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NEW SPECIES OF FRESHWATER CRAB FROM VENEZUELA AND REDESCRIPTION OF *MICROTHELPHUSA RODRIGUEZI* PRETZMANN, 1968 (BRACHYURA: PSEUDOTHELPHUSOIDEA: PSEUDOTHELPHUSIDAE)

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A B S T R A C T

A new species of freshwater crab *Microthelphusa viloriai*, from the Andean range of Venezuela is described and illustrated. The type species of the genus, *M. rodriguezi* is redescribed on the following examination of the single specimen so far known. Data on the geographical and altitudinal distribution of the species of *Microthelphusa* are also presented.

Se describe una nueva especie de las estribaciones de los Andes venezolanos, *Microthelphusa viloriai*, y se redescribe la especie tipo del género *M. rodriguezi*. Además se presentan datos sobre la distribución geográfica y altitudinal del género.

INTRODUCTION

Species in the genus *Microthelphusa* Pretzmann, 1968, have a very peculiar distribution, that is divided into two groups separated by the Venezuelan Llanos. The first group is found throughout the northernmost Andes and across the Cordillera de la Costa in Venezuela, as far north as the Island of Trinidad. The other group is found throughout the Venezuelan Guayana, Guyana, Surinam, and at the confluence of the Venezuelan and Brazilian Amazon. This genus exhibits altitudinal isolation, and is found only between 500 and 2000 m alt. These two factors may be responsible for the high levels of specific endemism within the genus, 11 of the 12 species known (including the present new one) have very narrow ranges (Table 1).

Diagnostic characters of the genus *Microthelphusa* are: quadrangular opening of the efferent channel; exognath/isquio ratio ranging between 0.2 and 0.4; gonopod straight and short, field of spines generally being diagonal to its major axis; mesial process triangular with a lobe on the inferior border; caudal lamella separated from the mesial process, producing a spine or lobe over the mesial border; marginal lobe joining with cephalic lamella border producing generally a prominent lobe (modified from Rodríguez, 1982). Until now, however, there heve been no illustrations of the type species of the genus, *Microthelphusa rodriguezi* Pretzmann, 1968, and its original description is rather poor. Therefore, in addition to describing a new species, *Microthelphusa viloriai*, in the present work, the author redescribes *M. rodriguezi* in detail with additional figures, in order to better understand the taxonomy of the group.

Abbreviations used are cl for carapace length, cb for carapace breadth, Mp for mesial process, CL for caudal lamella, CepL for cephalic lamella, ML for marginal lobe and fh for fingerlike hook. Material is deposited in the Colección de Crustáceos Decápodos "Dr. Gilberto Rodríguez" (CCDGR), of the Instituto Venezolano de Investigaciones Cientificas (IVIC), Caracas-Venezuela, and in the Naturhistorisches Museum Wien-Austria (NHMW). Terminology for gonopod morphology follows Smalley (1964).

SYSTEMATICS

Family Pseudothelphusidae Rathbun, 1893

Genus *Microthelphusa* Pretzmann, 1968

Microthelphusa viloriai, new species

Figs. 1, 2

Material.—Quebrada Santa Ana, front Santa Ana Town, Trujillo State, Venezuela, 1500 m alt., 30 November 1989, leg. J. Moscó and A. Soler, 1 male holotype, cl 19.44 mm, cb 33.32 mm, 2 males paratype, cl 17.22 and 11.27 mm, cb 28.68 and 18.43 mm, 1 juvenile, cl 4.00 mm, cb 5.73 mm (CCDGR-IVIC 1129); Quebrada El Rincón, between Santiago and Cabimbú, Trujillo State, Venezuela, 1500 m alt., 11 September 1991, *leg*. A. L. Viloria and J. Moscó, 3 males, cl 18.1, 15.5 and 11.3 mm, cb 29.8, 25.1 and 17.9 mm, 3 juvenile females, cl 10.59, 8.95 and 8.81 mm, cb 16.47, 13.11 and 13.01 mm, and 5 juvenile, cl 5.63, 5.10, 5.09, 4.74 and 4.47, cb 7.57, 6.99, 7.03, 6.39 and 5.97 (CCDGR-IVIC 1130).

