

Eocuma spinifera sp. nov., a New Cumacean
Crustacea from Japan*

By

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This paper deals with a new species of cumacean Crustacea, *Eocuma spinifera* sp. nov. (Bodotriidae) from Japan. Six specimens were available for the study, three females (including the holotype) and a male (allotype) specimens were taken from 10–30 m deep at Mutsu Bay by the Biological Survey of the Aomori Aquiculture Center, Aomori Prefecture (Aomori-Ken Suisan Zôshoku Sentâ) in June–July, 1971, and two females were collected from 92 m deep at Tosa Bay by the Survey of the *R. V. Kaiyo-Marû* of the Seikai Regional Fisheries Research Laboratory in January, 1975 (Fig. 1). The holotype female and the allotype male specimens are deposited in the National Science Museum, Tokyo.

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Eocuma spinifera sp. nov.

(Figs. 2–6)

Description. The holotype is an adult female, length about 10.6 mm. Carapace ridged, hairy, with many spiniform granules; its dorsal aspect pear-shaped. A pair of antero-lateral cornua situated behind the level of ocular lobe, very large, more than one-sixth as long as carapace. The cornu forwardly directed and pointed distally. A thin membraneous film with a coarse network-like structure covers the integument surface (Fig. 1, D, E). Under high magnification the integument surface appears a characteristic reticular texture with minute pits (Fig. 1, F, G). Length of carapace about one-fourth of the total body, slightly more than twice as long as the greatest width across the one-third posterior region; the greatest width slightly more than the depth. Ocular lobe large, rounded, with three corneal lenses. Pseudorostral lobes very prominent and meet in front of ocular lobe for a distance nearly twice as long as ocular lobe. Antero-lateral border with a minute antennal notch; anterolateral

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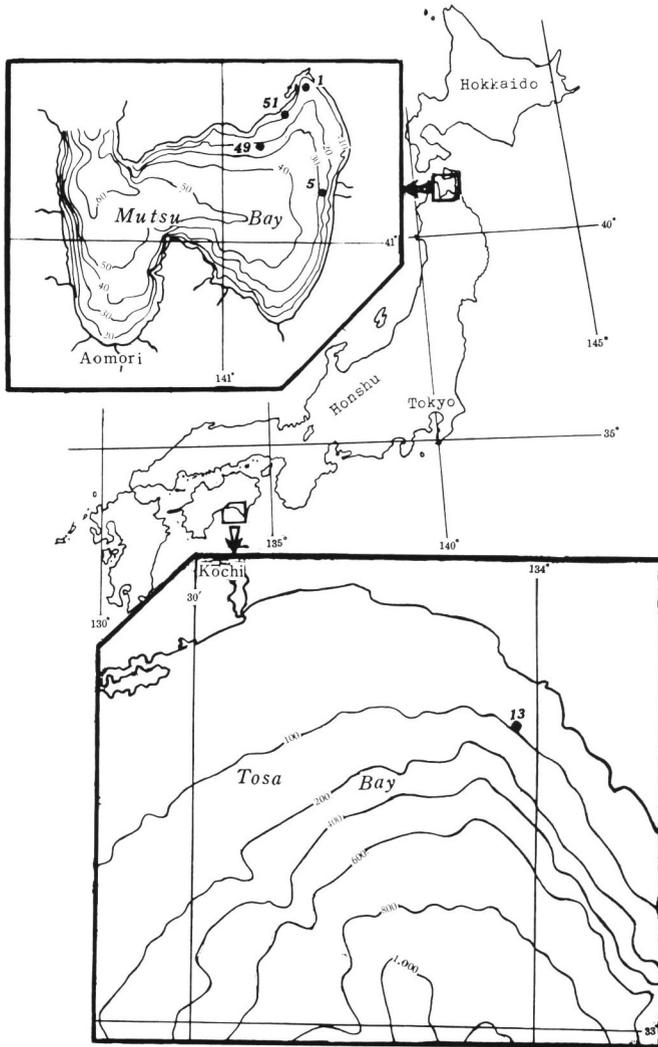


Fig. 1. Map showing the localities of *Eocuma spinifera* sp. nov. at Mutsu Bay and Tosa Bay.

angle very small, obtuse, bearing minute granules on the outer border.

