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Taxonomy of the Neotropical freshwater crab family Trichodactylidae
III. The genera *Fredilocarcinus* and *Goyazana*
 (Crustacea: Decapoda: Brachyura)

CÉLIO MAGALHÃES & MICHAEL TÜRKAY

With 11 figures

Abstract

The genera *Fredilocarcinus* and *Goyazana* (tribe Dilocarcinini) of the freshwater crab family Trichodactylidae are revised. Five species are recognised within these two genera, including two new species which are described.

Introduction

A monographic treatment of the neotropical freshwater crab family Trichodactylidae was started by MAGALHÃES & TÜRKAY (1996a). They proposed a new generic system for the group on the basis of the morphology of the endophragmal system, the male first pleopod, and the segmentation of the abdomen. In a second study, four genera of the tribe Valdiviini were revised (MAGALHÃES & TÜRKAY 1996b), while this present paper, which continues the series, deals with the revision of two genera of the tribe Dilocarcinini: *Fredilocarcinus* and *Goyazana*. Keys to the species for each genus, as well as illustrations of the carapace and the male first pleopod are provided.

The measurements given in the descriptions of the individual species refer to (in mm): Carapace-breadth : Carapace-length : Body height: Frontal breadth. Plp 1 and plp 2 were used for referring to the first and second male pleopods, respectively.

The following abbreviations have been used throughout the paper:

EPA = Expedição Permanente na Amazônia; FMNH = Field Museum of Natural History, Chicago; INPA-CR = Coleção Sistemática de Invertebrados, Seção Crustacea, Instituto Nacional de Pesquisas da Amazônia; IRSNB = Institut Royal des Sciences Naturelles de Belgique, Bruxelles; LACNHM = Los Angeles County Natural History Museum; MNHN = Muséum National d'Histoire Naturelle, Paris; MNRJ = Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro; MZUSP = Museu de Zoologia da Universidade de São Paulo, São Paulo; NHML = The Natural History Museum, London; NHMW = Naturhistorisches Museum Wien, Wien; NNHM = Nationaal Natuurhistorisch Museum, Leiden; SMF = Senckenberg Museum, Frankfurt a. M.; SMNK = Staatliches Museum für Naturkunde, Karlsruhe; UFPB = Coleção de Crustacea da Universidade Federal da Paraíba, João Pessoa; USNM = National Museum of Natural History, Smithsonian Institution, Washington, D. C.; ZSM = Zoologische Staatssammlung, München.

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Systematic part

Fredilocarcinus PRETZMANN 1978

1978 *Dilocarcinus* (*Fredilocarcinus*) PRETZMANN, Sitz.-Ber. österr. Akad. Wiss. math. naturw. Kl., (1) 187 (6-10): 168.

Key to the species of *Fredilocarcinus*

1. Apex of male plp 1 flattened, relatively large; marginal suture strongly twisted to the ventro-lateral face near to the tip 2
- Apex of male plp 1 slender, tapering, not strongly flattened; marginal suture twisted to the ventral face very near to the tip *F. apyratii* n. sp.
2. Subdistal lobe of male plp 1 well developed, rounded; apex shorter than the subdistal lobe *F. musmuschiaae*
- Subdistal lobe of male plp 1 poorly developed; apex clearly longer than the subdistal lobe *F. raddai*

Fredilocarcinus apyratii n. sp.

(Figs. 1, 2, 7)

Holotype: ♂ (INPA-CR 650), Brazil, Estado do Acre, Sobral, left bank of Rio Juruá, 20.III.1992, M.N.F. DA SILVA, col.

Paratype: ♂ (SMF 22351), data as holotype.

Diagnosis: Six spine-tipped anterolateral teeth behind exorbital tooth of carapace. Male abdomen subtriangular, relatively large. Distal part of male plp 1 slender, with a reduced subdistal lobe; tip tapering, with a small subcylindrical distal opening.

Description: Carapace smooth, with some scattered minute hairs seen under higher magnification; carapace strongly convex longitudinally, slightly curved transversally; post-frontal lobes as very low protuberances, barely visible, H-shaped central groove

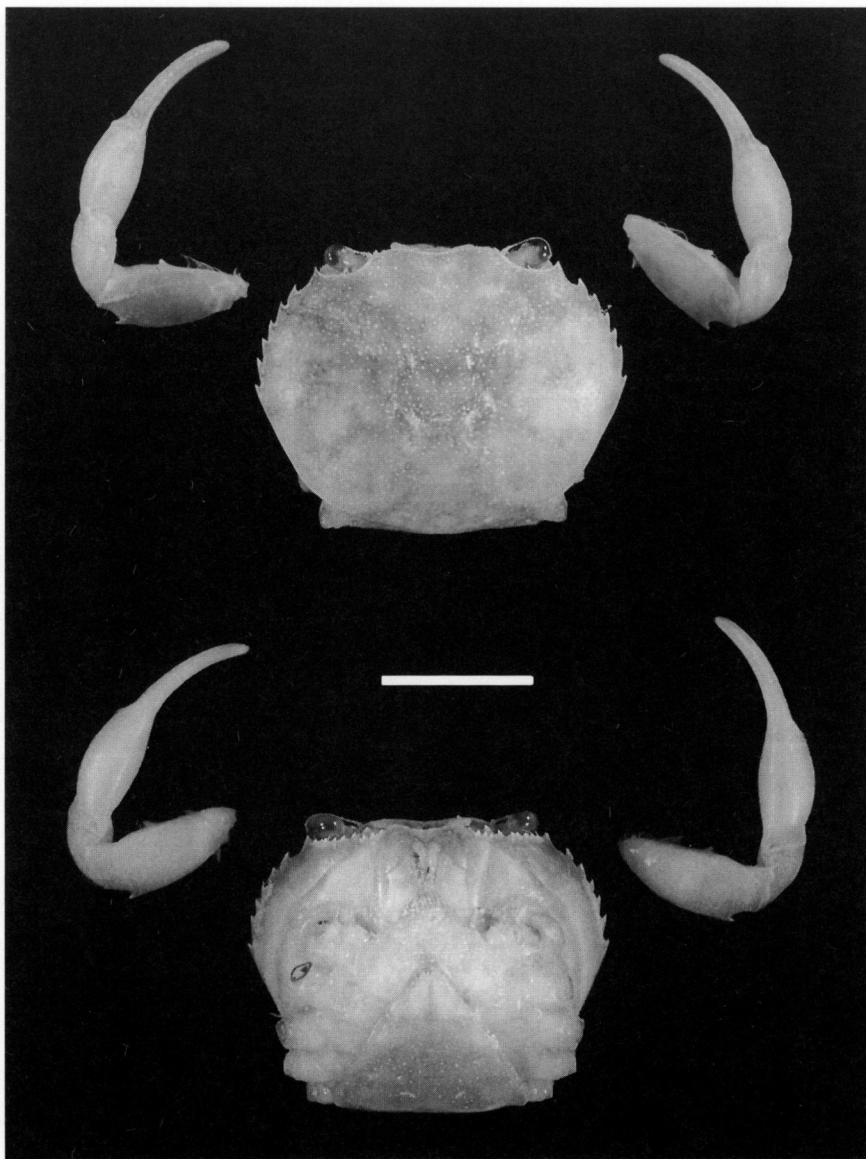


Fig. 1. *Fredilocarcinus apyratii* n. sp. (holotype, INPA-CR 650), dorsal and ventral aspect. — Scale 10 mm.