Diagnosis.—First gonopod with distal extension of marginal lobe strongly bent laterally, extremity canal-like, reaching middle of apical spines field; conspicuous finger like hook at base of extremity of marginal lobe.

Description of Holotype.—Cephalothorax 1.71 times as wide as long, dorsal surface smooth; cervical grooves shallow, almost straight, not reaching margin of cephalothorax; antero-lateral margins with shallow, long postorbital depression, rest of border covered by regular series of 22-24 teeth, first 8 papiliform, rest progressively more acute, spaced out. Postfrontal lobes low, oblong, inconspicuous, anterior depression extending laterally to beginning of orbits; median groove indistinct over frontal region, deep

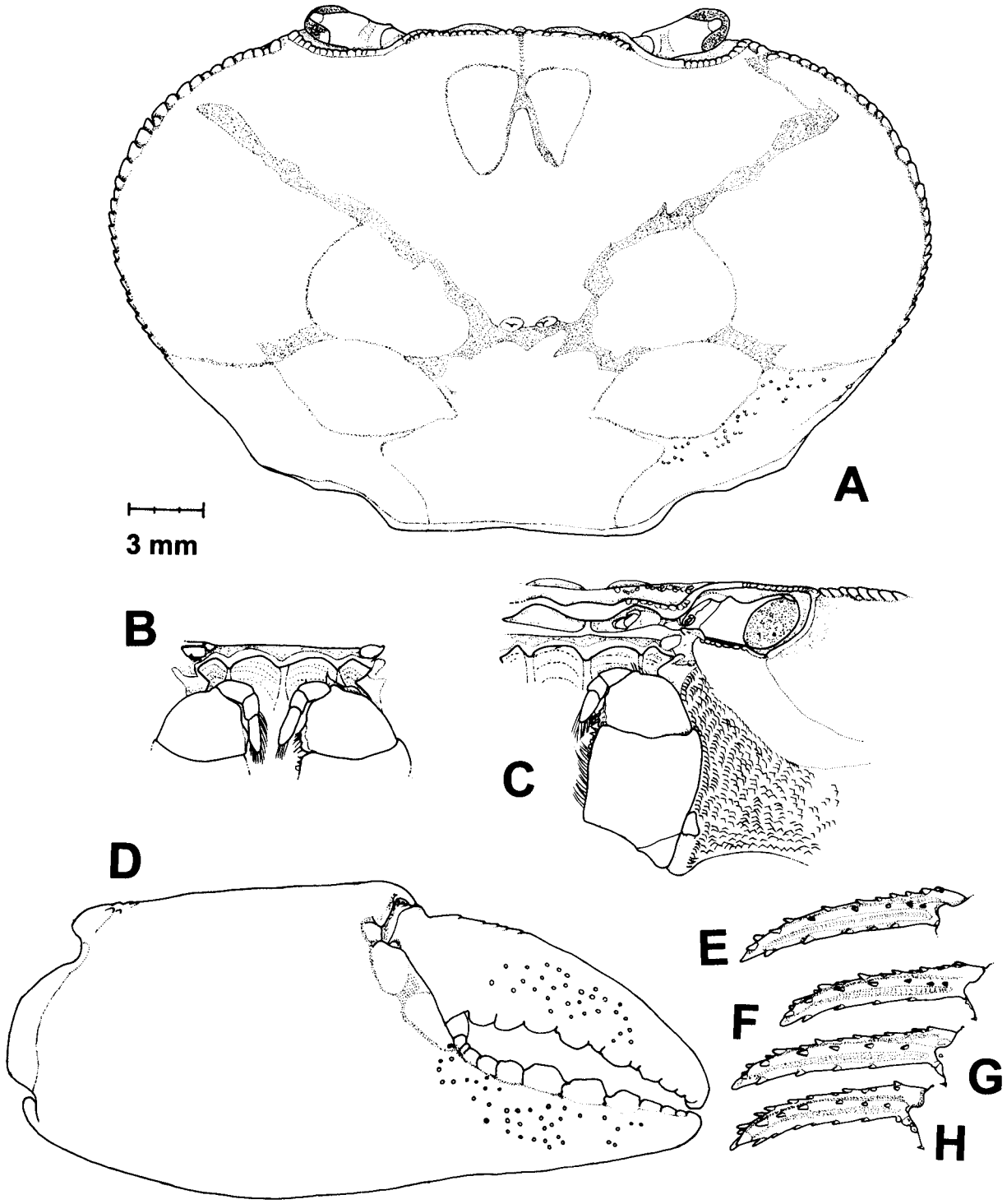

Fig. 1. *Microthelphusa viloriai*, new species. A-H, male holotype from Quebrada Santa Ana, Estado Trujillo-Venezuela, CCDGR-IVIC. A, cephalothorax dorsal view; B, opening of the efferent branchial channel and epistome; C, frontal view with detail of third maxilliped, eyestalk, orbit and pterygostomian region; D, chela of the major cheliped, external view; E-H, dactyl of the second, third, fourth and fifth left pereiopods.

and wide between postfrontal lobes. Surface of cephalothorax between postfrontal lobes and front inclined anteriorly, slightly concave in frontal view. Upper margin of front almost straight in dorsal view, without median notch, marked with row of poorly defined papillae; lower margin thick, sinuous in frontal view, advanced in front of upper margin; surface of front between upper and lower borders narrow medially.

Palm of largest chela inflated, with lower margin strongly sinuous; fingers short, gaping, mobile finger thick, rounded

