

TWO NEW SPECIES OF ACUTIGEBIA (CRUSTACEA: DECAPODA: GEBIIDAE: UPOGEBIIDAE) FROM THE SOUTH CHINA SEA

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ABSTRACT. — Two new species of the genus *Acutigebia* (Decapoda: Gebiidae: Upogebiidae) collected from Xisha (Spratly) Islands are described. *Acutigebia serrifera*, new species, most closely resembles *Acutigebia simsoni* (Thomson, 1893), but differs markedly in the propodus of pereopod 1 with lower teeth. *Acutigebia laticauda*, new species, most closely resembles *Acutigebia trypeta* (Sakai, 1970), but differs markedly in the proportionally wider telson. This is the first record of the genus *Acutigebia* from the South China Sea. An updated key to the species of *Acutigebia* is provided.

KEY WORDS. — Upogebiidae, *Acutigebia*, new species, South China Sea

INTRODUCTION

The upogebiid genus *Acutigebia* Sakai, 1982, is currently represented by four species from the Indo-West Pacific: *Acutigebia danai* (Miers, 1876), *A. kyphosoma* Sakai, 1993, *A. simsoni* (Thomson, 1893), and *A. trypeta* (Sakai, 1970). In addition, one unnamed species, reported by De Man (1928) as *Upogebia* sp. *a*, has been assigned to *Acutigebia* (cf. Sakai, 1982, 2006). The genus is characterised by the following features: rostrum tapering anteriorly, provided with an apical denticle; maxilliped 3 ischium with row of teeth on inner face and merus ornamented with denticles on lower margin; pereopod 1 subchelate; dactylus bearing dorsolateral plate; telson subquadrate, proximal half of equal width, distal half narrowing to some extent; uropodal endopod and exopod slender and leaf-like, endopod with single longitudinal ridge, exopod with double ridge, longer than endopod.

While working on the systematic study of the gebiidean fauna of the China seas, two undescribed species of *Acutigebia* were found from the Xisha (Spratly) Islands, South China Sea. In this paper, we describe and illustrate the two new species, and incorporate them into an updated key for the genus *Acutigebia*. This finding represents the first record of the genus from the South China Sea.

MATERIAL AND METHODS

Material for this study came from Xisha (Spratly) Islands and has been deposited in the Institute of Oceanology, Chinese Academy of Sciences, Qingdao, China (IOCAS). The drawings were made with the aid of drawing tube mounted on a Zeiss Stemi Sv11 compound microscope. The following abbreviation is used throughout the text: cl, length of carapace (postorbital).

TAXONOMY

Upogebiidae Borradaile, 1903 *Acutigebia* Sakai, 1982

Acutigebia serrifera, new species (Figs. 1–3)

Material examined. — Holotype: ♂ (cl 4.3 mm), MBM137002/80X-156-1, Shanhu Islands, Xisha (Spratly) Islands, in coral reef, coll. Xianqiu Ren, 19–21 May 1980. Paratype: 1 ovig. ♀ (cl 4.9 mm), MBM137002/80X-156-1, same data as holotype.

Diagnosis. — Rostrum tapering anteriorly, provided with apical denticle, comparatively broad at base. Maxilliped 3 with exopod; merus armed with nine small teeth on lower margin. Pereopod 1 subchelate; lower margin of propodus with some small teeth. Telson subquadrate, broader than

long. Uropodal endopod and exopod slender and leaf-like; endopod with single longitudinal ridge; exopod longer than endopod, with two ridges. A small species, total length of

male about 8.5 mm and ovigerous female 10.1 mm, found inside coral reef.

Description. — Rostrum (Fig. 2A, B) triangular, tapering anteriorly, provided with apical denticle, longer than wide (at base), extending to penultimate article of antennular peduncle; dorsal surface unarmed but setose; each lateral margin bearing some teeth. Lateral ridges of gastric region anteriorly diverging, relatively wide, not extended to middle of rostrum, tip pointed, and separated from median gastric region by longitudinal grooves; median gastric region setose and spineless. Anterolateral border of carapace unarmed; cervical groove long and deep, unarmed; postorbital region with 2–3 small spines.

