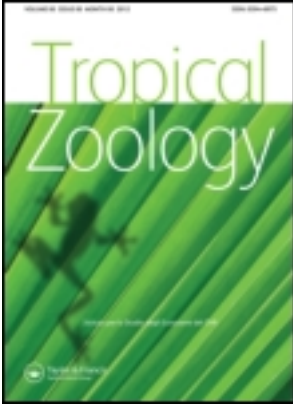


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V. Cottarelli^a & C. Forniz^a

^a Dipartimento di Biologia Animale e dell'Uomo dell'Università «La Sapienza», Viale dell'Università 32, 00185, Roma, Italy

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***Raptolaophonte ardua* n.gen., n.sp.
(Copepoda Harpacticoida Laophontidae)
from the meiobenthos of the Chagos Islands ***

V. COTTARELLI and C. FORNIZ

Dipartimento di Biologia Animale e dell'Uomo dell'Università «La Sapienza», Viale dell'Università 32, 00185 Roma, Italy

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In this paper the harpacticoid *Raptolaophonte ardua* n.gen., n.sp., collected at Boddam Island (Chagos Islands) is described. The new genus is characterized by many features; in particular, the absence of sexual dimorphism in P2-P3 and the strong sexual dimorphism in P4 is noteworthy. Considering the related genera of Laophontidae as yet known, the new genus *Raptolaophonte* seems to have some affinities with *Laophontina* Norman & Scott 1905 and *Indolaophonte* Cottarelli et al. 1985. The new species is described and discussed in detail and further information on the samples sites are given.

KEY WORDS: *Raptolaophonte ardua* n.gen., n.sp., Chagos Islands, meiobenthos, Laophontidae.

In 1985 an expedition to Salomon Atoll (Chagos Islands, Indian Ocean), the first devoted to the study of the meiobenthos, was conducted by use of the Italian schooner «Arawa», shipowner and skipper the Marquis Alessandro Cavalletti. During this expedition many littoral and sublittoral samples, yielding a rich crustacean fauna, partly already studied (COTTARELLI & BALDARI 1987) were collected.

This paper deals with the description and the discussion of a remarkable Laophontidae, that, in our opinion can be ascribed to a new genus and species, namely *Raptolaophonte ardua* n.gen., n.sp.

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Family Laophontidae Scott

Subfamily Laophontinae Lang

Raptolaophonte new genus

Diagnosis. Laophontidae characterized, among other things, by the arrangement of the following features: six-segmented first antenna in the female and seven-segmented first antenna in the male; furcal rami nearly cylindrical, approximately as long as the last abdominal somite. P1 with two-segmented endopodite and exopodite. P2 and P3 with three-segmented exopodite, without endopodite. P4(♀) reduced to roundish non-united laminae; P4 (♂) with united basipodites and exopodites reduced to a small article. P5 (♀) normally developed; P5 (♂) reduced to a small tubercle with a seta.

Etymology. The generic name *Raptolaophonte* is a combination of the latine verb *rapto* = to claw, with the term *Laophonte*.

Remarks. The subfamily Laophontinae presently includes, among others several meiobenthonic and interstitial genera (WELLS 1986), showing features of morphological adaptation, more or less developed, to these particular habitats (size reduced, segments of legs reduced or united, chaetotaxie simplified).

In our opinion, the new genus can be included in this «group» of specialized genera. In some of these (*Klieonychocamptoides* Noodt 1958, *Afrolaophonte* Chappuis 1960, *Strygolaophonte* Lang 1965, *Mexicolaophonte* Cottarelli 1977, *Novolaophonte* Cottarelli et al. 1983, and so on) the endopodite of the male's third legs is transformed for coupling. The new genus does not show this particular dimorphism and, considering the other genera lacking this feature, we think that *Laophontina* Norman & Scott 1905 and *Indolaophonte* Cottarelli et al. 1985 show the greatest affinities with *Raptolaophonte* n.gen.

