

A review of *Jussara* Mello-Leitão 1935, with a description of six new species from Brazil (Arachnida Opiliones Sclerosomatidae)

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The genus *Jussara* Mello-Leitão 1935, hitherto monotypic, with the species *Jussara obesa* Mello-Leitão 1935, is redefined to contain 15 species from Brazil. Eight species are transferred from other genera to *Jussara*, resulting in the new combinations: *Jussara argentata* for *Holcobunus argentatus* Roewer 1953; *Jussara atra* for *Holcobunus ater* Roewer 1910; *Jussara aureopunctata* for *Prionostemma aureopunctatum* Roewer 1953; *Jussara lineata* for *Holcobunus lineatus* Roewer 1953; *Jussara luteovariata* for *Holcobunus luteovariatus* Mello-Leitão 1932; *Jussara marmorata* for *Garleppa marmorata* Mello-Leitão 1934; *Jussara quadrimaculata* for *Holcobunus quadrimaculatus* Roewer 1953; *Jussara rosea* for *Holcobunus roseus* Mello-Leitão 1940. Six new species are herein described: *Jussara albiarcurata*, *Jussara aurantiaca*, *Jussara avati*, *Jussara flamengo*, *Jussara taeniata* and *Jussara una*. *Holcobunus sigillatus* Mello-Leitão 1944 is considered a junior subjective synonymy of *Holcobunus luteovariatus* Mello-Leitão 1932. A key to the species of *Jussara* is provided.

KEY WORDS: Eupnoi, Gagrellinae, Neotropics, systematics, genital morphology, new species, endemism.

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INTRODUCTION

As an extreme example of what happens to most Opiliones Eupnoi of the superfamily Phalangioidea, most if not all generic divisions in Gagrellinae are meaningless. Even though some species are gathered together in a given genus, it does not mean that they share any special similarity. The number of pseudoarticular nodules in femora I-IV is more variable than generally acknowledged, and sometimes mistakenly interpreted. A series of reviews of eastern Brazilian genera are being undertaken in an attempt to define genera and species by means of comparative diagnoses and to refine the morphological descriptions of the species, using, males and females whenever possible. The genus *Holcobunus* Roewer 1910 was examined first (TOURINHO & KURY 2001), resulting in its restriction to only two species from Rio de Janeiro state (southeastern Brazil). In a second study the genus *Bastiooides* Mello-Leitão 1931 and its single species *B. coxopunctatus* Mello-Leitão 1931, known only from Ilhéus (Bahia State, northeastern Brazil), were considered *nomina dubia* (TOURINHO-DAVIS 2003). Most genera of Gagrellinae examined in a preliminary review were discovered to have a highly endemic distribution (TOURINHO 2000). The first contributions of the series are an attempt to clarify the alpha taxonomy of gagrelline species, after which it will be possible to provide phylogenetic studies of the New World genera of the subfamily.

This paper deals with the hitherto monotypic genus *Jussara* Mello-Leitão 1935. We propose that its type species, *Jussara obesa* Mello-Leitão 1935, belongs to a natural group of 15 species from eastern Brazil, here diagnosed. Eight of those species are transferred from the genera *Garleppa* Roewer 1912, *Holcobunus* and *Prionostemma* Pocock 1903 and six are described as new.

MATERIAL AND METHODS

All anatomical measurements were taken with a dissecting microscope equipped with an eye micrometer. The genitalia were removed from the body, examined and illustrated.

Illustrations were prepared with the aid of a camera lucida. Preparation of specimens for scanning electron microscopy followed PINTO-DA-ROCHA (1997) with modifications (TOURINHO & KURY 2001). Photographs were obtained with a ZEISS DSM 940 Scanning Electron Microscope, in the Cellular Biology Laboratory, Ultrastructure Department of Fundação Instituto Oswaldo Cruz, Rio de Janeiro, Brazil. Terminology for the external and genital morphology followed TOURINHO & KURY (2001), where a standardization of names was suggested and names were given to structures that were not previously described.

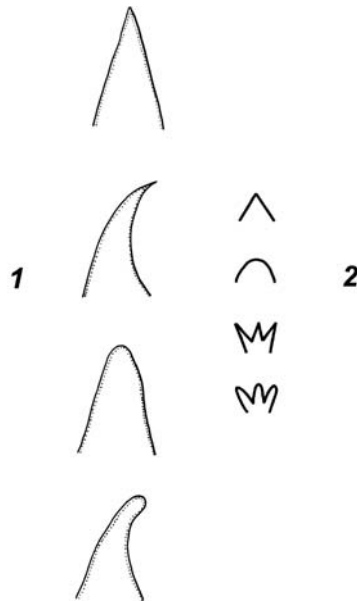
Terminology for the external morphology

Spine: non-articulated process or projection, longer than wide, exhibiting either sharp or blunt point(s), usually present in the eye mound, basal segments of legs, genital operculum and supracheliceral laminae, and sometimes in the penis at the stylus area (Fig. 1).

Granule: non-articulated process or projection, as long as wide, showing either sharp or blunt point(s), usually present in the eye mound, basal segments of legs, genital operculum and supracheliceral laminae (Fig. 2).

Terminology for the genital morphology

As detailed in TOURINHO & KURY (2001), the penis of Gagrellinae has four distinct morphological regions of systematic value: (1) shaft, (2) alate portion, from where the winglets are projected; there are pores above the winglets on the lateral border of the shaft (Fig. 46), sometimes distributed in pairs (Fig. 23), slit glandular openings (Fig. 143), and depressions (Fig. 72), (3) glans, and (4) stylus. The beginning of the glans is indicated by the superior margin of the winglets. Many pores on the surface of the glans delimit the end of the glans area and the beginning of the stylus (Fig. 18). The stylus surface is smooth without pores. The left and right



Figs 1-2. — Generalised Gagrellinae. Fig. 1, schematic view of tegumentary spine; Fig. 2, schematic view of tegumentary granule.

winglets are more or less fused along the median line. There is a symmetric glandular structure inside each winglet, here named the opaque body (Figs 13-14).

The acronyms of the depositories are MCNP = Museu de Ciência e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil, curator: Dr A.A. Lise. MNRJ = Museu Nacional/UFRRJ, Rio de Janeiro, Brazil, curator: Dr A.B. Kury. MZSP = Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil, curator: Dr R. Pinto-da-Rocha. SMF = Naturmuseum Senckenberg, Frankfurt am Main, Germany, curator: Dr P. Jäger. ZMB = Museum für Naturkunde der Humboldt-Universität, Berlin, Germany, curator: Dr J. Dunlop. ZMH = Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Hamburg, Germany, curator: Dr H. Dastych.

SYSTEMATIC ACCOUNTS

Family Sclerosomatidae Simon 1879

Subfamily Gagrellinae Thorell 1889

Gagrellini THORELL 1889: 521.

Gagrellinae; WITH 1903: 466; ROEWER 1910: 13; ROEWER 1923: 924-925; MELLO-LEITÃO 1938: 320; ROEWER 1953: 180-181; RINGUELET 1954: 275-277; MARTENS 1987: 89-90; CRAWFORD 1992: 3-8, COKENDOLPHER & LEE 1993: 8.

Gagrellinas; MELLO-LEITÃO 1932: 16.

Gagrellidae; STAREGA 1976: 95-96.

Distribution. New World from Mexico to Argentina. Old World from Nepal to Indonesia.

Genus *Jussara* Mello-Leitão 1935

Prionostemma (part.); POCKOCK 1903: 433; ROEWER 1910: 168; ROEWER 1923: 1073, MELLO-LEITÃO 1932: 25; MELLO-LEITÃO 1938: 324; ROEWER 1953: 211; RINGUELET 1954: 298; CRAWFORD 1992: 39; COKENDOLPHER & LEE 1993: 8.

Holcobunus (part.); ROEWER 1910: 162; ROEWER 1923: 1069; MELLO-LEITÃO 1932: 22; MELLO-LEITÃO 1938: 333; RINGUELET 1954: 291; ROEWER 1953: 243; CRAWFORD 1992: 24; COKENDOLPHER & LEE 1993: 8.

Garleppa (part.); ROEWER 1912: 56; ROEWER 1923: 1064, fig. 1160; MELLO-LEITÃO 1932: 21; MELLO-LEITÃO 1938: 335; ROEWER 1953: 252; RINGUELET 1954: 288; CRAWFORD 1992: 21.

Jussara MELLO-LEITÃO 1935: 371; MELLO-LEITÃO 1938: 332; ROEWER 1953: 254; RINGUELET 1954: 293; CRAWFORD 1992: 25 (type species *Jussara obesa* Mello-Leitão 1935 by original designation).

Emended diagnosis. Eye mound armed with sharp-pointed granules, arranged in two parallel rows. Supracheliceral laminae elongated in a tongue-shaped process, with multiple apophyses and/or armed distally with one or three pointed sharp or blunt granules. Dorsal scute sub-hexagonal in the male with both anterior sides curved, the two lateral sides divergent and the two posterior sides sinuous, in the females much more rounded. Trochanter of legs II typically lighter than the others, either of a different hue or a different colour, femora of legs I, III and IV generally with one pseudoarticular nodule, sometimes two in leg/s I and/or IV, femur of leg II with three to five nodules. Femoral formula: 1-2/3-5/1/1-2. Noduli

always placed in the middle portion of the femora up to the apical portion, never in the basal half. Winglets widest at the basal half, there with round or truncated contour; left and right units with varied degrees of fusion, from completely fused to fused only in a small distal extension in ventral view. Shaft strongly sinuous dorsoventrally, smoothly inclined without forming angle, very marked in the height of the glans (Fig. 20). Glans not much narrower than the shaft, approximately half the width, stylus short (20% of the length of the glans) (Fig. 17).

Distribution. South America: northeastern, southeastern and southern Brazil.

Included species. *Jussara albiarcuata* n. sp., *Jussara argentata* (Roewer 1953) n. comb., *Jussara atra* (Roewer 1910) n. comb., *Jussara aurantiaca* n. sp., *Jussara aureopunctata* (Roewer 1953) n. comb., *Jussara avati* n. sp., *Jussara lineata* (Roewer 1953) n. comb., *Jussara luteovariata* (Mello-Leitão 1932) n. comb., *Jussara marmorata* (Mello-Leitão 1934) n. comb., *Jussara obesa* Mello-Leitão 1935, *Jussara quadrimaculata* (Roewer 1953) n. comb., *Jussara rosea* (Mello-Leitão 1940) n. comb., *Jussara flamengo* n. sp., *Jussara taeniata* n. sp. and *Jussara una* n. sp.