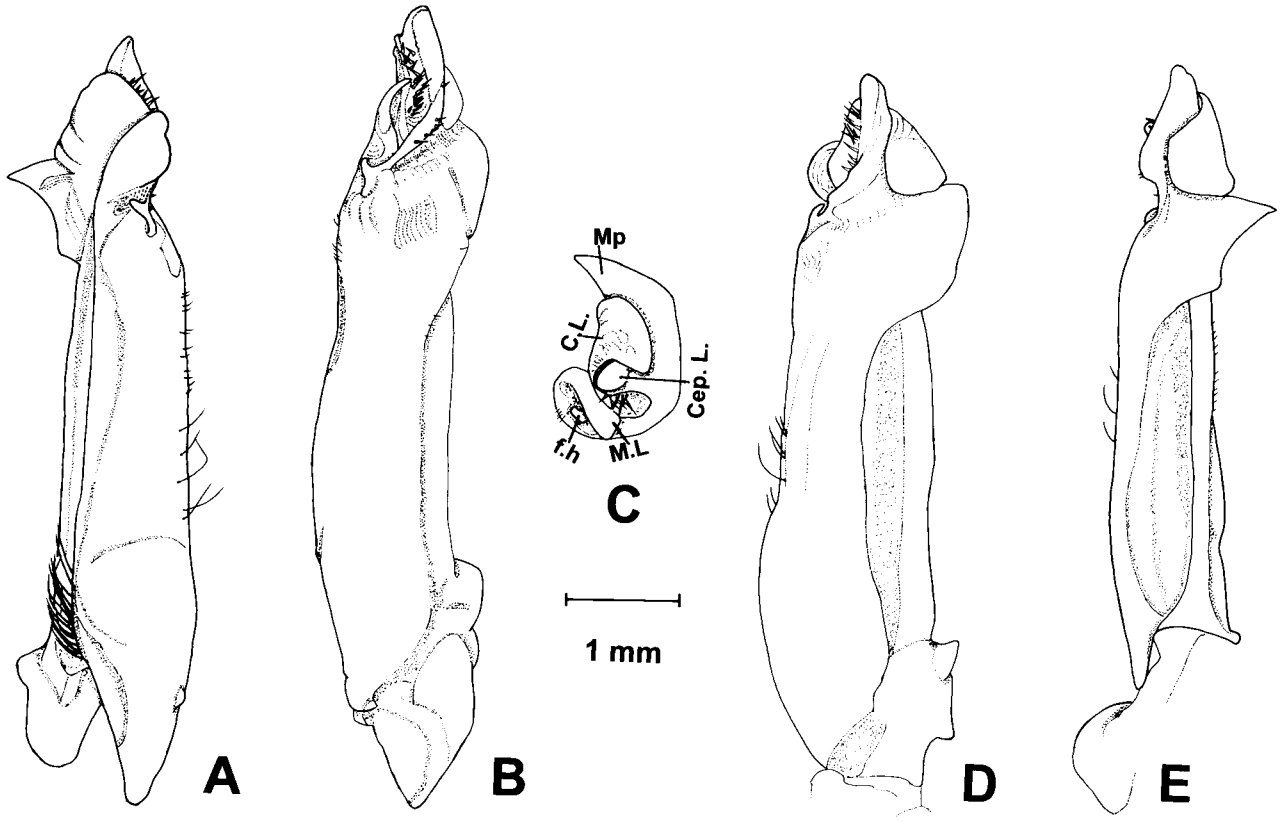

Fig. 2. *Microthelphusa viloriai*, new species. A-E, first left gonopod of the male holotype from Quebrada Santa Ana, Trujillo State, Venezuela, CCDGR-IVIC. A, caudal view; B, lateral view; C, apical view; D, cephalic view; E, mesial view.

in section. Walking legs slender, not unusually elongated, longest those of fourth pair (total length 1.05 width of carapace); merus of this pair 3.4 times longer than wide. Exopod of third maxilliped short 0.24 length of ischium of endognath.

Gonopods straight in caudal and lateral views. Distal extension of marginal lobe reaching middle of field of apical spines, strongly bent laterally, extremity canal-like, with irregular edge; conspicuous finger like hook at base of extremity of marginal lobe; apical lobe with caudal border bent over cephalically to form conspicuous cephalic bulge covering cephalic border; field of apical spines very narrow, sinuous, ending distally in subtriangular concave lobe, conspicuously surpasses caudal border of apical lobe; mesial process triangular, with proximal border angled, ending in acute spine directed backwards, inferior angle S-shaped.

Table 1. Altitudinal records for the species of *Microthelphusa*.

Species	Locality	Altitude (m)
M. forcarti (Pretzmann, 1967)	Mérida State, Venezuela	1603-1800
M. viloriai n.sp.	Trujillo State, Venezuela	1500
