Lonchidiopsis setosus n.sp. (Copepoda: Notodelphyidae) from Venezuela

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Summary

A new species of notodelphyid copepod infesting the solitary ascidian *Rodosoma turcicum* (Savigny, 1816) from the Gulf of Cariaco, Venezuela, is described and illustrated. This is the first record of *Lonchidiopsis* Vanhöffen. 1917, from the Caribbean.

Introduction

There is little published information on the parasitic copepods of Venezuela. Legaré (1961) while studying the zooplankton of the Gulf of Cariaco adjoining the state of Sucre, recorded *Caligus* sp. as being present. Bashirullah (1975) recorded *Lernaeolophus* sp. in the buccal cavity of *Lutjanus griseus* caught off Cubagua Island. Ho & Bashirullah (1977) described *Caligus bennetti* Causey from the gills of *Lobotes surinamensis* caught at Gaira, and *Metacaligus uruguayensis* (Thomsen) from the gills of *Trichiurus lepturus* in the Gulf of Cariaco.

Thus, while studying the tunicate fauna of the Gulf of Cariaco between January 1976 and July 1978 one of us (A.A.M.M.) collected and preserved the commensal copepods living within the solitary ascidian *Rodosoma turcicum* (Savigny, 1816). All the *R. turcicum* collected from between the intertidal zone to a depth of 5m contained three or four copepods. Of a sample of 50 examined, two had four copepods, the rest had three each. Where four copepods were found, one was always small in size.

Description

Family NOTODELPHYIDAE Dana, 1853

Lonchidiopsis setosus n.sp.

Material examined: Holotype ♀ (deposited in British Museum of Natural History 1980.162) Four paratype ♀♀s (two, one headless, deposited in B.M.N.H. 1980 163–4). Two in senior author's collection. All were recovered from specimens of *Rhodosoma turcicum* (Savigny, 1816) collected from the Gulf of Cariaco, eastern Venezuela (10° 24′ N; 63° 55′–64° 00′ W) by A.A.M.M. on 15th April, 1978.

Adult female (Fig. 1A) total length 1.60 mm (range 1.60–1.80 mm), maximum width 0.65 mm (0.60–0.85 mm). Body divided into four parts: head, narrow neck, broodsack and abdomen. Surface of body bears minute sensory setules, randomly distributed. Head circular in outline, sides recurved ventrally to cover bases of maxilla. Segment bearing first legs fused to head. Second and third legs close behind head, segments fused forming anterior of neck. Fourth pedigerous segment forming posterior portion of neck and expanded broodsack. Eggs and nauplii visible through broodsack wall. Fifth pedigerous segment distinct. Abdomen 4-segmented (but see discussion).

Antenna I (Fig. 1B) of characteristic shape for this genus. Obscurely 7-segmented, consisting of