KEY TO THE SPECIES OF *JUSSARA*

- | | | | |
|-----|---|--------------------------|----|
| 1. | Femur of leg II with five nodules | <i>J. obesa</i> | |
| — | Femur of leg II with three nodules | | 2 |
| 2. | At least one segment of the abdominal scute predominantly black; trochanter of leg II same colour as the others | | 3 |
| — | All body segments yellow, orange, red or beige showing some black spot; trochanter of leg II always lighter than the others | | 9 |
| 3. | Body colour entirely black or blackish-brown, <i>arculi genitales</i> III and lateral sternite II cream | <i>J. una</i> | |
| — | Body colour black with segments partly or entirely with different colours | | 4 |
| 4. | Only the abdominal scute red or yellow | <i>J. flamengo</i> | |
| — | Abdominal scute black showing stripes or spots with different colour | | 5 |
| 5. | Dorsal surface of body showing a white arch-shaped mark in the carapace or second prosomatic tergite | | 7 |
| — | Dorsal surface of body without defined markings | | 6 |
| 6. | Eye mound and second lateral tergite with rounded light dorsal spots, median anterior region of carapace with rounded outline | <i>J. atra</i> | |
| — | Eye mound and second lateral tergite without rounded light dorsal spots, median anterior region of carapace with almost straight outline | <i>J. quadrimaculata</i> | |
| 7. | Carapace with dorsal arch anterior to eye mound | | 8 |
| — | Second prosomatic tergite with arched white mark | | 12 |
| 8. | Lateral borders of the arch with a rounded black spot | <i>J. albiarcuata</i> | |
| — | Borders of the arch without spot or with two rounded black spots | <i>J. lineata</i> | |
| 9. | Body colour red, yellow or orange | | 10 |
| — | Body colour beige with a black arch in the carapace | <i>J. marmorata</i> | |
| 10. | Body colour red, yellow or orange without black spots | | 11 |
| — | Body colour yellow with black rounded spots irregularly distributed, except on dorsal scute where they form 2 parallel rows | <i>J. aureopunctata</i> | |
| 11. | Inner apophysis of pedipalpal tibia present | <i>J. avati</i> | |
| — | Inner apophysis of pedipalpal tibia absent | | 12 |
| 12. | Dorsal surface of trochanter II orange, ventral surface black, carapace with spot anterior to eye mound, inverted V-shaped, lighter than colour of carapace, femora of legs II with four nodules in females, three nodules in males | <i>J. aurantiaca</i> | |
| — | Body and dorsal and ventral surfaces of trochanter of legs II yellow, carapace without spot, femora of legs II with three nodules in both sexes | <i>J. rosea</i> | |

- | | | | |
|-----|--|------------------------|-----------|
| 13. | Dorsal arch bordering carapace anterior to eye mound and dorsal scute | <i>J. taeniata</i> | |
| — | Dorsal arch located on second prosomatic tergite and sides of the dorsal abdominal scute | | 14 |
| 14. | Dorsal scute with a longitudinal and poorly defined wide stripe lighter than the body colour | <i>J. argentata</i> | |
| — | Dorsal scute black sometimes with small rounded light spots sparsely distributed.. | <i>J. luteovariata</i> | |

Jussara albiarcuata n. sp. (Figs 3-23)

Etymology. From Latin *albiarcuata* (= possessing a white arch) in reference to the white arch on the carapace.

Type locality. Brazil, Rio de Janeiro State, Itatiaia: Parque Nacional do Itatiaia, Maromba, 1800 m a.s.l. (22°26'10"S, 44°37'28"W).

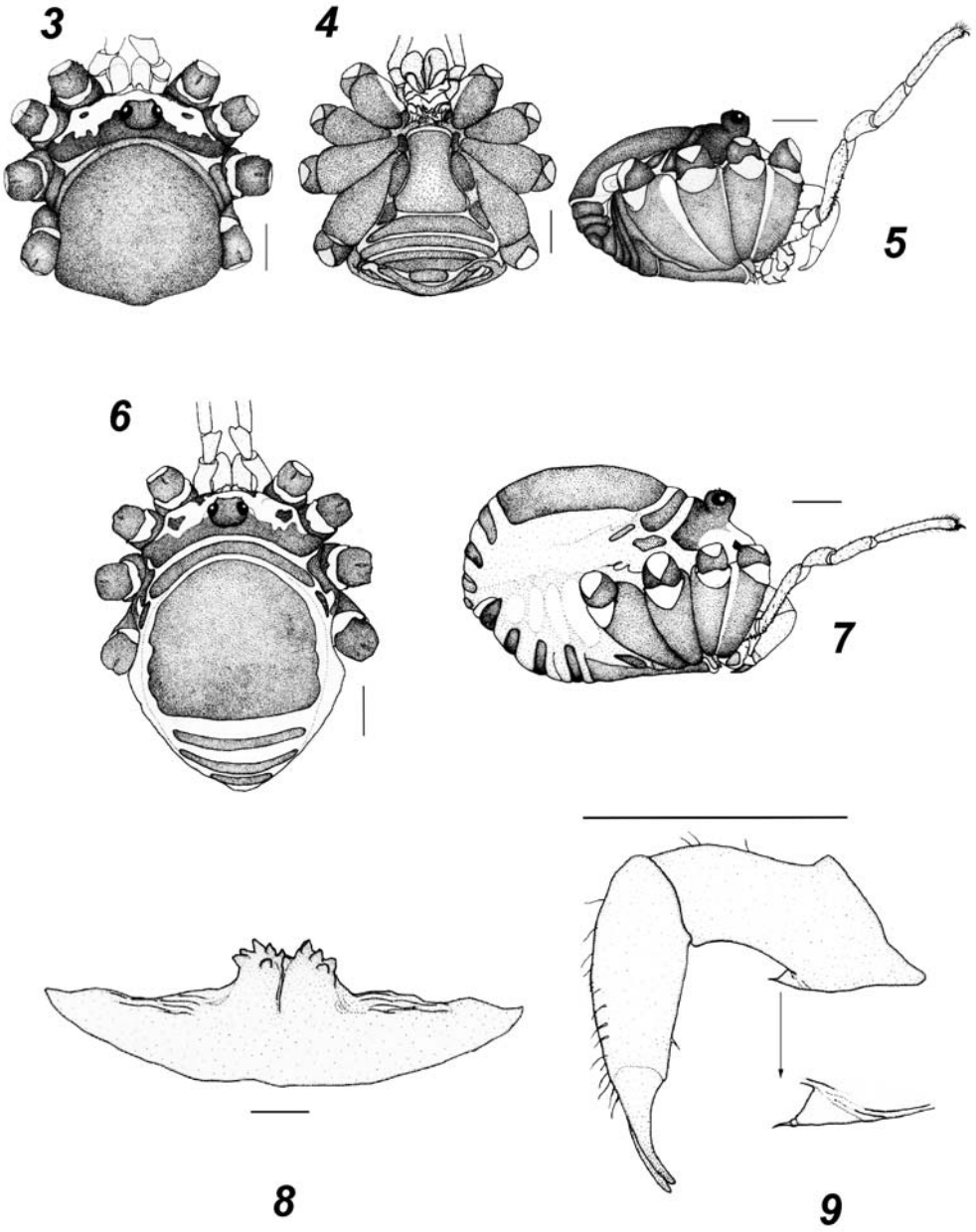
Distribution. Brazil, Rio de Janeiro (Itatiaia) and São Paulo (Mauá and São José dos Barreiros) (Fig. 236).

Type material. 1 ♂ holotype (MNRJ 6733), Brazil, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, Maromba, Camping do Spanner, 17.XII.1991 leg. R.L.C. Baptista & A. Baptista; 1 ♂ paratype (MNRJ 5948) Brazil, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, Maromba, leg. R.L.C. Baptista & A. Baptista; 1 ♂ paratype (MNRJ 58829) Brazil, Rio de Janeiro, Itatiaia, Parque Nacional do Itatiaia, IV.1991 leg. R. Pinto-da-Rocha; 1 ♀ paratype (MNRJ 6416) Brazil, São Paulo, Mauá, Vale do Marimbondo, 20.XII.1988 leg. G.L.F. Mejdalani; 6 ♂ 3 ♀ paratypes (MZSP 16695) Brazil, São Paulo, São José dos Barreiros: Parque Nacional da Serra da Bocaina, 21-24.III.1997 leg. R. Pinto-da-Rocha, Campaner & S. Vanin; 2 ♀ paratypes (MNRJ 5995) Brazil, São Paulo, São José dos Barreiros: Serra da Bocaina. 1300 m, 28.31.III.1954 leg. D. Albuquerque & R. Barros; 3 ♂ 2 ♀ paratypes (MNRJ 5946) Brazil, São Paulo, São José dos Barreiros, Serra da Bocaina, Núcleo Colonial Senador Vergueiro, 30.X.1967 leg. O.A. Roppa.

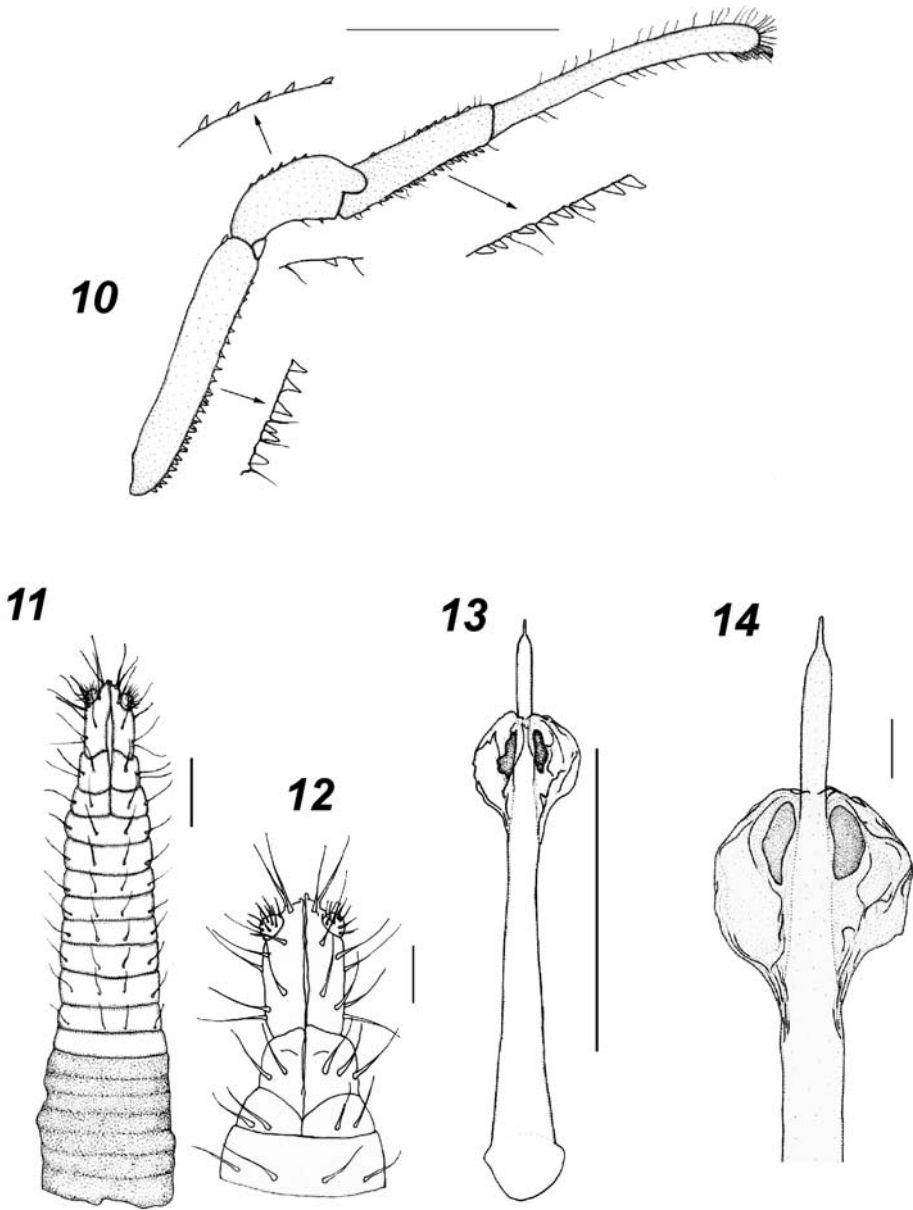
Diagnosis. Body and legs black, with a white arch surrounding the carapace anterior to the eye mound, lateral borders of the arch with a rounded black spot (Figs 3, 6). Chelicerae and pedipalps cream. Lateral borders of winglets of penis almost straight. Shaft laterally covered with pores distributed in pairs (Fig. 23). Glans densely covered by hooded pores (Fig. 19).