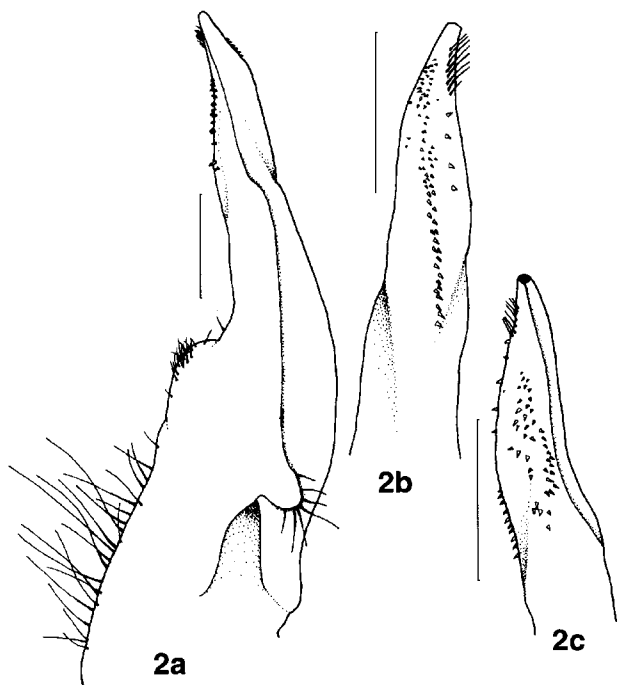


Fig. 2. *Fredilocarcinus apyratii* n. sp. (holotype, INPA-CR 650), right male plp 1; scales 1 mm. — a) Whole limb, ventro-mesial aspect; b) distal part, dorso-lateral aspect; c) distal part, ventral aspect.

(delimited by the posterior and lateral borders of the gastric and lateral borders of the cardiac regions) shallow; meso- and urogastric regions relatively lower, branchial regions slightly more elevated; post-gastric pits present. Frontal margin smooth, moderately convex, directed downwards. Exorbital tooth slender and spine-tipped; anterolateral borders bearing six regularly spaced acute teeth, posterolateral borders unarmed, marked by a conspicuous ridge. Suborbital borders with eight to nine slender spines increasing size towards inner corner, the one at the inner corner being the largest and strongest. Anterolateral corner of the buccal cavity bearing four strong triangular spines. Epistome advanced, barely visible in dorsal view; opening of the efferent channels moderately arched. Grooves dividing subhepatic and pterygostomial regions deep, with some scattered hairs.

Merus of third maxilliped trapezoidal, with its slightly convex outer margin about 2.5 times longer than the inner one, and showing a distinct blunt tooth-like projection at the distal corner. Outer margin of ischium slightly concave. Exopodite about 0.8 times as long as the endopodite and bearing a well developed flagellum.

Chelipeds slender, left chela a little larger than the right one. Merus with a subterminal acute spine on its outer border, a blunt median spine on the inner upper border, a small spine at its distal corner of its inner lower border, and a regular oblique row of short hairs on its upper surface. Carpus with a strong acute spine on its upper border. Palm smooth, with a small distal spine on the upper border. Fingers slender, with no distinct gap between

them, bearing triangular blunt teeth that become a little larger towards their distal ends. Second to fifth pereopods smooth, lower margin of dactylus with longitudinal row of hairs [in both specimens all the pereopods were detached from the body].

Median line of sternum present in somites V–VIII; furrow corresponding to the endosternite IV/V reaching the midline, the following ones ending about halfway between beginning of the sterno-abdominal cavity and the midline.

Male abdomen relatively broad, with segments III–VI fused; lateral borders nearly straight to slightly concave. Telson about 1.9 times broader than long, its lateral borders roughly continuous with those of the sixth abdominal segment.

Male plp 1 slightly bent in lateral direction, its ventral border with proximal part distinctly bulged and bearing several short and long setae; distal part slender, ventral border with subdistal lobe reduced, very weakly developed. Subterminal spine fields arranged in two discontinuous, poorly developed patches in the ventral and the dorsal surfaces. Marginal suture on mesial surface, following general line of the plp 1 along major part of the stem, being slightly twisted to the ventral surface very near to the tip. Apex somewhat flattened, mainly on the mesial surface; tip asymmetrical, tapering, bearing a tuft of subterminal setae and a small subcircular distal opening, placed terminally. Plp 2 only slightly longer than the plp 1.

Measurements: 21.9 : 17.2 : 1.0 : 8.2 (holotype ♂).

Type locality: Brazil, Estado do Acre, Rio Juruá, in Sobral.

Distribution: To date, only known from the type locality, on the southwestern Amazon region.

Remarks: When compared with *F. raddai* and *F. musmuschiae*, the plp 1 morphology of *F. apyratii* n. sp. is different in that the torsion of the distal segment is weak, the apex is not so flattened, the distal lobe is feeble and the distal opening is terminal. This very peculiar pleopod characterises *F. apyratii* n. sp. as a distinct species.

Etymology: From the Tupy-Guarani language "apyra" (tip) and "tii" (slender), in reference to the shape of the distal part of the male plp 1.

Fredilocarcinus musmuschiae

PRETZMANN & MAYTA 1980

(Figs. 3, 4, 7)

1980 *Dilocarcinus (Fredilocarcinus) musmuschiae* PRETZMANN & MAYTA, Anz. österr. Akad. Wiss. math.-naturw. Kl., 1980 (9): 142, figs 13–14.

1992 *Fredilocarcinus musmuschiae*, — RODRIGUEZ, Faune tropicale, 31: 132, figs. 2F, 4V, 5L, 7G, 10J, 13H, 46A–H.