Eyestalks stout, unarmed; cornea almost fully pigmented, light brown (in alcohol). Antennular peduncle about as long as antennal peduncle; second article with one ventrodistal spine. Antennal peduncle moderately stout, articles 2 and 3 each with one lower spine; article 3 with a scale ending in two sharp spines on upper surface; articles 4 and 5 unarmed. Maxilliped 3 (Fig. 2E, F) with simple exopod consisting of one article, reaching to end of ischium; ischium with row of small teeth on inner surface; merus with row of 10 small teeth on lower margin.



Fig. 1. *Acutigebia serrifera*, new species: A, Holotype male, 80X-156-1, entire animal, lateral view; B, paratype female, 80X-156-1, entire animal, lateral view. Scale bar = 1 mm.

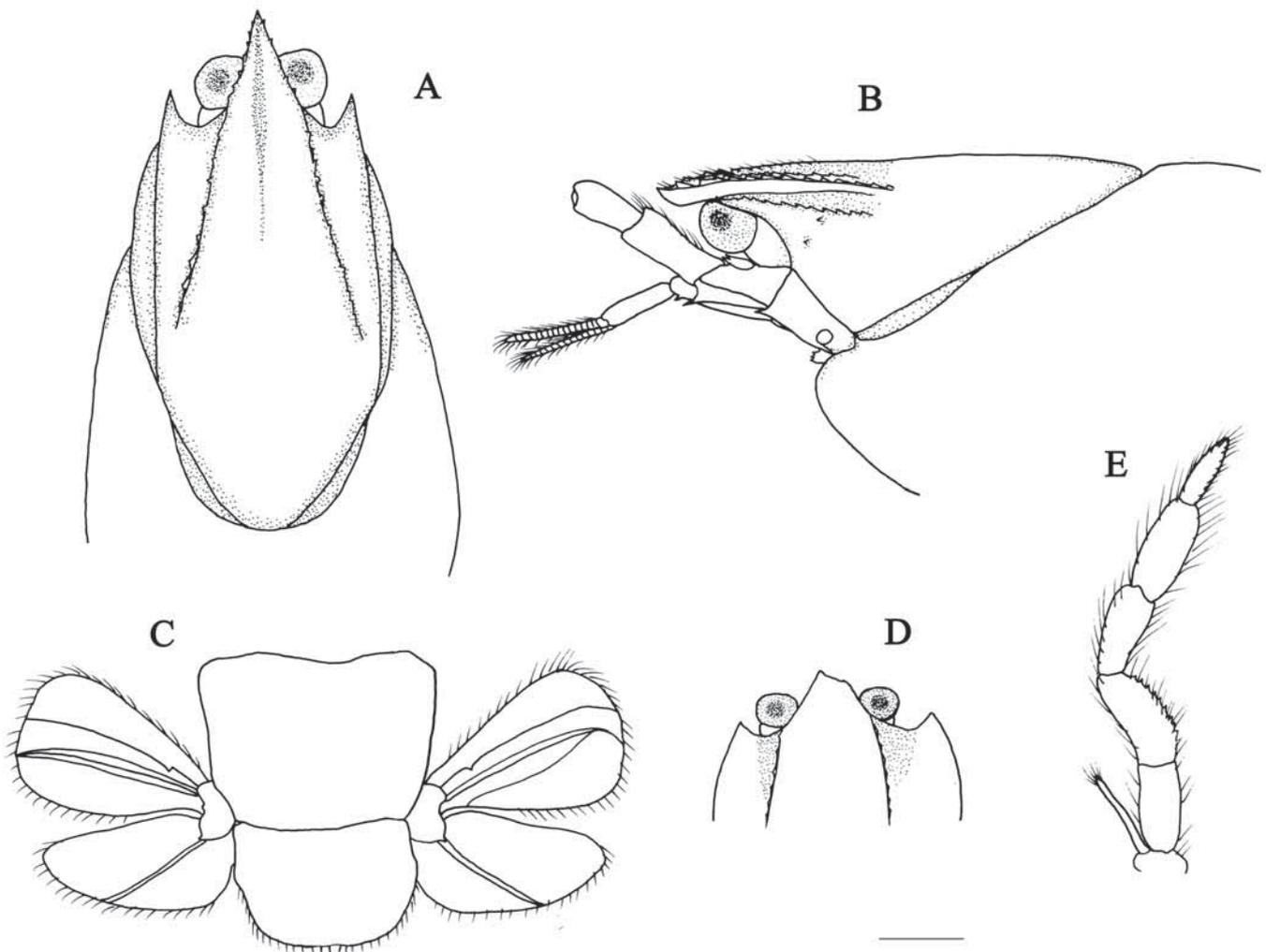


Fig. 2. *Acutigebia serrifera*, new species: A, B, C, D, E, Holotype male, 80X-156-1; D, paratype female, 80X-156-1. A, anterior carapace, dorsal view; B, anterior carapace, lateral view; C, abdominal somite 6, telson and uropods, dorsal view; D, anterior carapace, dorsal view (rostrum broken); E, maxilliped 3, outer and inner view. Scale bar = 0.6 mm (A, B, D), 1 mm (C), 0.8 mm (E).