Description. Male holotype.

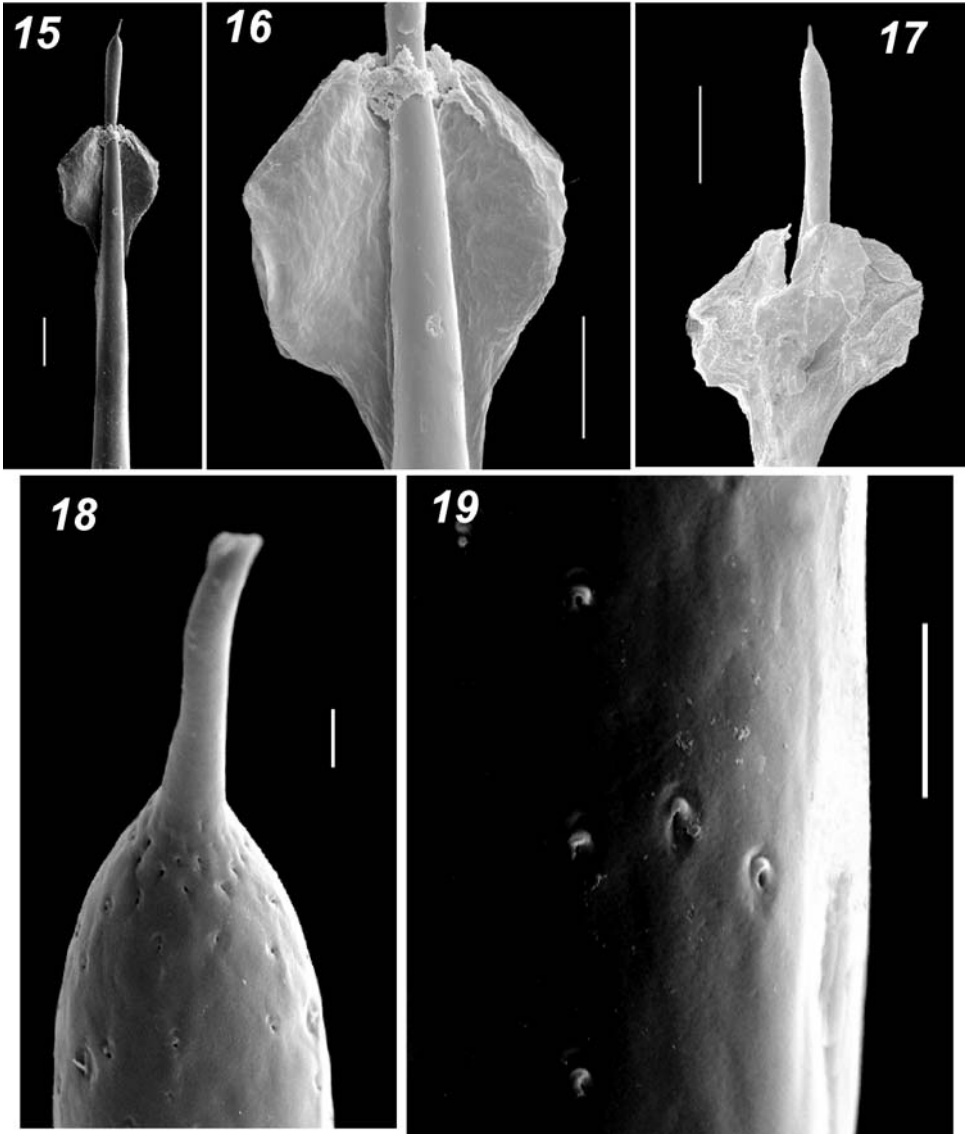
Measurements. Body 3.7 mm, carapace 1.1 mm, dorsal scute 2.0 mm, chelicera 1.8 mm, pedipalps 1.7 mm. *Colour.* Ventral surface and legs black (Fig. 4). *Dorsal surface.* Surface of body reticulate, except for the granular surface of the white arch. Supracheliceral laminae armed distally with sharp-pointed granules (Fig. 8). Eye mound armed with two rows of sharp-pointed granules, unarmed in some females. *Ventral surface.* Inner border of the *arculi genitales* III unarmed. *Chelicera* (Fig. 9). Ventrobasal spine of basichelicerite sharp-pointed. *Pedipalp* (Fig. 10). Ventral apophysis of trochanter armed with sharp-pointed granules irregularly disposed. Femur armed ventrally with one to three longitudinal rows of sharp-pointed granules. Patella armed with dorsolateral sharp-pointed granules and lower ven-



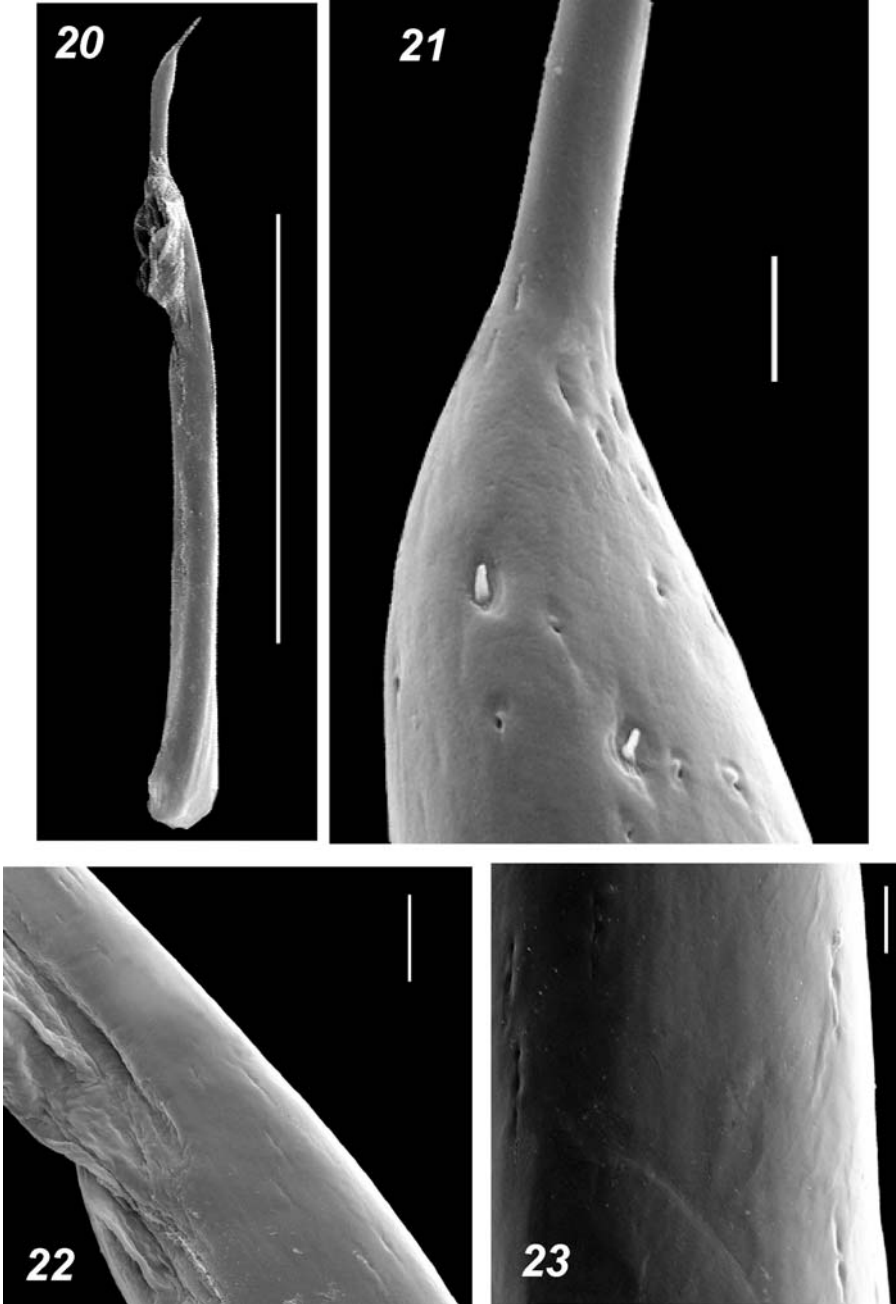
Figs 3-9. — *Jussara albiarcuata* n. sp. Male holotype (MNRJ 6733): Fig. 3, dorsal view; Fig. 4, ventral view; Fig. 5, lateral view; Fig. 8, supracheliceral laminae, dorsal view; Fig. 9, right chelicerae showing ventrobasal spine in detail, lateral view. Female paratype (MNRJ 5946): Fig. 6, dorsal view; Fig. 7, lateral view. Scale bars: 1.0 mm for Figs 3-7, 9; 0.1 mm for Fig. 8.



Figs 10-14. — *Jussara albiarcuata* n. sp. Male holotype (MNRJ 6733): Fig. 10, right pedipalp with armature in detail, lateral view; Fig. 13, penis, ventral view; Fig. 14, anterior portion of penis, ventral view. Female (MNRJ 5946): Fig. 11, ovipositor, dorsal view; Fig. 12, anterior region of ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 10-11, 13; 0.1 mm for Figs 12, 14.



Figs 15-19. — *Jussara albiarcuata* n. sp. Male (MNRJ 5946): Fig. 15, penis, dorsal view; Fig. 16, alate portion of penis, dorsal view; Fig. 17, anterior portion of penis, glans and winglets, ventral view; Fig. 18, anterior portion of glans, stylus and setae laterodistal, dorsal view; Fig. 19, median portion of glans densely covered with hooded pores, dorsal view. Scale bars: 0.1 mm for Figs 15-18; 0.01 mm for Fig. 19.



Figs 20-23. — *Jussara albiarcuata* n. sp. Male (MNRJ 5946): Fig. 20, penis, lateral view; Fig. 21, middle third of glans with laterodistal setae, lateral view; Fig. 22, median portion of shaft showing slit-shaped openings, lateral view; Fig. 23, lateral margin of alate portion showing pores, lateral view. Scale bars: 1.0 mm for Fig. 20; 0.1 mm for Figs 22-23; 0.01 mm for Fig. 21.

troapical sharp-pointed granules, inner apophysis of patella unarmed, as wide as long. Tibia densely armed with sharp-pointed spines disposed irregularly. *Legs*. Femoral formula 1/3/1/1. *Penis*. Shaft 3 times wider than glans (Figs 13-14, 17), lateral borders of the shaft with a row of pores distributed in pairs, they can be distributed up to the winglet area in dorsal view (Figs 22-23). Winglets rounded-trapezoidal and truncated, very expanded laterally, and not very prolonged longitudinally (Figs 15-17), right and left units of winglets totally fused in ventral view (Fig. 17), dorsal and ventral laminae of winglets separated from each other only in the anterior part in lateral view (Fig. 20). Surface of the glans densely covered with hooded pores (Figs 18-19) and simple pores (Fig. 19), two pairs of lateral setae, the superior pair inserted more anteriorly (Fig. 21). Stylus straight (Fig. 20).

Description. Female paratype.

Measurements. Body 3.8 mm, carapace 1.0 mm, dorsal scute 2.0 mm, chelicera 1.6 mm, pedipalps 1.8 mm, ovipositor 1.7 mm. *Colour*. As in the male (Figs 6-7). *Dorsal and ventral surfaces*. As in the male except for the eye mound unarmed in some females, body inflated dorsoventrally, and all the segments of the body separated by articular membrane. Articular membrane very evident, broadly surpassing the sclerites (Figs 6-7). *Chelicera, pedipalp and legs*. As in the male. *Ovipositor*. Body with eight segments. Second segment of the furca with a distal lyrifissure (Figs 11-12).

