A New Species of *Liropus* (Crustacea: Amphipoda: Caprellidea) from off Minabe, Kii Peninsula, Central Japan.

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With Text-figures 1–5

Abstract A new caprellid amphipod, *Liropus japonicus*, is described and illustrated on the basis of the specimens from off Minabe, Kii Peninsula, central Japan. The new species is the first representative of the genus from the Pacific Ocean. It is clearly distinguishable from its congeners by the morphology of first antenna.

Key words: Crustacea, Amphipoda, Caprellidea, new species, *Liropus*, Japan.

Introduction

The caprellid genus *Liropus* Mayer, 1890 consists of four species: *L. elongatus* Mayer, 1890; *L. minimus* Mayer, 1890; *L. africanus* Mayer, 1920; *L. gracilis* Chevreux, 1927. The geographical distribution of the genus is restricted to the Mediterranean Sea and the Atlantic coast of North Africa (McCain & Steinberg, 1970)

During a study of the caprellid fauna of the southern part of Kii Peninsula, central Japan, several individuals of a small caprellid species were collected from dead coral masses. The species belongs to the genus *Liropus* (Mayer, 1890, 1903; Krapp-Schickel, 1993) with the following diagnostic characters: second antenna with 2-segmented flagellum; mandible with molar and 3-segmented palp; pereopods 3–4 1-segmented; pereopod 5 2-segmented; abdomen with 1 pair of vestigial appendages and 1 pair of lobes. However, it is clearly distinguished from all other species of the genus by the morphology of first antenna. This new species, which is the first representative of the genus from the Pacific Ocean, is described and illustrated in this paper.

The type series is deposited in the Seto Marine Biological Laboratory, Kyoto University (SMBL).

Liropus japonicus, new species

Figs. 1–5

Type material.

Holotype (SMBL Type No. 384): male, 25 April 1994. Paratypes (SMBL No. 385): 1 male, 31 March 1993; 2 males and 2 females, 25 April 1994; 2 females, 20 December 1994.

All specimens were collected by A. Mori from the dead coral masses covered with algae and sessile