The new genus is rather similar to *Mexicolaophonte* as far as the habitus is concerned (body stocky and cylindrical, maxillipeds and P1 well developed). Nevertheless we think these resemblances should be ascribed to convergence phenomena rather than phylogenetic affinities.

Nevertheless, as already said in the diagnosis, the particular morphology and dimorphism of P4 in both sexes, as well as the extreme reduction of P5 in the male, have not been previous reported for any other Laophontidae, as far as we know. In our opinion, these features seem to be sufficient to justify the institution of the new genus.

Furthermore, we would like to outline, for completeness, that in *Novolaophonte*, the female equally shows a pair of locomotory legs reduced to a simple lamina; nevertheless, the legs in question are the P3 ones and, besides, the same male's legs show a normal structure.

Finally, we would like to point out that, from an ecological point of view, the subfamily Laophontinae includes many genera widely distributed, with species particularly adapted to an interstitial life (WELLS 1986); among these genera, several ones

(*Klieonychocamptoides*, *Afrolaophonte*, *Mexicolaophonte*, *Indolaophonte*) comprise species typical of interstitial inter-tropical waters (COTTARELLI 1985); in our opinion the new genus probably fits in this group.

***Raptolaophonte ardua* n.sp.**

Material. Two males, five females (four ovigerous) collected (V. Cottarelli leg., 16.VIII.1985) at a depth of about 1 m at Boddam Isle (Salomon Atoll, Chagos Islands).

Types. Holotype: one female mounted on a slide labelled *Raptolaophonte ardua* «ht».

Paratypes. The remaining specimens, also mounted on slides, labelled *R. ardua* «pt» and numbered from 2 to 7. The type-series is part of the authors' collection in the Zoological Museum of the Department of Animal and Human Biology, University «La Sapienza», Rome.

Diagnosis. Conforms to the diagnosis of the genus.

Description of the holotype. Habitus (Fig. 1): body stocky and cylindrical, without pigment, eyes absent. Length, from apex of the rostrum to distal margin of anal operculum: 0.40 mm. Rostrum: short, not exceeding the length of the first article of the first antenna. Abdominal somites bearing a row of little setae on the distal margin, first and second abdominal somites united: genital double-somite dorsally and laterally distinctly, ventrally indistinctly subdivided.

Anal operculum (Fig. 6) broad, distal margin convex, with a row of diminutive setae.

Furcal rami (Fig. 6): nearly cylindrical, as long as the last abdominal somite, with three apical setae and two outer subapical setae accompanied by some diminutive setae, a dorsal articulated seta inserted at the same height of the former ones, and one small thin seta at 2/3 of the length of the inner lateral margin.

First antenna (Fig. 7) six-segmented. Second segment more developed than the others ones, with a lateral pennate seta. Fourth segment extending in an apophysis bearing a long aesthete and two setae. The fifth segment is the shortest. Remaining ornamentation as shown in the figure.