Jussara argentata (Roewer 1953) n. comb. (Figs 24-31)

Holcobunus argentatus ROEWER 1953: 247, fig. 31.

Type locality. Brazil, Pernambuco State, Recife (08°03'14'S, 34°52'52'W).

Distribution. Brazil, Bahia and Pernambuco (Recife) (Fig. 238).

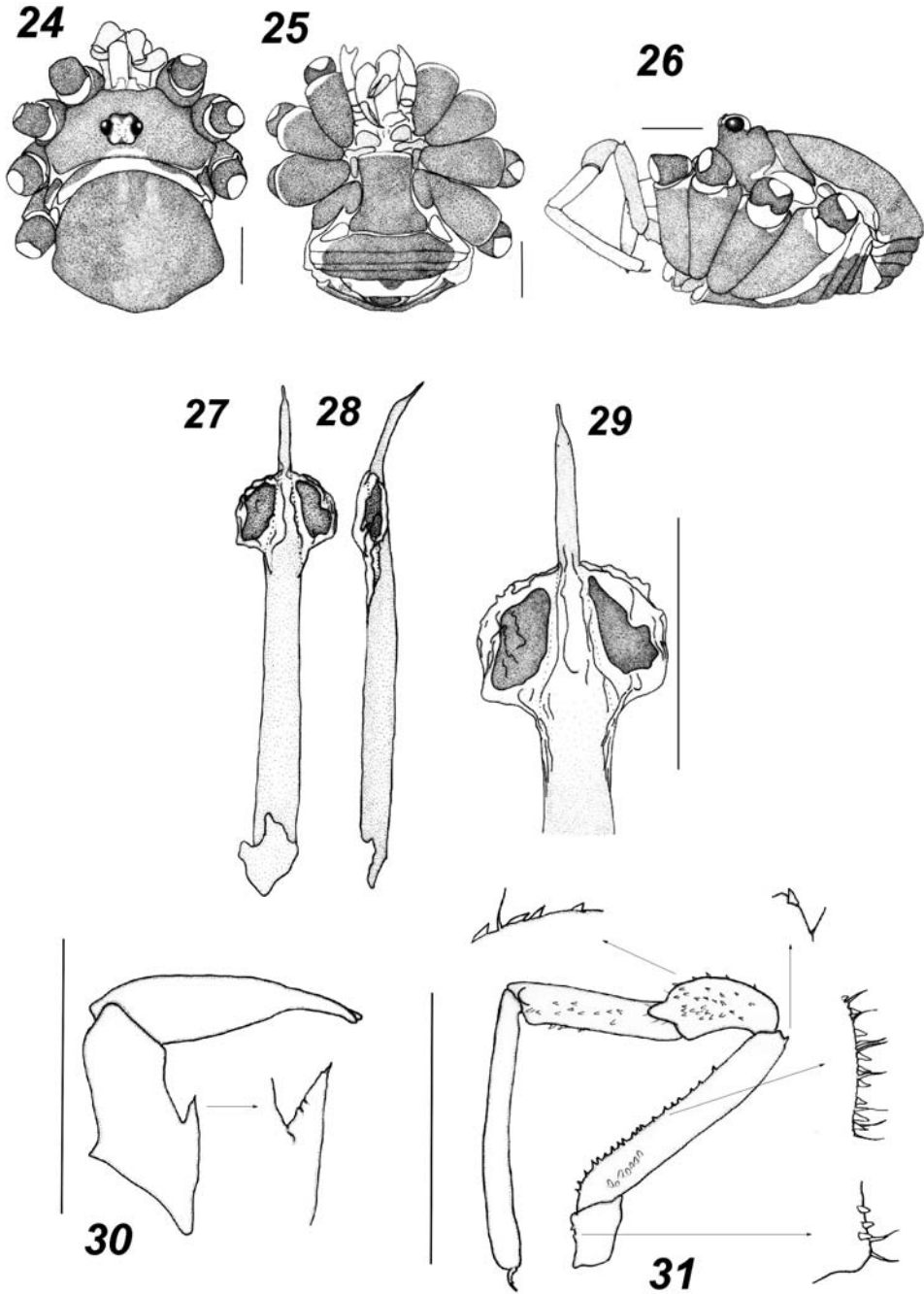
Type material. 1 ♂ holotype (SMF RII 6446/426) Brazil, Pernambuco, Recife, examined.

Other material examined. 1 ♂ (MNRJ 58841) Brazil, Bahia.

Emended diagnosis. Body predominantly blackish-brown, eye mound, in dorsal view, with shiny yellowish-white X-shaped marking. Second prosomatic tergite almost completely covered by a white stripe forming an arch. Dorsal scute with a lighter longitudinal wide stripe poorly defined, *arculi genitales* II and III blackish-brown, sternites XIII + XIV shiny white with a rounded blackish-brown spot in the middle (Figs 24-26); trochanter of legs II blackish-brown slightly lighter than the others. Ventrobasal spine of chelicera sharp-pointed (Fig. 30).

Redescription. Male holotype.

Measurements. Body 4.1 mm, carapace 1.2 mm, dorsal scute 2.1 mm, chelicera 1.6 mm, pedipalp 5.3 mm, penis 2.0 mm. *Colour*. FLS T5 with a small white spot at its posterior half, FLS T6 white. Supracheliceral laminae cream. Articular membrane of the coxae I-V white. Maxillary lobes of the first and second pair of coxae and chelicerae cream. Trochanter, femur, patella and tibia of pedipalps blackish brown, tarsus shiny white (Figs 24-26). Legs black. All parts described as white, without references to the hue, are shiny white. *Dorsal surface*. Surface reticulate, just the granular areas white. Supracheliceral laminae distally armed with sharp-



Figs 24-31. — *Jussara argentata* (Roewer 1953) n. comb. Male holotype (SMF RII 6446/426): Fig. 24, dorsal view; Fig. 25, ventral view; Fig. 26, lateral view; Fig. 27, penis, ventral view; Fig. 28, penis, lateral view; Fig. 29, anterior portion of penis, ventral view; Fig. 30, right chelicerae showing ventral spine in detail, lateral view; Fig. 31, right pedipalp showing armature in detail, lateral view. Scale bars: 1.0 mm for Figs 24-28, 30-33; 0.4 mm for Fig. 29.

pointed granules. Eye mound armed with two rows of sharp-pointed spines. *Ventral surface*. Lateral borders of the genital operculum unarmed, inner border of *arculi genitales* III unarmed. *Chelicera*. Ventrobasal spine of basichelicerite sharp-pointed (Fig. 30). *Pedipalp*. As in *J. albiarcuata* except for: inner apophysis of tibia half the size of apophysis of patella (Fig. 31). *Legs*. Femoral formula 1/3/1/1. *Penis*. Shaft 3 times wider than glans (Fig. 27). Winglets rounded-trapezoidal, very expanded laterally and not very prolonged longitudinally, right and left units fused only at their anterior portion in ventral view, dorsal and ventral laminae of winglets separated from each other only at their anterior portion in lateral view (Figs 27-29). Glans with two pairs of lateral setae, the superior pair inserted more anteriorly. Stylus straight (Figs 28-29).

***Jussara atra* (Roewer 1910) n. comb. (Figs 32-49)**

Holcobunus ater ROEWER 1910 [part.]: 165; ROEWER 1923: 1071; MELLO-LEITÃO 1932: 24; MELLO-LEITÃO 1938: 333; ROEWER 1953: 245.

Type locality. Brazil, Rio de Janeiro.

Distribution. Brazil, Rio de Janeiro. Metropolitan region of the city of Rio de Janeiro (Fig. 233).

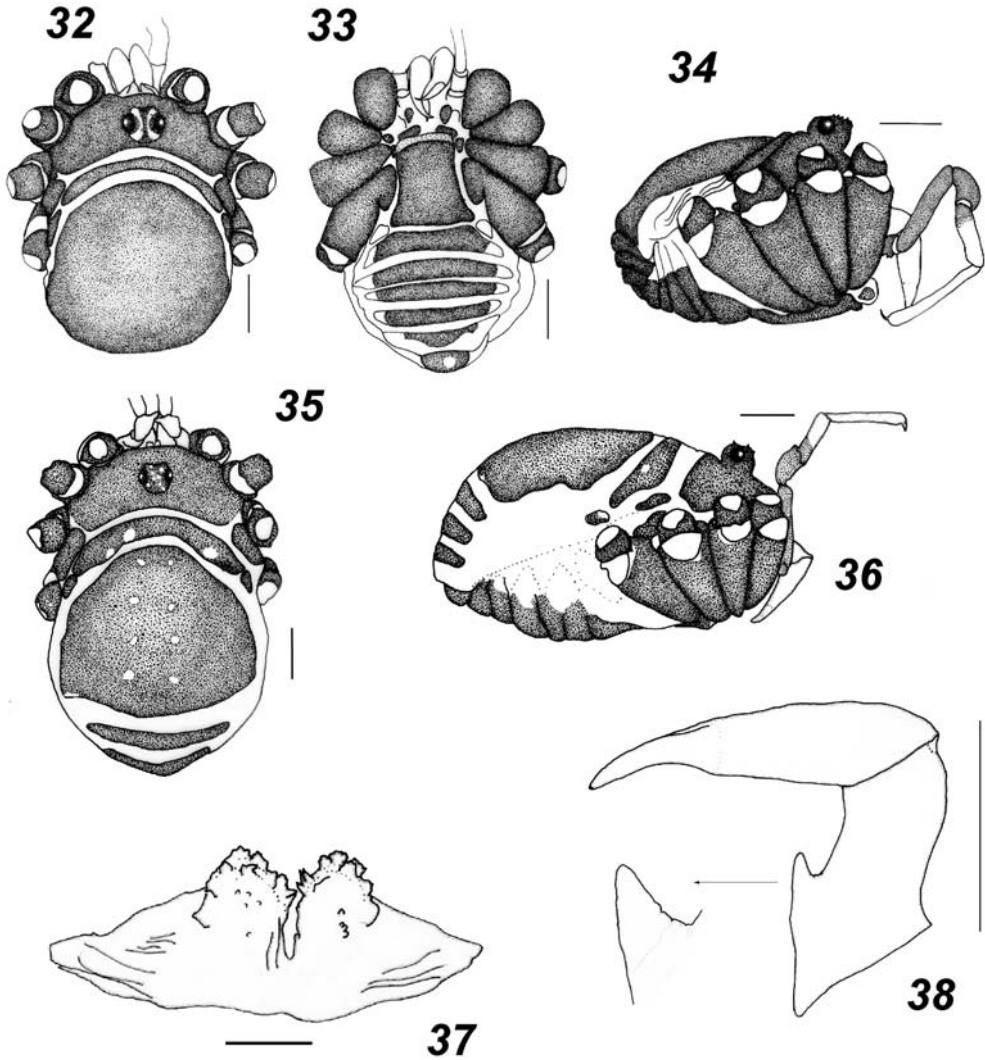
Type material. 4 ♂ and 1 ♀ paralectotypes, Brazil, Rio de Janeiro, MNHN, not examined, 1 ♂ lectotype, 5 ♀ paralectotypes (ZMH) Brazil, Rio de Janeiro, RJ, examined.