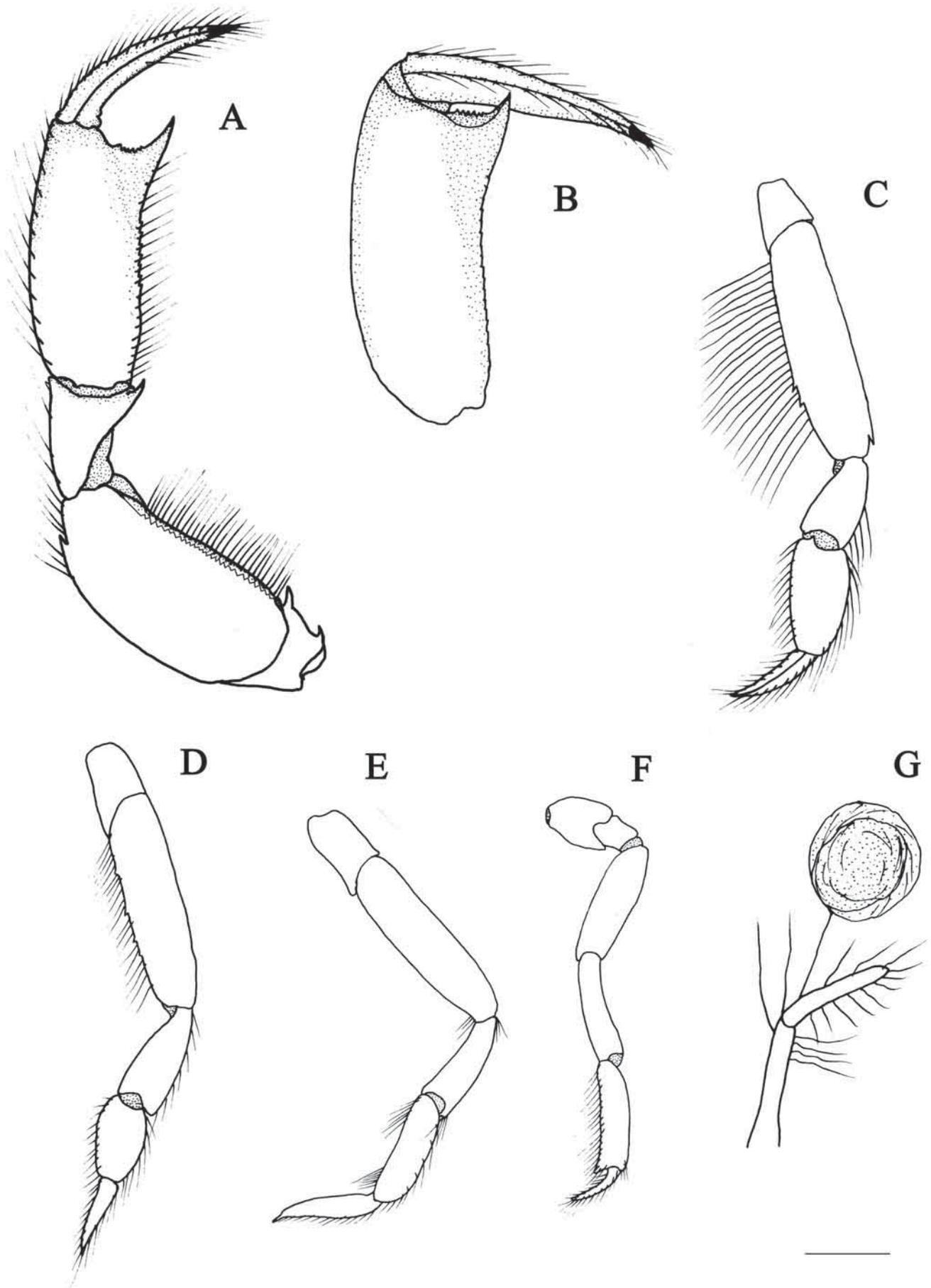


Fig. 3. *Acutigebia serrifera*, new species: A, C–F, Holotype male, 80X-156-1; B, G, paratype female, 80X-156-1. A, pereopod 1, outer view; B, pereopod 1, outer view; C, pereopod 2, outer view; D, pereopod 3, outer view; E, pereopod 4, outer view; F, pereopod 5, outer view; G, pleopod 1 with egg. Scale bar = 1 mm (A, C–F), 0.6 mm (B), 0.5 mm (G).

Pereopod 1 (Fig. 3A) subchelate. Ischium with two spines on lower margin. Merus about 2.0 times as long as high, with row of small spines on lower margin and one subterminal spine on upper margin. Carpus triangular, about 0.5 times length of merus, with one upper and one lower subdistal spines. Propodus 2.0 times as long as high, 2.2 times length of carpus, with row of small teeth on midline of lower margin surface; fixed finger triangular, narrow, terminating in acute tip, cutting edge slightly curved and with six small denticles proximally. Dactylus slender, with corneous tip, about 0.8 times length of palm; lower margin arched, smooth, unarmed; lateral surface carinate medially; upper surface carinate, corrugated in basal half.

Pereopod 2 (Fig. 3C) with ischium unarmed. Merus with two lower and one upper subdistal spines. Carpus unarmed. Propodus about 2.1 times as long as high, unarmed. Dactylus pointed at tip, about 0.8 times length of propodus.

Pereopod 3 (Fig. 3D) with ischium unarmed. Merus with four spines on lower margin. Carpus unarmed. Propodus about 1.5 times as long as high, unarmed. Dactylus slender, about as long as propodus.

Pereopod 4 (Fig. 3E) unarmed; dactylus elongate, slightly longer than propodus.

Pereopod 5 (Fig. 3F) subchelate, unarmed; dactylus elongate, curved.

Abdominal sternites smooth. Telson (Fig. 2C) broad, 1.5 times as wide as long and about 0.6 times length of abdominal somite 6; posterior margin slightly concave, lacking median spine.

Male pleopod 1 absent; pleopod 2–5 biramous, with exopods larger than endopods. Female pleopod 1 (Fig. 3G) uniramous, consisting of two articles. Uropodal protopod bearing posterolateral spine; exopod subtriangular, about 1.4 times as long as wide, truncate on posterior margin; endopod shorter than exopod, about 2.0 times as long as wide.

