

## A new small *Phos*-like genus and species *Microphos palogai* (Gastropoda: Nassariidae: Photinae) from the Philippines

Aart M. DEKKERS <sup>(1)</sup> & Henk DEKKER <sup>(2)</sup>

<sup>(1)</sup> Oasestraat 79, 1448 NR Purmerend, The Netherlands  
aart.dekkers@wxs.nl

<sup>(2)</sup> Naturalis Biodiversity Center, PO Box 9517, 2300 RA Leiden, The Netherlands  
h-dekker@quicknet.nl

**Key words:** Gastropoda, Nassariidae, Photinae, *Phos*, *Europhos*, *Microphos*, new genus, new species, Philippines.

**Abstract:** *Microphos*, a new genus for a small photinoid species, is described based on conchological differences with *Phos* Montfort, 1810. Type species of this new genus is the also newly introduced *Microphos palogai* sp. nov., a species from the Philippines. It is compared with *Phos miculus* (Fraussen & Poppe, 2005).

**Introduction:** Recently, the genera *Antillophos* Woodring, 1928 and *Phos* Montfort, 1810 (together with related Recent and fossil genera) have been moved from the family Buccinidae Rafinesque, 1815 to the family Nassariidae Iredale 1916 (1835), subfamily Photinae Gray, 1857 (Galindo et al., 2016). As one of the results presented in her work, *Antillophos*, including its type species *A. candeanus* (d'Orbigny, 1842), is restricted to the Caribbean, but probably the not genetically studied West African species also belong here. A different clade comprises the Indo-West Pacific (IWP) radiation in which *Phos senticosus* (Linnaeus, 1758), the type species of *Phos*, is included. Therefore, the genus name *Antillophos* should not be used for the IWP species.

Fraussen & Poppe (2005: 98) described a small species of about 11 mm from the Philippines, only based on the holotype: *Antillophos (Rhiphophos) miculus*. Recently, even smaller deep-water shells of about 8-10 mm, which have a less pronounced spiral sculpture and wider axial ribbing, so obviously belonging to a different species, have turned up from the Philippines. Some of the shell characteristics are different from the species belonging to the genus *Phos*. Besides the smaller size, the differences are: having very broad axial ribs, a differently constructed siphonal canal, which is not pointed towards the abapical end as in *Phos*, but instead ending widely and

the the transition of the aperture towards the siphonal canal is strongly constricted in the new genus, but not in *Phos*. We propose the new genus *Microphos* nov. gen. for this species to express the small size of the assigned new species, in combination with the general use of the -phos ending in the subfamily.

**Remarks on *Europhos*** Landau, Harzhauser, Islamoglu, & Silva, 2013: Landau et al. (2013) reviewed the systematics of the European fossil species attributed to *Phos*, already included in the subfamily Photinae of the Nassariidae. They included these species in their newly proposed genus *Europhos*, which they restricted to European fossil deposits. According to the description, *Europhos* is characterised by a protoconch bearing 2-3 spiral cords from the second protoconch whorl and axial riblets on the last part of the last protoconch whorl. The latter is the transition zone as indicated by Fraussen & Poppe (2005). The same is applicable to IWP *Phos* species (Fraussen & Poppe, 2005: 81 as *Antillophos*), although these authors mention 1 or more spiral cords instead of 2-3. Lozouet & Galindo (2015: 40) state: 'For the time being we adopt the genus *Europhos* for European and IWP species and we restrict the use of *Antillophos* to the American species. Remarkably, the genus *Europhos* is not mentioned in the paper by Galindo et al. (2016) and the status of *Europhos* is therefore not clear. *Phos* most likely derived from the Tethyan *Europhos* ancestors and perhaps *Europhos* is a junior synonym of *Phos*. Yet, based on conchological similarity, it seems that the only shallow water species *Phos roseatus* Hinds, 1844 could belong to *Europhos*, whereas all the other IWP species are probably typical *Phos* species. Additionally, *P. roseatus* has a wide range in the IWP, but the other *Phos*-species, which live in deeper waters, have a more restricted range.

