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PARANTHURID ISOPODS FROM THE CARIBBEAN SEA OF COLOMBIA (CRUSTACEA)

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ABSTRACT

Based on material collected in the Santa Marta area, Caribbean Sea of Colombia, three species of paranthurid isopods (Crustacea) are redescribed: *Colanthurus tenuis* Richardson, 1902, *Minyanthura corallicola* Kensley, 1982, and *Paranthura infundibulata* Richardson, 1902.

INTRODUCTION

The information on paranthurid isopods from the Caribbean Sea has been recently summarized by Kensley & Schotte (1989). From 11 species actually known from that area (using Wägele's, 1989, assignment of genera to Anthuridean families), only 3 have been found during a period of approximately 13 months (1985-86) by the author along the Caribbean Coast of Colombia, in the vicinity of Santa Marta. All these species seem to have a wide distribution in the tropical Western Atlantic. However, none is sufficiently described, which made it useful to redescribe them for completeness and ease of comparison with other species of the respective genera.

MATERIAL AND METHODS

The material was obtained by hand while skin and SCUBA diving, or while wading in very shallow water.

Specimens have been stored in 5% formalin/sea water for some hours, then washed with fresh water and preserved in 70% ethanol. The removed appendages were mounted in glycerin and sealed with paraffin.

All specimens are deposited in the collection of the Zoölogisch Museum, Amsterdam (ZMA).

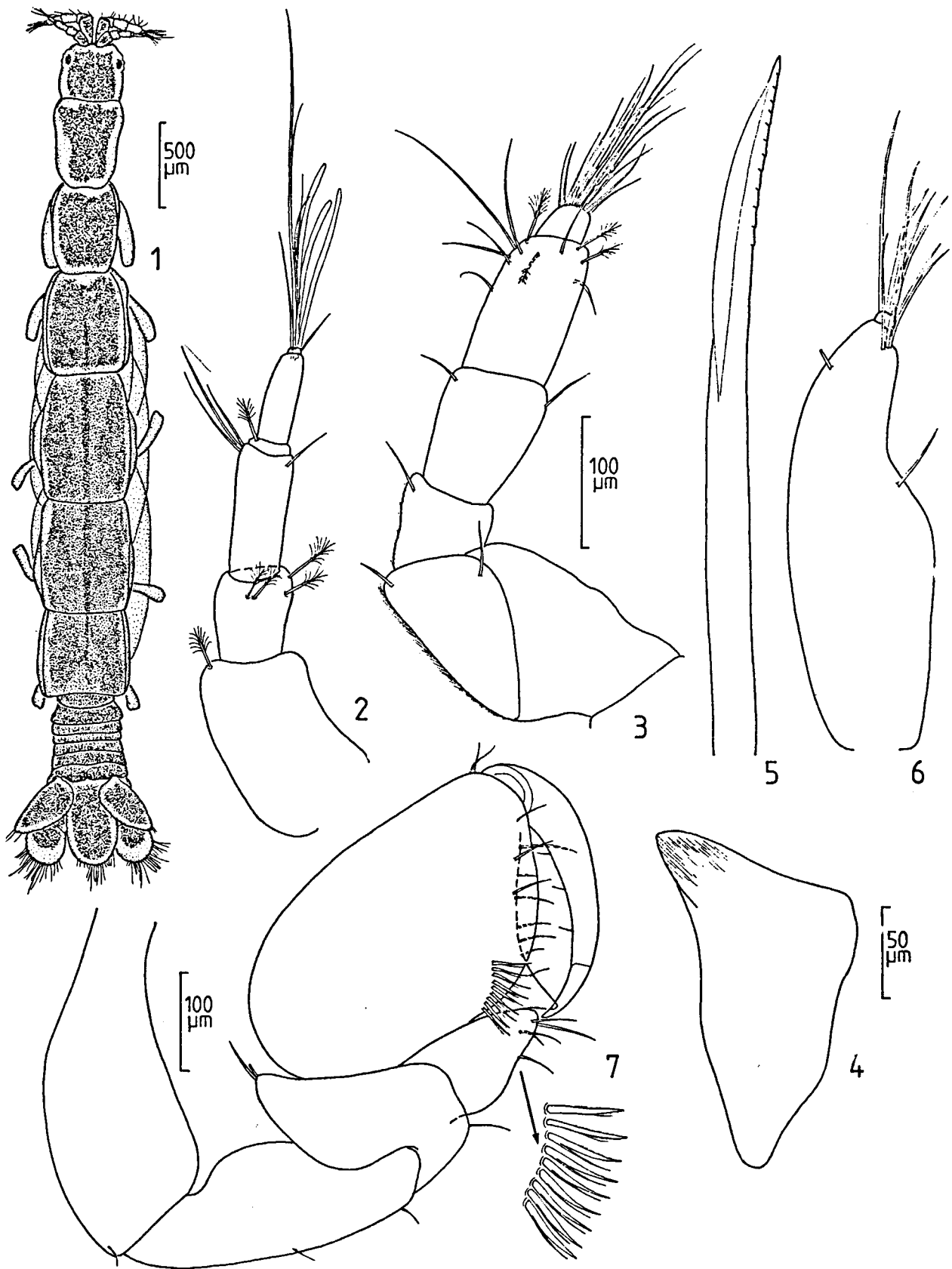
Colanthurus Richardson, 1902

Colanthurus tenuis Richardson, 1902
(figs. 1-18)

