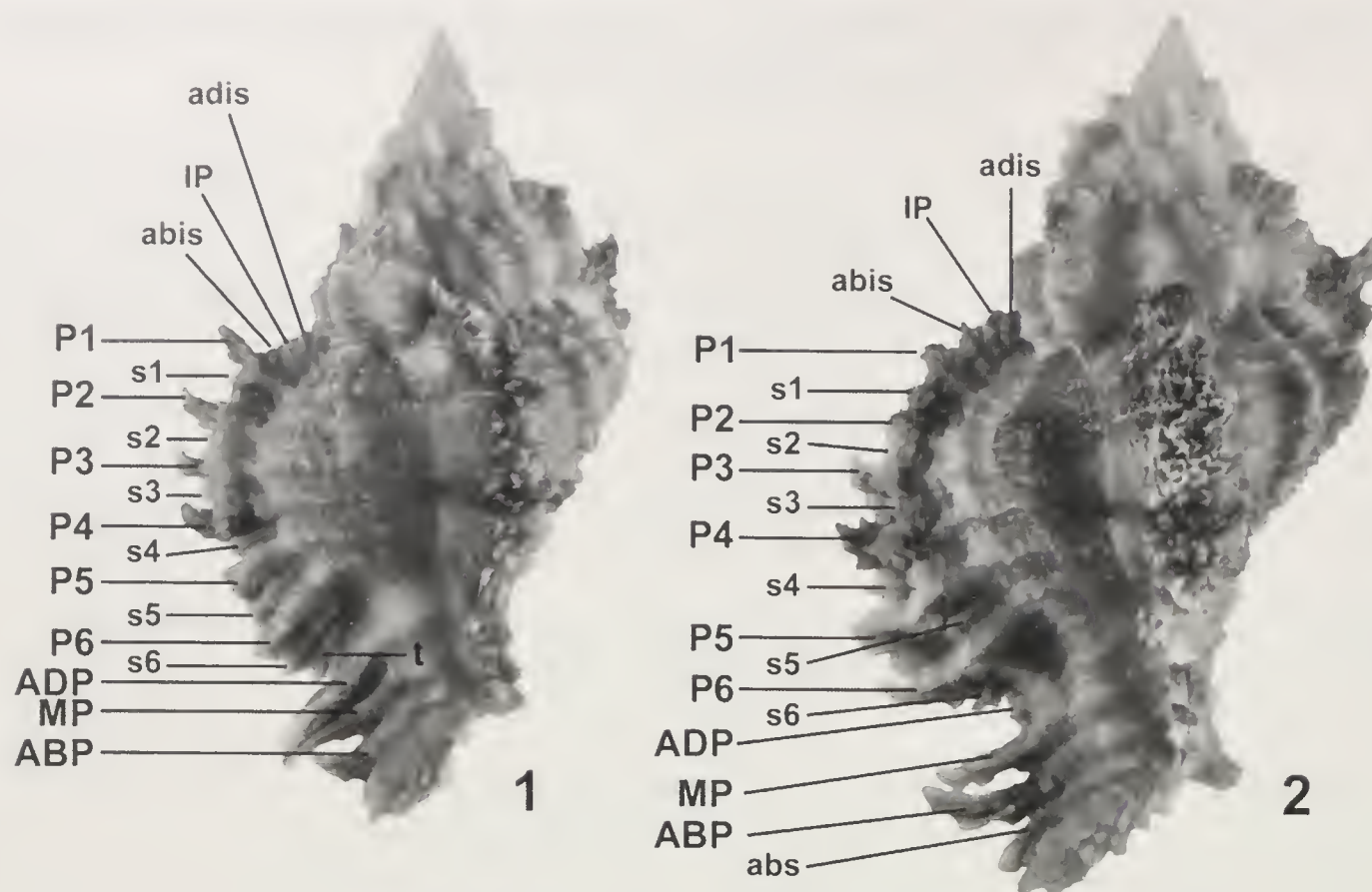
**ABP:** abapertural primary cord on the siphonal canal

**ads:** adapertural secondary cord on the siphonal canal

Aperture

**D1 to D6:** abapical denticles;

**ID:** Infrasutural denticle.



Figs 1-2. Spiral cords morphology

1. *Chicomurex tagaroae* n. sp., holotype MNHN.

2. *Chicomurex ritae* n. sp., holotype MNHN.