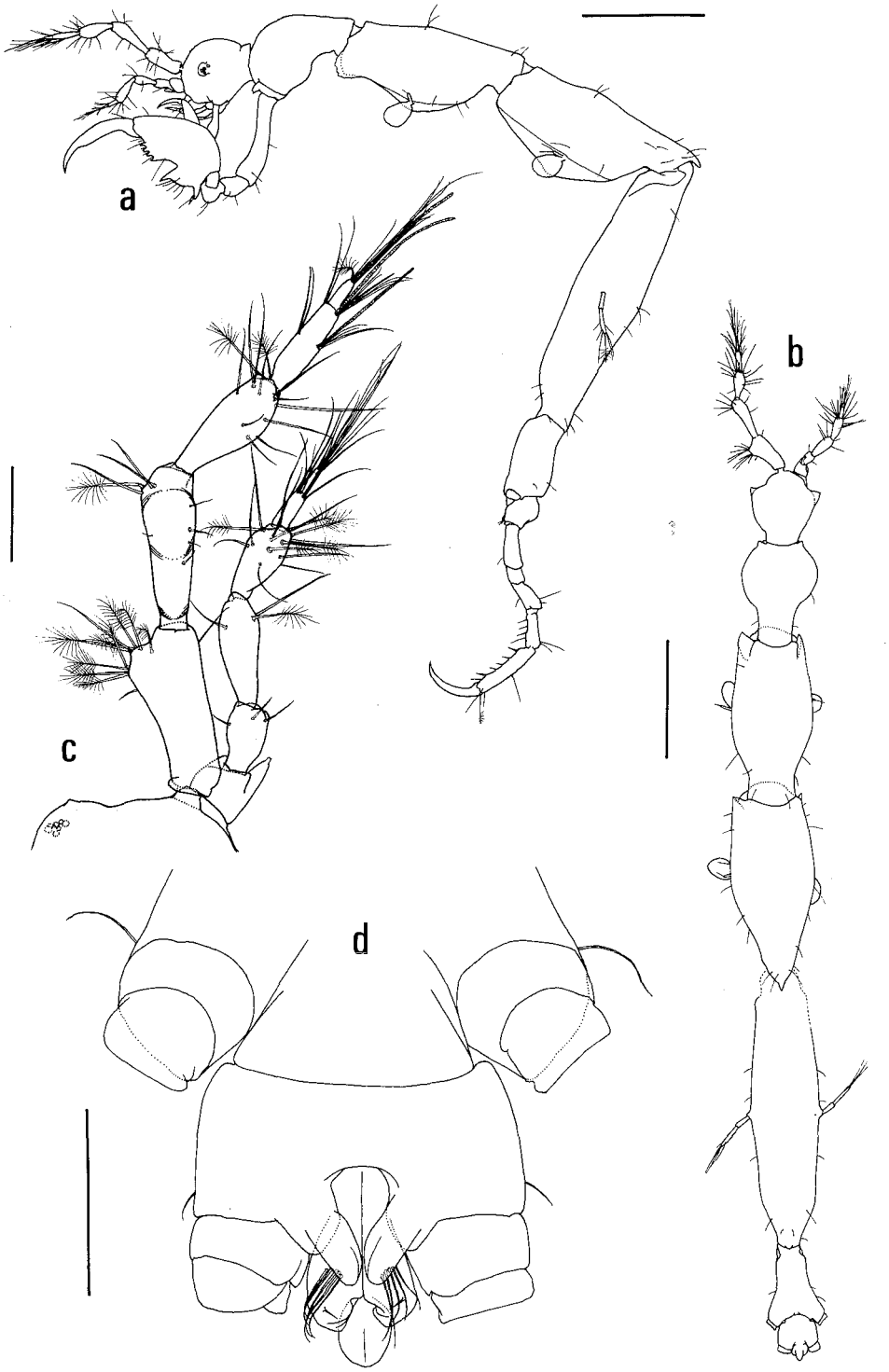

Fig. 1. *Livophus japonicus*, new species, holotype male: a, lateral view; b, dorsal view; c, antennae 1–2, dorsal view; d, abdomen. Scales: a-b = 0.5mm; c-d = 0.1mm.

animals such as sponges, hydroids, gorgonians and bryozoans. These substrata were caught off Minabe in gill nets for fishing spiny lobsters, and then landed at the Sakai fishery port of Minabe (33°45'N, 135°20'E), Wakayama Prefecture. Thus, conditions of the habitat of the present species are difficult to know.

Holotype male.

Body (Figs. 1a-b) 3.85 mm long, slender, with sparse setae. Cephalon globular, without rostral process. Eyes small, thickened anteriorly; several ommatidia visible. Pereonite 1 minute, fused with head; suture between head and pereonite 1 indistinct. Pereonite 2 expanded laterally and ventrally in anterior half, constricted in posterior half. Pereonite 3 constricted at posterior end; anteroventral margin extended forward. Pereonite 4 constricted at posterior end; posterodorsal margin pointed backward; anteroventral margin slightly extended forward. Pereonite 5 straight and slender, constricted at posterior end. Pereonite 6 extended posterolaterally at the base of pereopod 6. Pereonite 7 short.

Antenna 1 (Figs. 1a-c) short. Peduncular segment 1 with lateral bulge at distal end bearing several plumose setae; peduncular segments 2–3 swollen distally, with plumose and simple setae. Flagellum 2-segmented, subequal to peduncular segment 3 in length, with three long aesthetascs and many setae.

Antenna 2 (Figs. 1a-c) shorter than peduncle of antenna 1. Peduncular segments 4–5 swollen distally, with plumose and simple setae; antennal gland cone developed. Flagellum 2-segmented, subequal to peduncular segment 3 in length, with many long simple setae.