M. barinensis Rodríguez, 1980	Barinas State, Venezuela	530-570
M. racenisi (Rodríguez, 1966)	Aragua State, Venezuela	1400-2000
M. ginesi Rodríguez & Esteves, 1972	Distrito Federal, Venezuela	1400
M. turumikiri Rodríguez, 1980	Sucre State, Venezuela	1500
M. sucreensis Rodríguez & Campos, 2000	Monagas State, Venezuela	1500
M. bolivari Rodríguez, 1980	Bolívar State, Venezuela	1000
M. odaelkae (Bott, 1970)	Trinidad	600-800
M. rodriguezi (Pretzmann, 1968)	Guyana	
M. wymani (Rathbun, 1905)	Paramaribo, Surinam	880
M. somanni (Bott, 1967)	Upper Rio Negro, Brazil and Venezuela	

Remarks.—This species appears to be endemic to the northernmost Andes of Venezuela (Trujillo State). The conspicuous cephalic bulge of the first male gonopods clearly distinguishes this species from 11 all congeners. The species nearest to *Microthelphusa viloriai* appears to be *M. forcarti* (Pretzmann, 1967), from Tabay, Mérida State Venezuela, which is 115 km SW of its type locality. In *M. forcarti* (Pretzmann, 1967), the caudal border of the apical lobe is flexed over cephalically, but is not produced into a conspicuous cephalic bulge, and the mesial process is directed transversely in relation to the main axis of the gonopod. The process at the base of the extremity of the marginal lobe is present in both species, but while in *M. forcarti* it resembles a rounded ridge, in *M. viloriai* it is a finger like hook.

