

Description of three new species of *Calliostoma* (Gastropoda: Trochidae) from the Philippine Islands

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ABSTRACT. *Calliostoma poppei*, *Calliostoma emmanueli* and *Calliostoma houarti* n.sp. are described and compared with various *Calliostoma* species from the Philippines area and from Japan.

RÉSUMÉ. Trois nouvelles espèces (*Calliostoma poppei*, *Calliostoma emmanueli* et *Calliostoma houarti*) sont décrites et comparées avec diverses espèces de *Calliostoma* des Philippines et du Japon.

INTRODUCTION

Six month ago, I received some *Calliostoma* species from Emmanuel Guillot de Suduiraut, a well known shell collector and experiment conchologist. At first sight, it seemed that some of these specimens were different from the usual species from the Philippines, as *Calliostoma jackelynae* Bozzetti, 1997 or *Calliostoma vicdani* Kosuge, 1984. Further studies showed these species as new to science.

Following Hickman and Mc Lean (1990), who worked on anatomical and radular general considerations, the genus *Calliostoma* is kept inside the Trochidae family, although Marshall (1995) set this genus into a Calliostomatidae family, especially on base of the distinctive protoconch.

Abbreviations

IRSNB : Institut royal des Sciences naturelles de Belgique, Bruxelles.

MNHN : Muséum national d'Histoire naturelle, Paris.

NSMT : National Science Museum, Tokyo.

SYSTEMATICS

Family: TROCHIDAE Rafinesque, 1815

Subfamily : CALLIOSTOMATINAE Thiele, 1924

Genus: *Calliostoma* Swainson, 1840

Type species: *Trochus conulus* Linnaeus, 1758

(subsequent designation Herrmannsen, 1846) -

Mediterranean sea

Calliostoma poppei n.sp.

Figs 1-3

Description.

Shell of moderate size (height up to 15 mm, width up to 12 mm), conical, trochoidal in shape, spire high. Protoconch of one whorl, with weak sculpture giving a kind of reticulate appearance. Teleoconch of 8 flat sided whorls, bearing spiral cords. Suture visible, not canaliculated. First whorl of teleoconch sculptured by three subgranular cords. Sculpture of whorls 2, 3, 4 and 5 consists in beaded spiral cords, growing in number from 3 to 6, with intermediate axial prosocline ribs connecting beads of spiral cords. Suprasutural cord smallest; closest cord to this suprasutural rib strongest; subsutural slightly weaker; other cords more reduced in size. Starting from sixth whorl, 6 cords visible; cords 2,3 and 4 become quickly smooth, with only very weak threads in intermediate space; penultimate abapical cord becoming very strong and prominent. Last whorl showing angulate periphery, with strong keel made by two last cords. Aperture subquadrangulate, lirate within, with strong angle on right low part. Columella arched, smooth, covering partly the open umbilicus. Base flat, with 8 or 9 smooth spiral cords. Ground colour pink or reddish-brown, with brown flammules or blotches; two peripheral cords and basal cords show alternate white and brown area. Inside of aperture nacreous.

Type material.

Holotype MNHN : 13.4 x 10.3 mm.

Paratype 1 : 10.8 x 8.6 mm (subadult specimen), in the E. Guillot de Suduiraut's collection. Paratype 2 : 14 x 11.7 mm, in the author's collection.

Type locality.

Balicasag Island, Bohol, Philippine Islands, 180 m deep, in mud and volcanic stones.

Discussion.

Calliostoma poppei n.sp. resembles *C. ticaonicum* (A.Adams, 1851) (Figs 4-5), but differs from it by having only a narrow umbilicus and much less spiral cords on the whorls (about 12 in *C. ticaonicum*) and on the base (about 20 in *C. ticaonicum*). It also somewhat resembles *C. babelicum* Habe, 1961, but this latter is concave in shape, not conical, and bears granular, none smooth, spiral cords. *C. iris* Kuroda & Habe, 1961 is also similar, but this one has more spiral cords on the whorls (about 10) and on the base (about 15).

Etymology.

At Mr Guillot de Suduiraut request's (who gave me the shells specimens), the new species is named after Mr. Guido Poppe, well known belgian conchologist.

***Calliostoma emmanueli* n.sp.**

Figs 6-8

Description.

Shell of moderate size (height up to 12 mm, width up to 11.5 mm), imperforate, conical, trochoidal in shape, spire moderately elevated. Protoconch of one whorl, with weak sculpture giving a kind of reticulate appearance. Teleoconch of 7 flat sided whorls, bearing spiral cords. Suture indistinct. First whorl of teleoconch bearing two quite smooth cords. Second whorl with three granular cords. Number of cords growing in next whorls, to reach six on two last ones. Subsutural cord weakly stronger, with rounded nodules; other cords similar in size, nodules of the two subsutural cords more horizontally elongated. Intermediate spaces between cords are quite smooth, of similar size as the cords, showing only very weak prosocline growing lines. Angulate periphery with small keel made by additional smooth cord. Aperture subquadrangulate, with outer margin crenulated. Columella arched, smooth. Base flat, with about 10 to 12 smooth flat spiral cords, poorly marked similar in size to the interspace between them. Light brown, first whorls with large reddish brown patches; base lighter coloured.