First pedigerous segment indistinct, fused with carapace. Second pedigerous segment large, about as long as the fifth, bearing a pair of reduced, filiform peraeopods (Fig. 1, A). Third to fifth pedigerous segments successively increased in length, whereas their width successively decreased posteriorly; the fifth segment about as wide as first abdominal segment.

Abdomen about three-sevenths of body length. First segment the shortest. First to fifth segments successively increased in length. Fifth segment the longest,

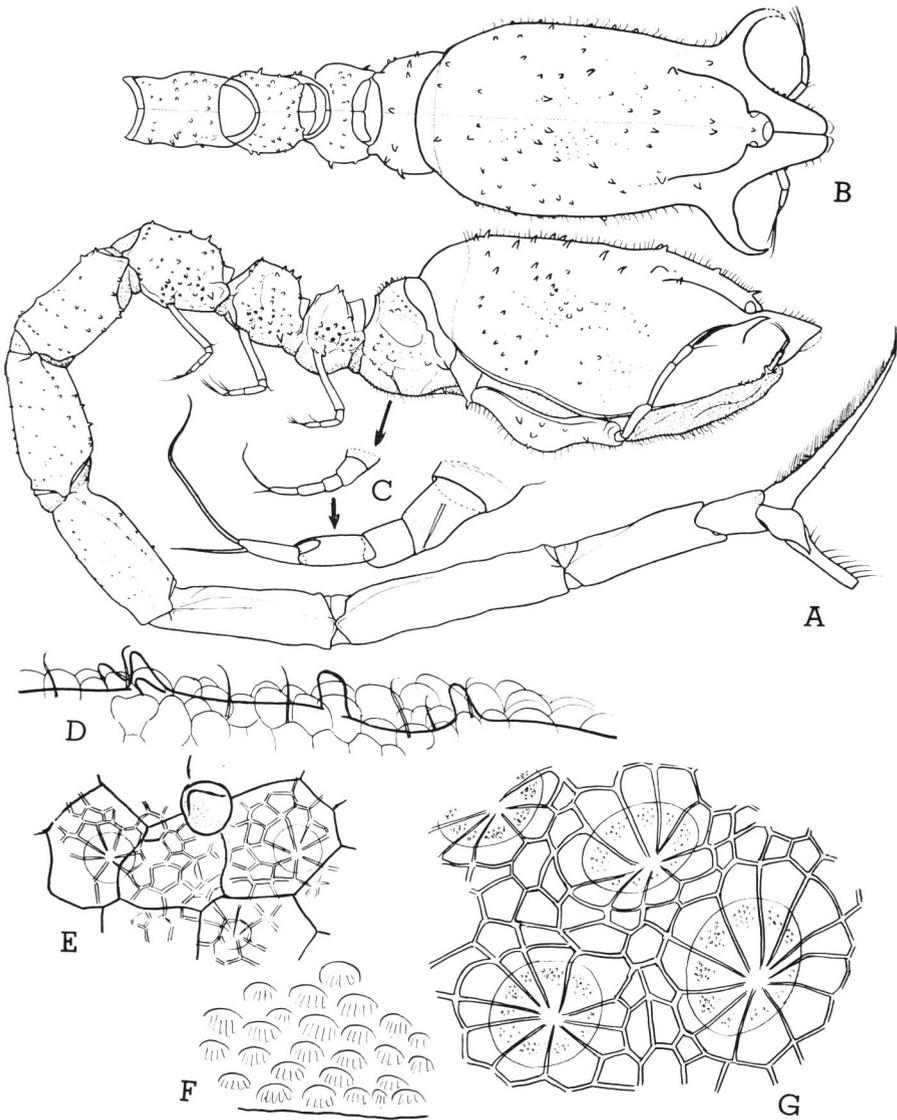


Fig. 2. *Eocuma spinifera* sp. nov., holotype female, length about 10.6 mm. — A, Lateral view. B, Anterior portion of body, from above. C, Second pereopod. D, Outline of dorsum of carapace, covered with a thin membranous film with a coarse network-like structure. E, A coarse network-like structure and fine reticular texture with pits of the integument surface. F, Sculpture of lower portion of carapace surface. G, Reticular texture with shallow pits on the carapace surface, much enlarged.

about one-fourth as long as abdomen. Sixth segment rather short, about three-fourths as long as the fifth.