Variation. — Lateral ridges of gastric region broader and shorter in female than in male (cf. Fig. 2A, D). Female pereopod 1 (Fig. 2B) slightly stronger than male, and different in the fixed finger being broader and shorter, and the lower teeth of the propodus extending to the base, but being smaller and inconspicuous.

Remarks. — This new species closely resembles *Acutigebia simsoni* (Thomson, 1893) known from Australia (Thomson, 1893; Poore & Griffin, 1979), in the form of the broad telson (about 1.5 times as wide as long) and pereopod 1 (ischium with 2–3 spines on lower margin and the palm with spines ventrally). However, it differs from the latter in the proportionally shorter rostrum (1.5 times longer than eyestalk versus 2.0 times as long) and the merus of pereopod 1 bearing a row of small teeth on the lower margin over the entire length, rather than having two to four teeth proximally on the lower margin.

Etymology. — The species name is based on the merus of pereopod 1, which bears a row of small teeth on the lower margin over the entire length.

Distribution and habitat. — Presently only known from the type locality. The specimens were found living in the narrow tunnels of coral reefs.

Acutigebia laticauda, new species

(Figs. 4–6)

Material examined. — Holotype: ♀ ovig. (cl, 2.9 mm), MBM136974/58C-S63, Jinqing Island of Xisha (Spratly) Islands, in coral reef, coll. Zhengang Fan & Jieshan Xu, 25–26 Apr. 1953.

Diagnosis. — Rostrum tapering anteriorly, broader, and shorter than the width (at base), apically provided with an apical denticle. Maxilliped 3 exopod present, merus ornamented with two small teeth on lower margin. Pereopod 1 subchelate; lower margin of propodus unarmed. Telson subquadrate, broader than long. Uropodal endopod and exopod slender and leaf-like; endopod with single longitudinal ridge; exopod with double ridge, longer than endopod. A small species, total length of ovigerous female about 9.0 mm, found inside coral reef.

Description. — Rostrum (Fig. 5A, B) triangular, tapering anteriorly, broad and short, about 0.65 times as long as wide at base, provided with an apical denticle, extending to the penultimate article of antennular peduncle; dorsal surface unarmed and without seta; each lateral margin bearing some teeth. Lateral ridges of gastric region anteriorly diverging, relatively wide, extending to the middle of rostrum, tip pointed, and separated from median gastric region by longitudinal grooves; median gastric region unarmed. Anterolateral border of carapace with some teeth; cervical groove long and deep, unarmed; postorbital region unarmed.

Eyestalks stout, unarmed, cornea almost fully pigmented, light brown (in alcohol). Antennular peduncle about as long as antennal peduncle, unarmed. Antennal peduncle thick, articles 2 and 3 with one lower spine each; article 3 with



Fig. 4. *Acutigebia laticauda*, new species: Holotype female, 58C-S63, entire animal, lateral view. Scale bar = 1 mm.

ovate scale of one tooth at tip on upper surface; article 4 and 5 unarmed. Maxilliped 3 (Fig. 5D) exopod present, with flagellum, reaching to distal part of ischium; ischium with row of small teeth on inner surface, merus with two small teeth on lower margin.

Pereopod 1 subchelate (Fig. 6A). Ischium unarmed. Merus about 2.0 times as long as high, with a subterminal spine on upper margin. Carpus triangular, about 0.6 times length of merus, with a lower subdistal spines. Propodus 2.0 times as long as high, 2.2 times length of carpus, unarmed; fixed finger triangular (distally broken), cutting edge slightly curved and with four small denticles proximally; dactylus slender with corneous tip, about 0.7 times length of palm, lower margin arched, smooth, unarmed; lateral surface carinate medially, upper surface carinate, corrugated in middle.