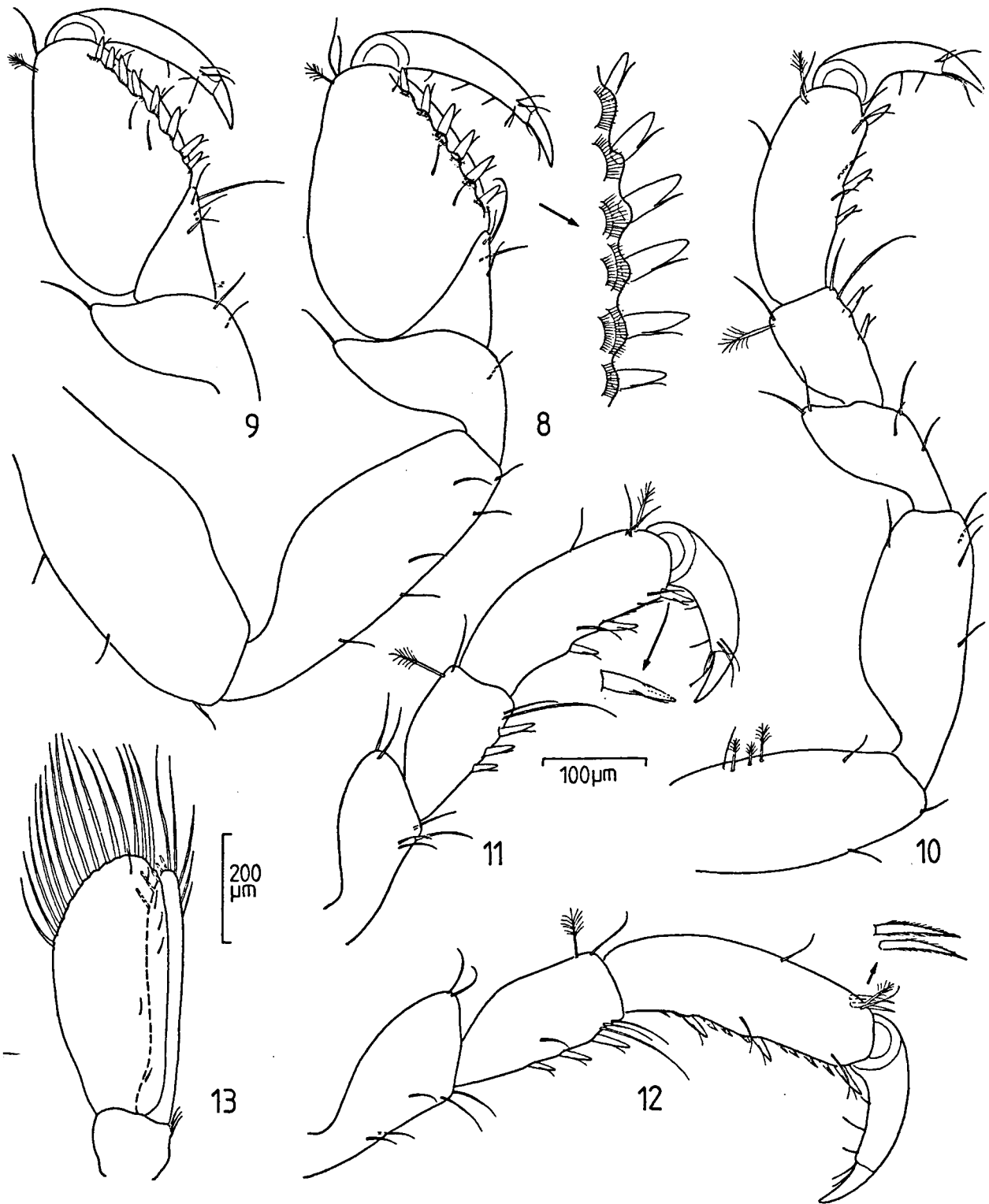
Colanthurus tenuis Richardson, 1902: 287-288, pl. 38, figs. 23-28; Poore, 1984: 708, fig. 6a (synonymy); Kensley & Schotte, 1989, 65-67, fig. 30 A-C.

Material

4♂, 11♀ (7 ov.), 5 immature adults (ZMA Is. 105.463): Tayrona National Park, about 40 km north-east of Santa Marta, near Cafaverales, shallow lagoon, *Thalassia*, 1.5-



Figs. 1-7. *Colanthurus tenuis* Richardson, 1902, ♀: 1, dorsal view; 2, antenna 1; 3, antenna 2; 4, mandible; 5, maxilla; 6, maxiliped; 7, pereopod 1.



Figs. 8-13. *Colanthurus tenuis* Richardson, 1902, ♀: 8, pereopod 2; 9, pereopod 3; 10, pereopod 4, 11, pereopod 5; 12, pereopod 6; 13, pleopod 1.

Marta, near Cañaverales, shallow lagoon, *Thalassia*, 1.5-2 m, 25 February 1986. 1♀ (ZMA Is. 106.464); same location, *Syringodium*, 1.5-2 m, 25 February 1986.

DESCRIPTION

♀. - Body relatively slender, almost entirely brown pigmented, about 8 times longer than wide. Total length 3.5-4.9 mm. Head with well pigmented, antero-lateral eyes. Body proportions $C<1=2<3<4>5>6>7$. Reduced pereonite 7 narrower than pleonites. Pleonites free (fig. 1).

Telson tongue-shaped, twice longer than wide; distal margin broadly rounded, with several simple setae.

Antenna 1, peduncle 3-articulated; first article longest and widest;

second article shortest; third article longer and narrower than second; flagellum 3-articulated, with 3 distal aesthetascs and 5 simple setae; first and third article very short, second article elongate (fig. 2).

Antenna 2, peduncle 5-articulated; second article longest, grooved to accommodate antenna 1 peduncle; articles 3-4 increasing in length distally; flagellum of single article, distally with many simple setae (fig. 3).

Mandible with cone-like endite, no trace of palp observed (fig. 4). Maxilla elongate and narrow, styletto-like, with 12 distal indentations and a long lamella (fig. 5). Maxilliped 2-articulated; large proximal article narrower in distal half, with 5 simple setae; distal article minute, also with 5 simple setae (fig. 6).

Propodus of pereopod 1 expanded; mesial surface near palm with some simple setae and short row of 9 bifid setae; palm convex (fig. 7).

Propodus of pereopod 2 less expanded than in pereopod 1, palm with 6 strong compound spines (fig. 8). Pereopod 2 similar to pereopod 2; propodus less expanded, palm with 8 strong compound spines (fig. 9). Pereopods 4 and 5 quite similar to each others; propodus and carpus rectangular; posterior margin of propodus with 3 compound spines; posterior margin of carpus in pereopod 4 with 2, in pereopod 5 with 3 compound spines (figs. 10-11).

Pereopod 6 more slender than others, posterior margin of propodus and carpus with 3 compound spines; posterior margin of propodus moreover with row of scales (fig. 12). Pleopod 1, exopodite oval, operculiform, 2.2 times longer than wide, with

15 plumose setae at distal margin; endopodite narrow, almost reaching length of exopodite, with 10 distal plumose setae (fig. 13); all plumose setae of pleopod drawn as simple setae. Uropodal exopodite extending beyond articulation of endopodite, oval, margin with several scattered simple and plumose setae (fig. 15). Uropodal endopodite broadly oval, particularly in distal half with some plumose and many simple setae; dorsal surface near distal margin with 4 feathered sensory setae (fig. 16).

Immature adult.- In size and habitus similar to ♀.