Type Locality.—The specimen was found in a small stream surrounding the Santa Ana town, in Trujillo State, Venezuela. The stream was very disturbed, bottom with a covered in boulders, dry forests on either bank. At the time of

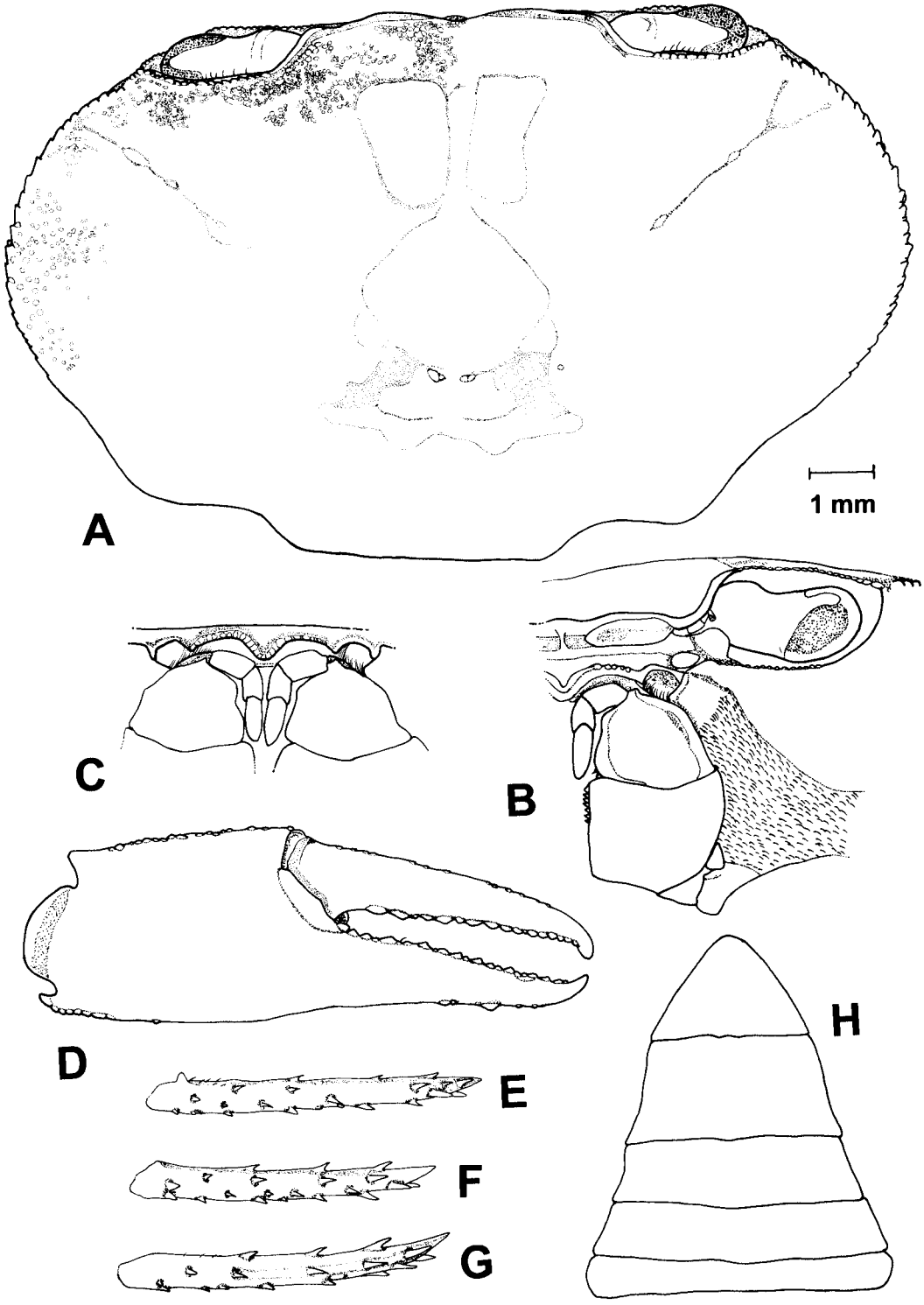

Fig. 3. *Microthelphusa rodriguezi* (Pretzmann, 1968). A-H, male holotype from Rupununi river, Melville, British Guiana, NHMW 3277. A, cephalothorax dorsal view; B, frontal view with detail of third maxilliped, eyestalk, orbit and pterygostomian region; C, opening of the efferent branchial channel and epistome; D, chela of the right cheliped, external view; E-G, dactyl of the second, third, fourth and fifth right pereiopods; D, abdomen, external view.

collection, the following values were measured (between 12:00 and 13:00): water temperature of water 18°C; air temperature 22°C; pH 7.10. The specimens were captured with several fishes using rotenone.