Upper lip (Fig. 2a) symmetrically bilobate along ventral margin. Lower lip (Fig. 2b): inner lobe well developed, slightly bilobate at middle; outer lobe round apically, with moderately developed mandibular process.

Mandible (Figs. 2c-d) with moderately developed molar; triturating surface distinct, dentate marginally. Left incisor 5-toothed; lacinia mobilis 5-toothed; accessory blades composed of 1 large and 1 small plates. Right incisor 5-toothed; lacinia mobilis simple; accessory blades composed of 2 plates. Palp 3-segmented; second segment with single medial seta; setal formula for third segment 1–2–1; terminal margin of third segment with 3 acute teeth among which the terminal setae arise.

Maxilla 1 (Fig. 2e): outer lobe truncate, with 6 tooth-like spines on apical margin. Palp 2-segmented; distal segment with 4 marginal spines.

Maxilla 2 (Fig. 2f): inner lobe small, tapered, with 2 apical setae; outer lobe with 4 apical setae.

Maxilliped (Fig. 2g): inner lobe small, about 1/3 of outer lobe in length, with 2 setae on apical margin, 1 seta on ventral surface; outer lobe exceeding palpal segment 1, with 2 setae on apical margin, 3 setae on medial margin. Palp 4-segmented; segment 2 with 1 distal seta; segment 3 with 3 distal setae; segment 4 tapered and slightly curved.

Gnathopod 1 (Fig. 2h) with small process at base. Merus projected anteroventrally. Propodus triangular; two grasping spines on palmar corner;