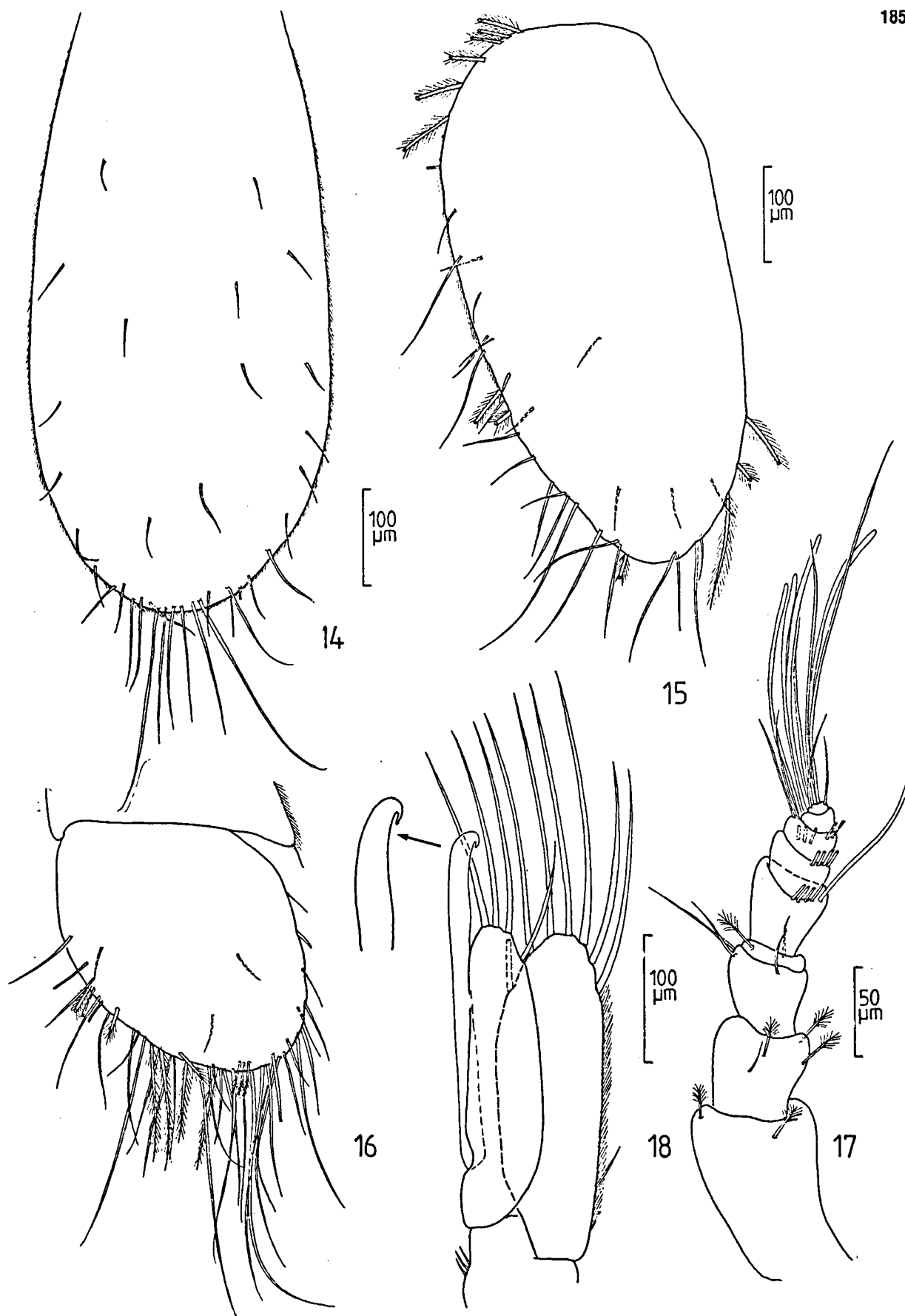
♂. - In habitus similar to ♀, total length 3.6 mm. Antenna 1, flagellum 6-articulated; articles 2-6 with several aesthetascs (fig. 17). Pleopod 2, exopodite elongate oval, with 7 distal plumose setae; endopodite narrower and somewhat shorter than exopodite, with 4 distal plumose setae; copulatory stylet 1.15 times longer than endopodite, its apex hook-shaped (fig. 18); all plumose setae of pleopod drawn as simple setae.

Remarks

Two specimens from Bermuda have been available to the author for comparison with the Colombian material. One immature adult (USNM 24866) has a pale yellow colour, possible due to the long time of preservation (collected May 1898). The other, a ♂ (USNM 221548) has the pleon broken off and shows a brown pigmentation as in Colombian specimens.

Colanthura tenuis is related with 3 other species from the Indo-Pacific, all sharing the feature of a completely brown pigmented body. It differs from *C. kensleyi* Poore, 1984 (Philippines, Indonesia), *C. nigra* Nunomura, 1975 (Japan) and *C. pigmentata* Kensley, 1980 (Madagascar) by the broader telson and some other minor features as shape and spination of the pereopods as well as shape of the uropods (cf. Kensley, 1980: 5, figs. 2-3; Nunomura, 1975: 20-23; figs. 4-5; Poore, 1984: 705-707, fig. 4; 708, fig. 5).

Colanthura tenuis was known only from Bermuda. The record from northern South America therefore considerably extends its known range southward. In the Santa Marta area it was restricted to one local-



Figs. 14-18. *Colanthurus tenuis* Richardson, 1902, ♀: 14, telson; 15, uropodal exopodite; 16, uropodal endopodite. ♂: 17, antenna 1; 18, pleopod 2.

ity, where it was found in shallow water of sea-grass beds (*Syringodium*, *Thalassia*).

Minyanthura Kensley, 1982

Minyanthura corallicola Kensley, 1982

(Figs. 19-35)

Minyanthura corallicola Kensley, 1982: 343-345, figs. 157-158; Kensley & Snelgrove, 1987: 196; Kensley & Schotte, 1989: 53, fig. 23.

Material

1♀ (ZMA Is. 105.465): Tayrona National Park; Bahia Chengue, about 15 km north-east of Santa Marta; coral rubble, 4-6 m, 4 September 1985.

