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***Lernaeopoda tenuis* n. sp. and *Pseudolernaeopoda caudocapta* n. g., n. sp.
(Copepoda, Lernaeopodidae) parasitic on *Triakis maculata*
(Kner & Steindachner) from the Chilean coast, South Pacific**

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Summary

One new genus and two new species of the Lernaeopodidae (Copepoda: Siphonostomatoida), parasitic on *Triakis maculata* off the coast of Chile, are described and illustrated. The new genus, *Pseudolernaeopoda*, parasitizes the cloaca of its host. Its type-species, *P. caudocapta*, can be distinguished from *Lernaeopoda* by the absence of modified uropods. A new species of *Lernaeopoda*, *L. tenuis*, was found on the gills of the same host. In absence of the male, the generic affinities of this species must be considered only tentative.

Introduction

Examining a shark, *Triakis maculata* (Kner & Steindachner) taken off the coast of Chile, the authors discovered on its gills and in its cloaca copepods unmistakably belonging to the family Lernaeopodidae. One of them could be assigned either to the genus *Lernaeopoda* Blainville, 1822, or *Albionella* Kabata, 1979. The decision would have to be made on the basis of the morphology of the male. Since no male was discovered, the authors assigned it tentatively to the former genus. The other copepod resembled *Lernaeopoda* (and *Albionella*) in all respects except for the absence of modified uropods. It was necessary to assign it to a new genus.

The purpose of this paper is to describe both these copepods. No *Lernaeopoda* spp. have previously been recorded from Chile.

The methods used for the examination of the specimens were described earlier by Castro & Baeza (1982). Some illustrations were made with the aid of a camera lucida; others were drawn free-

hand, with the aid of an eyepiece graticule. The terminology follows that adopted by Kabata (1979).

***Lernaeopoda tenuis* n. sp. (Figs 1-6)**

Specimens: Three females, taken on Jan. 10, 1980. One female, the holotype, is deposited in the United States National Museum, Reg. No. 216752 USNM, Lot. 356569.

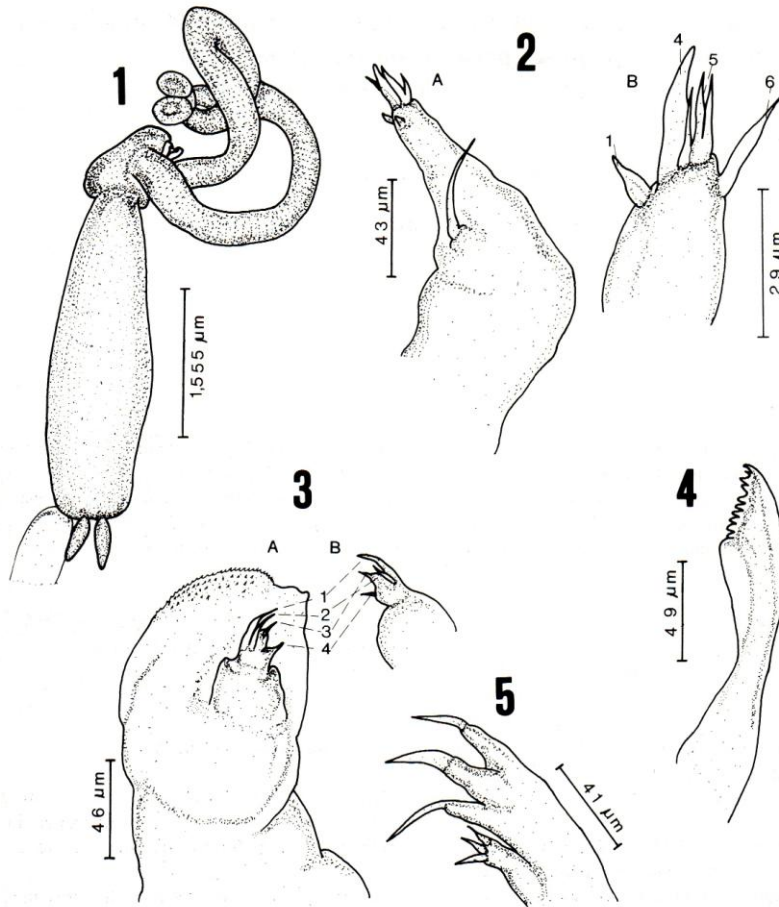
Host: *Triakis maculata* (Kner & Steindachner).

Habitat: Gills.

Locality: Isla Santa María, Antofagasta, Chile. (23° 27' S; 70° 25' W).

Description

Female (Fig. 1). Cephalothorax short, narrower anteriorly and broader at base, dorsoventrally flattened, obliquely inclined to long axis of trunk. Latter 3 to 4 times longer than cephalothorax (Table I), much longer than wide, with uropods ventral to egg sacs.