Pereopod 2 (Fig. 6B) with ischium unarmed. Merus unarmed, about 3.5 times as long as high. Carpus about 0.4 times length of merus, each with a terminal spine on upper and lower margin. Propodus about 1.8 times as long as high, unarmed. Dactylus pointed at tip, about 0.8 times length of propodus.

Pereopod 3 missing.

Pereopod 4 (Fig. 6C) with ischium unarmed. Merus unarmed, about 3.6 times as long as high. Carpus about 0.6 times length of merus. Propodus about 2.0 times as long as high, bearing four small blunt subterminal spines on lower margin. Dactylus pointed at tip, slightly longer than propodus, bearing some sharp spines on distal half of lower margin and six small blunt spines on basal half of upper margin.

Pereopod 5 (Fig. 6D) subchelate, unarmed; dactylus elongate, curve.

Abdominal stemites smooth. Telson (Fig. 2C) broad, about 1.7 times as wide as long and about 0.6 times length of abdominal somite 6; posterior margin straight, lacking median spine.

Female pleopod 1 (Fig. 6E) uniramous, consisting of two articles. Uropodal protopod without posterolateral spine; exopod subtriangular, about 1.4 times as long as wide, truncate on posterior margin; endopod shorter than exopod, about 1.9 times as long as wide.

Remarks. — *Acutigebia laticauada*, new species, closely resembles *Acutigebia trybeta* (Sakai, 1970) known from Japan (Sakai, 1970), in the palm of pereopod 1 palm being unarmed on the lower margin and the rectangular telson being