**Abbreviations:**

- NBC:** Naturalis Biodiversity Center, Leiden, The Netherlands  
**AMD:** Aart M. Dekkers collection, Purmerend, The Netherlands  
**HD:** Henk Dekker collection, Winkel, The Netherlands  
**LvG:** Leo van Gemert collection, Zeist, The Netherlands  
**KF:** Koen Fraussen collection, Aarschot, Belgium  
**H:** height  
**W:** width  
**IWP:** Indo-West Pacific

**Systematics:**

- Superfamily: Buccinoidea Rafinesque, 1815  
 Family: Nassariidae Iredale, 1916 (1835)  
 Subfamily: Photinae Gray, 1857

***Microphos* gen. nov.**

**Description:** Shell small for the subfamily, slender. Teleoconch 4.5-6 whorls. Protoconch with about 3 whorls, first whorl minute and smooth, second whorl rapidly enlarging and just like the third whorl with one spiral cord. Transition to teleoconch weakly marked. Pronounced columella. Siphonal canal open, relatively broad and narrowing towards the aperture. No lirae inside the inner lip. Pronounced anal canal.

**Comparison and remarks:** The new genus clearly belongs to Photinae in general shell character, like the typical protoconch and structure of the siphonal canal. Fraussen and Poppe (2005: 96) included their small new species *Antillophos miculus* in the subgenus *Rhipophos* Woodring, 1964. This genus is known from the Miocene Gatun Formation, Panama. The placement in this subgenus was most likely suggested by Fraussen & Poppe because of the more or less tabulate suture and the *Metula*-like sculpture on the body whorl (2005: 96, 98). Fraussen & Poppe (2005: 82) mention 4 groupings in the genus *Antillophos* (now *Phos*, the authors), the fourth group "has a more or lesser tabulate suture and the body whorl covered by a fine *Metula*-like sculpture. There is no trace of species intermediate with other groups, therefore we use the subgenus *Rhipophos* Woodring, 1964". The species assigned to the new genus *Microphos* is smaller, slenderer, has a different siphonal canal (narrowing towards the aperture) and has a more pronounced anal canal.

*Phos* is characterised by the presence of strong abapical columellar fold(s) and by the protoconch with 1 or more strong spirals in combination with a few strong, curved

axial riblets near the transition to the teleoconch (Fraussen & Poppe, 2005: 81 as *Antillophos*). Compared to *Phos*, the new genus is smaller and slenderer, and has a clear and pronounced anal canal; in *Phos* the anal canal is very shallow to almost obsolete.

In size, the new species resembles species of the mostly European and West African genus *Chauvetia* Monterosato, 1884. Some aspects are similar like the narrowing of the siphonal canal towards the aperture, which is seen for example in *Chauvetia candidissima* (Philippi, 1836). However, the protoconch is very different in *Chauvetia*, being paucispiral, often with many fine spiral striae and the transition to the teleoconch has a number of axial ribs. This kind of protoconch is not found in Nassariidae (H. Dekker, pers. obs.). *Chauvetia* has not been included in molecular research until now, this genus belongs to Donovaninae T.L. Casey, 1904, which is traditionally regarded as a subfamily of Buccinidae. Yet, with the peculiar characters it is better to regard this group either as a separate family or as a subfamily of Pisaniidae as there is hardly any resemblance with typical Buccinidae.

**Type species:** *Microphos palogai* sp. nov.

**Etymology:** Named after the genus *Phos*, combined with the Latin prefix micro-, meaning small.

***Microphos palogai* sp. nov.**

**Type material:** **Holotype:** Holotype NBC, RMNH.5004373, H 10.19 mm, W 3.75 mm, trawled, 200-300 m, July 2015. **Paratypes:** nrs 1-7 from the type locality: **1:** trawled at 200 m, Dec 2015, H 9.20 mm, W 3.45 mm, AMD; **2:** trawled at 200 m, July 2015, H 7.7 mm, W 2.9 mm; HD nr. 37734; **3:** trawled at 200 m, July 2015, H 7.83 mm, W 2.94 mm, AMD; **4:** trawled at 200 m, July 2015, H 8.55 mm, W 3.01 mm, AMD; **5:** trawled at 200 m, July 2015, H 7.63 mm, W 2.91 mm, KF; **6:** trawled at 200 m, June 2016, H 8.28 mm, W 3.6 mm, LvG; **7:** trawled at 200 m, Nov 2018, H 8 mm, HD nr. 42357; **8-9:** Philippines, Olango Island, trawled at 200 m, Oct 2019, H 8.5 mm, W 3.3 mm and H 8.8 mm, W 3.4 mm, HD nr. 43650.