Other material examined. 7 ♂ (MNRJ 5892) Brazil, Rio de Janeiro, Rio de Janeiro, leg. J. Moogen; 1 ♂ 1 ♀ (MNRJ 5854) same place; 1 ♂ (MNRJ 6121) Brazil, Rio de Janeiro, Rio de Janeiro, Floresta da Tijuca, 1.VII.1985 leg. R.L.C Baptista; 1 ♂ (MNRJ 5389) and 2 ♂ 2 ♀ (MNRJ 5385) same place, 7.II.1999 leg. A.P.L. Giupponi; 3 ♂ 1 ♀ (MNRJ 58837) same place, 30.I.2000 leg. A.P.L. Giupponi; 1 ♀ (MNRJ 6110) Brazil, Rio de Janeiro, Rio de Janeiro, Horto do Jardim Botânico, 11.X.1983 leg. Grupo União; 1 ♀ (MNRJ 5949) same place, 28.X.1986 leg. V.R. de A. Souto Mayor; 1 ♂ 1 ♀ (MNRJ 6356) same place, 18.XI.1988 leg. A.B. Kury & A. Baptista; 1 ♀ (MNRJ 4351) same place, 1.1989 leg. C.A. Caetano; 2 ♂ (MNRJ 5855 and 5856), same place, II.1989 leg. C.A. Caetano; 2 ♀ (MNRJ 4366) same place, 14.IV.2000 leg. C.A. Caetano; 1 ♂ (MNRJ 5859), Brazil, Rio de Janeiro, Paineiras, 28.XI.1954 leg. J. Becker; 1 ♂ 1 ♀ (MNRJ 5931) and 1 ♀ (MNRJ 5932), Brazil, Rio de Janeiro, Rio de Janeiro, Parque Lage, XI.1995 leg. A.B. Kury; 2 ♀ (MNRJ 5857) Brazil, Rio de Janeiro, Rio de Janeiro, Pedra da Gávea, 10.XII.1953 leg. J. Becker; 1 ♂ (MNRJ 5933) same place, 25.XI.1955 leg. J. Becker; 1 ♂ (MNRJ 5858), Brazil, Rio de Janeiro, Rio de Janeiro, Santa Teresa, 28.VIII.1988 leg. A.B. Kury; 1 ♂ 1 ♀ (MNRJ 5831), Brazil, Rio de Janeiro, Rio de Janeiro, Sumaré; 1 ♂ (MNRJ 5834), Brazil, Rio de Janeiro, Jacarepaguá, Represa do Cigano, leg. A.B. Kury.

Emended diagnosis. Body black, trochanter of leg II slightly lighter than the others, eye mound with small rounded shiny white spots disposed irregularly (usually in females) or sometimes forming an arch around the eyes, also present in the second prosomatic tergite and lateral borders of the dorsal scute usually in females. Trochanter, femur, patella and proximal third of tibia of pedipalps dark brown, mesodistal portion of the tibia and tarsus shiny white (Figs 32, 34-36). Spine of basichelicerite blunt (Fig. 38).

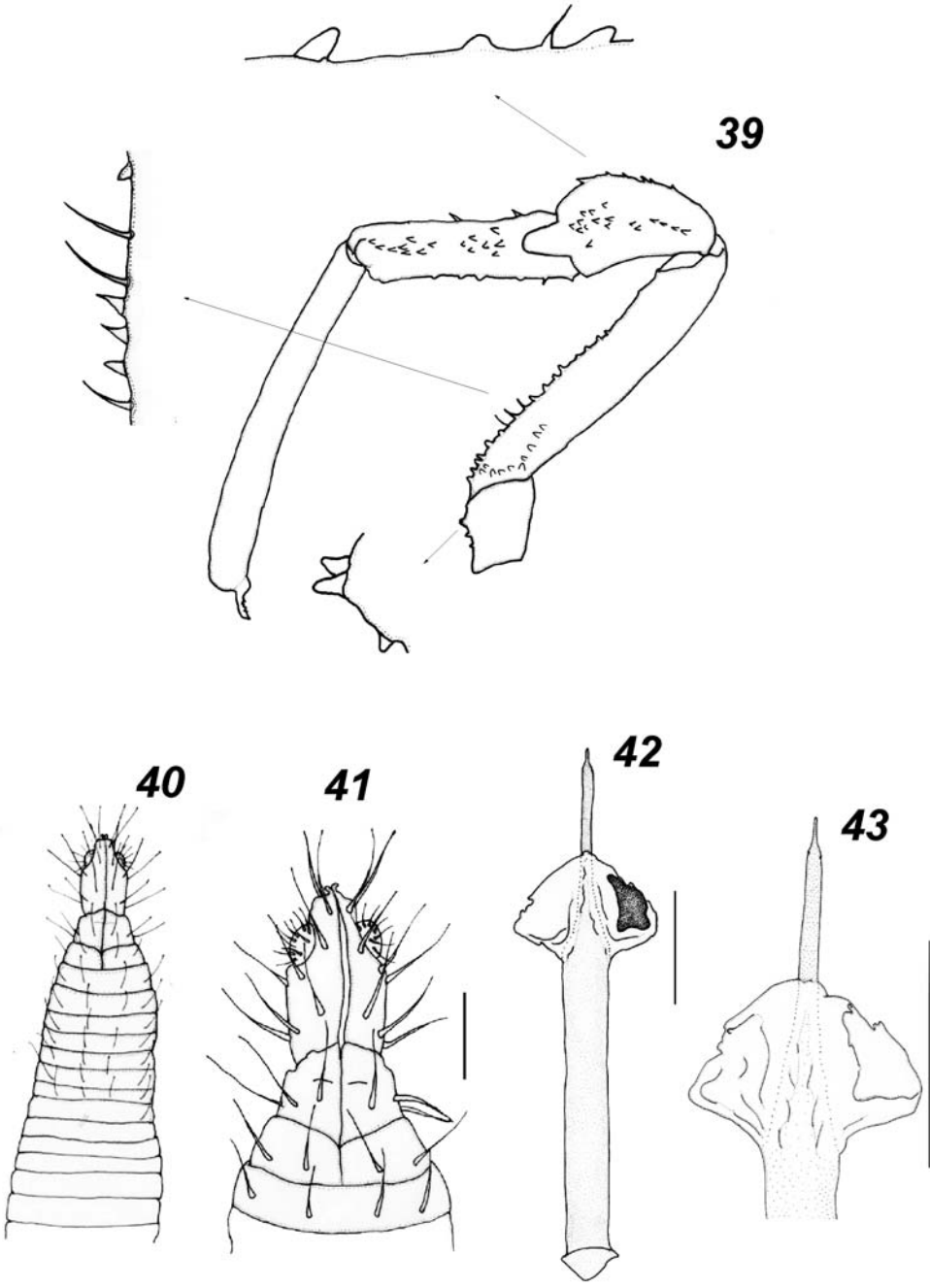
Redescription. Male lectotype.

Measurements. Body 4.5 mm, carapace 1 mm, dorsal scute 3.0 mm, chelicera

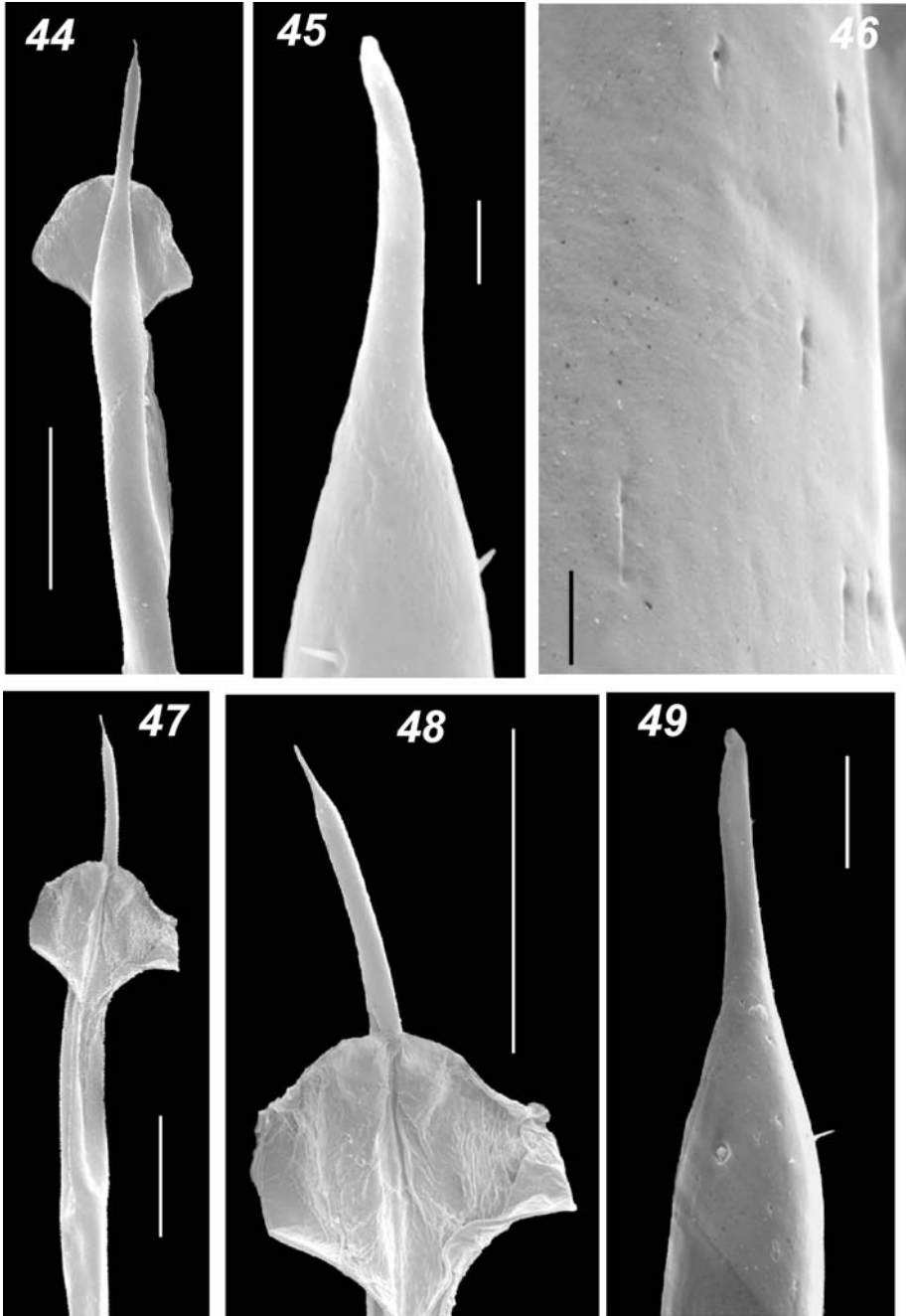


Figs 32-38. — *Jussara atra* (Roewer 1910) n. comb. Male (MNRJ 5834): Fig. 32, dorsal view; Fig. 33, ventral view; Fig. 34, lateral view; Fig. 37, supracheliceral laminae, dorsal view; Fig. 38, right chelicera showing ventrobasal spine in detail, lateral view. Female (MNRJ 5932): Fig. 35, dorsal view; Fig. 36, lateral view. Scale bars: 1.0 mm for Figs 32-38.

1.5 mm, pedipalps 4.9 mm, penis 2.0 mm. *Colour*. FLS S8 shiny white, lateral borders of the prosomatic sternites white, sternites XIII + XVI white with a black spot in the anterior half, anal operculum black with an opaque white spot undefined at the middle. Articular membranes of coxae and anterior margin of genital operculum shiny white, *arculi genitales* black. Chelicerae cream, legs black (Figs 33-34). All parts described as white, without reference to the hue are shiny white. *Dorsal*



Figs 39-43. — *Jussara atra* (Roewer 1910) n. comb. Male (MNRJ 5834): Fig. 39, right pedipalp showing ventral armature in detail, lateral view; Fig. 42, penis, ventral view. Fig. 43, anterior portion of penis, ventral view. Female (MNRJ 5854): Fig. 40, ovipositor, dorsal view; Fig. 41, anterior portion of ovipositor, dorsal view. Scale bar: 1.0 mm for Figs 41-42; 0.1 mm for Fig. 43.