Holotype: ♂ (NHMW 4384), Peru: Departamento Loreto, San Juan, near Aguaitia.

Material: Peru: Depto. Huánuco, 1 ♂ (NNHM 35941), Quebrada Panguana, 14.III.1983, M. S. HOOGMOED; 1 ♂ (SMNK 484), Panguana (09°37'S 74°56'W), Rio Yuyapichis, tributary of Rio Pachitea, 220–260 m, primary forest, barber traps near to a shallow stream of abt. 1 m width, 20. V. – 3. VI. 1984, leg. M. VERHAAGH; 1 ♀ (SMF 22352), idem, 26. XI. – 24. XII. 1983; 1 ♂ (SMF 22353), 1 ♂ (INPA-CR 653), idem, 21. I. – 18. II. 1984; 1 ♂ (SMNK 485), idem, 29. X. – 26. XI. 1983; 2 ♂ 8 ♀ (SMNK 485), idem; 1 ♂ (SMF 22354), idem, 27.V.1981, leg. L. MECKLING.



Fig. 3. *Fredilocarcinus musmuschiae* (NNHM 35941), dorsal and ventral aspect. — Scale 10 mm.

Diagnosis: Six to seven anterolateral teeth behind the exorbital tooth of carapace. Abdomen with segments III–VI fused; male abdomen broadly triangular, its lateral margins slightly convex. Male plp 1 with distal part slightly bent in lateral direction; ventral border distinctly bulging, with a well developed, rounded subdistal lobe. Subterminal spine fields arranged in two discontinuous patches, the larger patch on the mesio-ventral surface, mainly along the subdistal lobe, and a smaller one as a longitudinal row on the lateral surface. Apex flattened and relatively short, its length being shorter than the length of the subdistal lobe.

Measurements: 29.3 : 25.5 : ? : ? (holotype ♂)

Type locality: Peru, Depto. Loreto, San Juan, Aguaitia river.

Distribution: To date, known from the southwestern part of the Amazon basin, in tributaries of Rio Ucayali.

Remarks: Concerning carapace morphology, this species is very similar to the other two species of the genus. However, it can be easily distinguished by the morphology of the male plp 1. In *F. musmuschiae*, the apex is shorter and the subdistal lobe is larger and more prominent than in the plp 1 of *F. raddai*. The differences to the plp 1 of *F. apyratii* n. sp. were commented above.

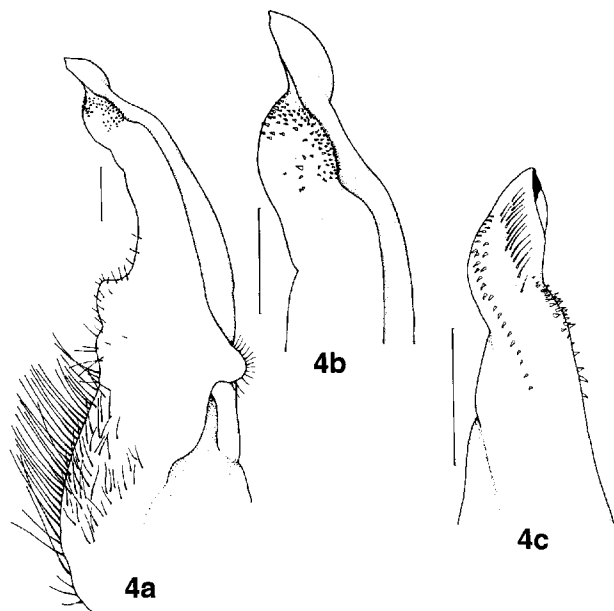


Fig. 4. *Fredilocarcinus musmuschiae* (NNHM 35941) right male plp 1; scales 1 mm. — a) Whole limb, ventro-mesial aspect; b) distal part, ventro-mesial aspect; c) distal part, lateral aspect.

Fredilocarcinus raddai PRETZMANN 1978

(Figs. 5, 6, 7)

- 1977 *Dilocarcinus raddai* PRETZMANN, Anz. österr. Akad. Wiss. math.-naturw. Kl., 1977 (7): 88 [Nomen nudum].
 1978 *Dilocarcinus (Fredilocarcinus) raddai* PRETZMANN, Sitz.-Ber. österr. Akad. Wiss. math. naturw. Kl., (1) 187 (6–10): 168, fig. 9.
 1983 *Dilocarcinus (Fredilocarcinus) raddai*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84 (B): 308, pl. 1, fig. 2; pl. 2, fig. 5; pl. 3, fig. 10; pl. 4, fig. 13; pl. 5, fig. 17.
 1983 *Dilocarcinus (Fredilocarcinus) raddai*, — PRETZMANN, Ann. naturhist. Mus. Wien, 84 (B): 319, 324.
 1992 *Fredilocarcinus raddai*, — RODRIGUEZ, Faune tropicale, 31: 131.

Holotype: ♂ (NHMW 4171), Peru: Depto. Loreto, ca. 20 km SW Iquitos, X.1976, leg. RADDA.

Material: Peru: Depto Loreto: 1 ♂ 1 ♀ 4 juv. (NHMW 4172), ca. 20 km SW Iquitos, X. 1976, PRETZMANN & RADDA, leg.; 1 ♂ (NHML 1883–26), Huallaga river, Yurimaguas, Dr. STANDINGER.

Diagnosis: Six anterolateral teeth behind the exorbital tooth of carapace. Abdomen with segments III–VI fused; male abdomen broadly triangular, its lateral margins slightly convex. Male plp 1 with distal part slightly bent in lateral direction; ventral border distinctly bulging, with a reduced, little prominent subdistal lobe. Subterminal spine fields poorly developed, arranged in two discontinuous patches on the mesio-ventral and lateral surfaces. Apex flattened and relatively long, about 1.5 times longer than the subdistal lobe.

Measurements: 22.1 : 19.2 : ? : ? (holotype ♂)

Type locality: Peru, Depto. Loreto, near Iquitos.

Distribution: To date, known from the western Amazon basin, in Peru.

Remarks: The differences between the three species have already been discussed. Also, the number of *Fredilocarcinus* specimens available for study was small and this is attributed to the lack of survey work in the western Amazon region.

Goyazana BOTT 1969

1969 *Dilocarcinus (Goyazana)* BOTT, Abh. senckenb. naturf. Ges., 518: 47.