## SYSTEMATICS

Family **MURICIDAE** Rafinesque, 1815

Subfamily **Muricinae** Rafinesque, 1815

Genus *Chicomurex* Arakawa, 1964

Type species by original designation: *Murex superbus* Sowerby, 1889, Pacific Ocean.

*Chicomurex tagaroae* n. sp.

Figs 1, 3-8, 21-22, 26

**Type material.** Philippines, Mindanao, Surigao, Mabua, trawled in 100-120 m, 2013, holotype MNHN 26628, lv, ad, 36.6 mm.

Paratypes: Philippines, Mindanao, Surigao, Basul Is., 80-100 m, 1 lv, ad, IRSNB IG 32453/MT.2901, 27.8 mm; 1 lv, ad, USNM 1221048, 26.4 mm; 3 lv, 2 ad, 1 juv, RH, 32.6, 27.1, 22.7 mm; Mindanao, Surigao del Norte, Basul Is., trawled in 80-100, Nov. 2012, 1 lv, ad, NHMUK 20130378, 25.1 mm.

**Other material.** Philippines, Mindanao, Surigao del Sur, 100 m, Dec. 2012, RH, 1 lv; Philippines, Mindanao, Surigao, Basul Is., 80-100 m, RH, 17 lv. and dd., ad. and juv.

**Type locality.** Philippines, Mindanao, Surigao, Mabua, trawled in 80-100 m, 2013.

**Distribution.** Southern Philippines, north of Mindanao, living at 80-100 m.

**Description.** Shell small sized for the genus, up to 44.5 mm in length at maturity (RH). Length/width ratio 1.65-1.72. Biconical, broadly ovate, heavy, squamous and nodose.

Subsutural ramp narrow from first to fourth whorls, very weakly sloping, weakly concave; from fifth to last whorl ramp broader, including P1 and s1, reaching P2 spiral cord on shoulder margin.

Light tan, brown or light orange with weakly or strongly darker coloured axial varices on last teleoconch whorl, or uniformly coloured with occasional additional dark blotches on varices and subsutural ramp. Spire whorls occasionally pinkish. Columellar lip light pink to dark mauve, aperture white or bluish-white.

Spire high with 1.5-2 protoconch whorls and teleoconch of up to 7 or 8 relatively broad, strongly convex, more or less shouldered, weakly spinose, nodose whorls. Suture weakly adpressed. Protoconch small, whorls rounded, smooth, width 700-900 µm, height 750-950 µm. Terminal lip heavy, narrow, very weakly curved.

Axial sculpture of teleoconch whorls consisting of low, narrow, nodose ribs and high, strong, narrow, frondose varices, each with short, frondose, narrow spines extending from primary and secondary spiral cords. First teleoconch whorl with 16-19 ribs, second with 14-18, third whorl starting 3 varices per whorl; three varices with 4 or 5 intervarical ribs from third to fifth whorls, sixth whorl with 3 varices and 3 or 4 intervarical ribs, seventh and last whorl with 3 varices



and 2, rarely 3, more or less conspicuous intervarical nodes. Last (apertural) varix broadest and large. Additional axial sculpture of squamous growth lamellae. Spiral sculpture of moderately high, rounded, primary, secondary and tertiary cords. Visible part of first and second teleoconch whorls with rounded, narrow P1-P4, third whorl starting IP, s1, s2 and s3, fourth whorl with IP, P1, s1, P2, s2, P3, s3, P4; P4 occasionally covered by following whorl, fifth whorl starting tertiary cords. Subsutural ramp of last teleoconch whorl with adis, IP, abis and additional tertiary cords, followed by P1, t, s1, t, then P2 on shoulder margin; convex part of whorl with s2, P3, s3, P4, (s4), P5, s5, P6, s6, occasionally followed by one or two tertiary cords. Siphonal canal with ADP, MP, ABP. P2-P6 spines crowded, very close from each other, joined by varical flange, forming ventrally squamous varix.

Aperture broad, roundly ovate. Columellar lip narrow with low parietal tooth at adapical extremity, otherwise smooth; rim weakly erect. Anal notch narrow, shallow. Outer lip erect, crenulated, with narrow lirae within, extending into aperture, corresponding to split ID, D1-D6. Siphonal canal short, broad, strongly dorsally recurved at tip, narrowly open, with adapically curved ADP, MP and ABP spines. ADP spine more or less dorsally bent.