Peduncle of uropod two-fifths as long as sixth abdominal segment and its inner border bears several plumose hairs. Endopod nearly thrice as long as peduncle and slightly longer than exopod. Both rami bear plumose hairs on the inner border and their distal end with a characteristic plumose seta (Fig. 4, E, G, H).

First segment of peduncle of antennule very large, strongly dilated laterally, as wide as its length and nearly as long as two subequal distal peduncular segments combined. Main flagellum two-segmented; distal segment less than half the length of the proximal one. Accessory flagellum bears only one minute segment.

Third maxilliped (Fig. 3, C) expanded, its distal portion opercular in function. Length of basis (exclusive of distal outer prolongation) less than the distal four segments together; its external portion produced into a long, narrow, curved process which exceeds the end of a similar process of merus. Inner border of basis serrate with plumose hairs. Merus longer than its width. Carpus as long as propodus and its inner distal portion produced into a dilated lobe with a short seta at the tip. Propodus a little dilated laterally and has five long plumose setae on the inner border and eight such setae in the middle portion (Fig. 3, B, C). Dactylus subequal to propodus and provided with five long setae at the tip.

First pereopod (Fig. 3, A) a little shorter than third maxilliped. Basis covered with a membranous film with a coarse network-like structure and its integument bears spiniform granules and hairs; under high magnification it appears a reticular texture with minute pits. Length of basis (exclusive of the distal prolongation) a little less than the remaining distal segments together; its distal portion produced into a large triangular process, nearly reaching the end of merus, and bears a short plumose hair at the tip. The remaining distal segments slender; carpus nearly as long as ischium and merus together; propodus slightly longer than half the length of carpus, provided with three long setae on the distal inner portion; dactylus as long as propodus, bears three setae at the tip.

Second pereopod (Fig. 2, A, B) strongly reduced, filiform, with six segments; the distal segment bears two setae. Third to fifth pereopods (Fig. 4, B-D) stouter and longer. Fifth pereopod a little shorter and smaller than the preceding two pairs.

The allotype is an adult male, length about 9.6 mm (the posterodorsal portion of carapace and the posterior portion of abdomen are partly damaged) (Fig. 5, A, B).

Carapace hairy, without spiniform granules, and somewhat slender, long ellipsoidal in shape when viewed dorsally. A pair of antero-lateral cornua rather smaller than that of the female, less than one-sixth as long as carapace. Antennal notch considerably well marked. Other general appearance similar to that in the female. Length of carapace slightly less than one-fourth of the body and about twice as long as the maximum width across the middle portion. The maximum width slightly less than the depth. Ocular lobe rounded and large, with three corneal lenses. Pseudorostral lobes rather shorter than in the female, about as long as ocular lobe.