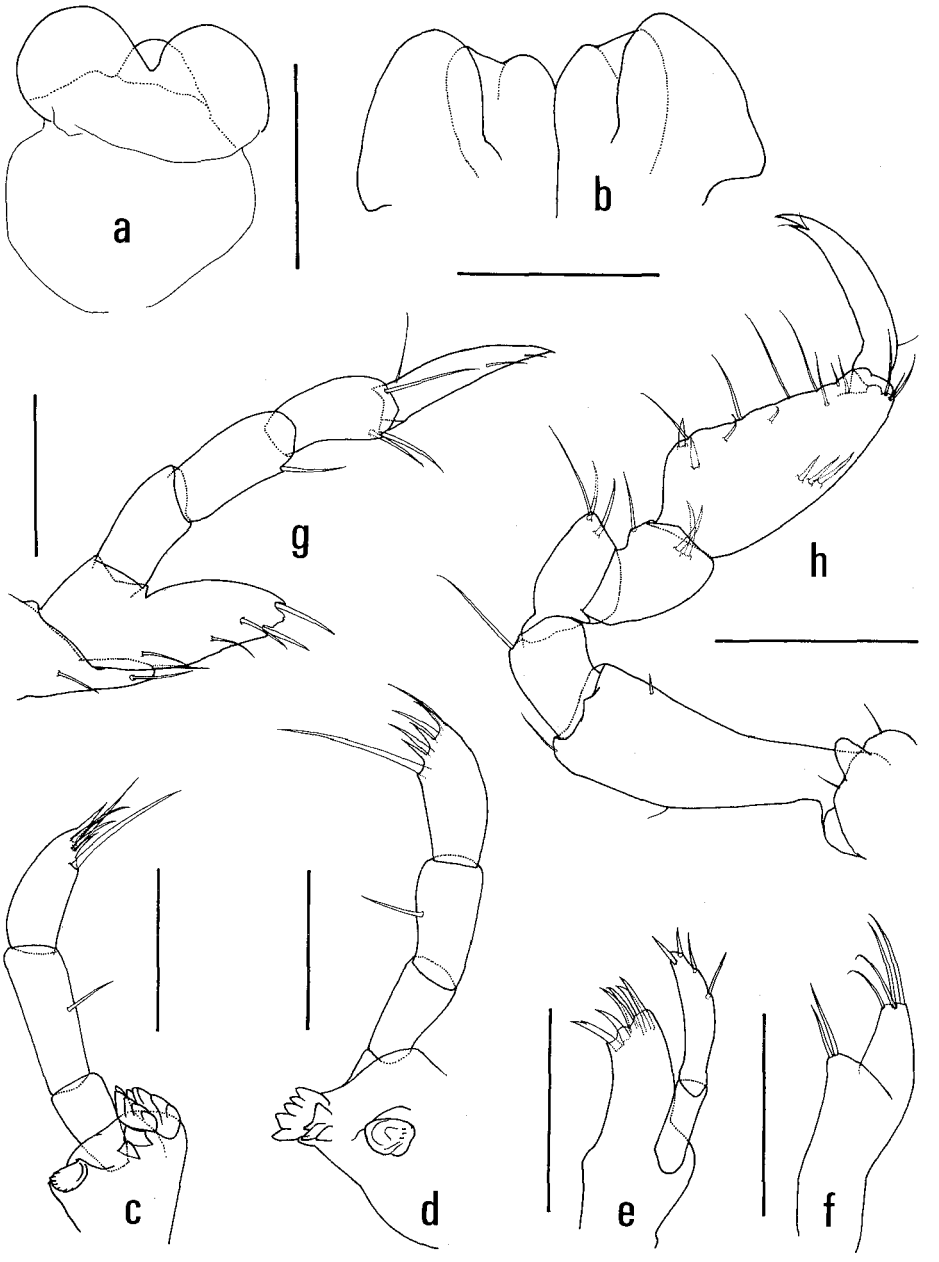

Fig. 2. *Liropus japonicus*, new species, holotype male: a, upper lip; b, lower lip; c, left mandible; d, right mandible; e, maxilla 1; f, maxilla 2; g, maxilliped; h, gnathopod 1. Scales: a-g = 0.05mm; h = 0.1mm.

grasping margin smooth with several setae. Dactylus slightly curved; grasping margin smooth, with subterminal tooth.

Gnathopod 2 (Figs. 1a, 3a) attached to anterior end of pereonite 2, with irregular