Key to species of *Goyazana*

1. Male abdomen clearly triangular, lateral margins of segments IV–VI straight to concave. Male plp 1 nearly straight, spine fields weak *G. castelnaui*
- Male abdomen broadly rounded, subtriangular, lateral margins of segments IV–VI convex. Male plp 1 with stem clearly curved towards its distal part, spine fields strong *G. rotundicauda* n. sp.

Goyazana castelnaui (H. MILNE-EDWARDS 1853)

(Figs. 7, 8, 9)

- 1853 *Dilocarcinus castelnaui* H. MILNE-EDWARDS, Ann. Sci. nat., (3) 20: 216 [part., non 1 ♂ (= *Dilocarcinus septemdentatus* (HERBST))].
 1969 *Dilocarcinus (Goyazana) castelnaui*, — BOTT, Abh. senckenb. naturf. Ges., 518: 48, pl. 10, fig. 18a, b; pl. 20, fig. 49 [part., non "1 ♂ Paratypoide MPa"].
 1969 *Trichodactylus argentinianus*, — LENKO, Ent. News, 80 (1): 6.
 1977 *Dilocarcinus (Goyazana) castelnaui*, — MANNING & HOBBS, Biota acuát. Sudamerica austral: 159.
 1981 *Dilocarcinus castelmani* [sic], — RODRIGUEZ, Aquat. Biota trop. South America, 1: 48 [error].
 1990 *Dilocarcinus (Goyazana) castelnaui*, — ZWINK, Fauna de Crustáceos: 103.
 1992 *Dilocarcinus castelnaui*, — RODRIGUEZ, Faune tropicale, 31: 115, fig. 41A–J.

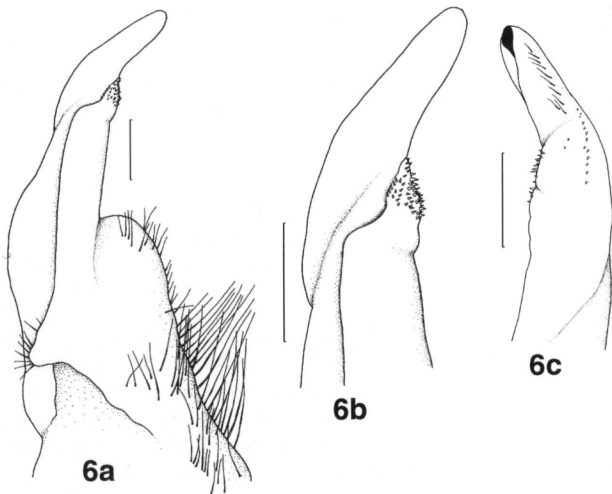
Lectotype: ♂, dry specimen (MNHN 4045), "Salinas, province de Goyaz", V–VI.1844, leg. F. DE CASTELNAU & E. DEVILLE. [Lectotype designation by BOTT (1969)].

Paralectotype: ♀, dry specimen (MNHN 4044), data as lectotype.

Material: Brazil: 2 ♂ 3 ♀ (NHMW 6658), lagoa Boa Vista, 30.III.1903 and 1906, Brasilien Exped.; 2 ♂ 2 ♀ (NHMW 6649), Barra, 1920; 1 ♂ (IRSNB), Amazonia. — Estado do Pará: 4 ♂ 4 ♀ (INPA-CR 312), Rio Tocantins, Acari-Pucú, V.1985, C. REBELO; 1 ♀ (INPA-CR 383), idem, 21.XI.1985. — Estado do Maranhão: 2 ♀ (NHMW 6660), engenho da LEGISA, Parnaíba basin, 6.VI.1913, I. J. HASEMAN; 5 ♂ 1 ♀ (MNRJ MD-1183), Brejinho, 30 Km from Terezina, município de Caxias, 1973, L. MOOJEN e colab.; 1 ♀ (MNRJ MD-1193), Brejinho, Caxias, VII.1973, A. CARVALHO; 1 ♀ (NHMW 6643), Caieira, riacho das Vacas; 1 ♀ (MZUSP 2393), Pres. Dutra, Independência, VI.1966, G.A. DE MELO. — Estado do Tocantis: 2 ♂ 4 ♂ (MZUSP 2375), 3 ♂ 5 ♀ (MZUSP 2377), 3 ♂ (MZUSP 2378), 1 ♂ (MZUSP 2379), 4 ♂ 4 ♀ (MZUSP 2380), 1 ♂ 6 ♀ (MZUSP 2381), 2 ♂ (MZUSP 2382), 1 ♂ 1 ♀ (MZUSP 2383), 3 ♂ 2 ♀ (MZUSP 2384), 5 ♂ 3 ♀ (MZUSP 2384), 5 ♂ 3 ♀ (MZUSP 2385), 2 ♂ 1 ♀ (MZUSP 2400), 2 ♀ (MZUSP 6299), 2 ♂ 1 ♀ (INPA-CR 511), 1 ♂ 1 ♀ (UFPA 3104), 1 ♂ 1 ♀ (SMF 22261), Gurupi, 31.V.1976, G. DE MELO; 1 ♂ (LACNHM), 35 km South of Peixe, I.VI.1956, E. Y. DAWSON; 1 ♂ (MZUSP 9700), córrego Guará, afl. mg. dir. Rio Bezerra (afl. Rio Paraná, afl. Rio Tocantins), foz do Bezerra, Ar-



Fig. 5. *Fredilocarcinus raddai* (NHML 1883.26), dorsal and ventral aspect. — Scale 10 mm.



raias, 15.IX.1988, P.B. PRIMO & W. ZWINK. — Estado do Goiás: 1 ♀ (MZUSP 1653), I.1934, P. KONRAD; 3 ♂ 1 ♀ (MZUSP 438), 1908; 2 ♂ (MZUSP 9697), Rio Atalainha, junto à ponte da GO-118, Monte Alegre de Goiás, 20.IX.1988, P.B. PRIMO & W. ZWINK; 1 ♀ (MZUSP 9946), brejo do Rio Raiz, Monte Alegre de Goiás, 2.XII.1988, P. S. YOUNG & P. B. PRIMO; 2 ♂ (INPA-CR 559), lagoa junto ao Rio São Domingos, São Domingos, 18.IX.1988,

Fig. 6. *Fredilocarcinus raddai* (NHML 1883.26), left male plp 1; scales 1 mm. — a) Whole limb, ventro-mesial aspect; b) distal part, ventro-mesial aspect; c) distal part, dorso-lateral aspect.