Size.—The largest specimen is the holotype, a mature male with a cb. 33.5 mm. The first gonopods are well developed in the male specimen with a cb. 25. 1 mm, but are still in a juvenile condition in the specimen with cb. 17.9 mm.

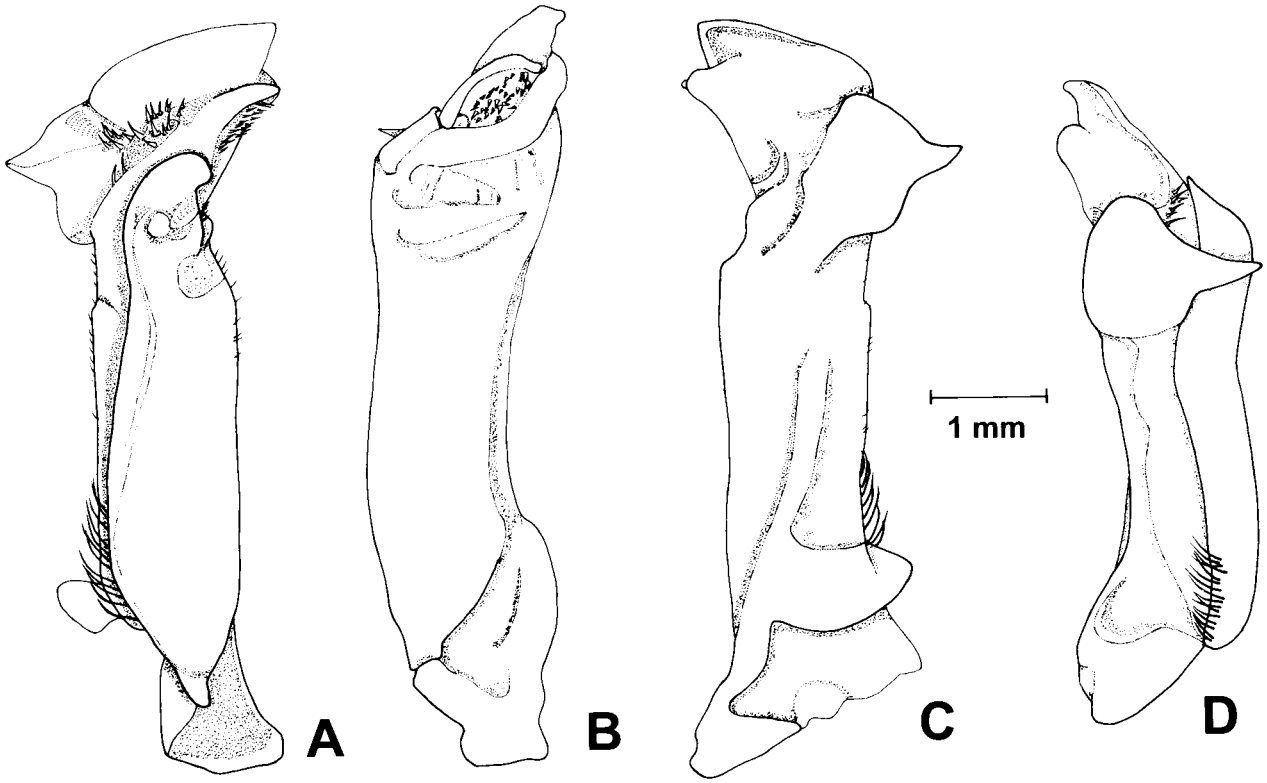

Fig. 4. *Microthelphusa rodriguezi* Pretzmann, 1968. A-D, first left gonopod of the male holotype from Rupununi river, Melville, British Guiana, NHMW 3277. A, caudal view; B, lateral view; C, cephalic view; D, mesial view.