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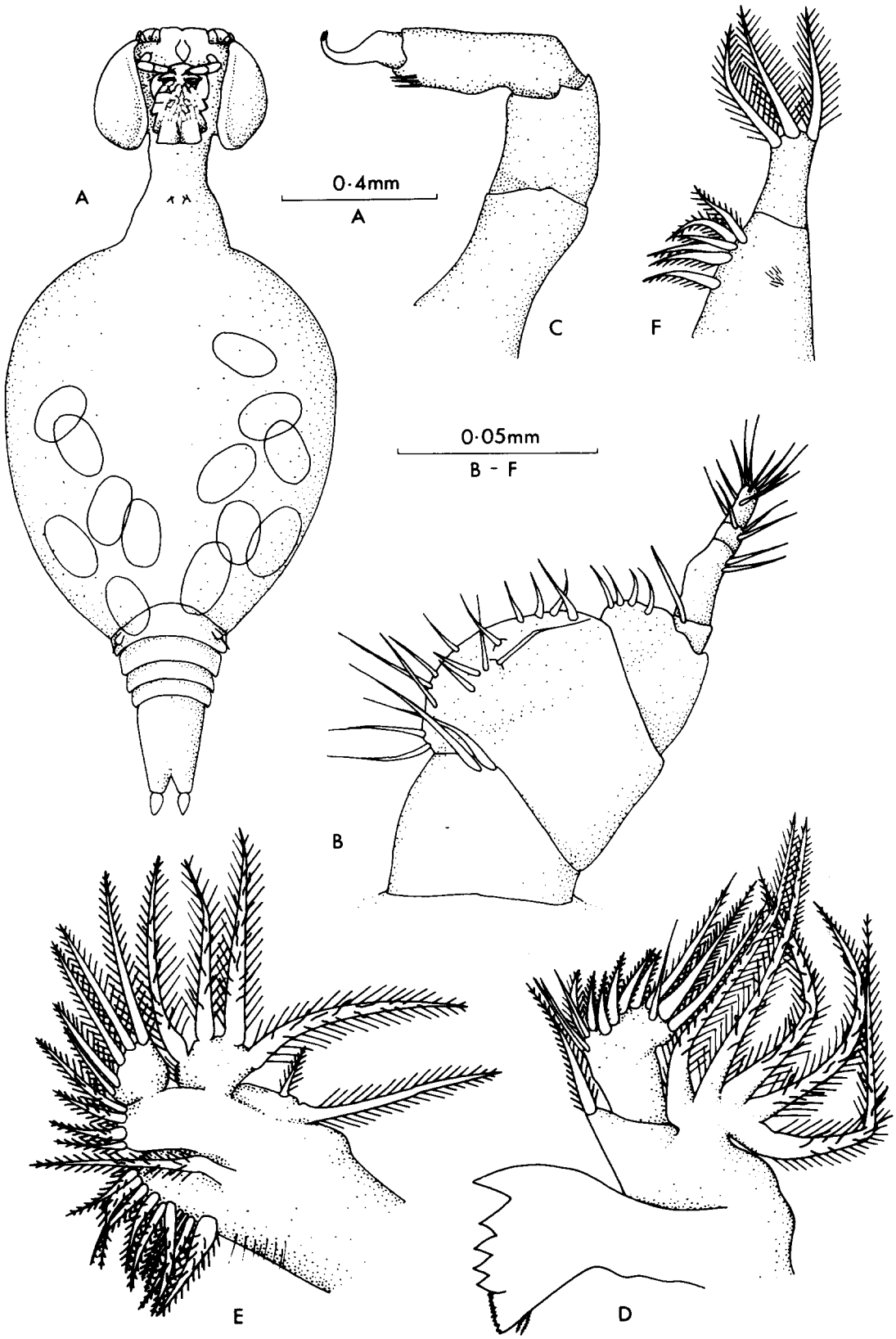

Fig. 1. *Lonchidiopsis setosus* n. sp. female: (A) ventral view; (B) antenna 1; (C) antenna II; (D) maxilla; (E) maxillule, posterior view; (F) maxilliped.

two very broad basal segments, a tapered segment 3 inserted on vertral margin of segment 2, and four narrow segments following segment 3 (recurved over anterior margin of segments 2 and 3, shown straightened in Fig. 1B for clarity). Setal formula: 2, 15, 4, 1, 2, 3, 10.

Antenna II (Fig. 1C) of three articulated parts: Basal, consisting of two segments of approximately equal dimensions, both unarmed; distal one-segmented, bearing three subterminal spinules beneath point of articulation of hook. Terminal hook with basal portion enlarged, tip recurving, apparently bifid.

Labrum well defined, ovate to lozenge-shaped with ciliated posterior margin.

Mandible (Fig. 1D) coxopodite elongated medially to form flat blade with serrate margin bearing five teeth, a serrate edge and two seta-like projections. Basipodite bearing single long plumose seta on medial margin. Endopodite unsegmented, bearing 13 setae (nine plumose, four smooth) about apex. Exopodite unsegmented, bearing five long plumose setae.

Maxillule (Fig. 1E) of typical notodelphyid form. Protopodite with long stout seta and short seta, both pinnate, on small lateral projection; two medial projections: proximal, well developed, with 10 plumose setae and group of setules on medial margin; distal bearing long plumose seta. Protopodite produced at apex, bearing four short plumose setae. Exopodite one-segmented, with four plumose setae. Endopodite with five pinnate setae.