Figs 1-5. *Lernaopoda tenuis* n. sp., female. 1. Female, ventrolateral view. 2A. First antenna, entire. 2B. Detail of distal armature. 3A. Second antenna, exopod and endopod, ventral view. 3B. Endopod, detail of armature. 4. Mandible. 5. First maxilla.

First antenna (Fig. 2A) indistinctly segmented, with long whip; apical armature (Fig. 2B) comprising spiniform tubercle I, digitiform seta 4, slender seta 6 and triple, complex seta 5; tubercle 3 can be found in some specimens. Second antenna (Fig. 3): exopod globose, with spinulate distal surface and

short, blunt lobe on ventral surface; endopod bi-segmented, its apical armature consisting of identifiable hook 1, lateral seta 2, medial process 3 and ventral seta 4. Mandible (Fig. 4) with dental formula P1, S1, P1, S1, B6. First maxilla (Fig. 5): endopod with 3 terminal papillae bearing setae of

Table I. Dimensions (in μm , based on two specimens).

	A	B
Total length	4,392	4,961
Cephalothorax length	998	1,143
Cephalothorax width	805	933
Trunk length	3,394	3,818
Trunk width	909	1,212
Second maxilla length	4,363	5,030
Second maxilla width	320	320
Uropod length	564	483
Uropod width	161	161
Eggs sac length	2,828	-
Eggs sac diameter	484	-

subequal lengths; exopod ventrolateral (in Fig. 5 displaced by pressure of coverslip), carrying 3 apical spines. Second maxilla (Fig. 1) subcylindrical, as long as, or longer than trunk, with distinct apical collar. Bulla not observed. Maxilliped (Fig. 6): myxal area of corpus with single robust spine and spinulated pad proximal to it; another pad close to distal end of corpus; subchela with long shaft bearing one short spine on proximal half; barb half length of claw, patch of spinules proximal to base of barb; claw slender, curving, with one secondary tooth.

Etymology. The specific name of the species, *tenuis* is Latin for slender, and refers to the slender appearance of the female.

Comments

Since females of *Lernaeopoda* are indistinguishable from those of *Albionella*, it was necessary to compare the newly-found *Lernaeopoda* with all species of both genera. From *Lernaeopoda galei* it differs in size (total length about 5 mm, as compared with 13–16 mm of *L. galei*), shape of the trunk, structure of both antennae, mandibular formula, structure of the first maxilla, length of the second maxilla and the details of the maxilliped. *Lernaeopoda bidiscalis* is characterized by a short, broad trunk and unique coloration of the cephalothoracic shield. All its appendages can be easily distinguished from those of the present species.

Albionella globosa differs from *L. tenuis* in all appendages except the second maxilla and, possibly the maxilliped. *A. etmopteri* differs in the structure of the second antenna, mandible and maxilliped, and in the length of the uropods. *A. centroscyllium* has different second antennae, mandible, maxilliped and uropods. No detailed comparison can be made with *A. longicaudata* because of the inadequacy of its existing descriptions, but it obviously differs from the present species in its uropod: trunk length ratio.

All these differences prevent the present species from being assigned to a previously known taxon. The problem of defining its generic affiliation, i.e. the decision whether it should be assigned definitively to *Lernaeopoda* or to *Albionella*, must await the discovery of the male.

The new species differs somewhat from the usual *Lernaeopoda*, as represented by the two other members of the genus, in lacking the third secondary tooth in its mandible and in the structure of its first maxilla. The endopod papillae are longer and more slender, the position of the exopod is more ventral than one would expect and the elements of the apical armature of the first maxilla are more slender and more apically grouped than in the other two species. The significance of these differences cannot be assessed with the information presently available.

***Pseudolernaeopoda caudocapta* n. g., n. sp.** (Figs 7–13)

Specimens: Two ovigerous females, taken on Jan. 10, 1980. One female, the holotype, is deposited in the United States National Museum, Reg. No. 216753. Lot. 356569.

Host: *Triakis maculata* (Kner & Steindachner).

Habitat: Cloaca.

Locality: Isla Santa María, Antofagasta, Chile. (23° 27' S; 70° 25' W).