Figs 44-49. — *Jussara atra* (Roewer 1910) n. comb. Male (MNRJ 5385): Fig. 44, penis, dorsal view; Fig. 45, anterior portion of glans, stylus and apical setae, dorsal view; Fig. 46, lateral border of shaft, alate portion, showing slit-shaped openings, dorsal view. Male (MNRJ 5389): Fig. 47, penis, ventral view; Fig. 48, anterior portion of penis, ventral view; Fig. 49, penis, stylus and setae, ventral view. Scale bars: 0.5 mm for Figs 44, 47-48; 0.01 mm for Figs 45-46, 49.

surface. Surface densely reticulate. Dorsal segments sometimes slightly separate from one another (Fig. 32). Supracheliceral laminae distally armed with blunt granules and three-pointed sharp granules (Fig. 37). Eye mound armed with two rows of sharp-pointed granules (Fig. 35). *Ventral surface*. Opisthosomatic sternites slightly separate from one another (Fig. 33). Lateral borders of the genital opercle unarmed. *Arculi genitales* III unarmed. *Pedipalp*. As in *J. albiarcuata* except for: apophysis of trochanter ventrally armed with sharp-pointed granules irregularly disposed. Inner apophysis of patella as wide as long. Inner apophysis of tibia twice as smaller as apophysis of patella (Fig. 39). *Legs*. Femoral formula 1/3/1/1. *Penis*. Shaft 3 times wider than glans (Figs 42, 44, 47), lateral borders of the shaft covered with pores, reaching winglet area in dorsal view (Fig. 46). Winglets rounded-trapezoidal and with truncated outline, much expanded laterally and not very prolonged longitudinally, right and left units fused at their anterior portion in ventral view, dorsal and ventral laminae of winglets separated at their anterior portion in lateral view (Figs 45, 47-48). Surface of the glans densely covered with simple pores, two pairs of lateral setae, the superior pair inserted more anteriorly (Fig. 49). Stylus slightly bent in dorsal view (Fig. 45).

Description. Female paralectotype.

Measurements. Body 6.1 mm, carapace 1.2 mm, dorsal scute 2.6 mm, chelicera 1.4 mm, pedipalps 5.5 mm, ovipositor 1 mm. *Colour*. As in male except for: carapace black, eye mound and second prosomatic tergite generally with shiny white spots irregularly distributed, dorsal scute black with two median longitudinal rows of small shiny white rounded spots (Figs 35-36). *Dorsal and ventral surfaces*. As in the female of *J. albiarcuata* (Figs 35-36). *Chelicera, pedipalp and legs*. As in the male. *Ovipositor*. Body with eight segments. Second segment of the furca with a distal lyrifissure (Figs 42-43).

Jussara aurantiaca n. sp. (Figs 50-72)

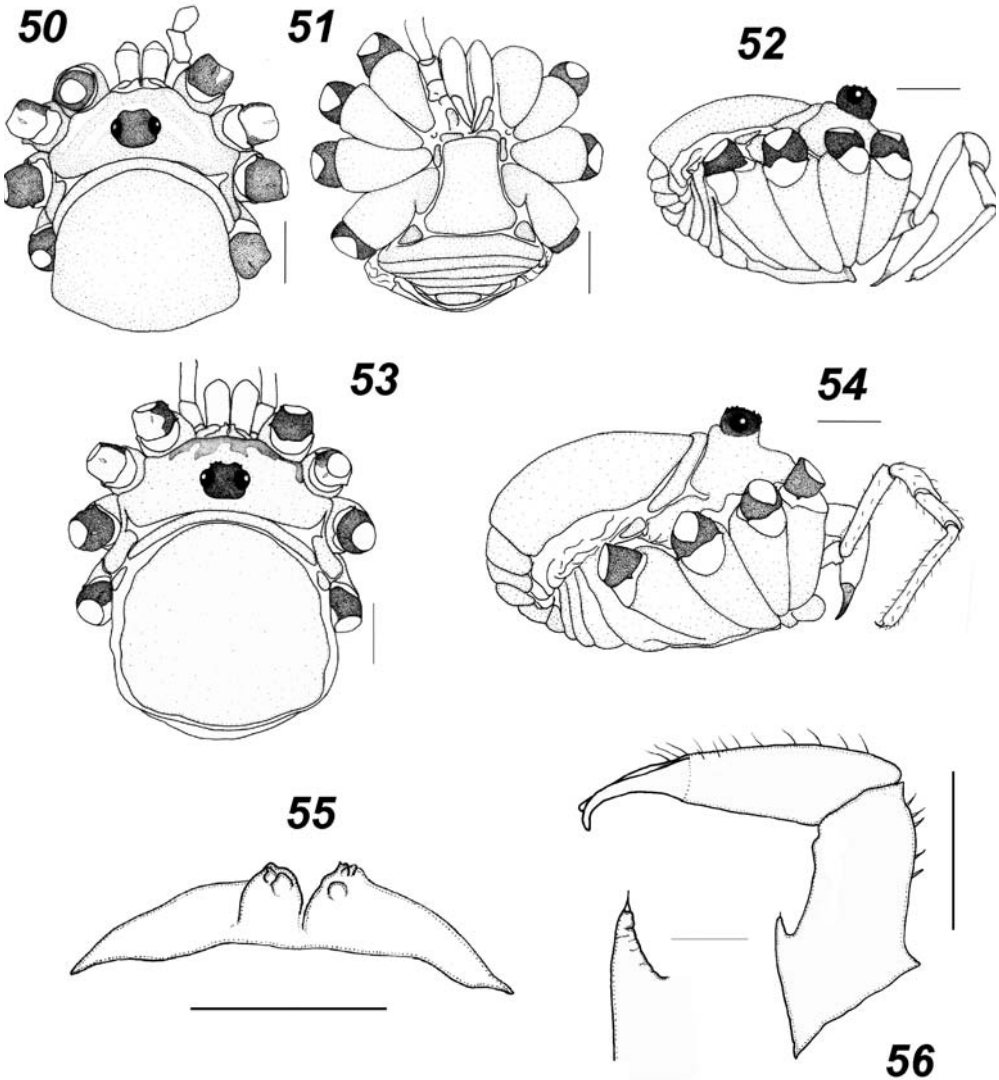
Etymology. From Latin *aurantiaca* (= orange coloured) in reference to the general colour of the body when alive.

Type locality. Brazil, São Paulo, São Sebastião, Baraqueçaba.

Distribution. Brazil, São Paulo, São Sebastião and Ilha Bela (Fig. 236).

Type material. 1 ♂ holotype (MNRJ 4305), Brazil, São Paulo, São Sebastião, Baraqueçaba, 5.I.1994 leg. R.L.C. Baptista; 1 ♂ paratype (MZSP 16880), Brazil, São Paulo, Ilha Bela, Trilha da Figueira, 25.XI.1997 leg. R.J. Sawaya; 1 ♂ paratype (MZSP 16861), Brazil, São Paulo, Ilha Bela, Trilha da Figueira, 25.XI.1997 leg. R.J. Sawaya; 3 ♂ 2 ♀ paratypes (MZSP 16905) Brazil, São Paulo, Ilha Bela, Morro da Pacuíba, 18.I.1999 leg. R. Pinto-da-Rocha & G. Machado; 3 ♂ 3 ♀ paratypes (MZSP 16728), Brazil, São Paulo, Ilha Bela, Trilha de Castelhães 210 m, 25.II.1999, G. Machado.

Diagnosis. Eye mound and legs black, body and dorsal surface of trochanters of leg II orange (fresh specimens reddish-orange), ventral surface of trochanters of legs I to IV black, lateral borders sometimes orange. Carapace showing a stripe in lateral borders, and an arch lighter than carapace forming an inverted V anterior to

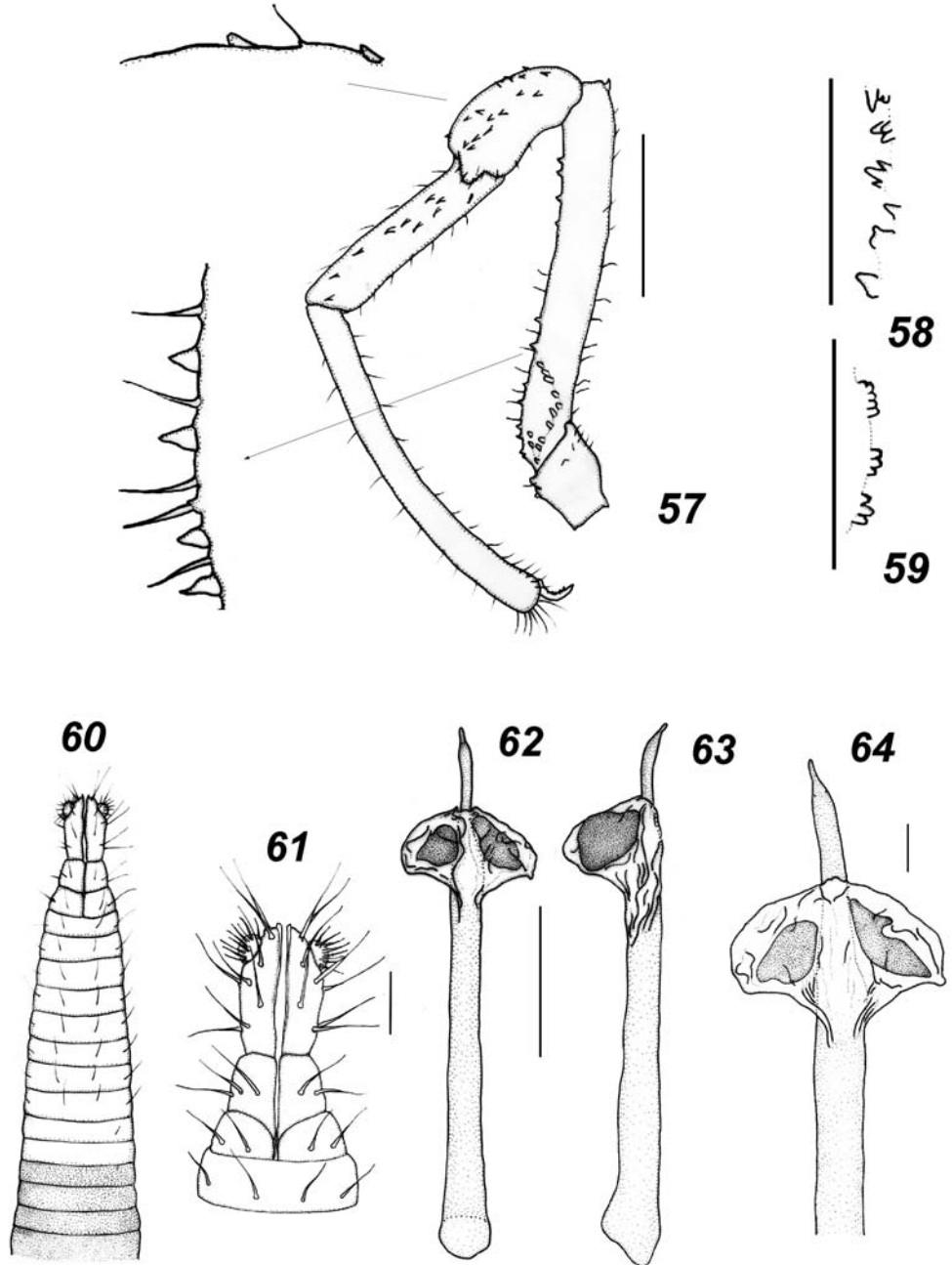


Figs 50-56. — *Jussara aurantiaca* n. sp. Male holotype (MNRJ 4305): Fig. 50, dorsal view; Fig. 51, ventral view; Fig. 52, lateral view; Fig. 55, supracheliceral laminae, dorsal view; Fig. 56, right chelicera showing ventral basal spine in the detail, lateral view. Female paratype (MZSP 16880): Fig. 53, dorsal view; Fig. 54, lateral view. Scale bars: 1.0 mm for Figs 50-54, 56; 0.5 mm for Fig. 55.