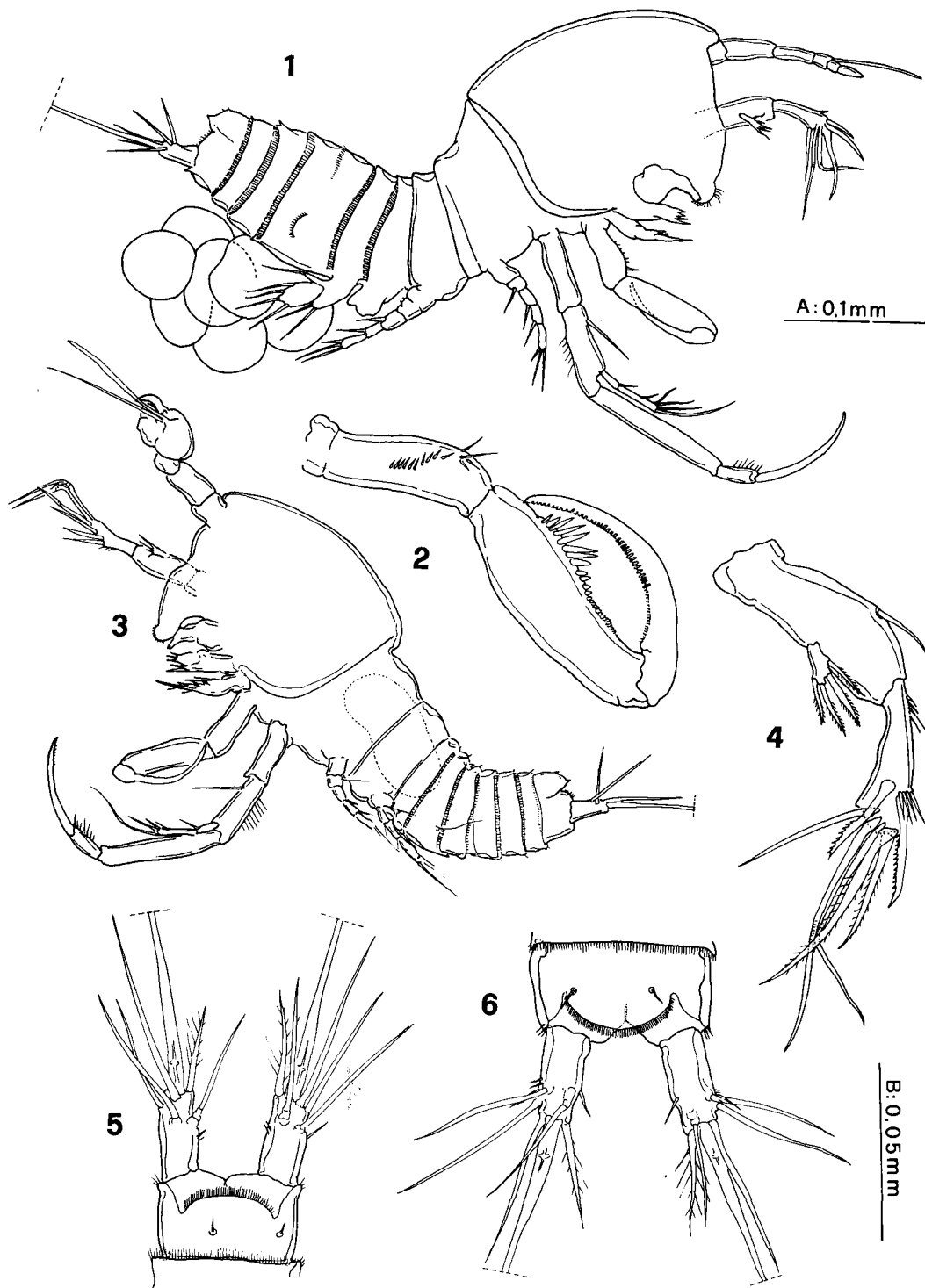
Second antenna (Fig. 4) with allobasis bearing one seta in the middle of the inner margin. Exopodite: one-segmented, with three apical and one subapical setae. Distal segment of endopodite bearing on its apex two long geniculate setae and two strong spiniform setae, three spiniform setae are subapical.

Mandible (Fig. 21): praecoxa with tridentate pars incisiva; palpium with two pennate apical setae and three lateral setae.