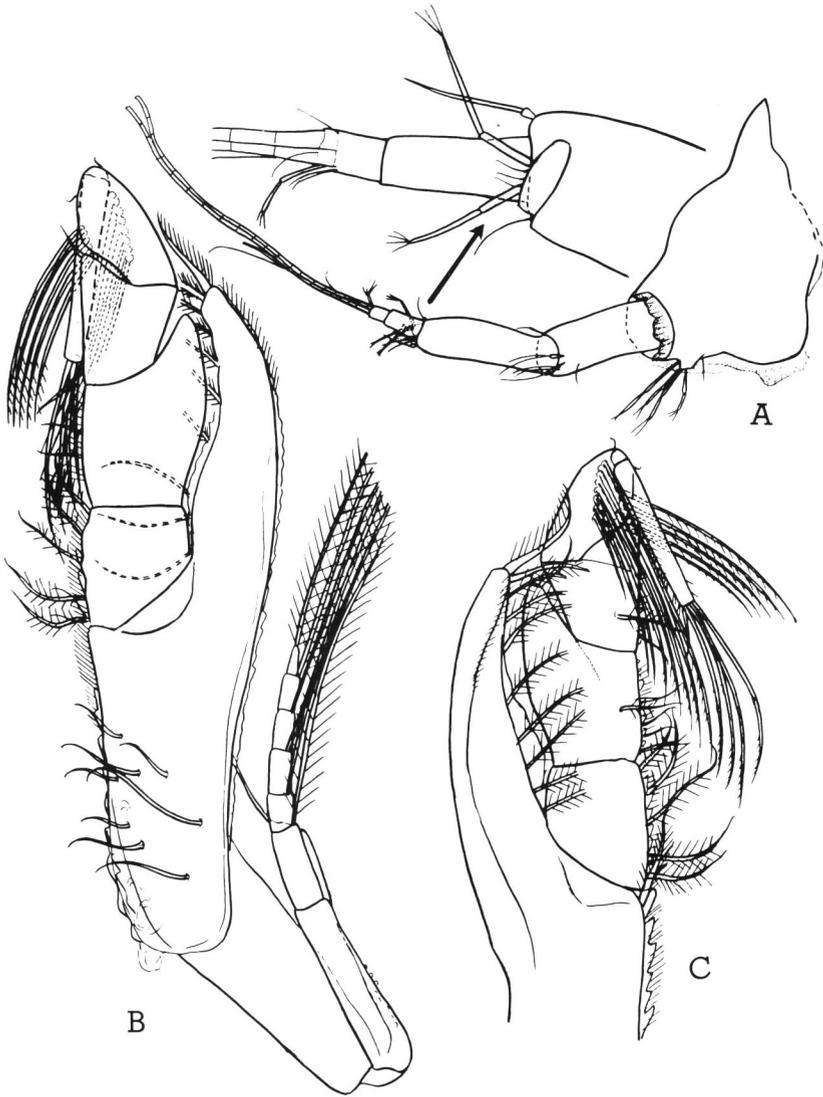


Fig. 3. *Eocuma spinifera* sp. nov., holotype female. — A, Antennule. B, Third maxilliped. C, Distal portion of third maxilliped, dorsal view.

First pedigerous segment indistinct, fused with carapace. Second to fifth pedigerous segments about as wide as first abdominal segment; the combined length of the four segments about one-third as long as abdomen; their side plates considerably prominent. Second segment rather large, bearing a pair of strongly reduced filiform peraeopods. Third lower and shorter and the fifth longer than the fourth.

Abdomen much more than half as long as the body length, carrying five pairs of

pleopods. First four abdominal segments subequal in length respectively. Fifth segment the longest, nearly one-fourth the length of abdomen. Sixth segment as long as the fourth and about three-fourths as long as the fifth.

Peduncle of uropod about two-fifths as long as the last abdominal segment, and armed with short spines on the inner border. Endopod nearly thrice as long as peduncular segment and slightly longer than exopod; its inner border armed with many spines and plumose hairs. Exopod has plumose hairs on both lateral borders. The rami carry a characteristic plumose seta at each distal end.

First peduncular segment of antennule (Fig. 5, C) very robust, about as long as the distal two peduncular segments combined; the third longer than the second and has a long main and a minute accessory flagella on the distal end. Main flagellum three-segmented; the first segment about as long as the distal two combined, carrying four aesthetascs at base; the distal two segments bear one or two aesthetascs respectively.

Antenna has three large peduncular segments and a long flagellum which exceeds the total length of body.

Third maxilliped (Fig. 6, A) similar to that of the female in general appearance. Propodus bears six long plumose setae on the inner border and eight such setae in the middle portion on the dorsal surface. Dactylus nearly as long as carpus and propodus together, and provided with four long plumose setae at the tip.

First pereopod (Fig. 6, B) slightly shorter than maxilliped. Length of basis is less than the remaining distal segments together and its distal portion produces into a triangular prolongation which measures about one-third as long as the proximal portion of basis and bears a short plumose seta at the tip. Carpus about as long as the combined length of ischium and merus. Propodus shorter than carpus and bears five long plumose setae on the distal portion. Dactylus longer than propodus, carrying long setae at the tip.

Second pereopod (Fig. 6, C, D) strongly reduced, filiform, with six segments; the left differs from the right one which shows an aberrant articulation between propodus and dactylus and it may be caused by the regeneration. Third to fifth pereopods stouter and longer.

Material examined. Holotype, adult ♀ (NSMT-Cr. 4076), 10.6 mm, St. 5, 22 m, muddy bottom (bottom temperature 13.8°C), Mutsu Bay, coll. by Aomori Aquiculture Center, Jul. 6, 1971.

Allotype, adult ♂ (NSMT-Cr. 4077), 9.6 mm, St. 51, 10 m, muddy bottom (temperature 14.7°C), Mutsu Bay, coll. by Aomori Aquiculture Center, Jul. 5, 1971.