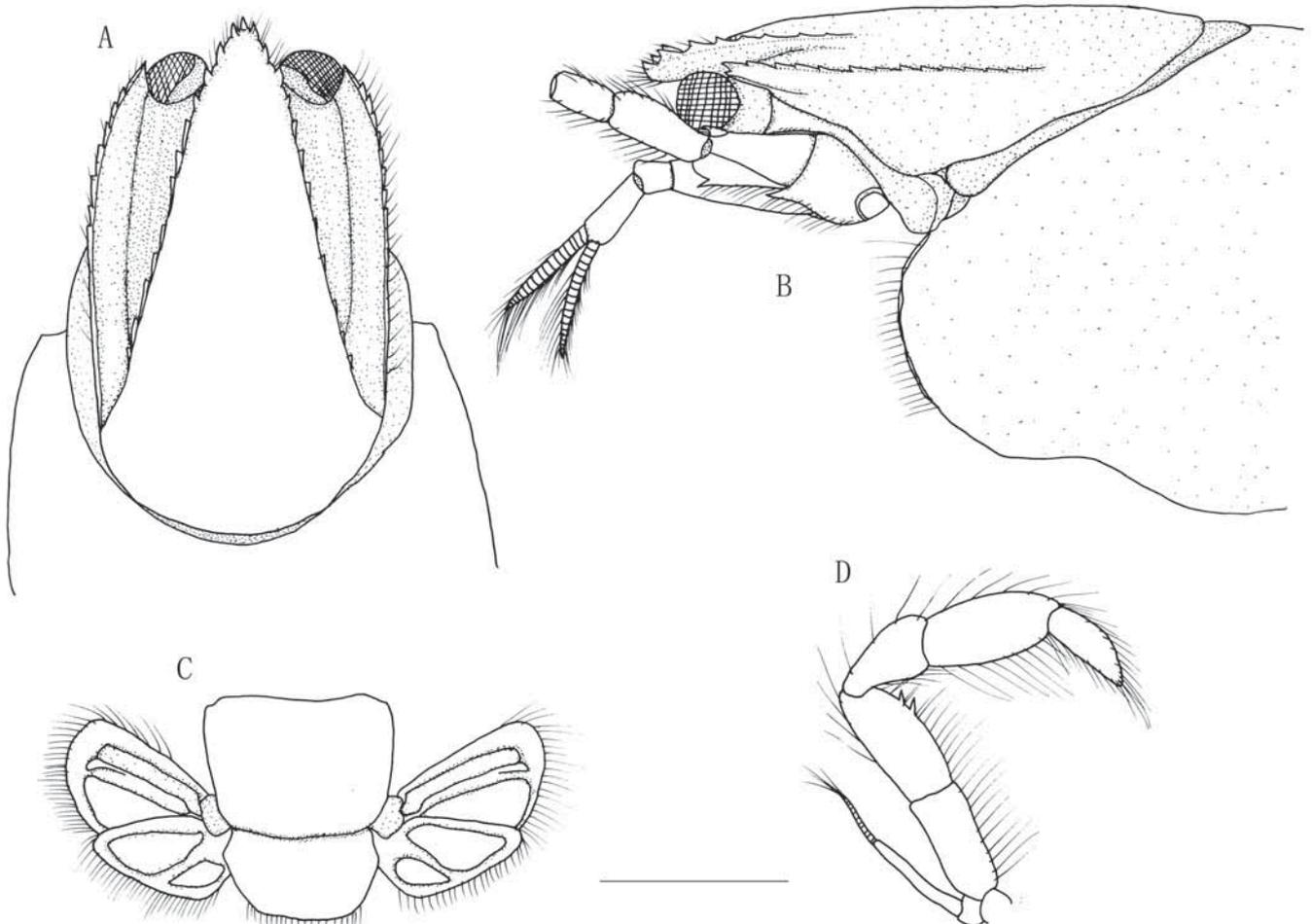


Fig. 5. *Acutigebia laticauada*, new species: Holotype female, 58C-S63. A, anterior carapace, dorsal view; B, anterior carapace, lateral view; C, abdominal somite 6, telson and uropods, dorsal view; D, maxilliped 3, outer view. Scale bar = 1 mm (A, B, D), 0.5 mm (C).