DESCRIPTION

♀. - Body relatively robust, 5.5 times longer than wide. Cephalon, pereonites 2, 4, 7 and anterior pleon with dark brown pigment reticulations. Total length 1.4 mm. Head with well pigmented anterolateral eyes. Body proportions $C > 1 < 2 < 3 < 4 = 5 > 6 > 7$. Pereonite 7 the shortest segment (fig. 19). Pleonites fused, suture lines only indicated laterally. Telson about twice longer than wide, with 2 anterior pits and almost parallel-sided lateral margins; distal margin broadly rounded and crenulate, with some simple setae in characteristic arrangement (fig. 26).

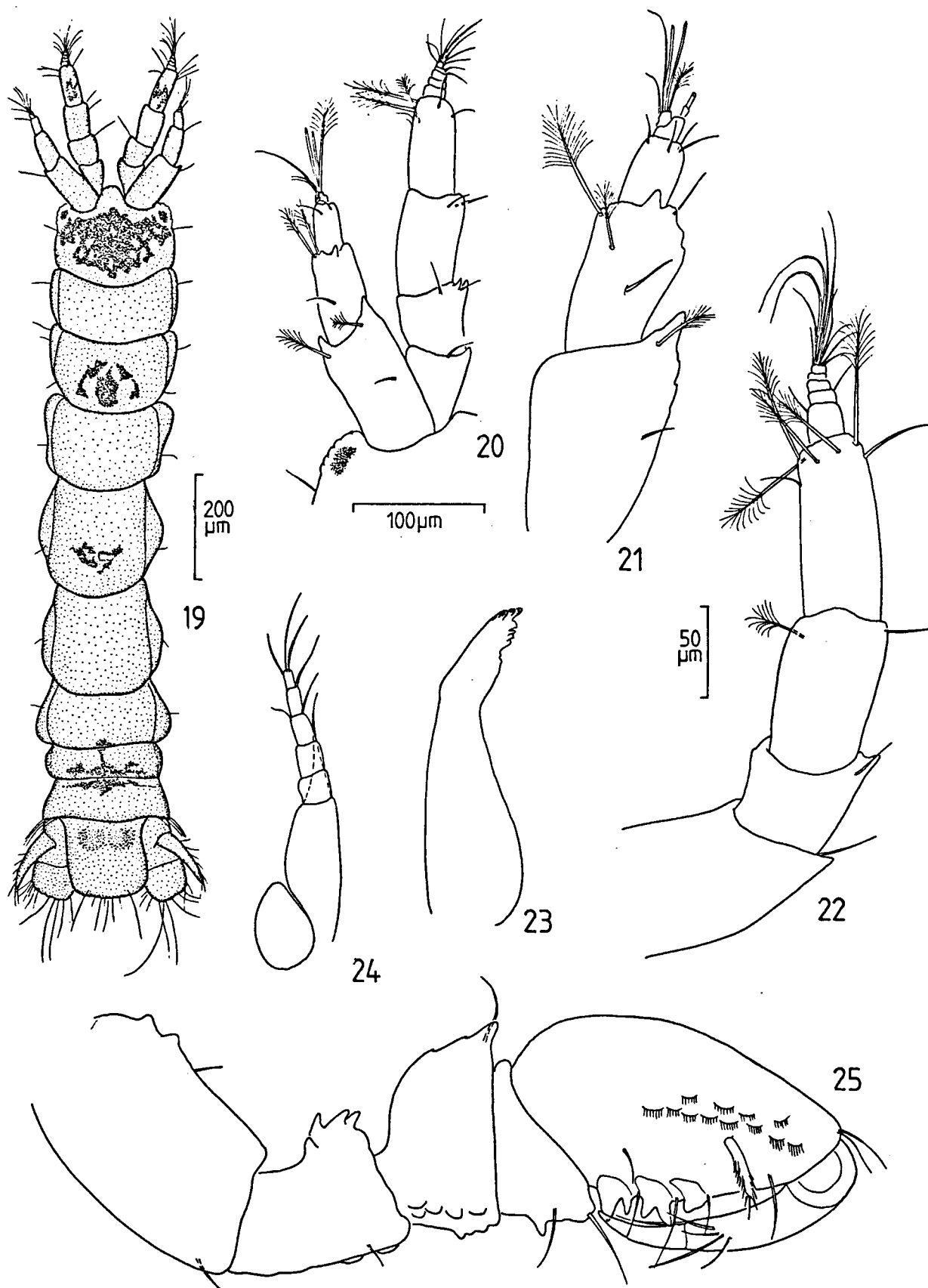
Antenna 1, peduncle 3-articulated, articles decreasing in length and width distally; dorsodistal margin of first article with 2 denticles, of second article with one denticle; flagellum of 2 very small articles, both with a single feathered sensory seta; terminal article moreover with 2 aesthetascs and 2 simple setae (figs. 20-21). Antenna 1, peduncle 5-articulated, second article curved ventrally; medio-distal margin of second peduncular article with 1, of third article with 2 denticles; flagellum of 5 articles, proximal one longest; minute terminal article with several simple setae (figs. 20, 22). Mandible slender, medially curved in distal third; incisor with 3 cusps, lamina dentata with 6 indentations, palp reduced (fig. 23). Apex of maxilla broken off, not drawn (cf. Kensley 1982: 344, fig. 157 f). Maxilliped elongate and slender, with well developed endite; palp of 5 articles; articles 3-5 bearing some simple setae (fig. 24). Pereopod 1, dactylus twice length of unguis; propodus expanded; proximal half of palm with 3 strong

tubercles, 2 of these bifurcate; mesial surface of propodus with several scales and a stout serrate spine; carpus triangular, anterior margin free; posterior margin with single tubercle and 2 simple setae; anterodistal margin of merus somewhat produced, bearing simple seta; posterior margin with some indistinct tubercles; ischium with anterodistal hump bearing about 4 denticles; anterior margin of basis with 2 denticles (fig. 25). Pereopod 2 less robust than pereopod 1, with similar arrangement of denticulations (fig. 27). Pereopod 3 with rectangular propodus; palm with 2 strong spines; carpus triangular and ischium with 2 strong denticles at anterior margin (fig. 28). Pereopod 4, posterodistal margin of propodus with strong spine (fig. 29); pereopod 5 quite similar to pereopod 4. Pereopod 6, palm of propodus with row of scales and distal compound spine (fig. 30). Pereopod 7, propodus with 4 distal spines, 3 being fringed; palm with row of scales (fig. 31). Pleopod 1 not figured, damaged. Uropodal exopodite distally produced into narrow lobe, bearing some simple setae; medial margin with some indistinct serrations (fig. 26); uropodal endopodite oval, margin crenulate, with several simple setae; dorsal surface near ectal margin with 5 feathered sensory setae (fig. 26).