Paratypes, adult 1 ♀ (with marsupium), 10.5 mm, St. 1, 16 m; 1 adult ♀, 8 mm, St. 49, 30 m; muddy bottom (temperature 13.4°C and 12.4°C), Mutsu Bay, coll. by Aomori Aquiculture Center, Jul. 5 and Jun. 29, 1971. 2 adult ♀ (with rudimentary marsupium), about 8.9 mm, St. 13 (33°22.0' N, 133°58.2' E), 92 m, Tosa Bay, coll. by R.V. *Kaiyo-Maru* of Nansei Regional Fisheries Research Laboratory, Jan. 26, 1975.

Remarks. *Eocuma spinifera* sp. nov. is very alike to *E. ferox* (FISHER) (PAGE,

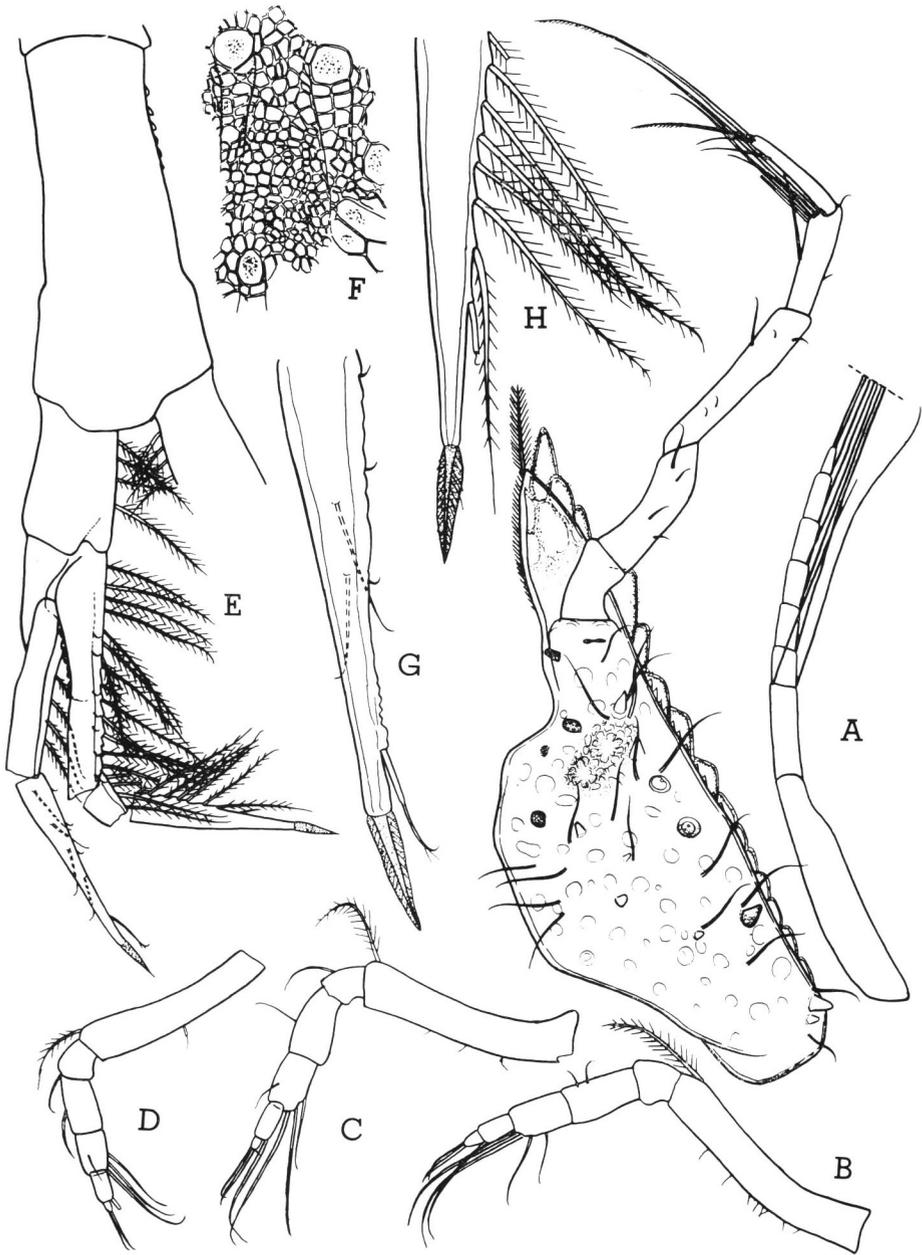


Fig. 4. *Eocuma spinifera* sp. nov., holotype female. — A, First pereopod. B–D, Third (B) to fifth (D) pereopods. E, Sixth abdominal segment with uropod. F, Sculpture of dorsal surface of sixth abdominal segment. G–H, Distal portion of exo- (G) and endopods of uropod.