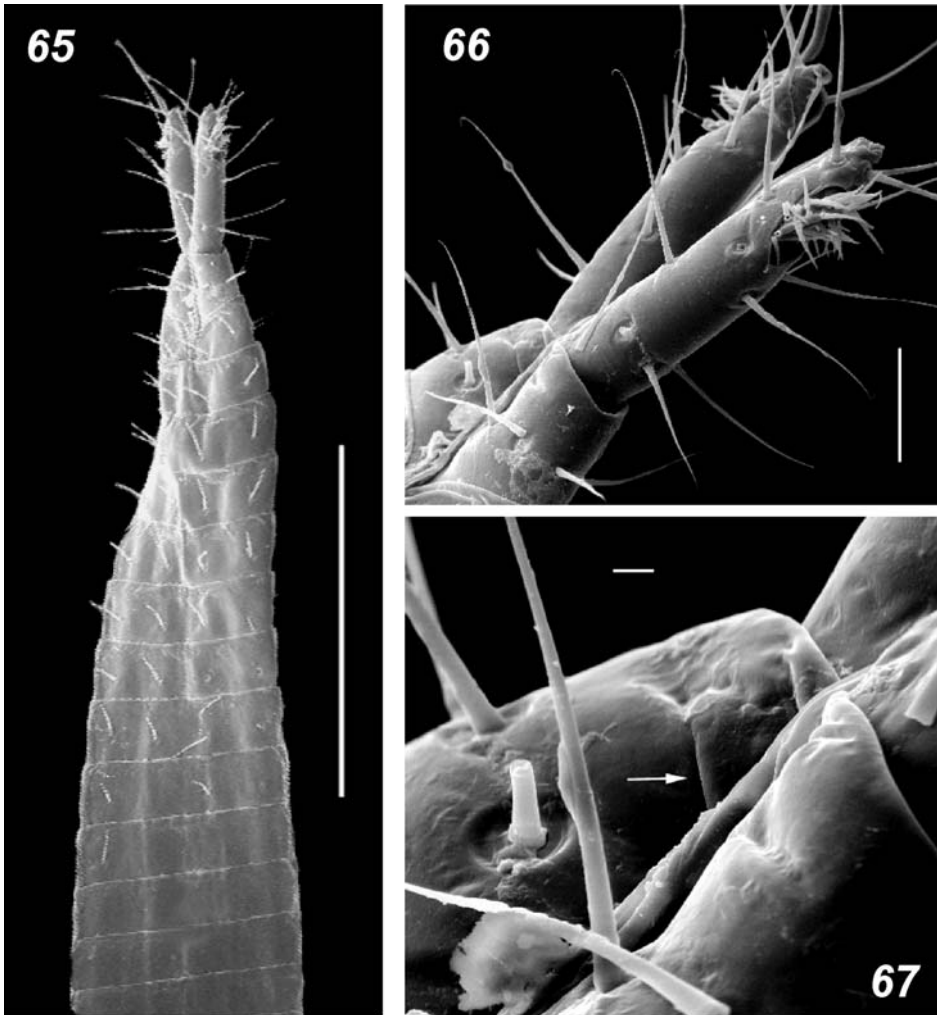
the eye mound (Figs 50, 52-54). Pedipalps and chelicerae pale yellow. Femoral formula: 1/3-4/1/1. Inner apophysis of patella smaller than the patella (20% of the length of the patella) (Fig. 57).

Description. Male holotype.

Measurements. Body 4.3 mm, carapace 1.2 mm, dorsal scute 2.9 mm, chelicera 1.8 mm, pedipalp 5.8 mm, penis 1.8 mm. *Colour.* Ventral and dorsal surfaces

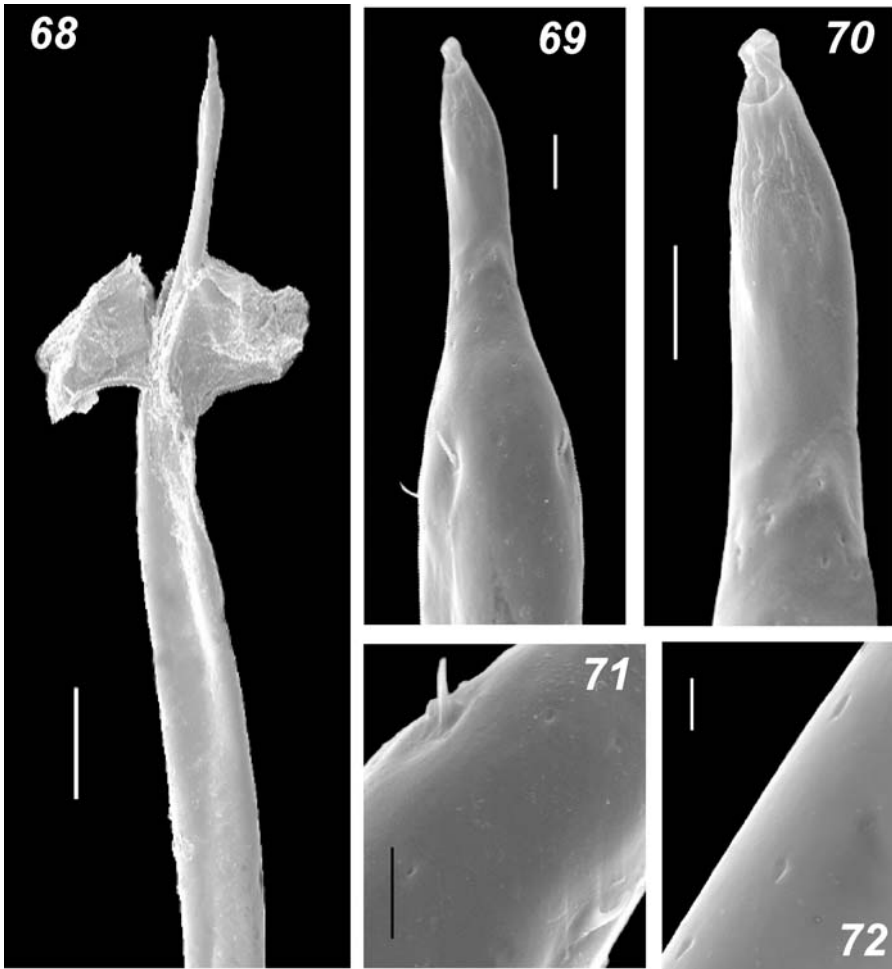


Figs 57-64. — *Jussara aurantiaca* n. sp. Male paratype (MZSP 16728): Fig. 57, right pedipalps showing armature in detail, lateral view; Fig. 58, armature of the lateral border of genital opercle, dorsal view; Fig. 59, armature of lateral border of *arculi genitales* III; Fig. 62, penis, ventral view; Fig. 63, penis, lateral view; Fig. 64, anterior portion of the penis, ventral view. Female paratype (MNRJ 4305): Fig. 60, ovipositor, dorsal view, Fig. 61, anterior portion of ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 57, 60; 0.1 mm for Figs 58-59, 61, 64; 0.5 mm for Figs 62-63.



Figs 65-67. — *Jussara aurantiaca* n. sp. Female paratype (MZSP 16728): Fig. 65, ovipositor, dorsal view; Fig. 66, anterior portion of furca, dorsal view; Fig. 67, second segment of the furca with a distal lyrifissure, dorsal view. Scale bars: 1.0 mm for Fig. 65; 0.1 mm for Fig. 66; 0.01 mm for Fig. 67.

orange (Figs 50, 53). *Dorsal surface*. Surface densely granular. Supracheliceral laminae distally armed with blunt granules (Fig. 55). Eye mound armed with two rows of sharp-pointed granules. *Ventral surface*. Surface densely granular. Lateral borders of the genital operculum armed with a row of one to three-pointed sharp granules (Fig. 58). Lateral borders of *arculi genitales* III armed with a row of three-pointed blunt granules (Fig. 59). *Chelicera*. Ventrobasal spine of basichelicerite sharp-pointed (Fig. 56). *Pedipalp*. As in *J. albiarcuata* except for: inner apophysis of the patella unarmed (Fig. 57). *Legs*. Femoral formula 1/3/1/1. *Penis*. Shaft 3 times wider than glans (Figs 62-63, 68), lateral borders of the shaft covered with slit-shaped depres-



Figs 68-72. — *Jussara aurantiaca* n. sp. Male paratype (MZSP 16728): Fig. 68, penis, ventral view; Fig. 69, anterior portion of glans, stylus and laterodorsal setae, ventral view; Fig. 70, stylus, ventral view; Fig. 71, laterodorsal setae of glans, ventral view; Fig. 72, lateral borders of shaft immediately after the alate portion, dorsal view. Scale bars: 0.1 mm for Fig. 68; 0.01 mm for Figs 69-72.

sions, reaching winglet area in dorsal view (Fig. 72). Winglets rounded-trapezoidal, expanded laterally, and not very prolonged longitudinally, lateral borders truncated, posterior margin strongly concave. Right and left units totally fused in ventral view (Figs 64, 68). Glans surface covered with simple pores (Fig. 71), two pairs of lateral setae, superior pair inserted more anteriorly (Fig. 69). Stylus straight (Figs 69-70).

Description. Female paratype.

Measurements. Body 4.8 mm, carapace 1.2 mm, dorsal scute 3.1 mm, chelicera 1.6 mm, pedipalp 5.6 mm, ovipositor 2.3 mm. *Colour.* As in the male except for a black spot on the anterior margin of the carapace (Figs 53-54). *Dorsal and ventral surfaces.* As in the female of *J. albiarcuata* (Figs 53-54). *Chelicera and pedi-*

palp. As in the male. *Legs*. Femoral formula 1/4/1/1. *Ovipositor*. Body with nine to thirteen segments (Figs 60, 65). Second segment of furca with a distal lyrifissure (Figs 61, 66-67).

Remarks. *J. aurantiaca* can be recognised and separated externally from *J. avati* and *J. rosea* by having the trochanters of legs II black in ventral view and yellow with black borders in dorsal view; and internally by the following characters of the penis: winglets rounded-trapezoidal, anterior margin of winglets rounded and lateral borders truncated, posterior margin strongly concave.

Jussara aureopunctata (Roewer 1953) n. comb. (Figs 73-78)

Prionostemma aureopunctatum Roewer 1953: 241, fig. 30.

Type locality. Brazil, Bahia State.

Distribution. Known only from the type locality (Fig. 238).

Type material. 1 ♀ lectotype, 1 ♀ paralectotype (SMF RII/98030/581), Brazil, Bahia, examined.

Emended diagnosis. Body opaque yellow (in alcohol). Eye mound dark brown, articular membrane around dorsal scute and prosomatic tergites XIV and XV dark brown, opisthosoma, including articular membrane, with black rounded spots irregularly distributed, except in dorsal scute where they form two parallel rows, posterior margin with a rectangular black mark under the articular membrane between the dorsal scute and prosomatic tergites XIV and XV (Figs 73, 75). Chelicerae and pedipalps cream.

Redescription. Female lectotype.