Etymology.—The species is named after the distinguished Venezuelan zoologist Angel L. Viloria who collected some of the specimens used in this study.

Microthelphusa rodriguezi Pretzmann, 1968

Guinotia (*Microthelphusa*) *rodriguezi* Pretzmann, 1968: 11.
Eudaniela (*Microthelphusa*) *rodriguezi* Pretzmann, 1971: 17; Pretzmann, 1972: 27, fig. 57-60, 110-112.

Microthelphusa rodriguezi Rodríguez, 1982: 162
Figs. 3, 4

Material.—Rupununi river, Melville, British Guiana, February 27, 1913, leg. A. D. Hasemann, 1 male holotype, cl 13.31 mm, cb 19.84 mm, NHMW 3277.

Diagnosis.—In caudal view, distal extension of marginal lobe strongly bent laterally, canal-like, reaching middle of apical spines field. Cephalic lamella large, crest-like. Field of apical spines narrow, oblong.

Description of Holotype.—Cephalothorax 1.49 times as wide as long, dorsal surface of frontal, antero-lateral regions with scale-like papillae; cervical grooves shallow, almost straight, not reaching margin of cephalothorax and mesogastric region; rest of regions poorly defined. Antero-lateral margin with shallow postorbital depression with 1 or 2 spine like tubercles, rest of border covered by regular series of 22 or 23 papiliform teeth. Postfrontal lobes narrow, oblong, inconspicuous, their anterior depression extending laterally to beginning of orbits; median groove indistinct over frontal region, deep between postfrontal lobes. Surface of cephalothorax between postfrontal lobes front inclined anteriorly, concave in frontal view. Upper margin of front sinuous, with median notch, marked with row of poorly defined papillae; lower margin thick, sinuous in frontal view; surface of front between upper and lower margins narrow in the middle. In frontal view, opening of efferent branchial channel square. Epistome, in frontal view, tri-lobulate. Orbital hiatus not separating antenna from orbit. Upper, lower borders of orbit with tubercles. Eyestalk reduced. Pterygostomian region covered with geniculate hair.

Palm of right chela slender, lower margin sinuous with 8 tubercles near base, 5 near apex of fixed finger, middle tubercle more robust than the others; upper margin of chela with 17 tubercles. Fingers slender, not gaping; movable finger with 13 spines in upper margin. Ambulatory legs slender, longets being those of fourth pair (total length 1.61 width of cephalotorax); merus in this pair 3.35 times longer than wide. Exopod of third maxilliped 0.27 times length of ischium of endognath.

First gonopod small, straight, strong, in caudal view, distal extension of marginal lobe strongly bent laterally, canal-like, reaching middle of apical spines field. Cephalic, caudal lamellae on apical lobe not merging; caudal lamella short, slightly inclined to right, with field of curve spines in caudal portion. Cephalic lamella relatively large, crest-like. Mesial process triangular, with proximal border angled, ending in acute spine directed backwards; inferior angle S-shaped with small spines field in caudal portion. Field of apical spines narrow, oblong, delimiting border of

caudal lamella (which is thiner) from border of cephalic lamella (which is thick, strong, proximally merging with marginal lobe).

Remarks.—The type specimen has a broken cephalothorax and all walking legs on left side are missing. The species was originally described in German by Pretzmann (1968), as *Guinotia* (*Microthelphusa*) *rodriguezi*, and was designated the type of the subgenus. The original description was too brief and was not accompanied by illustrations. Pretzmann (1971) transferred the specie to another genus, *Eudaniela*, but did not present any justification. In 1972, Pretzmann redescribed the same material as *Eudaniela* (*Microthelphusa*) *rodriguezi*, but the accompanying plates are of limited value as they were of a relatively low resolution.

In a review of the family Pseudothelphusidae, Rodríguez (1982), regarded *Microthelphusa* as a full genus. He, however, did not redescribe or refigure merely referring the description in Pretzmann (1972).

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