1951, and JONES, 1956, etc.) from European and African waters and *E. trivancoricum* KURIAN (KURIAN, 1951) from Indian waters, but the new species is well distinguished from the latter two already described species by having the rudimentary filiform second peraeopod in both sexes.

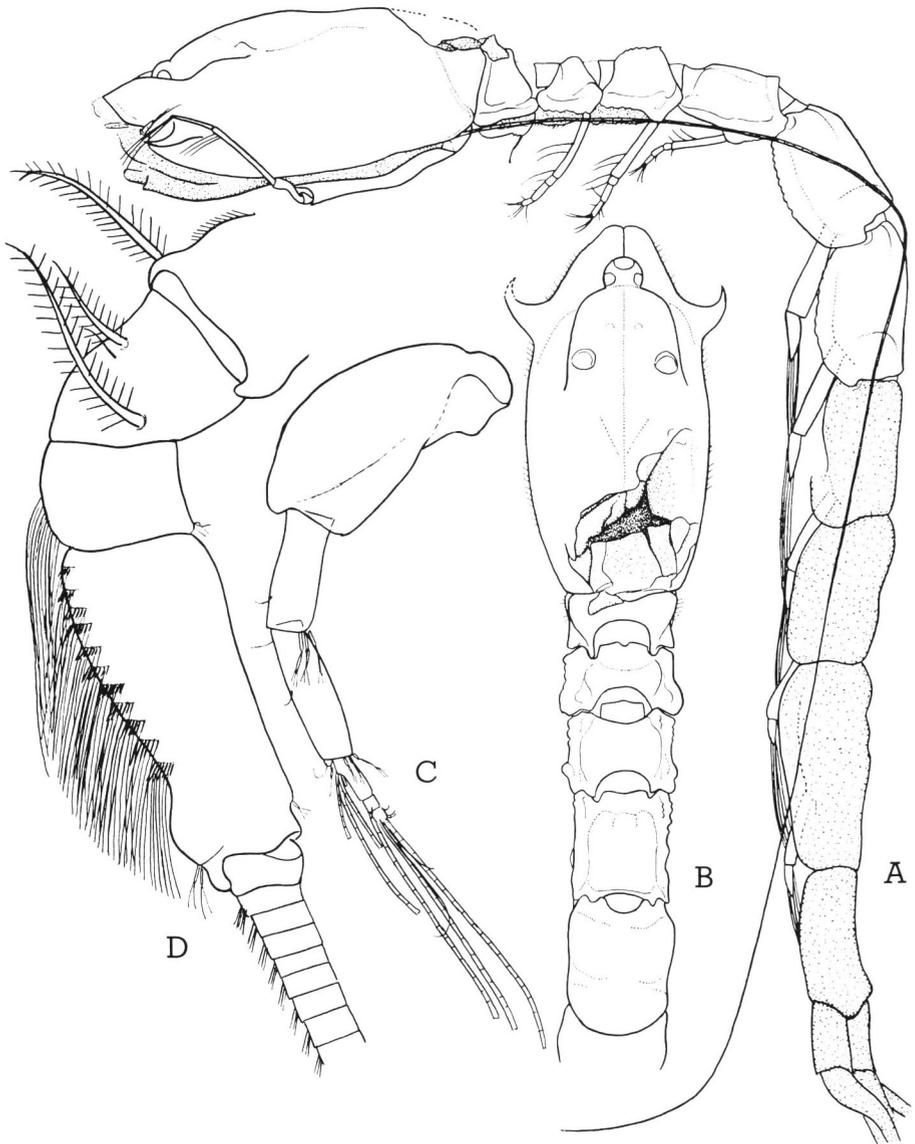


Fig. 5. *Eocuma spinifera* sp. nov., allotype male, length about 9.6 mm. — A, Lateral view (carapace and last four abdominal segments are partly damaged). B, Anterior portion of body, from above. C, Antennule. D, Antenna.