Maxilla (Fig. 2A). Basal segment bearing four endites: Proximal with four setae (three plumose), second endite one seta, third endite two setae, fourth endite two setae; Second segment with very stout claw serrated on outer margin, and long seta. Terminal segment small, oval, bearing four naked setae. Except where specified, setae pinnate.

Maxilliped (Fig. 1F). Close to base of first legs, 2-segmented. Basal segment with six short setae on medial margin, tuft of spinules at mid-point. Terminal segment separated from basal by fine suture line; oblong with three terminal pinnate setae.

Legs 1–3 (Figs. 2B, C, D) all closely spaced. Biramous, each ramus 2-segmented. Setal formula as follows (arabic numerals = setae, roman numerals = spines).

L_1	coxa 0–0	basis 1–I	Ex. I–1; III, I, 0
			End 0–1; I, 2+I, 2
L_2	0–0	1–0	Ex I–1; I, II, 0
			End 0–0; I, III, I
L_3	0–0	1–0	Ex I–1; I, II, 0
			End 0–0; I, III, I

Leg 4 (Fig. 2E) greatly reduced, consisting of one coalescent papilla armed with two setules.

Leg 5 (Fig. 2F) at extreme posterior of segment 5 by junction with first segment of abdomen. Each leg represented by single segment bearing two terminal setae.

Uropods (Fig. 2G) obvate, flattened, armed with one lateral, one subterminal, three terminal setae.

Male: not yet found.

Remarks: This is the third species of *Lonchidiopsis* to be described. In 1917, Vanhöffen described *L. hartmeyeri* as the type species for the genus, from *Ascidia sydneiensis*, Shark Bay, Australia. In 1967, Stock described the second species *L. tripes* from *A. nigra*, Dahlak Archipelago, Ethiopia. All three species are very similar in morphology, and there is no doubt that they belong to the same genus despite the wide geographical separation, and the different genus of host inhabited by *L. setosus*.

The number of abdominal segments is uncertain. Although the adult appears to have a 4-segmented abdomen, Stock (1967) believed he saw a sixth leg in juvenile females. If this is so, then there is a non-pedigerous sixth thoracic segment and a 3-segmented abdomen.

The three known species of *Lonchidiopsis* can be distinguished as follows: *L. hartmeyeri* is unique in having a bimerous, biramous fourth leg and uropods which are longer than the anal segment. It also has postero-lateral lobes to the head, unlike *L. tripes* and *L. setosus* which both have a head of more circular outline.

The fifth pedigerous segment of *L. setosus* is not fused to the broodsack, as it is for *L. tripes*. The maxillule, maxilliped and legs 2–4 of *L. setosus* all