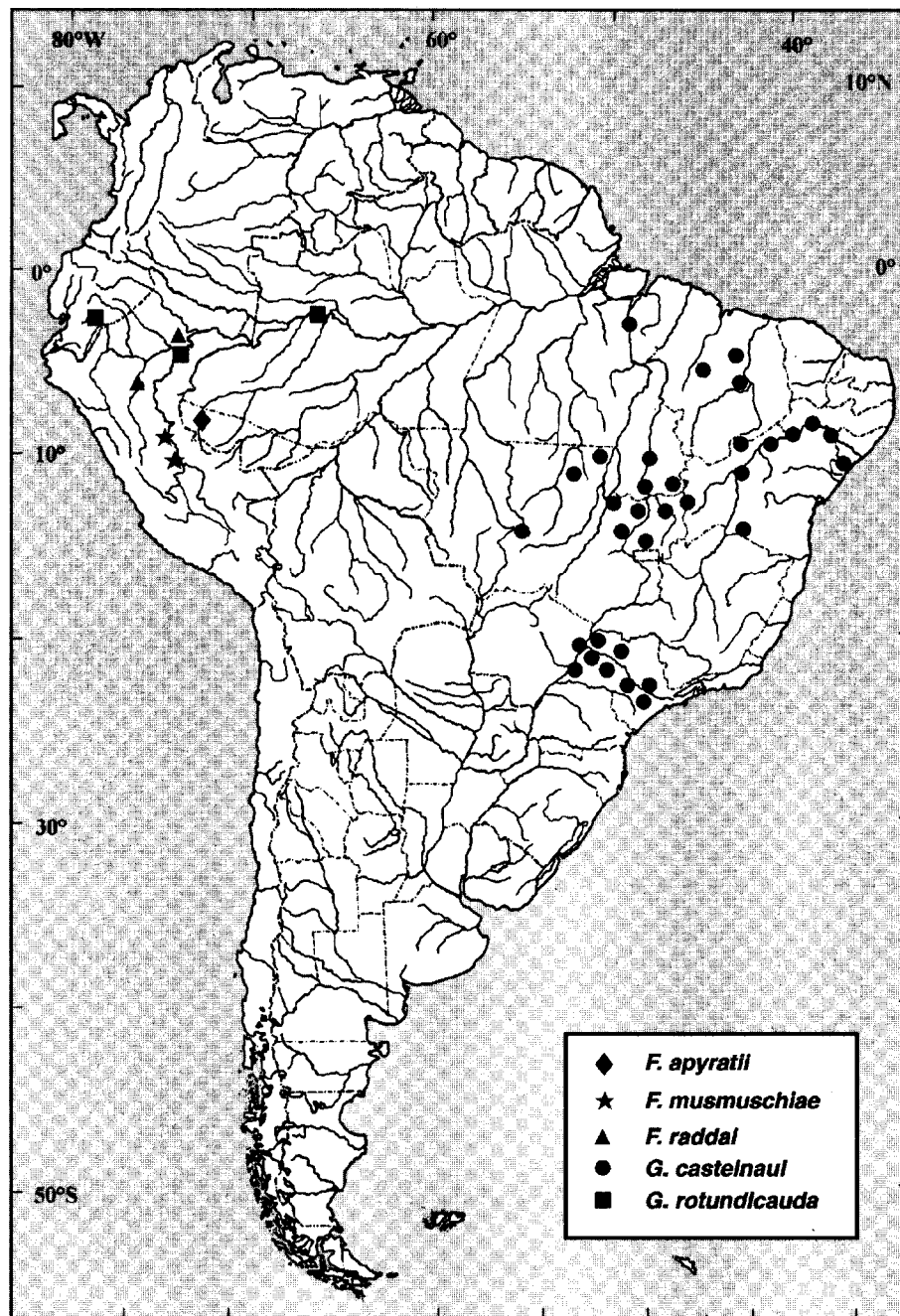


Fig. 7. Distribution map for the species of *Fredilocarcinus* and *Goyazana*.

J. C. DE OLIVEIRA & W. J. COSTA; 2 ♂ (MNRJ MD-1145), córrego Buriti, afl. Rio Tocantins, Minaçu, 25.V.1987, L. ALVARENGA e colab.; 1 ♂ 1 ♀ (MNRJ MD-1168), córrego Quineira, afl. Rio Tocantins, Minaçu, 2.VI.1987, L. ALVARENGA e colab.; 1 ♂ (MNRJ MD-1194), córrego do Curral, afl. Rio Tocantins, Minaçu, 30.V.1987, L. ALVARENGA; 1 ♂ (MNRJ MD-1221), córrego Amônia, afl. Rio Tocantins, Minaçu, L. ALVARENGA e colab.; 1 ♂ (LACNHM), 35 km North of Amaro Leite, 30.V.1956, E. Y. DAWSON; 1 ♀ (MNRJ MD-1206), Rio Indaial, Niquelândia, 9.X.1985, Eq. Malac. e Ictiol. Museu Nacional; 1 ♀ (MNRJ MD-1162), córrego Palmeira, Uruaçu, 17.X.1985, Eq. Malac. e Ictiol. Museu Nacional; 1 ♂ (MNRJ

MD-1212), córrego Taquaral, Uruaçu, 4.X.1985, Eq. Malac. e Ictiol. Museu Nacional; 1 ♂ (ZSM 1088-2), Hochland von Goiás, bei Brasília, 10.VIII.1965. — Estado de Pernambuco: 2 ♂, broken (MNRJ MD-1246), mun. Boa Vista, O. SCHUBART; 1 ♀ (MZUSP 6315), Rio São Francisco, Belém de São Francisco, 16.V.1971. — Estado de Sergipe: 1 ♂ 1 ♀ (MZUSP 6331), Rio Vasa Barris, Simão Dias, 14.VIII.1971. — Estado da Bahia: 1 ♂ 1 ♀ (MZUSP 1900), Rio São Francisco; 4 ♂ 2 ♀ (MZUSP 440), Rio São Francisco, 1908, E. GARBE; 1 ♀ (USNM 47828), idem; 2 ♀ (MZUSP 6305), Rio São Francisco, Petrolândia, 18.VIII.1971, Exped. aguas Interiores; 2 ♂ 1 ♀ (MNRJ MD-1186), Rio São Francisco, Paulo