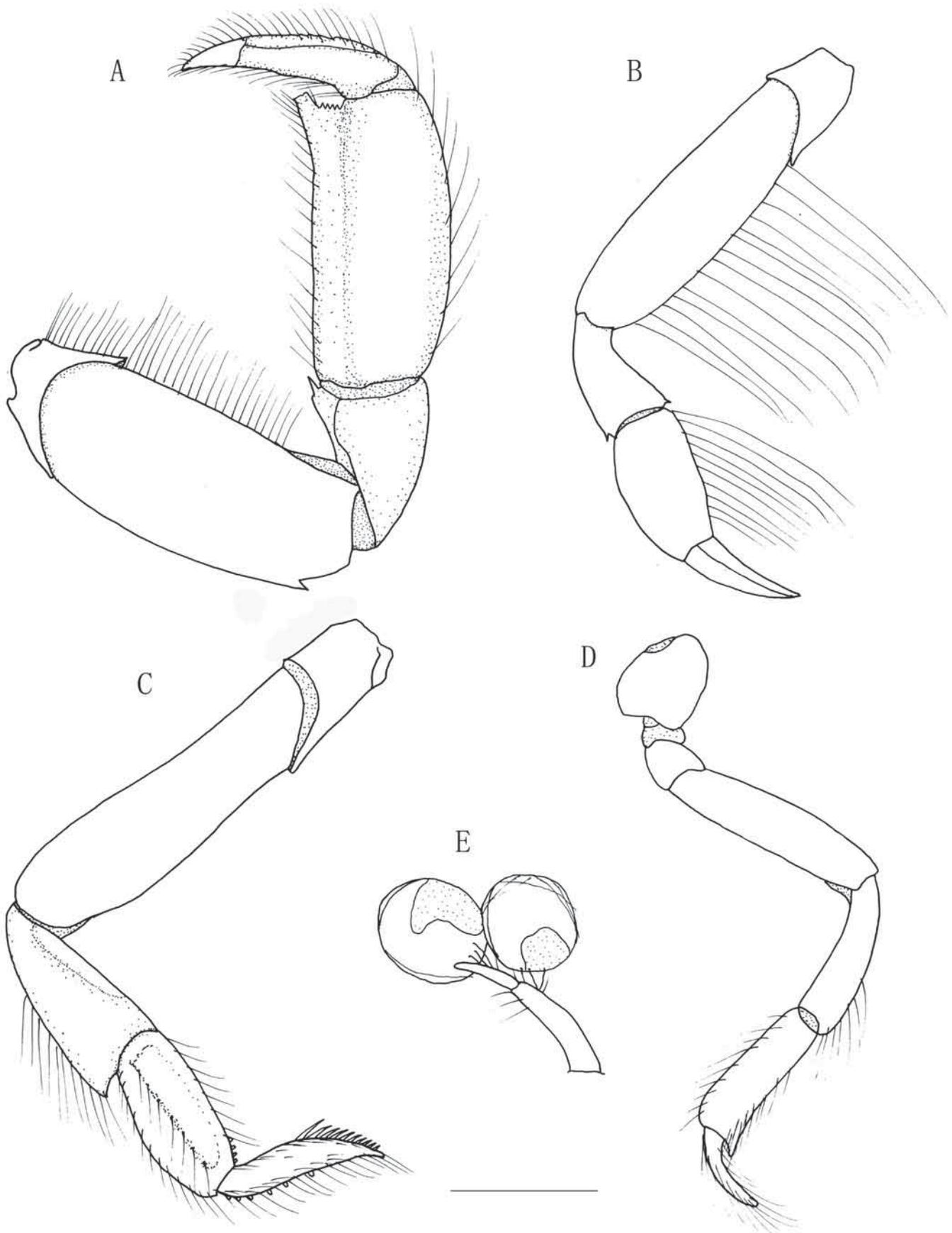


Fig. 6. *Acutigebia laticauda*, new species: Holotype female, 58C-S63. A, pereopod 1, outer view; B, pereopod 2, outer view; C, pereopod 4, outer view; D, pereopod 4, inner view; E, pleopod 1 with egg. Scale bar = 1.32 mm (A, C), 1 mm (B, D, E).

broader than long. It differs from the latter in the relatively wider telson (about 1.7 times as wide as long versus about 1.5 times as wide), the relatively short and broad rostrum (about 0.65 times as long as wide at base versus about 1.2 times as long as wide), and the merus of pereopod 1 being unarmed, rather than bearing several teeth on the lower margin.

Etymology. — The species name is based on the short and wide shape of the telson.

Distribution and habitat. — Presently only known from the type locality. The specimen were found living in the narrow tunnels of coral reef.

**KEY TO THE SPECIES OF THE GENUS
ACUTIGEBIA SAKAI, 1982**

- 1. Pereopod 1 propodus unarmed on lower margin 2
- Pereopod 1 propodus armed with spinules on lower margin ...
..... 4
- 2. Telson square, as long as wide *A. kyphosoma* Sakai, 1993
- Telson subsquare, wider than long 3
- 3. Telson about 1.5 times as wide as long
..... *A. trypeta* (Sakai, 1970)
- Telson about 1.7 times as wide as long
..... *A. laticauda*, new species
- 4. Telson square, as long as wide 5
- Telson subsquare, broader than long 6
- 5. Lateral ridges of gastric region denticulate
..... *A. danai* (Miers, 1876)
- Lateral ridges of gastric region unarmed
..... *A. sp. α* (de Man, 1928)
- 6. Rostrum about 2 times longer than eyestalk. Merus of pereopod
1 having two to four teeth proximally on the lower margin ...
..... *A. simsoni* (Thomson, 1893)
- Rostrum about 1.5 times longer than eyestalk. Merus of pereopod
1 bearing a row of small teeth on the lower margin
..... *A. serrifera*, new species

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