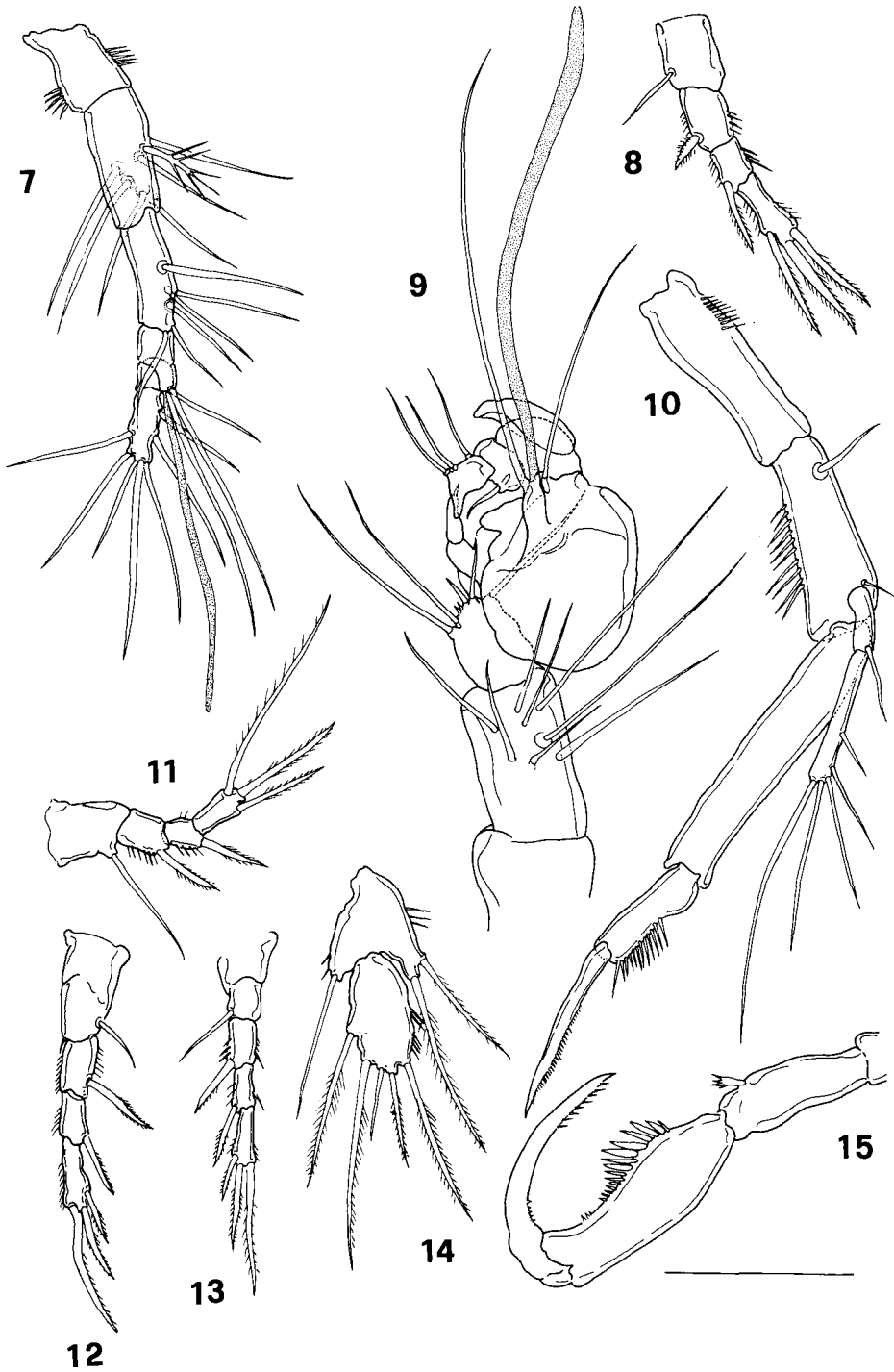
First maxilla (Fig. 17): arthrite of praecoxa with five apical spines: coxa with three apical setae, the central one pennate and longer than the other two. Basis bearing a strong, spiniform apical seta and two thinner setae, also apical, and two setae on its lateral margin (residual parts of endopodite and exopodite?).

Second maxilla (Fig. 16): syncoxa with three endites, the proximal one with a seta, the following two each bearing two setae. Basis projecting into a strong, apical claw-like tip, with a thin seta near its base. Endopodite reduced to a small tubercle with two setae, a third seta is near the endopodite.