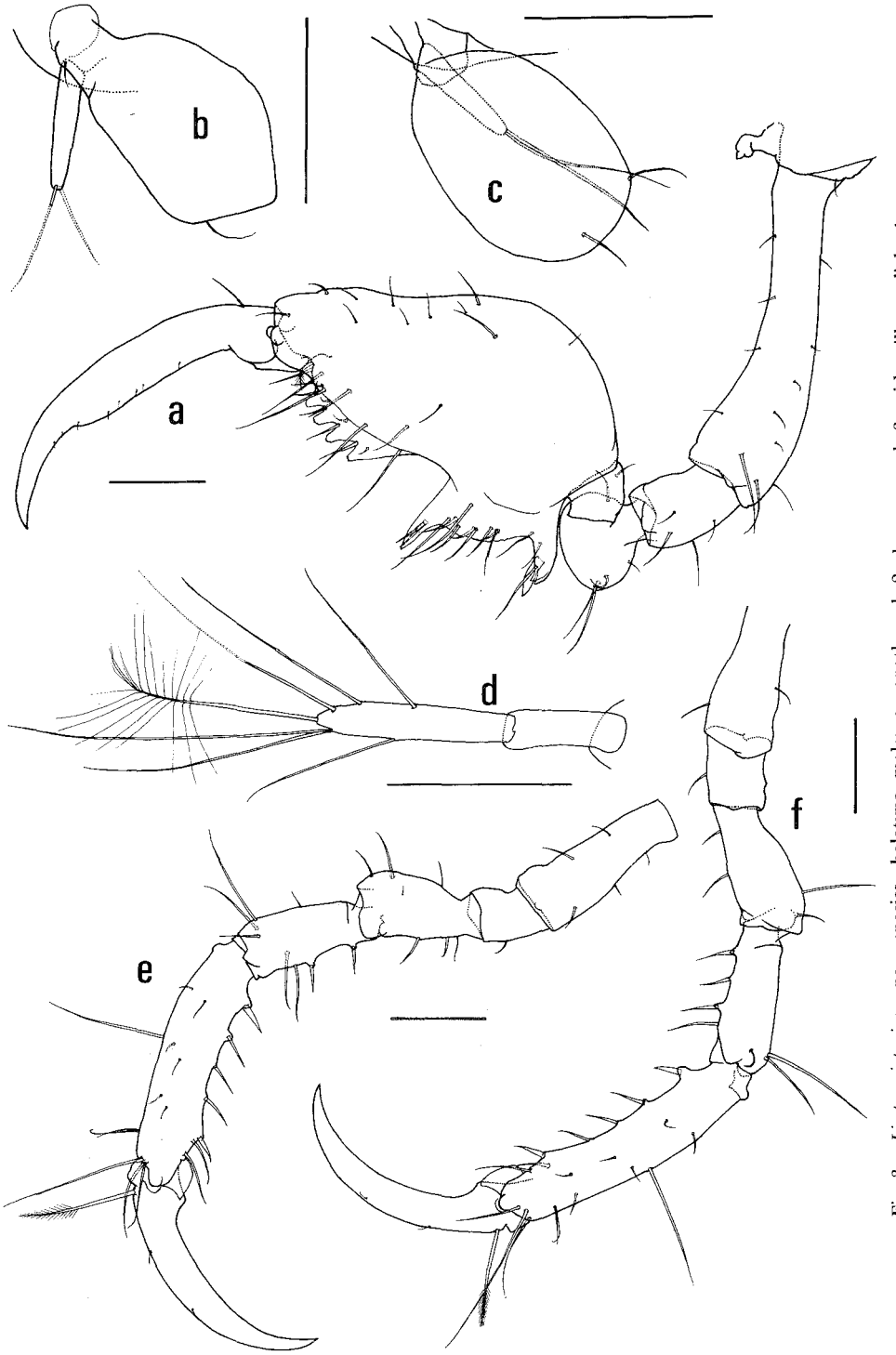

Fig. 3. *Liropus japonicus*, new species, holotype male: a, gnathopod 2; b, pereopod 3 with gill, medial view; c, pereopod 4 with gill, medial view; d, pereopod 5; e, pereopod 6; f, pereopod 7. Scales: 0.1mm.

process at base. Basis subequal to pereonite 2 in length. Merus globular. Propodus oval, subequal to basis in length; proximal palmar protrusion with single grasping spine; proximal half of grasping margin slightly convex and minutely serrate; submedial poison tooth separated by deep triangular cleft from distal half of grasping margin; distal half of grasping margin convex and roughly serrate. Dactylus narrowed at distal part; grasping margin smooth, with several setulae.

Gills (Figs. 1a, 3b-c) present at middle of pereonites 3–4, small and oval, with 1 or 2 short setae apically.

Pereopods 3–4 (Figs. 3b, c) 1-segmented, attached to base of gills, with 2 long apical setae.

Pereopod 5 (Figs. 1a-b, 3d) 2-segmented, attached at middle of pereonite 5; proximal segment shorter than distal segment; distal segment with 6 simple setae and 1 apical plumose seta.

Pereopod 6 (Fig. 3e) attached to posterior end of pereonite 6. Merus expanded dorsally at distal end. Carpus with row of short setae on ventral margin; base of each seta projected. Propodus with small dorsal tubercule on proximal end; single grasping spine on proximal palmar protrusion; grasping margin slightly concave, with row of short setae; base of each seta projected. Dactylus long, fitting to palm; grasping margin smooth.

Pereopod 7 (Fig. 3f) morphologically similar to but slightly larger than pereopod 6.

Abdomen (Fig. 1d) small, globular; five long setae present behind penis; vestige of abdominal appendage with 1 short seta; one pair of large lobes present. Penes large, medial.

Paratype male.