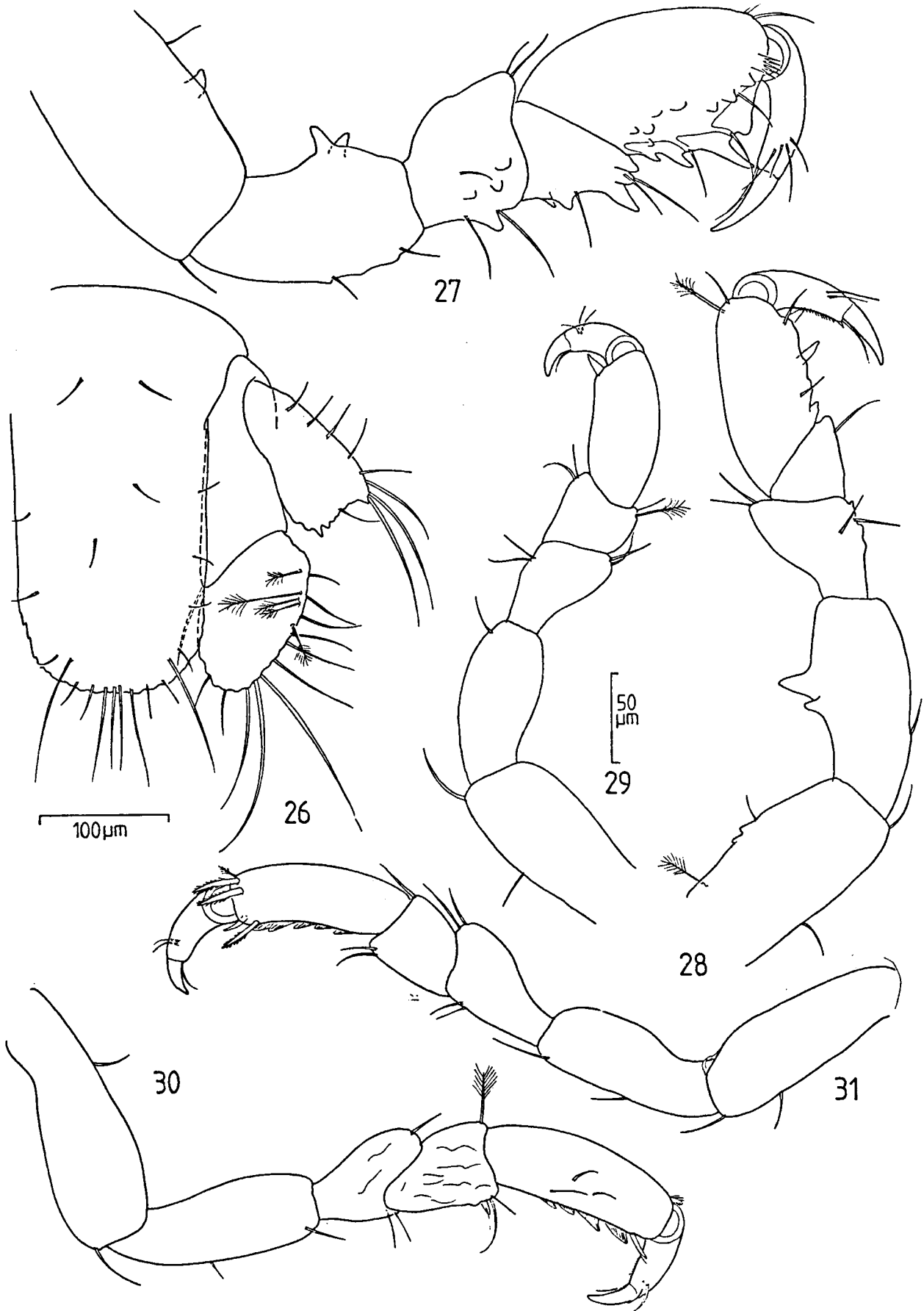
Remarks

There are some disagreements with the original description and features exhibited by the single ♀ available from Colombia. This specimen has distinct tooth-like tubercles at the proximal peduncular articles of the antennae, as mentioned above. Further, the propodal palm of pereopods 1 and 2 as well as the posterior margin of the carpus bear strong, tooth-

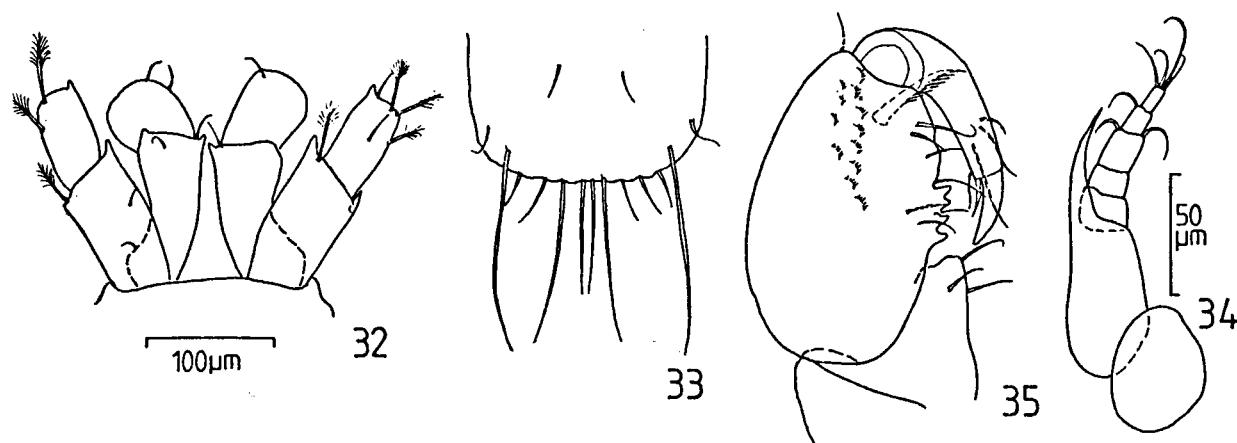
shaped tubercles. These remarkable differences let me presume at first that the Colombian specimen might belong to an unknown species. One ♀ paratype, poorly preserved and in appearance like an exuvia, has been available to the author for comparison from Belize (USNM 171171, figs. 32-35). It became obvious, that no morphological differences exist between specimens from Colombia and Belize; extending the known range of that species from Belize, Barbados and Jamaica (Kensley & Schotte 1989: 55) southward to the northern coast of South America. *Minyanthura* has an almost cosmopolitan



Figs. 19-25. *Minyanthura corallicola* Kensley, 1982, ♀: 19, dorsal view; 20, antennae and anterolateral margin of cephalon; 21, antenna 1; 22, antenna 2; 23, mandible; 24, maxilliped; 25, pereopod 1.