Operculum brown, ovate or roundly ovate with subapical nucleus. Attached surface with broad callused rim.

Radula unknown.

**Remarks.** When the protoconch is intact, it is not difficult to separate *Chicomurex tagaroae* n. sp. from *C. laciniatus* (Sowerby, 1841) (Figs 14-18, 24-25). In *C. tagaroae* the protoconch is paucispiral, rounded, consisting of 1.5 to 2 whorls, ending with an almost straight lip (see Figs 21-22), while in *C. laciniatus* the protoconch is multispiral, conical, consisting of 2.5-3 whorls, of which the last whorl has a narrow keel abapically and ends with a sinusigera notch (see Figs 24-25). Other differences are more subtle to see, however, *C. tagaroae* consistently has a shorter siphonal canal relative to the spire height, see for example Figs 3-8 and 14-18. This is even more apparent in larger shells. In *C. tagaroae* the spire height is 45-49 % of the total shell length whereas it is 43-44 % in *C. laciniatus*; the length of the siphonal canal is 27-33 % of the total shell length vs 32-35 % in *C. laciniatus*, and in *C. tagaroae* the height of the spire is 14-16.9 % larger than the siphonal canal compared to 12.5-13.8 % in *C. laciniatus*.

The spire of *C. tagaroae* is also comparatively broader than in *C. laciniatus*, more particularly between the second and seventh whorls, where the spire has a straighter outline vs more incurved in *C. laciniatus*. In *C. tagaroae* the height of the last teleoconch whorl is also relatively smaller than in *C. laciniatus*.

Differences in the spiral cord morphology were not observed thus far, both species having a more or less

similar ontogeny. The colour is also similar in both species ranging from light orange to tan or light brown with darker coloured varices on the last teleoconch whorl and with a very light or darker mauve columellar lip.

Smaller or subadult shells of *C. tagaroae* could be also confused with *C. turschi* (Houart, 1981) (Figs 19-20), however, small specimens of *C. tagaroae* are stouter than *C. turschi* with a comparatively lower spire, lower and relatively broader whorls and narrower, more numerous intervarical ribs. The siphonal canal is shorter with more crowded ADP, MP and ABP spines, and the columellar lip is light to darker mauve in *C. tagaroae* while always white in *C. turschi*.

*Chicomurex tagaroae* may also be compared with *C. rosadoi* (Houart, 1999) from Mozambique, but *C. tagaroae* has lower, more numerous teleoconch whorls relative to its shell length, a shorter siphonal canal, less obvious intervarical nodes and chiefly a very different protoconch which is almost 3 or 4 times smaller than in *C. rosadoi*, which has a voluminous protoconch denoting intracapsular larval development. The other *Chicomurex* species, all occurring in the Indo-West Pacific and some in the Philippines, are not related and do not need to be compared here.

**Etymology.** I am pleased to dedicate this new species to Sheila P. Tagaro from Conchology, Inc., Cebu, Mactan Island, Philippines.

*Chicomurex ritae* n. sp.

Figs 2, 9-13, 23, 26

**Type material.** Philippines, Leyte, Sogod, 100-150 m, 2013, holotype MNHN 26629, lv, ad, 42.9 mm; 2 paratypes Philippines, Mindanao, Siargao, Lipata, 80-100 m, lv, 1 ad, 1 juv, RH, 39.5, 27.8 mm.

**Other material.** Philippines, Mindanao, Surigao, Basul Is., 80-100 m, 1 lv, juv, RH; Balut Island, 150 m, 1 lv, ad, RH.

**Type locality.** Philippines, Leyte, Sogod, 100-150 m, 2013.

**Distribution.** Southern Philippines, south Bohol, south Leyte, north and south Mindanao, living at 80-150 m.

**Description.** Shell medium-sized for the genus, up to 45 mm in length at maturity (RH). Length/width ratio 1.6-1.7. Broadly ovate, heavy, spinose, squamous. Subsutural ramp narrow, weakly sloping, lightly concave or straight; very narrow and almost horizontal from first to fifth whorl, broader and more strongly sloping from sixth to last whorl.