Body (Figs. 5a-b) 3.50mm long. Anterior margin of eye not thickened. Anteroventral margins of pereonites 3–4 not extended.

Paratype female.

Body (Figs. 4a-b) 2.90mm long, with sparse setae. Eyes small, anterior margin not thickened. Pereonites 3–4 swollen laterally; anteroventral margins not extended; genital opening located at middle of pereonite 5.

Gnathopod 2 (Fig. 4c): propodus oval, slightly shorter than basis; grasping margin smooth, with many setae; poison tooth and palmar cleft not developed. Dactylus not narrowed at distal part.

Abdomen (Fig. 4d) with 1 pair of long setae at middle.

Etymology.

This species was named after the country where it was found, Japan.

Remarks.

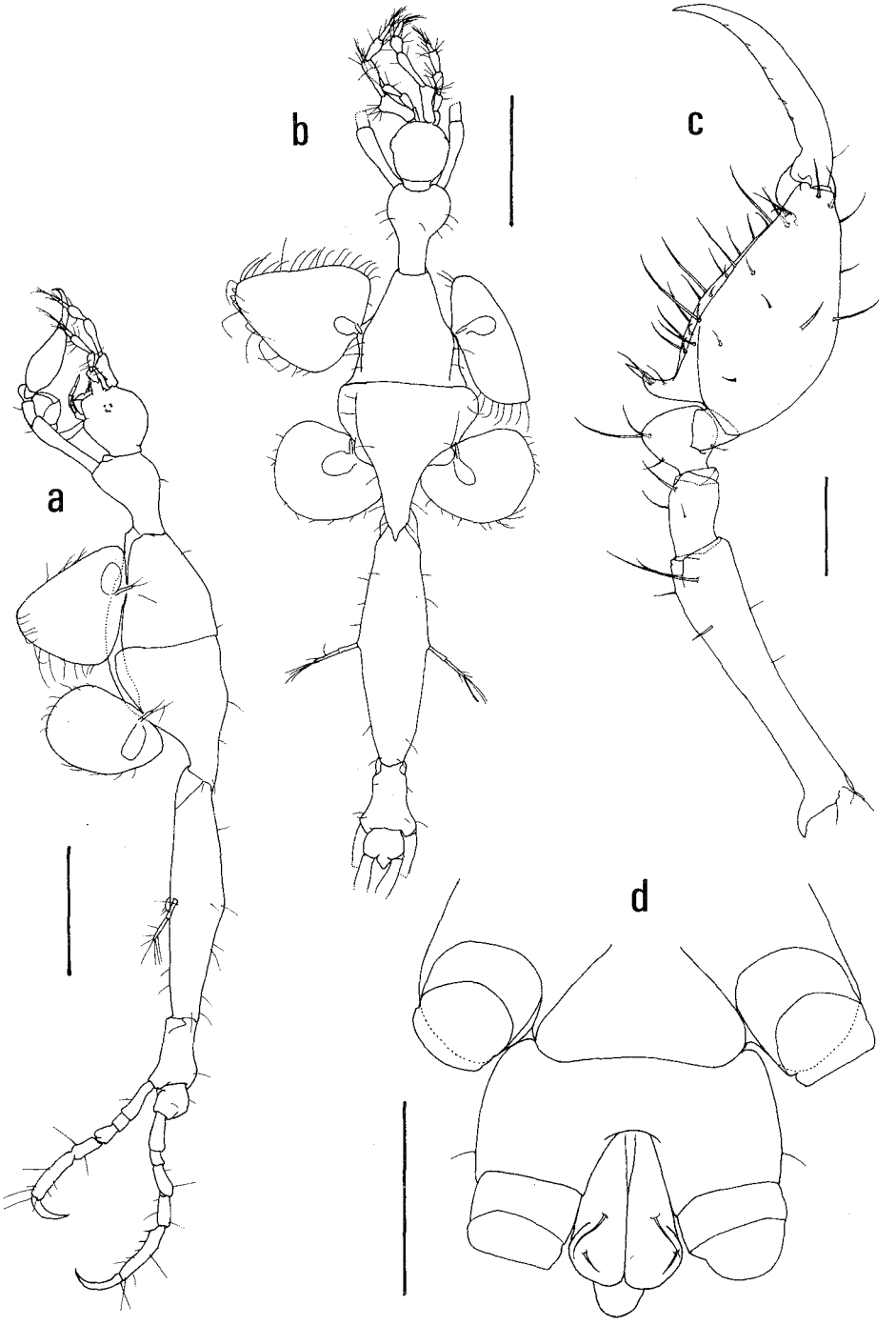

Fig. 4. *Liropus japonicus*, new species, paratype female: a, lateral view; b, dorsal view; c, gnathopod 2; d, abdomen. Scales: a-b=0.5mm; c-d=0.1mm.

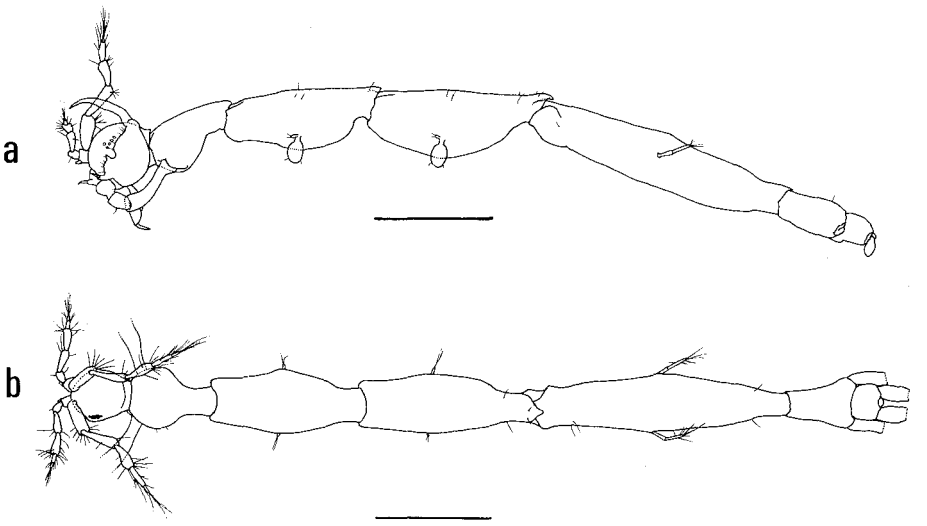

Fig. 5. *Liropus japonicus*, new species, paratype male: a, lateral view; b, dorsal view. Scales: 0.5mm.