Figs. 26-31. *Minyanthura corallicola* Kensley, 1982, ♀: 26, telson and uropod; 27, pereopod 2; 28, pereopod 3; 29, pereopod 4; 30, pereopod 6; 31, pereopod 7.



Figs. 32-35. *Minyanthura corallicola* Kensley, 1982, ♀ paratype from Belize (USNM 171171): 32, proximal articles of antennae, dorsal view; 33, distal part of telson, dorsal view; 34, maxilliped; 35, distal part of pereopod 1.

***Paranthura* Bate & Westwood, 1868**

***Paranthura infundibulata* Richardson, 1902**
(figs. 36-54).

Paranthura infundibulata Richardson, 1902: 284-286, pl. 38, figs. 15-20; Kensley, 1982: 350 (synonymy); 1987: 133; Kensley & Schotte, 1989: 71-72, fig. 32 F-J.

Material

1 manca (ZMA Is. 105.466) Santa Marta, Punta de Betin; under stones on sand bottom, 0.5-1 m, 29 December 1985. 1 preparatory ♂ (ZMA Is. 105.467): same location, from rocks covered with algae, intertidal-0.5 m, 31 December 1985. 1 immature adult, 2 mancass (ZMA Is. 105.468): Bahia de Santa Marta, Isla Morro Grande; from algae on rocky shore, intertidal, 24 May 1985. Tayrona National Park: 1 preparatory ♂ (ZMA Is. 105.469): Bahia Concha, about 10 km north-east of Santa Marta; from hydroids (*Cnidoscypus*), intertidal, 5 July 1985. 1 immature adult (ZMA Is. 105.470): same location, from brown algae (*Digenia simplex*), intertidal, 13 August 1985. 1 immature adult (ZMA 105.471): Bahia Gairaca, about 20 km north-east of Santa Marta; from *Sargassum*, intertidal, 12 July 1985. 1 immature adult, 1 postmanca, 1 manca (ZMA Is. 105.472): Bahia Cinto, about 30 km north-east of Santa Marta; from algae on rocks, intertidal, 27 May 1985.

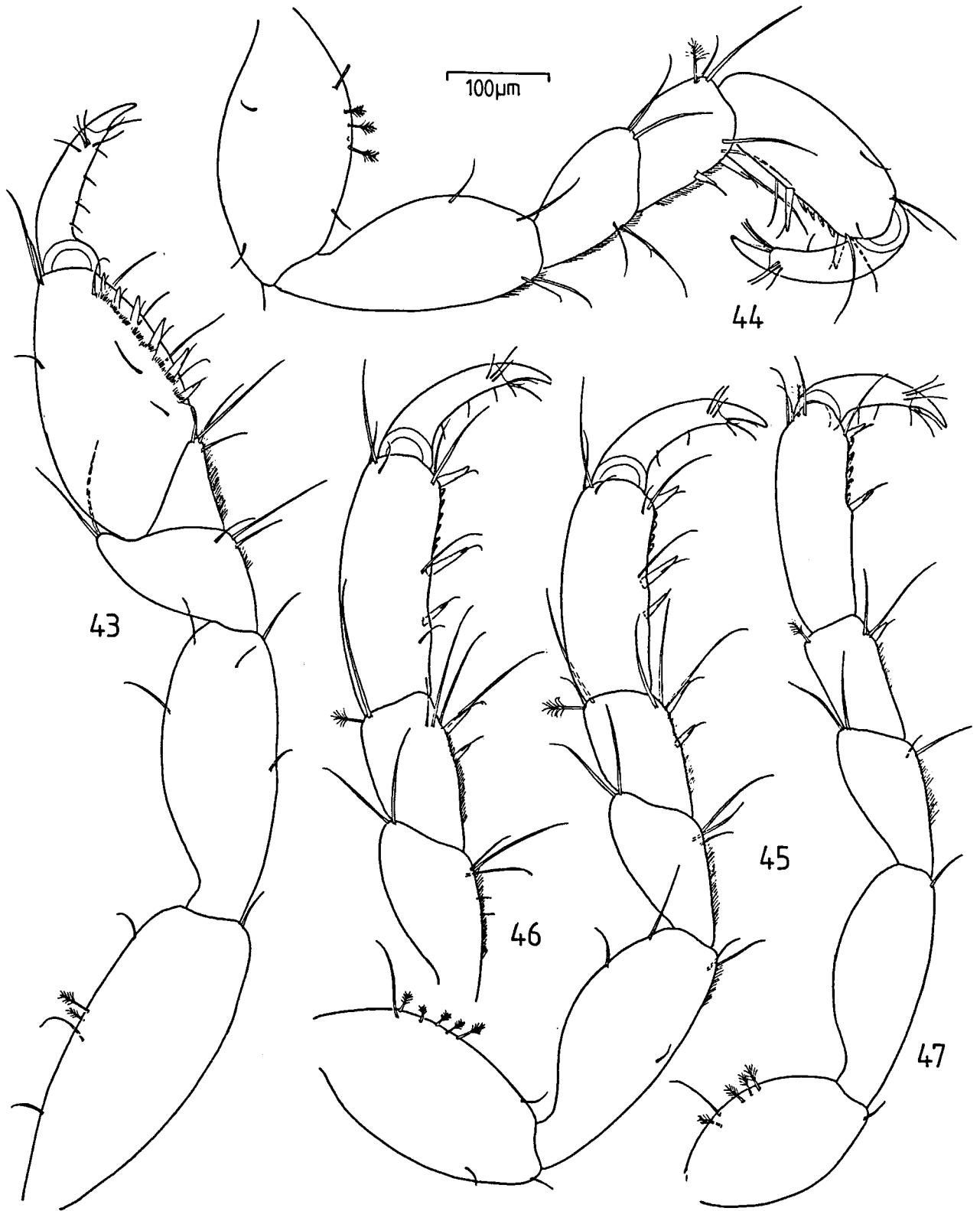
DESCRIPTION

Immature adult.- Body relatively slender, all segments with distinct pigment reticulations. Body about 10.5 times longer than wide, total length about 4.3 mm. Cephalon with well pigmented, anterolateral eyes. Body proportions: C<1>2=3=4>5>6>7. Pleonites free, with distinct suture lines (fig. 36). Telson about 2.7 times longer than wide; lateral margins almost parallel-sided and particularly distal margin with several long, simple setae; distal margin moreover with pair of fringed setae at midline (fig. 48).