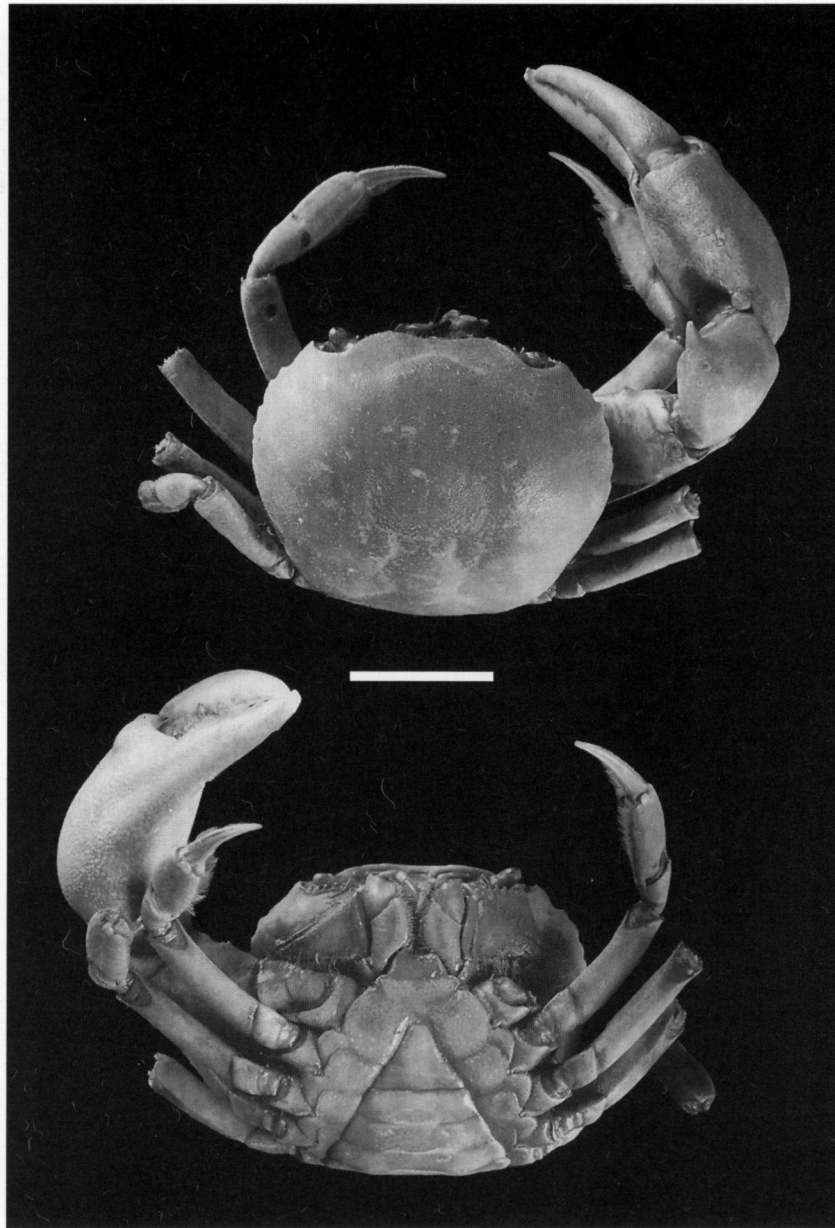


Fig. 8. *Goyazana castelnaui* (SMF 22263), dorsal and ventral aspect. — Scale 20 mm.

Afonso, 11.VII.1951; 1 ♂ 9 ♀ (MZUSP 930), Joazeiro, XI.1914, E. GARBE; 1 ♀ (USNM 48313), idem; 1 ♂ (MNRJ MD-1245), Joazeiro, 8.IV.1942, MOOJEN & BAILY; 1 ♂ (MNRJ MD-1147), lago de Sobradinho, Pedra Branca, 27.II.1984, Cia. Desenv. e Ação Regional; 1 ♂ (MZUSP 2296), Santa Rita de Cássia, 25.III.-14.IV.1958, E. DANTE; 1 ♀ (MZUSP 6332), Guanambi, VIII.1981, F. GIANOTTI FILHO. — Estado do Mato Grosso: 3 ♂ 3 ♀ (SMF 4397), Zentral-Brasilien, Mato Grosso, Quellgebiet des Xingu, Lagoz bei Camajura, 10.X.1965, BRINCKMANN; 1 ♀ (MZUSP 2388), Barra do Tapirapé, 8.I.1966, B. MALKIN; 5 ♂ 7 ♀ (MZUSP 1797), idem, 28.VII.1963, B. MALKIN; 1 ♂ (MZUSP 2306), idem, 8.VIII.1962, B. MALKIN; 6 ♂ 9 ♀ (MZUSP 1805), idem, I.1962, B. MALKIN; 3 ♂ 8 ♀ (MZUSP 2262), lagoa Ipava, Pq. Nac. Xingu, 4-10.II.1965, P. VANZOLINI; 1 ♂ 1 ♀ (SMF 22262), idem; 1 ♂ 3 ♀ (MZUSP 6376), Rio Toatoari, Pq. Nac. do Xingu, 27.X.1973,

G. R. KLOSS; 7 ♂, poor cond. (MZUSP 2316), confluência Xingu-Culuene, VI.1947, CARVALHO; 2 ♂ 1 ♀ (MNRJ MD-805), córrego da Lage [Rio Paraguay basin], Chapada dos Guimarães, 13.VII.1983, W. ZWINK; 1 ♂ (MNRJ MD-806), córrego Vermelho, Chapada dos Guimarães, 11.VII.1983, W. ZWINK. — Estado do Mato Grosso do Sul: 3 ♂ 1 ♀ (MZUSP 6318), Rio Sucuriú, Três Lagoas. — Estado de São Paulo: 2 ♂ 1 ♀ (MZUSP 276), Itapura, 1904, E. GARBE; 1 ♂ (MZUSP 1795), São José do Rio Preto, 8.IX.1963, C. COSTA; 1 ♂ 1 ♀ (MZUSP 2314), idem, 4.V.1963, L. VIZOTTO; 1 ♂ 2 ♀ 15 juv. (MZUSP 1796), idem, 18.II.1964, L. VIZOTTO; 1 ♀ (MZUSP 2305), idem, 2.IX.1963, L. VIZOTTO; 1 ♂ 1 ♀ (MZUSP 2289), idem, 8.IX.1964, L. VIZOTTO; 2 ♀ (MZUSP 2284), idem, 8.I.1965, L. VIZOTTO; 1 ♀ (MZUSP 1798), idem, 1962, L. VIZOTTO; 1 ♀, broken (MZUSP 2285), idem, L. VIZOTTO; 1 ♂ 3 ♀ (MZUSP 2287), 1 ♂ 1 ♀ (NNHM D-37346),