Liropus japonicus markedly differs from its congeners in characteristic first antenna: peduncular segment 1 with lateral bulge on distal end (without bulge in other species); peduncular segments 2–3 swollen distally (not swollen in other species); flagellum 2-segmented (4- to 13-segmented in other species) (Mayer, 1890, 1903, 1920; Chevreux, 1927; Krapp-Schickel, 1993).

Such unique conditions of first antenna are also described in another species of the different genus, *Pedoculina bacescui* A. Cărăuşu, 1940, a Mediterranean endemic caprellid (A. Cărăuşu, 1940, 1941; Krapp-Schickel, 1993). It also has 1-segmented pereopods 3–4 as in the genus *Liropus*. However, other morphological features of *P. bacescui*, such as stalked eyes, short pereonite 5, 4-segmented pereopod 5, and lack of mandibular palp, quite differ from those of *Liropus* species. Therefore, the morphological similarity of first antenna between *Liropus japonicus* and *Pedoculina bacescui* does not appear to be significant.

Acknowledgements

I wish to thank E. Harada, S. Kubota, S. Yamato and K. Miyazaki of Seto Marine Biological Laboratory, Kyoto University, for their valuable comments on the manuscript. I am also grateful to D. R. Laubitz of Canadian Museum of Nature, who kindly provided me with a copy of Chevreux's paper.

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