Description

Female (Figs 7, 13A, B). Cephalothorax with conspicuous, heavily sclerotized dorsal shield, broader

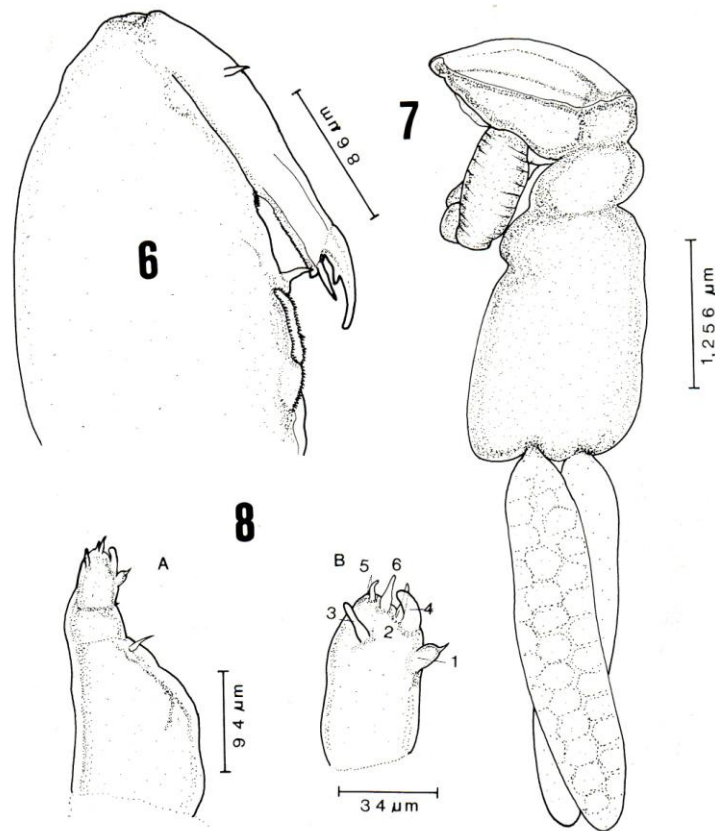
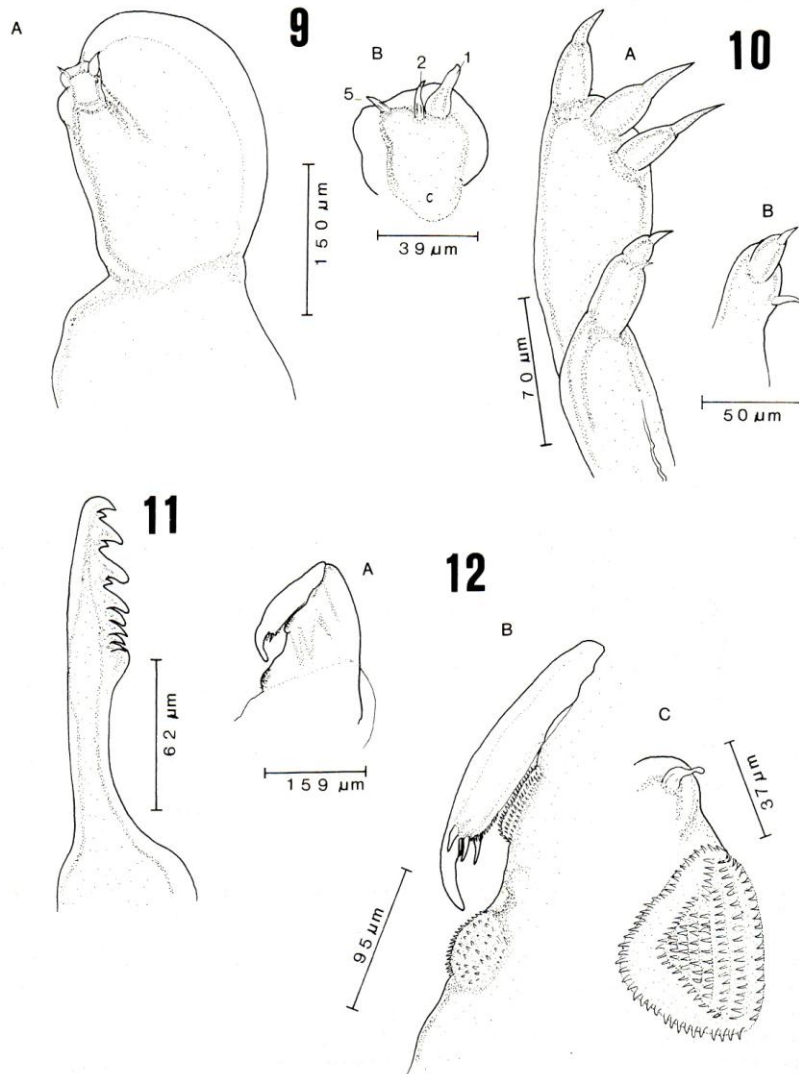


Fig. 6. *Lernaepoda tenuis* n. sp., female. Maxilliped. Figs. 7-8. *Pseudolernaepoda caudocapta* n. g., n. sp. 7. Female, dorsal view. 8A. First antenna, entire. 8B. Detail of distal armature.

posteriorly, inclined obliquely ventrally to long axis of trunk. Latter longer than wide (Table II), in one specimen (Fig. 13A) longer than cephalothorax, with shallow groove marking off short anterior part (particularly noticeable in contracted specimens (Fig. 7); uropods absent; posterior margin bisected by parallel ridges marking margins of anal slit (Fig. 13B).