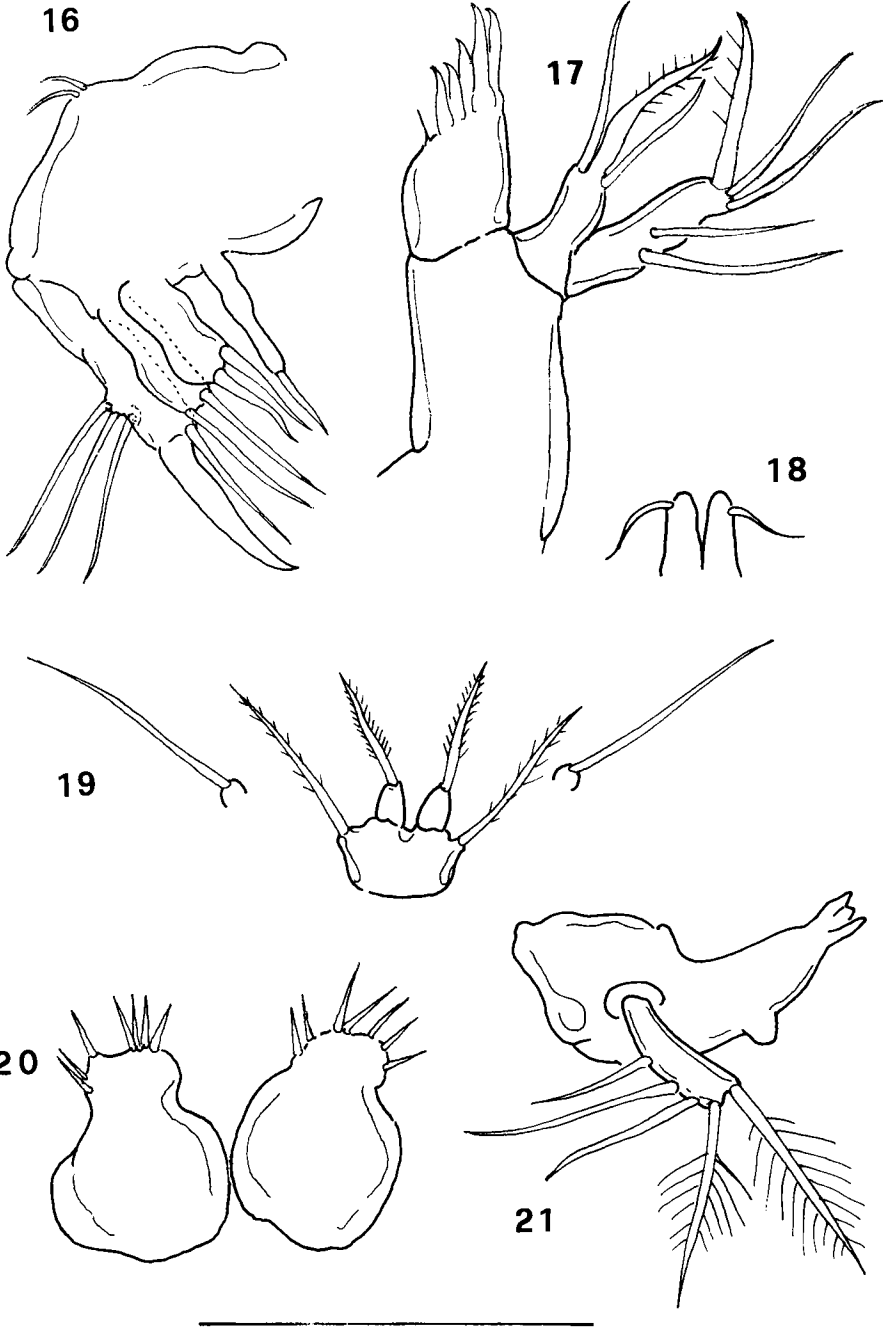
Maxilliped (Fig. 2): very strong. Basis with a lateral row of small setae and two longer setae near the inner margin. First segment of endopodite bearing a row of small denticles along the margin, second segment transformed into a strong, curved claw with a series of small chitinous plates on the inner margin.



Figs 1-6. — *Raptolaophonte ardua* n.gen., n.sp. Female holotype: Figs 1, 2, 4, 6. Male paratype: Figs 3, 5. Fig. 1, habitus (scale A); Fig. 2, maxilliped (scale B); Fig. 3, habitus (scale A); Fig. 4, second antenna (scale B); Fig. 5, anal operculum and furcal rami (scale B); Fig. 6, anal operculum and furcal rami (scale B).