Orange or light brown, last whorl with darker coloured varices or with dark brown blotches on varices, including siphonal canal, on subsutural area and

occasionally on intervarical nodes. Columellar lip light to dark mauve, inside of aperture bluish-white. Spire high with 2 protoconch whorls and teleoconch up to 8 broad, weakly angular, shouldered, nodose and squamous whorls, suture impressed. Protoconch small, whorls rounded, smooth, width 600 µm, height 800 µm. Terminal lip weakly erect, narrow, lightly curved. Axial sculpture of teleoconch whorls consisting of strong, narrow, nodose ribs and high, narrow, rounded, frondose varices, each varix with short, frondose, narrow, primary and secondary spines, extending from primary and secondary spiral cords. Shoulder spine shortest. First teleoconch whorl with 14 ribs, second with 13 or 14, third starting varices with 2 or 3 intervarical axial ribs, fourth to last whorl with 3 varices and 2 or 3 intervarical ribs or nodes. Last teleoconch whorl with 2, rarely 3 intervarical ribs with strong node at shoulder. Spiral sculpture of high, strong, rounded, squamous or nodose primary, secondary and tertiary cords. First and second teleoconch whorls with visible P1-P4, third and fourth with IP, P1, s1, P2, s2, P3, s3; P4 covered by next whorl. Fifth and sixth whorls with adis, IP, abis, P1, s1, P2, s2, P3, s3 and a few tertiary cords between primary and secondary cords. Seventh whorl of a juvenile with adis, IP, abis, P1, s1, P2, s2, P3, s3, P4, s4, P5, P6, s6, ADP, MP, ABP and some tertiary cords and threads. Last whorl of holotype with adis, IP, abis, P1, s1, P2, s2, P3, s3, P4, s4, P5, s5, P6, s6, ADP, MP, ABP and numerous, squamous, tertiary cords and threads. Primary cords extending on varices as short, broad, squamous, weakly adapically recurved open spines, increasing in strength and length abapically, P1 shortest, P5 and P6 longest and broadest. Apertural varix broad, ventrally strongly squamous. Aperture moderately large, broadly ovate. Columellar lip narrow, weakly broader abapically, rim adherent, weakly erect abapically with weak, low parietal tooth at adapical extremity. Anal notch shallow, broad. Outer lip weakly erect, crenulated, with low, narrow

lirae within, corresponding to split ID, D1-D6. Siphonal canal relatively short, broad, strongly dorsally bent at tip, narrowly open, with 3 long, frondose ADP, MP and ABP spines; ADP more or less strongly dorsally bent. Adapical extremity of siphonal canal occasionally with additional, small abs. Operculum and radula unknown.

**Remarks.** As in *Chicomurex tagaroe* it is not real difficult to separate *C. ritae* n. sp. from *C. laciniatus* (Figs 14-18, 24-25) when the protoconch is intact. In *C. ritae* the protoconch is paucispiral, rounded, consisting of 1.5 to 2 whorls (see Fig. 23), ending with an almost straight lip, similar to *C. tagaroe*, while in *C. laciniatus* the protoconch is multispiral, conical, consisting of 2.5-3 whorls, of which the last whorl has a narrow keel abapically and ends with a sinusigera notch (see Figs 24-25).

*Chicomurex ritae* also differs from *C. laciniatus* in having a higher spire relative to shell length and to the siphonal canal length, the siphonal canal is also comparatively shorter and the last teleoconch whorl is comparatively stockier. The gap between P6 and ADP is slightly narrower than in *C. laciniatus*, less indented and more gently inward curved.

*Chicomurex laciniatus* is a quite variable species and some extreme forms are sometimes difficult to separate from *C. ritae*, however, the relative spire height and the length of the siphonal canal can certainly help to distinguish both species. The help of the protoconch morphology, or even a part of the last protoconch whorl where a narrow, abapical keel can be seen in *C. laciniatus*, even in some eroded shells is another way to distinguish the species.

**Etymology.** This species is dedicated to my wife Rita who is at my side for over 40 years and has to accept for such a long time that I share my life with her and with... my muricids.

## Figures 3-20

**3-8.** *Chicomurex tagaroe* n. sp.

**3-4.** Philippines, Mindanao, Surigao, Mabua, 100-120 m, 2013, holotype MNHN 26628, 36.6 mm; **5-6.**

Philippines, Surigao, Basul Is, 80-100 m, 2013, paratype RH, 32.8 mm; **7.** Philippines, Mindanao, Surigao, Basul Is, 80-100 m, 2013, paratype RH, 22.6 mm; **8.** Philippines, Mindanao, Surigao del Sur, 100 m, Dec. 2013, RH, 44.5 mm.