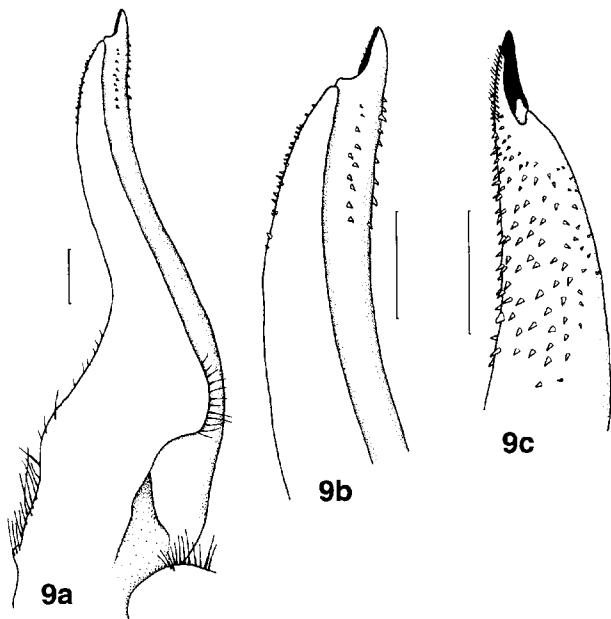


Fig. 9. *Goyazana castelnaui* (MZUSP 6331), right male plp 1; scales 1 mm. — a) Whole limb, mesial aspect; b) distal part, mesial aspect; c) distal part, lateral aspect.

1 ♂ 2 ♀ (MZUSP 2292), 1 ♂ 1 ♀ (SMF 22263), idem, 7.I.1965, L. VIZOTTO; 4 ♂ 4 ♀ (MZUSP 2419), idem, 9.VIII.1960; L. VIZOTTO; 8 ♂ 5 ♀ (MZUSP 2387), idem, 20.IV.1963, L. VIZOTTO; 2 ♂ (MZUSP 2266), córrego Bebedouro, Alfredo Castilho, 1965, H. BRITSKI; 2 ♂ (MZUSP 2310), Rio da Fartura, mun. Borboleta, 4.XII.1965, L. VIZOTTO; 1 ♂ (MZUSP 2324), córrego Jacaré, José Bonifácio, 24.X.1965, C. COSTA; 1 ♀ (MZUSP 1801), Rio Fartura, Nova Itapirema, II.1964, L. VIZOTTO; 1 ♀ (MZUSP 1651), Nova Itapirema, 1951; 4 ♂ (MZUSP 2313), Rio Barra Mansa, Sales, 13.VIII.1965, L. VIZOTTO; 1 ♂ 1 ♀ and youngs (ZSM 1088-1), laguna near Fundão, 32 km upstream Porto Tibiriçá, II.1938, SCHINDLER; 1 ♀ (MZUSP 2293), Rio Jacaré, Boa Esperança do Sul, 20.VI.1965, K. LENKO; 1 ♀ (MZUSP 1794), Boa Esperança do Sul, 27.I.1964, K. LENKO; 1 ♀ (MZUSP 2283), Rio da Onça, Barrinha, XI.1965; 4 ♂ 4 ♀ (MZUSP 2286), Rio Turvo, 24.IV.1964, L. VIZOTTO; 7 ♂ (MZUSP 2408), 1 ♂ 1 ♀ (INPA-CR 512), Rio Turvo, Lagoa, 5.V.1966, L. VIZOTTO; 7 ♂ (MZUSP 2407), Piscina Redonda, Lagoa, 5.V.1966, L. VIZOTTO; 1 ♂ (MZUSP 2261), Rio Turvo, 30.X.1964, L. VIZOTTO; 1 ♀ (MZUSP 2265), Rio Barra Mansa, Tietê, 20.II.1965, L. VIZOTTO.

Diagnosis: Five to seven (usually six) anterolateral teeth behind the exorbital tooth of carapace, sometimes fading away in larger specimens. All abdominal segments free (sometimes, segments III–VI can be fused in larger females); male abdomen subtriangular, with straight to concave lateral margins. Male plp 1 slightly S-shaped; marginal suture on the mesial surface, displaced towards the lateral surface very near to the apex; spine fields weakly developed.

Measurements: 19.2 : 16.2 : ? : ? (lectotype ♂).

Type locality: Brazil, Estado de Goiás, Salinas [see note on *Sylviocarcinus devillei*, in MAGALHÃES & TÜRKAY, 1996b].

Distribution: Central, southeast, northeast and north Brazil, occurring in the Amazon, São Francisco, upper Paraguay and upper Paraná river basins.

Remarks: RATHBUN (1906: 62) pointed out that one male syntype of this species was *Dilocarcinus spinifer* [= *D. septemdentatus* (HERBST 1783)]. BOTT (1969) considered the two males and the female as *G. castelnaui*. However, the examination of the syntypes by one of us (C. M.) showed that the smallest male (MNHN 3866), which is now in bad condition, in fact belongs to *D. septemdentatus* due to the shape of the abdomen and from what was left of the gonopod structure.

This species has a wide occurrence throughout central Brazil. Its distribution suggests that it predominates in plateau rivers and is not typical for lowlands. In the Amazon basin it occurs in the upper Xingu river and in the Araguaia/Tocantins rivers basins, being apparently absent in the rest of the basin. Also in the area of the Paraguay river its records are restricted to some headwaters of the Cuiabá river, a tributary of the Paraguay river, located in a high plain area called "Chapada dos Guimarães". It also occurs in the basins of the São Francisco river, upper Paraná river and coastal basins in the State of Maranhão (Parnaíba river) and Sergipe (Vasa Barris river).

Goyazana rotundicauda n. sp.

(Figs. 7, 10, 11)

Holotype: ♂ (MZUSP 7007), Brazil: Estado do Amazonas, Igarapé Manduaçu, in the Paraná Iupia, NW of Fonte Boa, 8.–9.X.1968, EPA.

Material: Peru: Dept. de Loreto: 1 ♂ (FMNH 3627) 7 ♂ (FMNH 3673) 2 ♂ (INPA-CR 571), Nauta, Santa Elena, Rio Samiria, 180 m alt., 24.XI.1956, leg. C. KALINOWSKI. — Ecuador: Dept. Pastaza: 1 ♂ (FMNH 3667), Ashuara village on Rio Macuma, ca. 10 km from Rio Morona, 300 m alt. (02°45' S 77°30' W), 5.–17.VII.1971, leg. B. MALKIN.