Figs 7-15. — *Raptolaophonte ardua* n.gen., n.sp. Female holotype: Figs 7, 8, 10, 12, 14. Male paratype: Figs 9, 11, 13, 15. Fig. 7, first antenna; Fig. 8, P3; Fig. 9, first antenna; Fig. 10, P1; Fig. 11, P3; Fig. 12, P2; Fig. 13, P2; Fig. 14, P5; Fig. 15, maxilliped. Bar = 0.05 mm.



Figs 16-21. — *Raptolaophonte ardua* n.gen., n.sp. Female holotype: Figs 16, 17, 20, 21. Male paratype: Figs 18, 19. Fig. 16, second maxilla; Fig. 17, first maxilla; Fig. 18, P6; Fig. 19, P4 and P5; Fig. 20, P4; Fig. 21, mandible. Bar = 0.05 mm.

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P1 (Fig. 10): coxa well developed, nearly as long as the basis, with a row of thin setae on the proximal part of the lateral outer margin; basis with a proximal outer seta and a smaller subapical outer seta; a row of thin setae on the lateral inner margin. Exopodite two-segmented: first segment shorter than the second, with one seta on the distal outer corner; second segment cylindrical, bearing three apical setae, the inner longer than the others, and two outer setae. Endopodite two-segmented, first segment long and strong, without ornamentation; second article with a series of setae on the outer margin and a strong claw on the tip.

P2 (Fig. 12): basis with a seta near the distal outer corner. Exopodite three-segmented: the two proximal segments each bearing a pennate seta on the distal outer margin; the third segment with two pennate apical setae, the inner longer than the others, and a third subapical outer seta. Basis bearing, furthermore, a very small, distal, inner seta, maybe residual part of endopodite.

P3 (Fig. 8): same morphology and ornamentation as P2, lightly shorter, basis without the distal inner little setae.

P4 (Fig. 20): extremely modified, reduced to roundish, non-united laminae with some small, distal setae.

P5 (Fig. 14): well developed; basiendopodite laminar, bearing a long seta on the outer distal corner and two apical setae on its inner expansion. Exopodite ellipsoidal, with three apical setae, two outer sub-apical setae and some small setae on the inner margin.

Description of the male. Habitus (Fig. 3): length, measured as in female, 0.41 mm. Anal operculum and furcal rami (Fig. 5): nearly similar to female's ones.

First antenna (Fig. 9): seven-segmented, fourth segment very enlarged, bearing a long aesthete accompanied by two setae; fifth segment also enlarged, extending in a lateral outer apophysis with curved apex, remaining morphology and ornamentation as shown in figure. Second antenna, oral appendices, P1 as in female; maxillipeds (Fig. 15).

P2-P3: differs from corresponding female's legs in some little peculiarity, as shown in Figs 11 and 13. In particular, it is noteworthy that, in the male's P2, the small, inner seta on the basis is absent.

P4 (Fig. 19): less modified than in female: basis united, but with a seta on each outer distal corner; exopodite reduced to a small segment bearing only one apical seta.

P5 (Fig. 19): reduced to a small tubercle with a distal seta.

P6 (Fig. 18): represented by a small lamina with a distal seta

Variability. All the above mentioned features are constant in the types-series, apart from a slight variation in the total length (♀ : 0.33-0.40 mm; ♂ : 0.30-0.40 mm).

Derivatio nominis. The Latine adjective *ardua* = hard alludes to the remarkable difficulties overcome in reaching the Chagos Islands.

Remarks about the sample site. *Raptolaophonte ardua* n.sp. was collected at Boddam Isle (Salomon Atoll, Chagos Islands) in the intertidal zone, at less than 1 m depth. The sample site is characterized by coarse coral sand. The material was obtained by collecting and washing the sand. Subsequently, the water was filtered by mean of a plankton net and the material was preserved in a 2% solution of formaldehyde.

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