

Fig. 19. *Geothelphusa yangmingshan*, new species. Holotype male, 31.4 by 24.3 mm. a: dorsal view; b: frontal view; c: ventral view of right G1; d: dorsal view of right G1; e: terminal segment of G1; f: ventral view of right G2. Scale = 1.0 mm.

***Geothelphusa yangmingshan*, new species**

(Fig. 19)

Material examined. - Holotype - Male, 31.4 by 24.3 mm (NTOU F10185), TAIPEI CITY: Yangmingshan, coll. H.Y. Cheng, iv.1989.

Diagnosis. - Carapace smooth, anterolateral crest distinct, with small, low granules; epibranchial tooth very low, indistinct. External orbital angle sharp. Cervical groove shallow, faint. Distance between tip of male abdomen and anterior margin of sternite 4 about 1.6 times to that of length of sternites 1-3. Fingers of chela forming long, oval gape when closed. Length of second ambulatory leg about 2.1 times carapace length. G1 sinuous; outer proximal margin of subterminal segment with a weak tooth, inner proximal margin dilated; terminal segment gently slender, length about 3.1 times width, distal part gently sinuous (Fig. 19c-e).

Coloration. - Not known.

Habitat. - Not known.

Size. - Holotype male 31.4 by 21.3 mm (NTOU F10185).

Distribution. - Northern Taiwan.

Remarks. - This species is allied to *G. bicolor*, but it distinguished by the following aspects: 1. the anterolateral region of the carapace is smooth; 2. the G1 subterminal segment curves outwards; and 3. the G2 outer proximal margin of basal segment is divided into two lobes.

Etymology. - The species name is named after its type locality, Yangmingshan National Park, and is used as a noun in apposition.

***Geothelphusa takuan*, new species**

(Fig. 20)

Material examined. - Holotype - Male, 16.6 by 12.9 mm (NTOU F10205), TAOYUAN HSIEN: Fuhsing, Takuan, coll. J.Y. Shy & W.L. Tsay, 1.xi.1992.

Paratypes - TAOYUAN HSIEN: Fuhsing, Takuan - 1 male, 4 females (NTOU F10115), coll. J.Y. Shy & W.L. Tsay, 1.xi.1992.

Diagnosis. - Carapace with concave pits, frontal margin vaguely divided into 2 lobes. Gastric region smooth, anterolateral region rough, concave pits here slightly larger than those on gastric region. Anterolateral crista distinct, lined with small, low granules, epibranchial tooth small. Distance between tip of male abdomen and anterior margin of sternite 4 about equal to that of length of sternites 1-3. Fingers of chela forming long, oval gape when closed. Ambulatory legs slender, total length of second ambulatory leg about 2.2 times carapace length. Width of male abdominal segment 6 about 2.6 times length. Subterminal segment of G1 moderately curved inwards, outer proximal margin with a tooth; terminal segment short, almost straight; total length about 6.8 times of terminal segment length, terminal segment length about 1.9 times of width (Fig. 20c-e).

Coloration. - Carapace and chelae reddish-brown. Ambulatory legs light greenish-brown.

Habitat. - Occurs in high altitude habitats (above 1500 m asl), living under boulders and stones of streams.

Size. - Largest male 16.6 by 12.9 mm (NTOU F10205); largest female 18.9 by 14.2 mm (NTOU F10115); smallest mature female 14.6 by 11.2 mm (NTOU F10115).

Distribution. - Northern Taiwan.