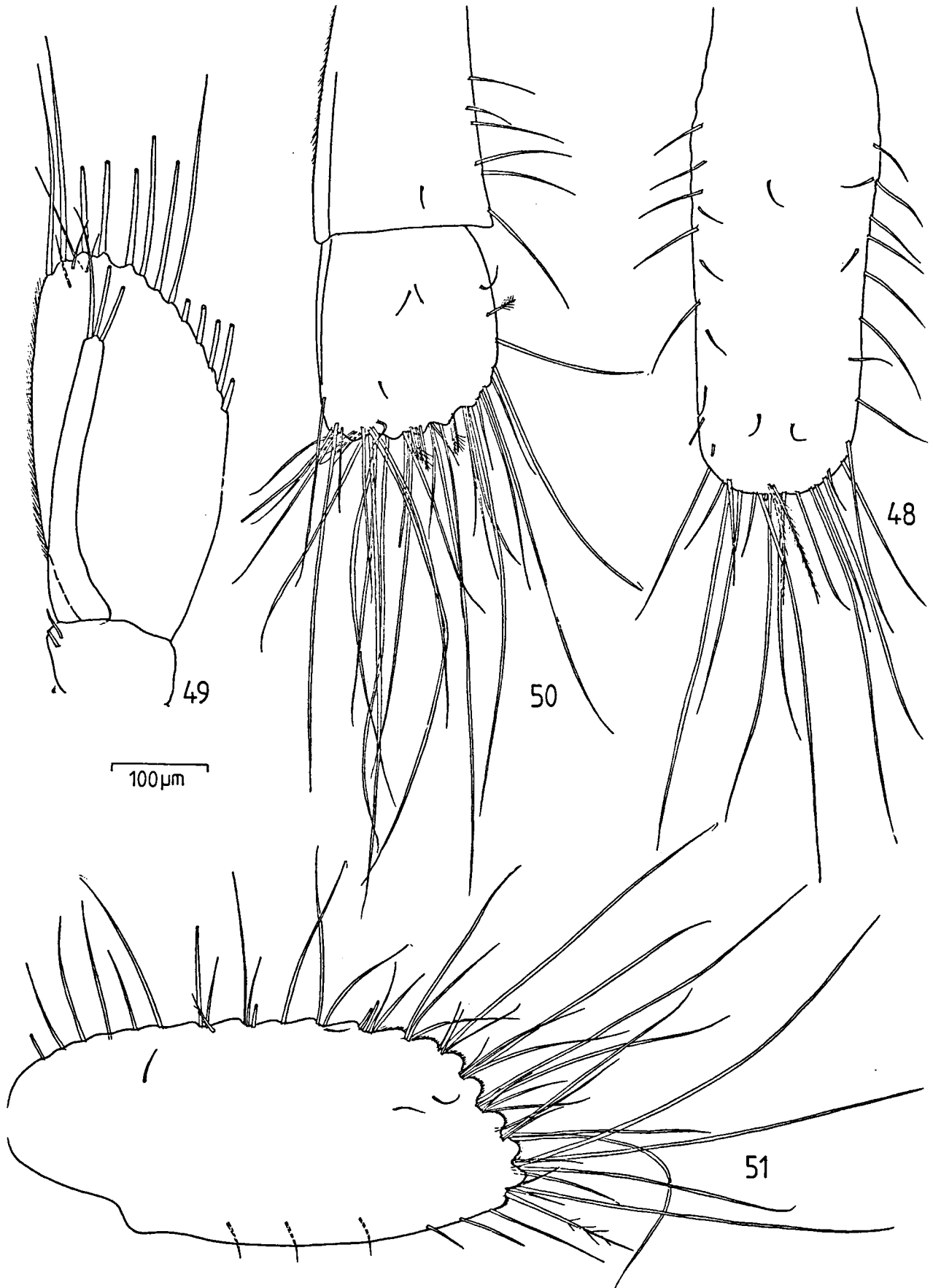
Antenna 1, peduncle of 3 articles; first article longer than second and third together; flagellum of 4 articles; third article with 3, minute terminal article with single aesthetasc (fig. 37). Antenna 2 with 5-articulated peduncle; second article longest, grooved to accommodate peduncle of antenna 1; flagellum of one large, densely setose article (fig. 38). Endite of mandible acute, distal half slender and spine-like; second article of 3-articulated palp longest, with long simple seta; terminal palp article with 7 fringed setae (fig. 39). Maxilla a slender stylet with 9 distal indentations and short lamella (fig. 40). Maxilliped 3-articulated; second article curved, slender, with 4 simple setae; tiny distal article with 5 simple setae (fig. 41). Propo-