Diagnosis: Outline of male abdomen broadly rounded, margins convex, telson relatively broader and shorter as in *G. castelnaui*. Distal part of male plp 1 clearly curved, subterminal spine-fields strong, well developed.

Description: The carapace is roughly elliptical, strongly convex longitudinally but almost horizontal transversally; it is glabrous. The regions are not marked off, the H-shaped sulcus is inconspicuous. The postfrontal lobes are barely visible, marked only by very low oblique prominences with an open V-shape. The carapace, between the front and the postfrontal lobes, is markedly inclined downwards. The frontal margin is distinctly bilobed, although the central concavity is rather shallow. The exorbital angle is armed with a somewhat low, blunt tooth. There are six closely-spaced sharp teeth on the anterolateral borders of the carapace. The distance between the exorbital tooth and the first anterolateral tooth is a little greater than the distances between each one of the anterolateral teeth. The lower margin of the orbit has five (right orbit) or six (left orbit) pointed to rounded teeth decreasing in size from the innermost; this margin is carinate from the outermost tuberculiform tooth to the exorbital angle. The anterolateral corner of the buccal cavity has five blunt teeth, the median being very low. The regions between the subhepatic and pterygostomial ones are almost devoid of hairs.

The third maxilliped has a trapezoidal merus, whose outer margin is slightly convex and showing a low, blunt tooth-like projection at the distal outer corner. The inner



Fig. 10. *Goyazana rotundicauda* n. sp. (holotype, MZUSP 7007), dorsal and ventral aspect.
— Scale 10 mm.

margin of the merus is rather long relative to the outer margin, being 0.45 times as long as the latter. The inner margin of the ischium is somewhat convex.

The first pereiopods are unequal in size, the right cheliped being longer and stronger than the left one. A row of rather long hairs is present, beginning at the inner border of the ischium to about the middle of the lower inner border of the merus; at this point, a stout spine is located. The lower outer border of the merus is smooth and rounded; the upper border bears some short hairs proximally and a subdistal blunt spine. The inner surface of the merus has a row of short hairs running, near its lower inner border, from the proximal margin to near the distal margin. The distal projection of the lower outer border of the merus is provided with a blunt spine on the

inner border. The palm is smooth, in the minor chela it has a minute conical distal spine on the upper surface. The fingers of both chelae have tuberculiform teeth; in the minor chela, these teeth are somewhat coalescent. The fingers have a small gap between each other, this gap is a little greater in the major chela.

The upper border of the propodus of the pereiopods 2 to 5 shows two inconspicuous parallel rows of minute sparse hairs. These rows are more evident in the upper border of the dactyl, where the hairs are denser. The propodus of pereiopod 2 has slightly oblique rows of rather long hairs on its distal third, these rows are less developed in pereiopods 3 and 4; in pereiopod 5, there is only a single row of hairs. The lower border of the dactyl of the pereiopods 2 to 5 exhibits a large and dense row of hairs.

In the sternal plate, the furrow corresponding to the endosternites IV/V reaches the midline. The median line is present in the somites V to VIII.

All abdominal segments are free; the first segment is partially concealed by the posterior margin of the carapace, only its median part is visible. Two knobs are visible in the third and fourth segments. The abdomen is broad. The lateral margins are clearly convex, almost continuous with the lateral margins of the telson, which, however, are slightly concave; tip of the telson is rounded off.

The male's plp 1 is roughly S-shaped, bearing an almost 90° discontinuity midway on its lateral border, so that the lateroproximal border is distinctly bulged. Several setae are present along and near this border, on the ventro-mesial surface, the most proximal setae being longer. The distal half is incurved, cylindrical and tapering moderately. The subdistal lobes are not distinct. The marginal suture is on the mesial surface, but it is slightly displaced to the lateral surface near the tip. The distal opening is obliquely directed to the ventro-lateral surface. The spine field is poorly developed on the mesial surface, but it is quite well developed on the lateral and dorsal surfaces. There are no apical setae near the tip.

Measurements: 26.8: 20.6: 13.0: 9.1 (holotype ♂).

Distribution: This species is to date known from its type locality, situated between 2°–3° S and 66°–67° W as well as from the Amazonas lowlands of Peru and Ecuador.

Remarks: Although described from a few specimens, *G. rotundicauda* n. sp. exhibits some peculiar features which characterize it as a valid species, and is distinguished from *G. castelnaui* by the following characters: a broader abdomen with convex margins, and a relatively broader and shorter telson. In comparison *G. castelnaui* has a narrow abdomen with slightly concave margins, and a relatively narrower and longer telson. The gonopod of the latter is more slender and less curved, it does not have a discontinuity on its lateral border so that this border shows a

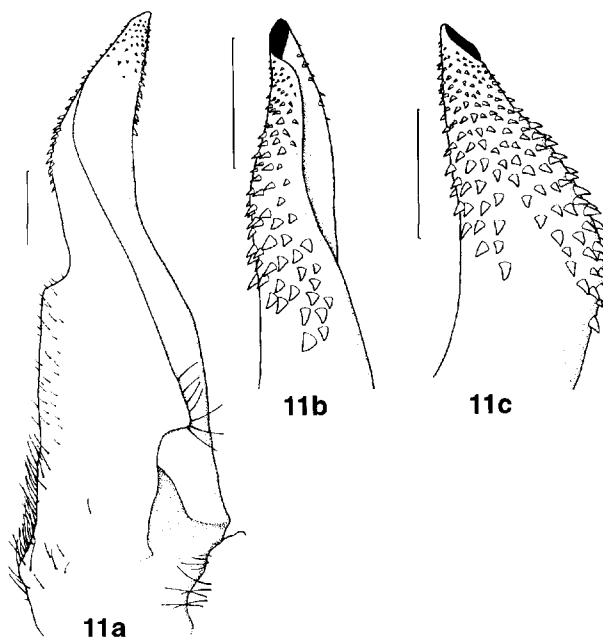


Fig. 11. *Goyazana rotundicauda* n. sp. (holotype, MZUSP 7007), right male plp 1; scales 1 mm. — a) Whole limb, mesial aspect; b) distal part, lateral aspect; c) distal part, dorso-lateral aspect.

gentle, uniform S-shape. The distal part of the gonopod is distinctly more rolled up in *G. castelnaui* than in *G. rotundicauda* n. sp., the distal opening being subterminal in the former, which bears a pointed projection on the dorso-apical border. In addition, the spine field is less developed in *G. castelnaui*.

Etymology: The specific name refers to the round contour of the abdomen.

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