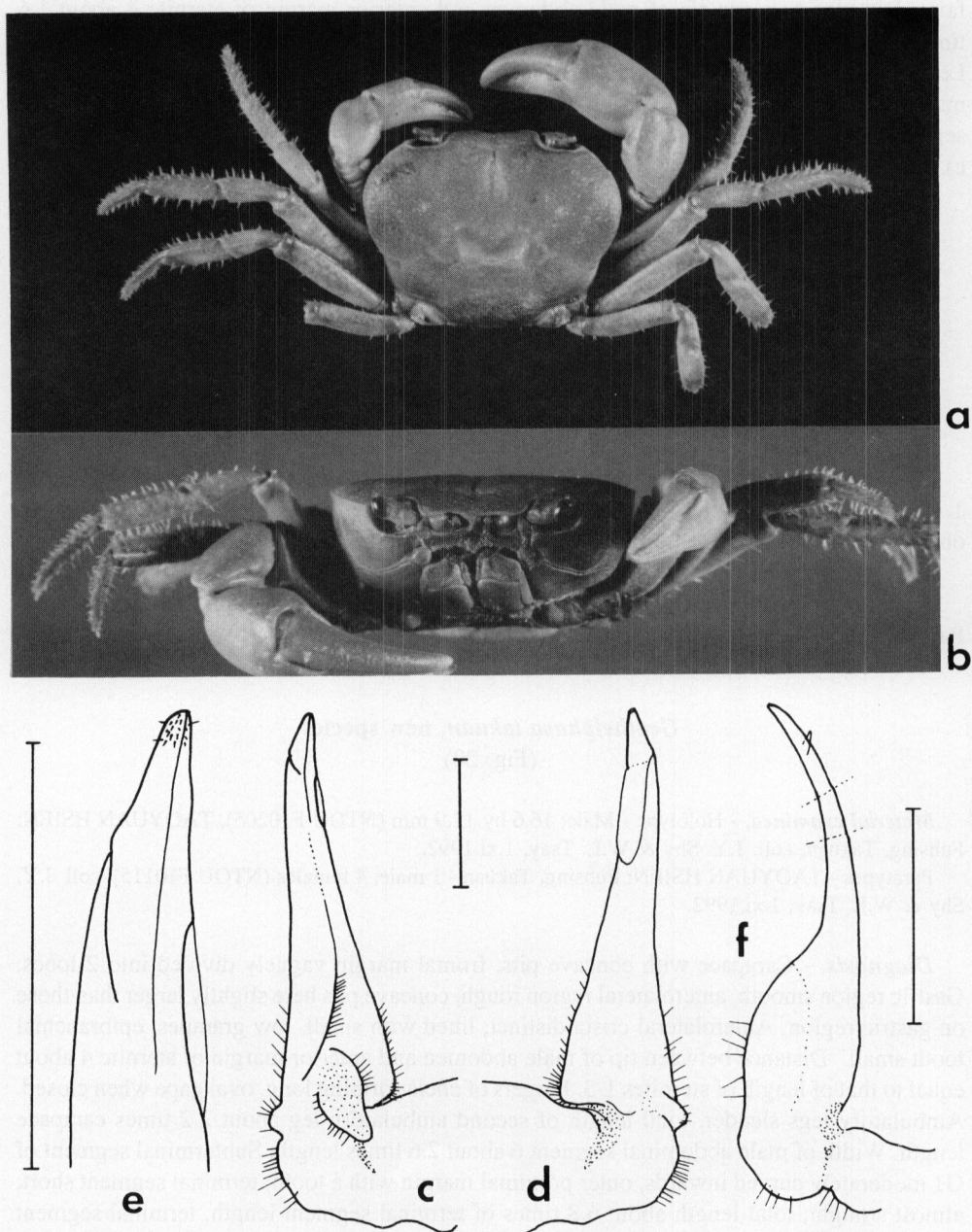


Fig. 20. *Geothelphusa takuan*, new species. Holotype male, 16.6 by 12.9 mm. a: dorsal view; b: frontal view; c: ventral view of right G1; d: dorsal view of right G1; e: terminal segment of G1; f: ventral view of right G2. Scale = 1.0 mm.

Remarks. - This species is allied to *G. eury soma* and *G. monticola*, but it distinguished by the following aspects: 1. the carapace has a epibranchial tooth (epibranchial tooth is absent or very small in *G. eury soma* and *G. monticola* respectively); 2. the distance between the tip of the male abdomen and anterior margin of sternite 4 is about equal to that of the length of sternites 1-3 (distinctly longer in *G. eury soma* and *G. monticola*); 3. the G1 is slightly curved inwards in *G. takuan* (sinuous and curved outwards in *G. monticola* and *G. eury soma* respectively); and 4. the outer proximal margin of the G1 subterminal segment has a tooth in *G. takuan* and *G. monticola* (absent in *G. eury soma*).

Etymology. - The species is named after the type locality, and the name is used as a noun in apposition.

***Geothelphusa lanyu*, new species**

(Fig. 21)

Geothelphusa candidiensis - Minei, 1974: 241 (part), test fig. 2-5, 6 (nec *Geothelphusa dehaani candidiensis* Bott, 1967)

Material examined. - Holotype - Male, 20.2 by 15.8 mm (NTOU F10100), TAITUNG HSIEN: Lanyu, coll. J.Y. Shy & K. Lee, 18.iv.1993.

Paratypes - TAITUNG HSIEN: Lanyu - 4 males, 2 females (NTOU F10101), 1 male, 1 female (ZRC 1994.4224), coll. J.Y. Shy & K. Lee, 17.iv.1993.

Others - TAITUNG HSIEN: Lanyu - 2 males (NTOU F10102), coll. B.F. Shieh, 22.xii.1992; 1 male, 8 females (TMCD 2848), coll. P.K.L. Ng & C.H. Wang, 23.iv.1993; 9 males, 9 females [1 ovigerous] (TMCD 2856), coll. P.K.L. Ng & C.H. Wang, 5.vi.1993; 1 male (NTOU F10103), coll. B.F. Shieh & M.S. Hung, 24.vi.1993.

Diagnosis. - Carapace with fine concave pits. Gastric region smooth, anterolateral region rough, with fine dorsal ridges. Anterolateral crista distinct, lined with small, low granules, epibranchial tooth absent. Distance between tip of male abdomen and anterior margin of sternite 4 short, about 0.6 times of sternites 1-3. Merus of ambulatory legs slender, merus length of second ambulatory leg about 4.2 times width. Male abdominal segment 7 moderately bell-shaped. Subterminal segment of G1 straight or slightly curved inwards, outer proximal margin with a tooth, inner proximal margin dilated; length of synovial membrane length about 2.6 times width; terminal segment short, straight, lined with only fine hairs (Fig. 21c-e).

Coloration. - Carapace brown. Chelae orangish-red. Ambulatory legs spotted.

Habitat. - Live under stones and boulders of small streams.

Size. - Largest male 20.2 by 15.8 mm (NTOU F10100); largest female 20.7 by 15.8 mm (TMCD 2856); smallest mature female 14.4 by 11.0 mm (TMCD 2848).

Distribution. - Lanyu Island, southeastern Taiwan.

Remarks. - This species is allied to *G. lutao*, but it distinguished by the following aspects: 1. the distance between the tip of the male abdomen and anterior margin of sternite 4 is less than that of the length of sternites 1-3 ((longer in *G. lutao*); 2. the dactylus of the ambulatory leg is longer than the propodus (about equal in length in *G. lutao*); and 3. the outer proximal