First antenna (Figs 8A, B) indistinctly tri-segmented, basal segment longer than other 2 com-

bined, inflated, armed with short whip; second segment unarmed; distal segment (Fig. 8B) with apical armature consisting of papilla 1 tipped with short, acuminate process, long processes 2 and 3, robust but short seta 4, bifid seta 5 and single seta 6. Second antenna (Figs 9A, B) exopod globose, unarmed; endopod bi-segmented, apical armature (Fig. 8B) comprising hook 1, lateral spiniform seta 2 and ventral process 5. Mandible (Fig. 11) with dental formula P1, S1, P1, S1, P1, S1, B5. First



Figs. 9–12. *Pseudoternaepoda caudocapta* n. g., n. sp. 9A. Second antenna, entire, lateral view. 9B. Detail of endopod, distal armature. 10A. First maxilla, entire, lateral view. 10B. Detail of exopod. 11. Mandible. 12A. Maxilliped, entire. 12B. Detail of claw. 12C. Detail of interior pad.

Table II. Dimensions (in μm , based on two specimens).

	Extended specimen	Contracted specimen
Total length	5,880	4,280
Cephalothorax length	1,880	1,680
Cephalothorax width	1,600	1,600
Trunk length	4,000	2,600
Trunk width	2,160	1,840
Second maxilla length	2,400	1,480
Second maxilla width	560	480
Eggs sac length	3,480	2,920
Eggs sac diameter	640	640

maxilla (Figs 10A, B) endopod broader distally, with 3 short terminal papillae bearing short setae; exopod lateral in position, tipped with setiferous papilla and short seta near base of that papilla. Second maxilla (Figs 7, 13) subcylindrical, more than half length of trunk, with small apical collars. Bulla not observed. Maxilliped (Figs 12A, C) corpus with myxal area bearing spinulated pad and small eminence tipped with short spiniform seta (Fig. 12C) another elevated pad of spinules in axilla with subchela; latter nearly straight, bearing, in addition to barb, 3 spines of similar length and marginal pad of spinules; claw slightly curved, secondary teeth not observed.

Etymology. The generic name alludes to the close relationship between the new genus and *Lernaepoda*. The specific name is a combination of two Latin words: *cauda* = tail and *captus* = deprived of, referring to the absence of modified uropods.

Comments

The absence of uropods prevents this copepod from being placed in the genus *Lernaepoda*. (Careful check having been made of both specimens, no sign of damage in the perianal area was discovered and no evidence of the uropods having been broken off *in vivo* or during handling). Apart from this one striking difference, it corresponds to *Lernaepoda* so closely that it could be defined by the following generic diagnosis: as *Lernaepoda*,

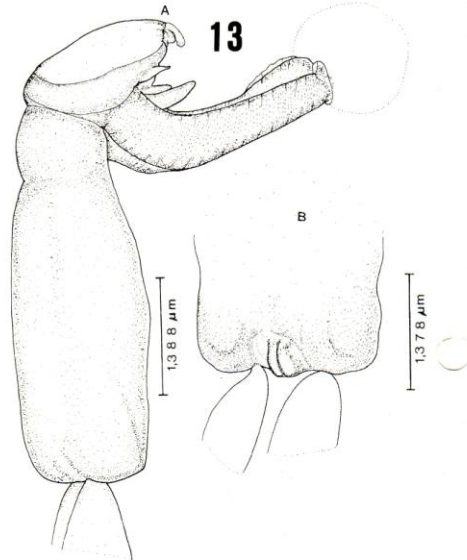


Fig. 13. *Pseudolernaepoda caudocapta* n. g., n. sp. 13A. Female, entire, lateral view. 13B. Posterior extremity, ventral view.

but devoid of modified uropods.

More information is required to place the new genus in the family tree proposed by Kabata (1979). At present, it would appear to be located in the *Lernaepoda*-branch of the family, between *Lernaepoda* itself and the two offshoots of the branch formed by *Ommatokoita* Leigh-Sharpe, 1926, and *Vanbenedenia* Malm, 1860. Its relationship to *Lernaepoda* is underscored by the apical armature of the first antenna being characteristically short and stubby, resembling that of the two older species of the genus (though not the newly described *L. tenuis*).

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