**Further material studied:** One empty shell from the type locality (AMD). On the website of Conchology, Inc., two shells are shown: nrs 233187 and 645991.

**Type locality:** Philippines, Cebu, Mactan Island.

**Description:** Shell small, very slender and with almost flat whorls. Protoconch with 3 whorls, first whorl minute and smooth, second whorl rapidly broadens with 1 spiral cord, just like the third whorl. First teleoconch whorl has 5 spiral cords. Body whorl bears up to 21 spiral cords, including the ones on the outside of the siphonal canal, getting coarser towards the siphonal canal, where the cords become almost granulated. Interspaces small and of equal size. The spiral cords are crossed by broad axial ribs, which are broadly spaced. At the crossing points with the spiral cords little elevations occur. Sutures shallow, but distinct, poorly visible between first teleoconch whorls. Columella with pronounced and shiny callus. Aperture small, elliptically-rounded, with a pronounced anal canal. Siphonal canal narrows towards the aperture, broad columellar side of siphonal canal extends more anteriorly than the outer lip side. Outer lip bears small and flat knobs along the inner side of the varix.

Colour cream to light yellowish, with three brownish-yellow spiral bands on the last whorl, two of them are visible on the earlier teleoconch whorls.

Operculum unknown.

**Habitat:** The studied shells were trawled at a depth of 180-300 m.

**Distribution:** Only known from the Philippines: Cebu, Liloan; Mactan Island; Olango Island, Camotes Island.

**Comparison:** *Microphos palogai* sp. nov. (circa 10 mm) is smaller than *Phos miculus* (Fraussen & Poppe, 2005), one of the smallest known species of *Phos*, the size of the only known specimen is 11.7 mm. The latter species has a more pronounced spiral sculpture and the axial ribs are narrow.

**Etymology:** The species is named in honour of Edwin Paloga, Mactan Island, Philippines, the supplier of the type material. His efforts to obtain deeper-water shells have brought us many rare and unusual shells and enriched our malacological knowledge of the small species living in the central Visayas.

**Acknowledgements:** We thank Koen Fraussen, Aarschot, Belgium for constructive talks about the genus *Phos*. Special thanks to Jeroen Goud, curator of the molluscs department at NBC, for making the photos of the holotype of the newly described species. Jerlyn C.

Sarino of Conchology, Inc. is thanked for making the photos of *Phos miculus* available for reproduction herein.

#### References:

- Galindo, L. A., Puillandre, N., Utge J., Lozouet, P. & Bouchet, P.** (2016) The phylogeny and systematics of the Nassariidae revisited (Gastropoda, Buccinoidea). *Molecular Phylogenetics and Evolution* 99: 337-353.
- Fraussen, K. & Poppe, G. T.** (2005) Revision of *Phos* and *Antillophos* (Buccinidae) from the Central Philippines. *Visaya* 1(5): 76-115.
- Landau, B. M., Harzhauser, M., Islamoglu, Y., da Silva, C. M.** (2013) Systematics and palaeobiogeography of the gastropods of the middle Miocene (Serravallian) Karaman Basin, Turkey. *Cainozoic Research* 11-13: 1-584.
- Lozouet, P. & Galindo, L. A.** (2015) Resolution of the confused classification of some Miocene Nassariidae (Mollusca: Gastropoda) and reappraisal of their paleobiodiversity on the French Atlantic seaboard. *Archiv für Molluskenkunde* 144: 31-50.
- Woodring, W. P.** (1928) Miocene mollusks from Bowden, Jamaica. Part 2. Gastropods and discussion of results. *Publications of the Carnegie Institute of Washington* 385: 1-564.
- Conchology, Inc.** <https://www.conchology.be> (accessed 24 May 2020)

#### Plate:

##### 1: *Microphos palogai* sp. nov.

Holotype, Philippines, Cebu, Mactan Island, trawled at 200 m, H 10.19 mm, W 3.75 mm, NBC RMNH.5004373.

##### 2: *Phos miculus* (Fraussen & Poppe, 2005)

Holotype, Philippines, Aliguay Island, trawled at 60-120 m, H 11.7 mm.



1a



1b



1c



1d



2a



2b