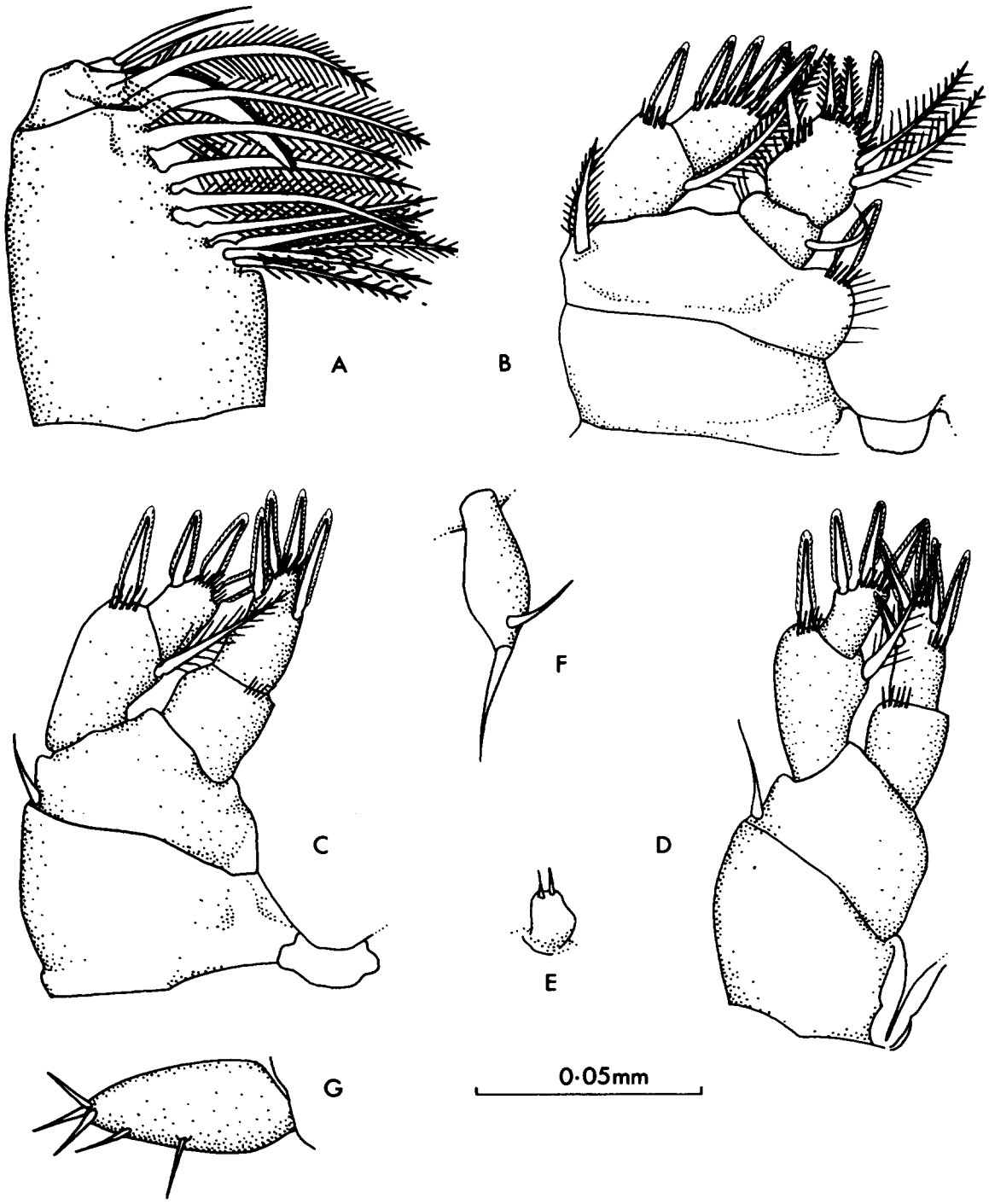

Fig. 2. *Lonchidiopsis setosus* n. sp. female: (A) maxilla; (B) Leg 1; (C) Leg 2; (D) Leg 3; (E) Leg 4; (F) Leg 5; (G) uropod.

bear more setae than those of *L. tripes*. (Table I).

Table I. Setation of *Lonchidiopsis spinosus* and *L. tripes*

	L. spinosus	*L. tripes*
Maxillule medial setae of coxopodite	10	7
Maxilliped	6, 3	4, 3
Leg 3	exp. I–1; I, II, 0 end. 0–0; I, III, I	1–0; I, II, 0 0–0; III
Leg 4 (each papillule)	2 setules	1seta

This notodelphyid is interesting in that the nauplii hatch from the egg while still within the broodsack. How long the nauplii remain within the mother is unknown.

References

Bashirullah, A.K.M. (1975) Records of *Lernaeolophus* sp. (Copepoda) in the fish *Lutjanus grisus* (Linn.) with multiple epizoic organisms on the copepod. ***Boletin del Instituto Oceanografico Universidad de Oriente*, 14**, 247–250.

Ho, J.-S. & Bashirullah, A.K.M. (1977) Two species of caligid copepods (Crustacea) parasitic on marine fishes of Venezuela, with discussion of *Metacaligus* Thomsen, 1949. *Journal of Natural History*, **11**, 703–714.

Legaré, J.E.H. (1961) Estudios preliminares del zooplancton en la region de Cariaco. *Boletin del Instituto Oceanografico Universidad de Oriente*, 1, 191–218.

Stock, J.H. (1967) Report on the Notodelphyidae (Copepoda; Cyclopoida) of the Israel South Red Sea Expedition. *Israel South Red Sea Expedition Reports* 27, 1–126.

Vanhöffen, E. (1917) *Lonchidiopsis hartmeyeri* ein neuer Ascidienparasit. *Sitzungsberichte Gesellschaft naturforschender Freunde zu Berlin*, 1917 (3), 224–229.

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