**9-13.** *Chicomurex ritae* n. sp.

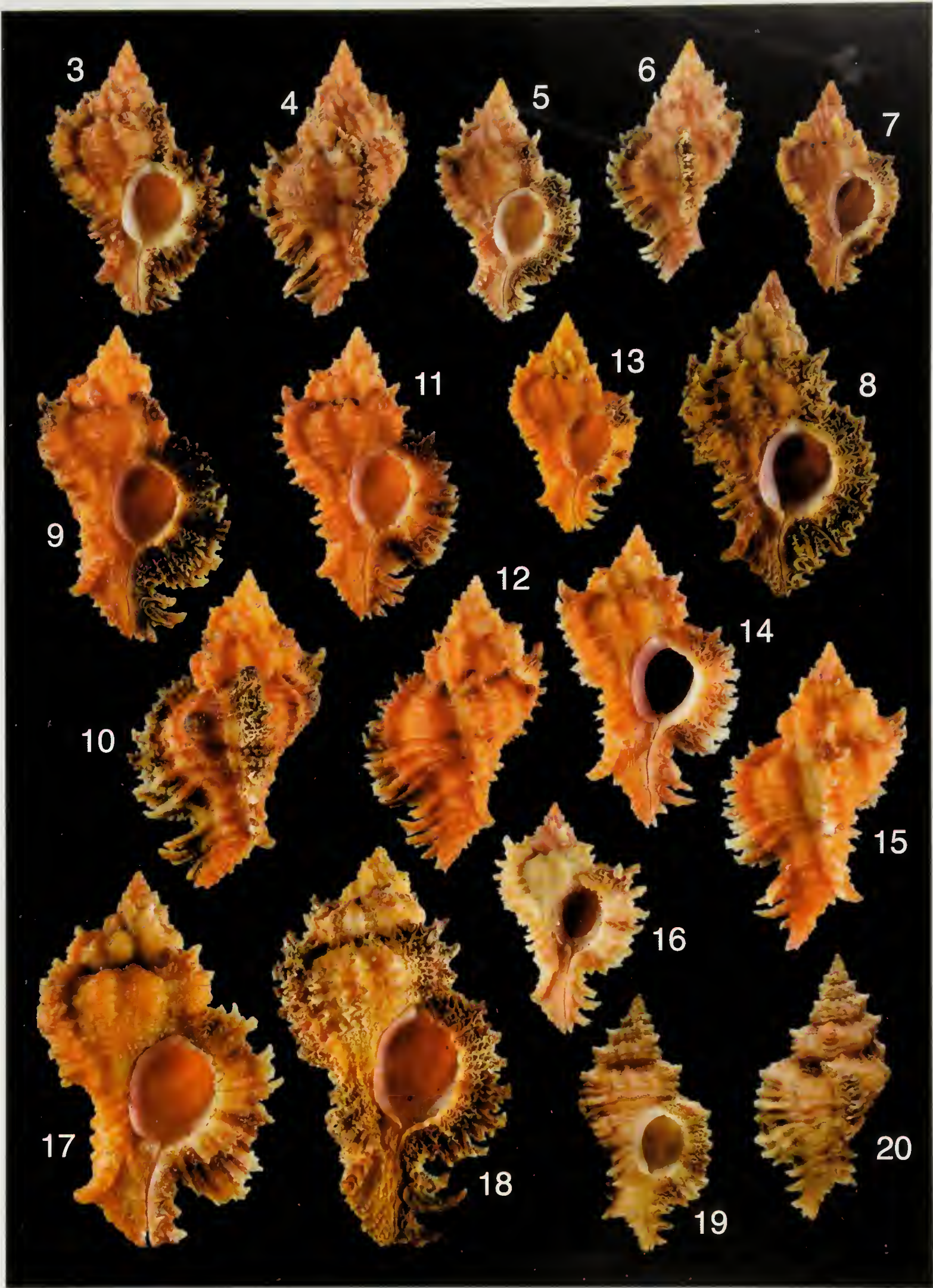
**9-10.** Philippines, Leyte, Sogod, 100-150 m, 2013, holotype MNHN 26629, 42.9 mm; **11-13.** Philippines, Mindanao, Surigao, 2012, paratypes RH, **11-12.** 39.5 mm; **13.** 27.8 mm.