Type material.

Holotype MNHN : 12x11.5 mm.

Type locality.

Balicasag Island, Bohol, Philippine Islands, 180 to 240 m deep, in mud and volcanic stones.

Discussion.

This new species resembles *C. jackelynae* Bozzetti, 1997 (Figs 9-10), but *C. jackelynae* has smooth subsutural instead of granular cords and chiefly an elliptical, elongated, aperture. It also resembles *C. vicdani* Kosuge, 1984, but this latter has about eleven granular cords on the last whorl and also granular, not smooth, cords on the base. *C. takujii* Kosuge, 1986 also differs from the new species in having granular basal cords.

Etymology.

The new species is named after Mr Emmanuel Guillot de Suduiraut, who kindly provide shells specimens.

***Calliostoma houarti* n.sp.**

Figs 11-13

Description.

Shell rather tall for the genus (height up to 24 mm, width up to 20.5 mm), imperforate, conical, convex, spire elevated. Protoconch of one and a half whorl, with a weak sculpture giving a fine reticulate appearance. Teleoconch of 8, slightly convex whorls, bearing spiral cords. Suture visible, not canaliculated. First whorl of teleoconch showing two granular cords, with intermediate axial prosocline ribs connecting beads of spiral cords. Third granular cord appearing on second whorl. Number of cords growing in next whorls, to reach about 10 primary granular cords on last one, with a few additional secondary narrow granular cords. Round nodules, quite well outspaced. Interspaces between cords smooth, similar in size as cords. Subangulate periphery. Aperture subquadrangulate, without strong angle, elongated; outer margin crenulated. Columella straight, smooth, slightly oblique. Base slightly convex, with about twenty granular, closely packed, spiral cords. Yellowish light brown, first whorls reddish-brown.

Type material.

Holotype IRSNB : 24x20.5 mm.

Paratype : 13.5x11.5 mm (subadult specimen), in the E. Guillot de Suduiraut's collection.

Type locality.

Balicasag Island, Bohol, Philippine Islands, 240 m deep, in mud and stones.

Discussion.

This new species resembles somewhat to *C. filiareginae* Sakurai, 1994 (Figs 14-15), but *C. filiareginae* is smaller, has a less elevated spire, a more angulate periphery, more closely packed spiral cords and only about 12 basal spiral cords. It also looks a bit to *Calliostoma sakashitai* Sakurai, 1994, but this latter has more convex whorls, minute spines on the spiral cords and only 13 smooth spiral cords on the base. *C. tosaense* Kuroda & Habe, 1961 also differs from the new species by its spiny nodules, its more convex shape and its suprasutural cord, different from the other cords.

Etymology.

The new species is named after my good friend Mr Roland Houart, president of the Belgian Society of Malacology and well known Muricidae specialist.

ACKNOWLEDGEMENTS.

I would like to thank here E. Guillot de Suduiraut who sent me the specimens upon which the present

work is built. I am also very grateful to P. Bouchet (Muséum national d'Histoire naturelle de Paris) for access to the malacological resources of the MNHN, to V. Heros (MNHN) for his kind attention she gave to all my enquiries for searching various scientific papers, to S. Kosuge (Institute of Malacology, Tokyo) and T. Okutani (Tokai Regional Fisheries Research Laboratory, Tokyo) who accepted to lend holotypes of various *Calliostoma* species from Japan, and, finally, to R. Houart for his unceasing support, his help for iconography and his judicious advices.

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- 1-3. *Calliostoma poppei* n.sp., holotype MNHN, Philippine Islands, Bohol Is., Balicasag, 13.4 mm. 4-5. *Calliostoma ticaonicum* (A.Adams, 1851), Philippine Islands, Bohol Is., Balicasag, coll. C. Vilvens, 17 mm. 6-8. *Calliostoma emmanueli* n.sp., holotype MNHN, Philippine Islands, Bohol Is., Balicasag, 12 mm. 9-10. *Calliostoma jackelynae* Bozzetti, 1997, paratype coll. E. Guillot de Suduiraut, Philippine Islands, Bohol Is., Balicasag, 16.15 mm. 11-13. *Calliostoma houarti* n.sp., holotype IRSNB, Philippine Islands, Bohol Is., Balicasag, 24 mm. 14-15. *Calliostoma filiareginae* Sakurai, 1994, holotype NSMT (ex collection Sakurai), Japan, 17.8 mm.

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