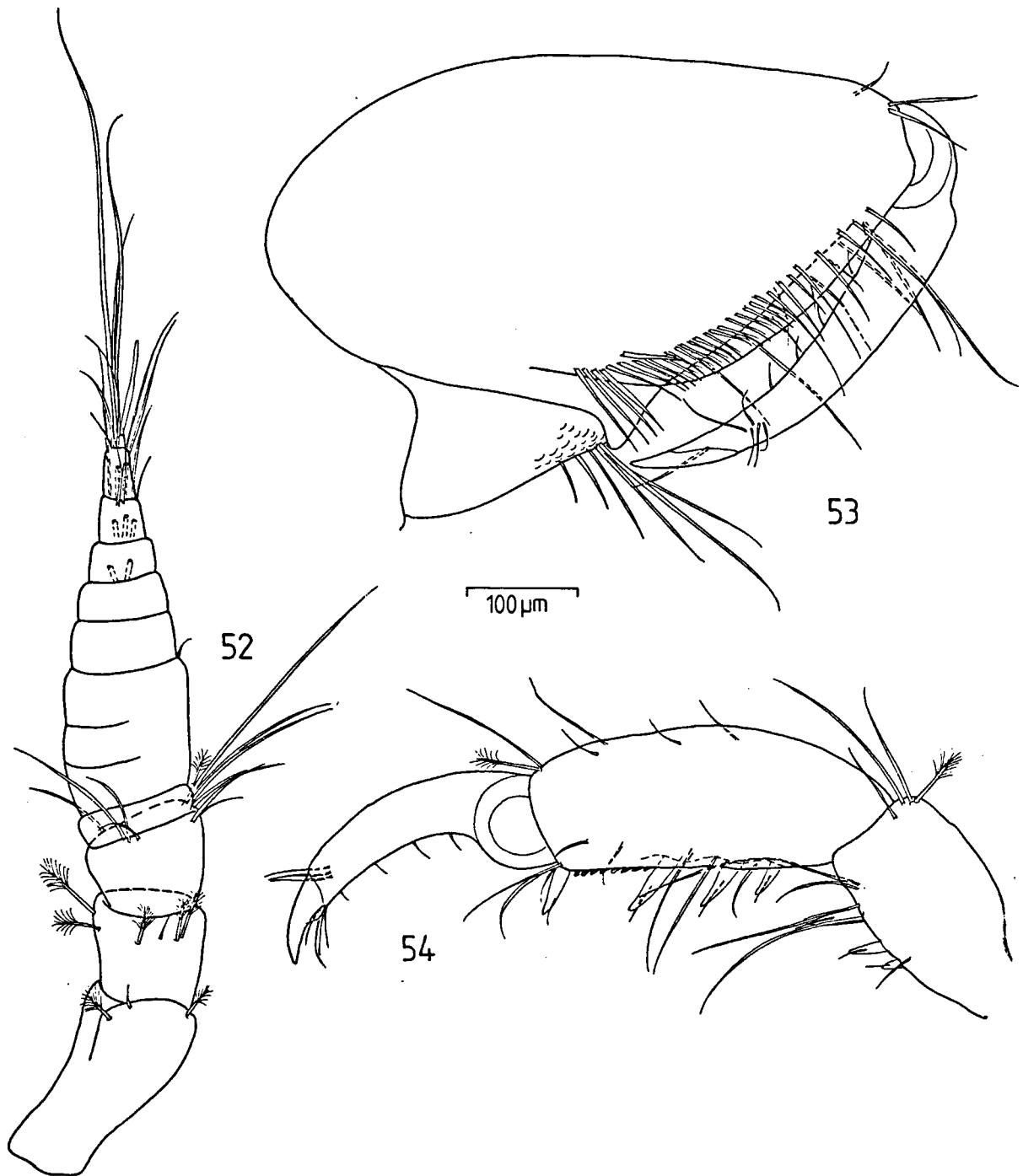
Figs. 36-42. *Paranthura infundibulata* Richardson, 1902, immature adult: 36, dorsal view; 37, antenna 1; 38, antenna 2; 39, mandible; 40, maxilla; 41, maxilliped; 42, pereopod 1.



Figs. 43-47. *Paranthura infundibulata* Richardson, 1902, immature adult: 43, pereopod 2; 44, pereopod 4, 45, pereopod 5, 46, distal part of pereopod 6; 47, pereopod 7.



Figs. 48-51. *Paranthura infundibulata* Richardson, 1902, immature adult: 48, telson; 49, pleopod 1; 50, uropodal endopodite; 51, uropodal exopodite.



Figs. 52-54. *Paranthura infundibulata* Richardson, 1902, preparatory ♂: 52, antenna 1; 53, distal part of pereopod 1; 54, distal part of pereopod 4.

dus of pereopod 1 expanded; mesial surface near palm with 7 curved setae; palm moreover with several simple setae; carpus roughly triangular, posterodistal margin with 6 simple setae (fig. 42). Propodus of pereopod 2 less expanded than that of pereopod 1; palm convex with 6 compound spines, a row of tiny spinules and some simple setae; posterodistal margin of triangular carpus with 4 simple setae (fig. 43). Pereopod 3 quite similar to pereopod 2. Pereopod 4-7 with rectangular propodus and carpus; palm of propodus with 3 compound spines in pereopods 5 and 6; posterodistal margin of carpus in pereopods 4-6 with 2 compound spines, in pereopod 7 with single compound spine (figs. 44-47). Pleopod 1 exopodite operculiform, more than 3 times wider and 1.3 times longer than endopodite; distal margin with 13 plumose setae; endopodite 5.3 times longer than wide, with 3 distal plumose setae (fig. 49). all plumose setae of pleopod 1 drawn as simple setae. Uropodal exopodite extending beyond articulation of endopodite, about 2.3 times longer than wide; mesial and distal margins with distinct rounded serrations and several long setae (fig. 51). Endopodite roughly square, distal margin with shallowly rounded serrations and many long simple setae; dorsodistal and laterodistal surface near margin with 6 feathered sensory setae (fig. 50).

Preparatory ♂. - In general habitus similar to immature adult, total length 5.9 mm. Flagellum of antenna 2 of 9 articles, with proximal three articles fused; articles 5-9 with some aesthetascs; minute terminal article with some long simple setae (fig. 52). Pereopod 1, propodus expanded and long-oval; mesial surface near palm with row of 23 setae (fig. 53). Propodus of pereopods 4-7 rectangular, palm with 4 compound spines; posterior margin of rectangular carpus of pereopods 4-6 with 3 compound spines (fig. 54), in pereopod 7 with single compound spine.

Postmanca. - Habitus similar to immature adult, total length 2.8 mm.

Posterior margin of propodus in pereopods 2 and 3 with 5 compound spines.

Manca. - Habitus similar to immature adult, total length 2.6 mm.

Posterior margin of propodus in pereopods 2 and 3 with 4 compound spines.

Remarks

Paranthura infundibulata is easily recognizable in samples from the tropical Western Atlantic through the characteristic shape of its telson and uropods. Some other species from the Indo-Pacific, such as *infundibulata*, have a similar habitus. However, because almost all of these are poorly described, discussion of interrelationships is hardly possible in this difficult genus, which requires a complete revision.

In the Santa Marta area *P. infundibulata* was restricted to very shallow water (0-1 m), where it has been regularly found in algal vegetation.

Up to now the species was known from Bermuda, the Atlantic Coast of Mexico, Belize and Venezuela (Kensley & Schotte 1989: 73).

ACKNOWLEDGMENTS

I wish to thank Dr. T.E. Bowman and Dr. B. Kensley (Washington), for making available specimens of *Colanthura tenuis* and *Minyanthura corallicola* for comparison. The fieldwork in Colombia was made possible through a grant of the German Academic Exchange (DAAD) and the staff of the Instituto de Investigaciones Marinas de Punta de Betin, Santa Marta, provided technical support. I am also grateful to Dr. Bernard Salvat, director of the Laboratoire de Biologie Marine et de Malacologie, Perpignan, France, for making available laboratory facilities in his institute.

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