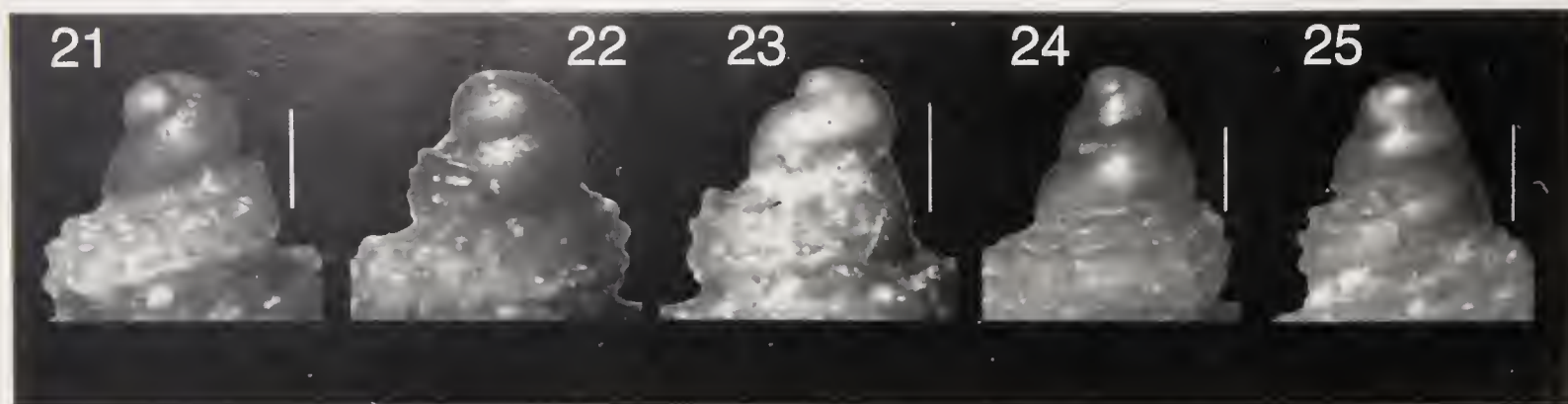
**14-18.** *Chicomurex laciniatus* (Sowerby, 1841)

**14-15.** Philippines, Cebu, Sogod, 150-250 m, 2010, RH, 38.5 mm; **16.** Philippines, Leyte, Sogod, Sep. 1978, RH, 30.5 mm; **17.** Australia, QLD, Lodestone Reef, 1995, RH, 56.7 mm; **18.** Philippines, Mactan, RH, 54.7 mm.

**19-20.** *Chicomurex turschi* (Houart, 1981). Laing Is, Hansa Bay, Papua New Guinea, paratype RH, 35.6 mm







**Figures 21-24.** Protoconchs (scale bars 500 µm)

**21-22.** *Chicomurex tagaroae* n. sp. (specimen illustrated in Fig. 7); **23.** *Chicomurex ritae* n. sp. (specimen illustrated in Fig. 13); **24.-25.** *Chicomurex laciniatus* (Sowerby, 1841) (specimen illustrated in Fig. 16)



**Fig. 26.** Distribution of *Chicomurex tagaroae* n. sp. (circles) and *C. ritae* n. sp. (stars) in the Philippine Islands.



## ACKNOWLEDGMENTS

I am very grateful to Guido and Philippe Poppe from Conchology, Inc., The Philippines, for their comments, for the gift of the type material and other specimens of *C. tagaroae* n. sp. and for their financial support for the colour plate illustrating this article. They also regularly send me specimens to study and/or for my reference collection. Thanks also to John Wolff, Lancaster, Pennsylvania, USA, for checking the English text and to Claude Vilvens (Oupeye, Belgium) for a final, careful check of the manuscript.

## REFERENCES

- Houart, R. 2008. Muricidae. *In*: Poppe G. (ed.), *Philippine Marine Mollusks*, Conchbooks, Hackenheim, Germany: 132-221.
- Merle, D. 2001. The spiral cords and the internal denticles of the outer lip in the Muricidae: terminology and methodological comments. *Novapex* 2 (3): 69-91.
- Merle, D. 2005. The spiral cords of the Muricidae (Gastropoda, Neogastropoda): importance of ontogenetic and topological correspondences for delineating structural homologies. *Lethaia* 38: 367-379.
- Oliverio, M. 2008. Muricidae, Coralliophilinae. *In*: Poppe G. (ed.), *Philippine Marine Mollusks*, Conchbooks, Hackenheim, Germany: 222-249.