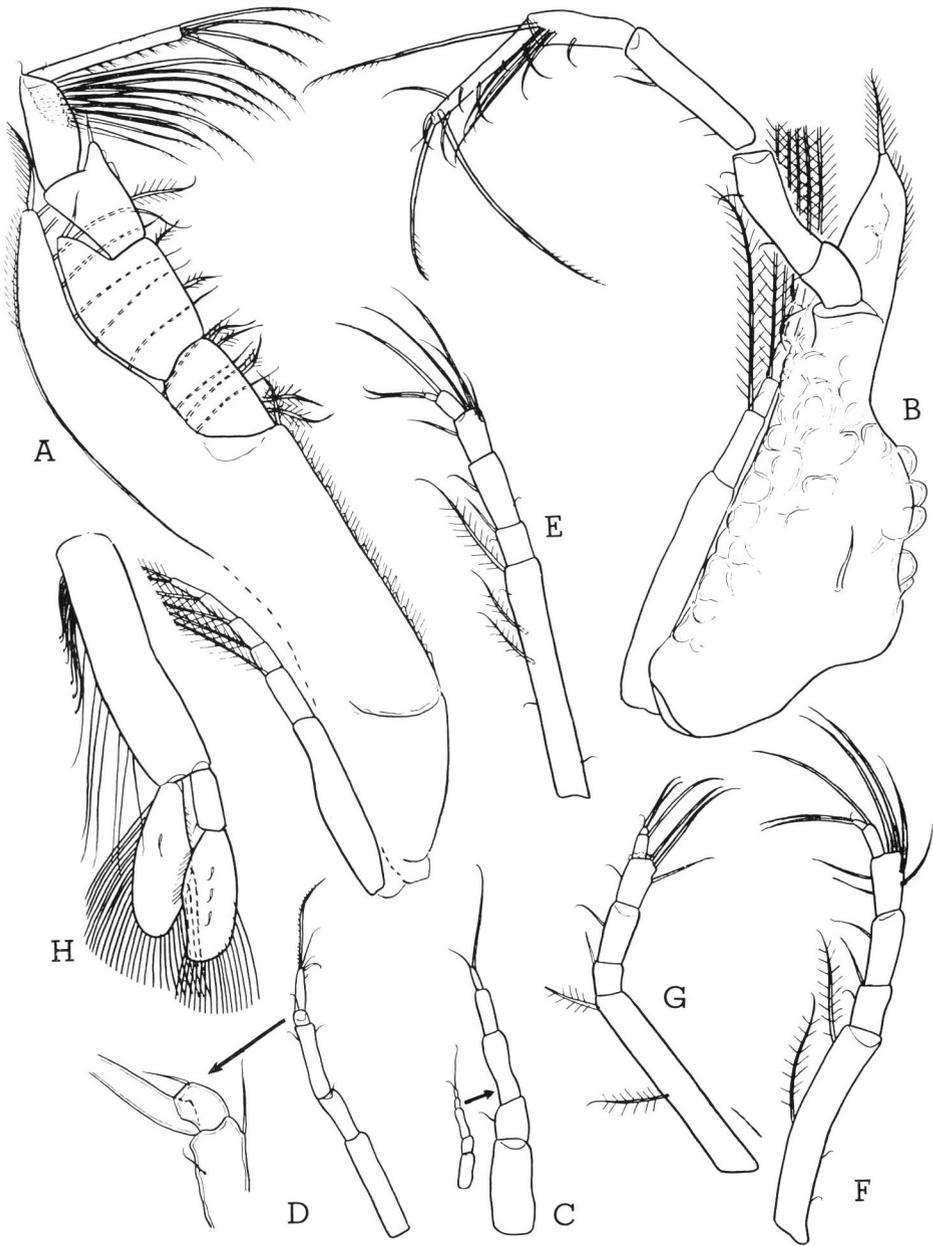


Fig. 6. *Eocuma spinifera* sp. nov., allotype male. — A, Third maxilliped. B, First pereopod. C-D, Left (C) and right (D) second pereopods. E-G, Third (E) to fifth (G) pereopods. H, Second pleopod.

From the littoral region of the Caribbean coast of Florida, BACESCU (1971) described *Cumella agglutinata* BACESCU, whose body is entirely buried in an agglutinate mass of fine mud granules or detritus substances. All the specimens examined of the new species are covered with a thin membraneous film with a coarse network-like structure on the surface of the body. This peculiar feature may also be due to environmental conditions of the habitat of the species or to other origin.

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