Measurements. Body 6.2 mm, carapace 0.6 mm, dorsal scute 3.6 mm, chelicera 1.7 mm, pedipalps 3.4 mm, ovipositor 0.4 mm. *Colour*. Supracheliceral laminae cream. All free lateral sternites, except FLS S8, dark brown. Maxillary lobes of coxae I black, legs brown (Figs 73-74, 76). *Dorsal surface*. Surface densely reticulate. Anterior margin of the carapace almost straight. Supracheliceral laminae armed with three sharp-pointed granules. Eye mound armed with two rows of sharp-pointed granules. Articular membrane of dorsal scute very conspicuous, broadly surpassing the sclerites (Fig. 73). *Ventral surface*. Lateral borders of the genital operculum unarmed, *arculi genitales* III unarmed. *Chelicera*. Ventrobasal spine of basichelicerite sharp-pointed (Fig. 76). *Pedipalp*. As in *J. albiarcuata* except for: inner apophysis of patella longer than wide and armed with sharp-pointed granules. Inner apophysis of tibia twice as short as patellar apophysis (Fig. 78). *Legs*. Femoral formula 1/3/1/1. *Ovipositor*. Segments of the body in bad condition, only the first segment of the body recognisable. Second segment of the furca with a distal lyrifissure (Fig. 77).

Remarks 1. It is not known why Roewer placed this species in *Prionostemma*, since it has one nodulus on femur I and one on femur III; femoral formula: 1/3/1/1. Following his own classification system the species included in this genus must

have three nodules on the femur of leg II, one nodule on the femur of leg IV, and no nodules on the femora of legs I and III; femoral formula: 0/3/0/1.

Remarks 2. The type locality may be Salvador, formerly (in Roewer's times) called Bahia (W. STAREGA personal communication).

Jussara avati n. sp. (Figs 79-95)

Etymology. From Tupi *avati* (= blonde people, corn) in reference to the yellow colour of the body; a noun in apposition.

Type locality. Brazil, Paraná State, Guaratuba, Usina de Guaricana (25°52'58"S, 48°34'29"W).

Distribution. Brazil, Paraná (Guaratuba and Morretes) (Fig. 237).

Type material. 1 ♂ holotype (MNRJ 5945), ♂ paratype (MNRJ 5391), 2 ♂ 3 ♀ paratypes (MNRJ 5928) Brazil, Paraná, Guaratuba, Usina de Guaricana, 8.III.1999 leg. A.B. Kury, R. Pinto-da-Rocha & A.P.L. Giupponi; 2 ♂ 1 ♀ paratypes (MNRJ 5944); 2 ♂ paratypes (MNRJ 6206) Brazil, Paraná, Morretes, Parque Estadual Marumbi, 7.II.1988 leg. R.L.C. Baptista.

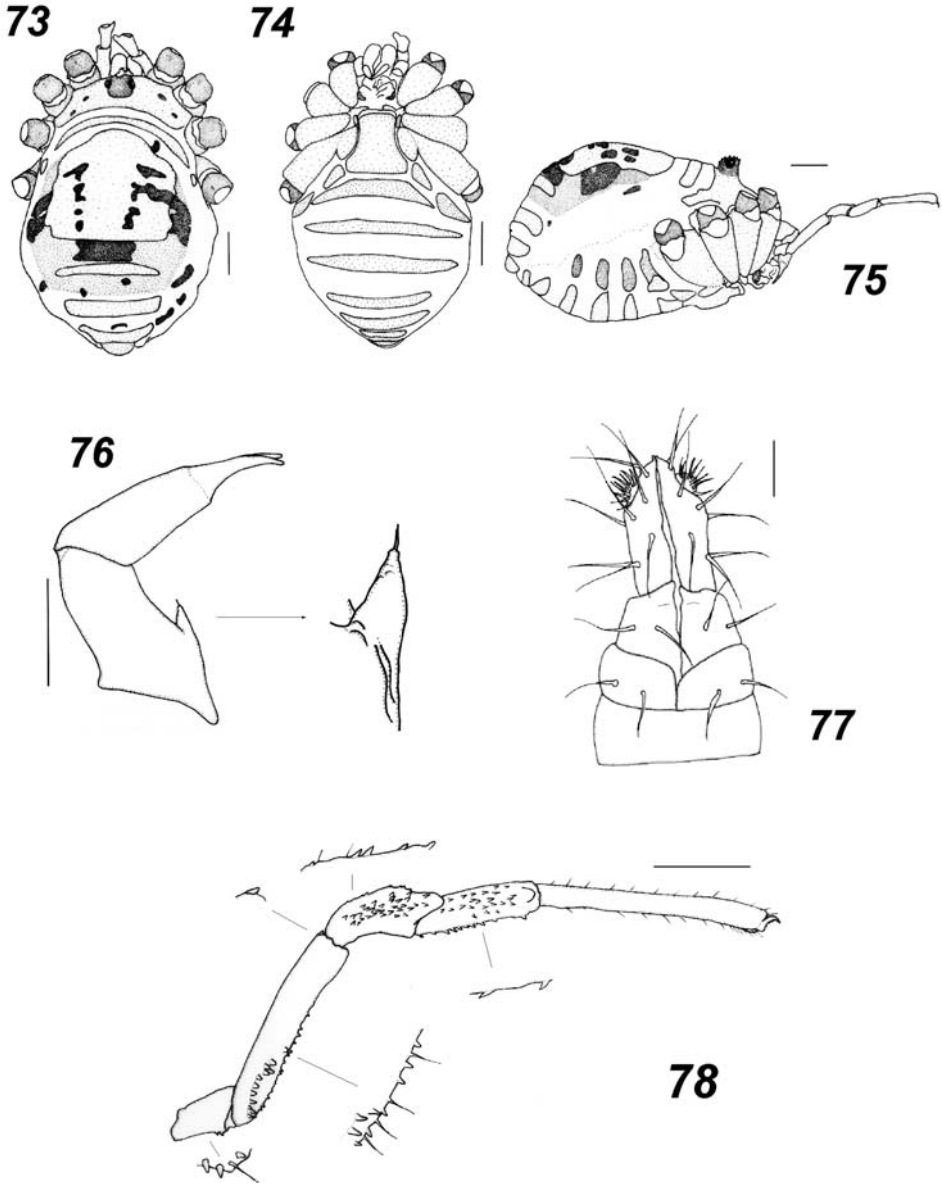
Diagnosis. Body and trochanter of leg II pale yellow, eye mound, legs, femur, patella and tibia of pedipalps black (Figs 79-83). Eye mound in lateral view armed with two anterior sharp-pointed spines. Eyes slightly depressed dorsoventrally (Figs 81, 83). Glans almost the same width as shaft (Figs 90, 93).

Description. Male holotype.

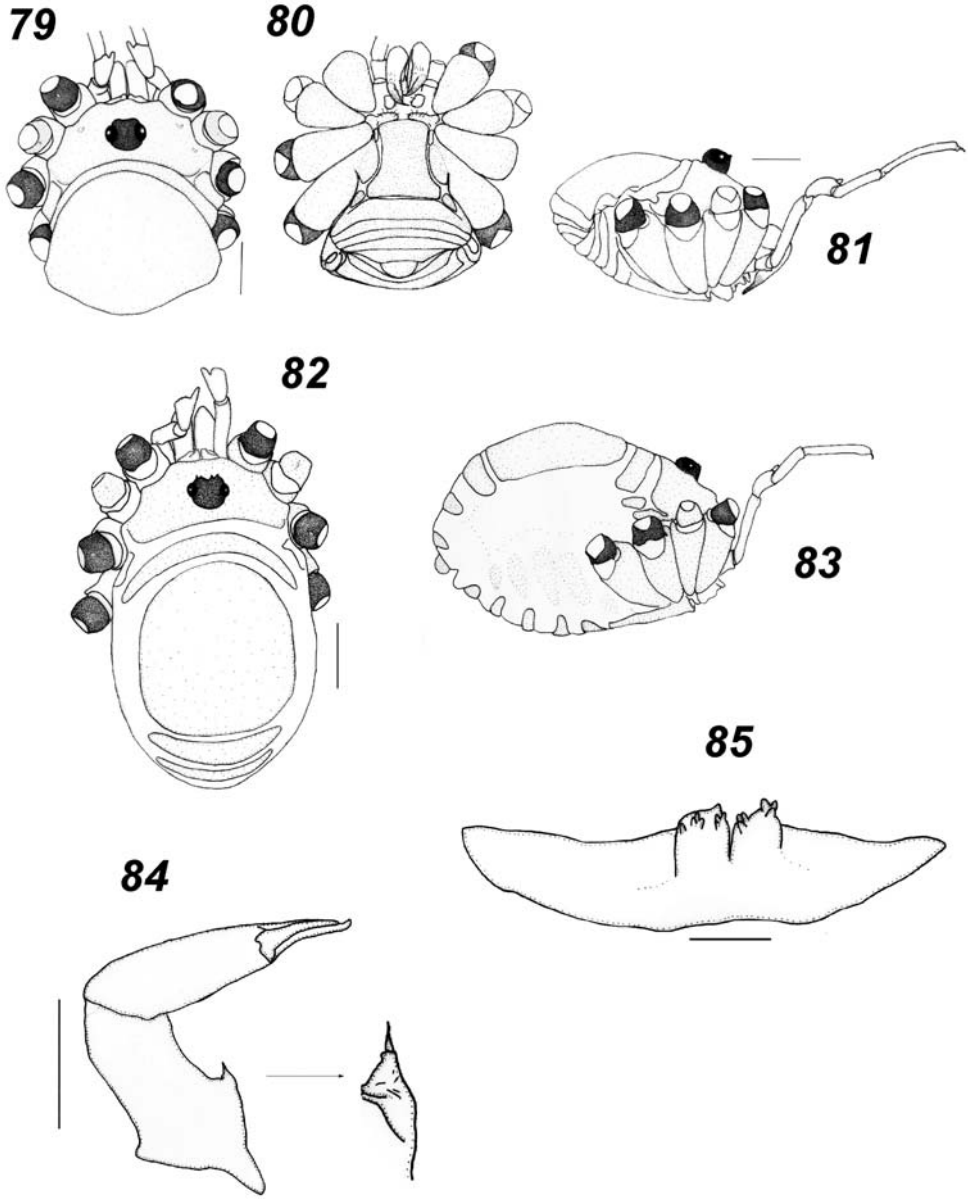
Measurements. Body 4.3 mm, carapace 1.2 mm, dorsal scute 2.9 mm, chelicera 1.8 mm, pedipalps 5.8 mm, penis 1.8 mm. *Colour.* Chelicerae and pedipalps cream. *Dorsal surface.* Surface densely granular. Anterior margin with the carapace sinuous (Fig. 79). Supracheliceral laminae distally armed with three-pointed blunt granules (Fig. 85). Eye mound armed with two rows of sharp-pointed granules, in lateral view just the anterior granules can be seen (Figs 81, 83). Dorsal scute rounded-trapezoidal (Fig. 75). *Ventral surface.* Lateral borders of the genital operculum armed with a row of sharp-pointed granules (Fig. 89), *arculi genitales* III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 84). *Pedipalp.* As in *J. albiarcuata* except for: trochanter armed with irregularly disposed blunt granules, ventral apophysis absent. Inner apophysis of patella longer than wide. Tibia unarmed, inner apophysis of the tibia at least twice as short as patellar apophysis (Fig. 86). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft almost as wide as glans, gradually enlarging posteriorly (Figs 90, 93). Winglets sub-triangular, very expanded laterally, not very prolonged longitudinally, anterior and posterior margin almost straight, lateral borders rounded. Right and left units of winglets totally fused in lateral view (Figs 91-92, 94). Surface of glans covered with simple pores, two pairs of apical setae, superior pair inserted more anteriorly (Figs 92, 95). Stylus straight (Fig. 95).

Description. Female paratype.

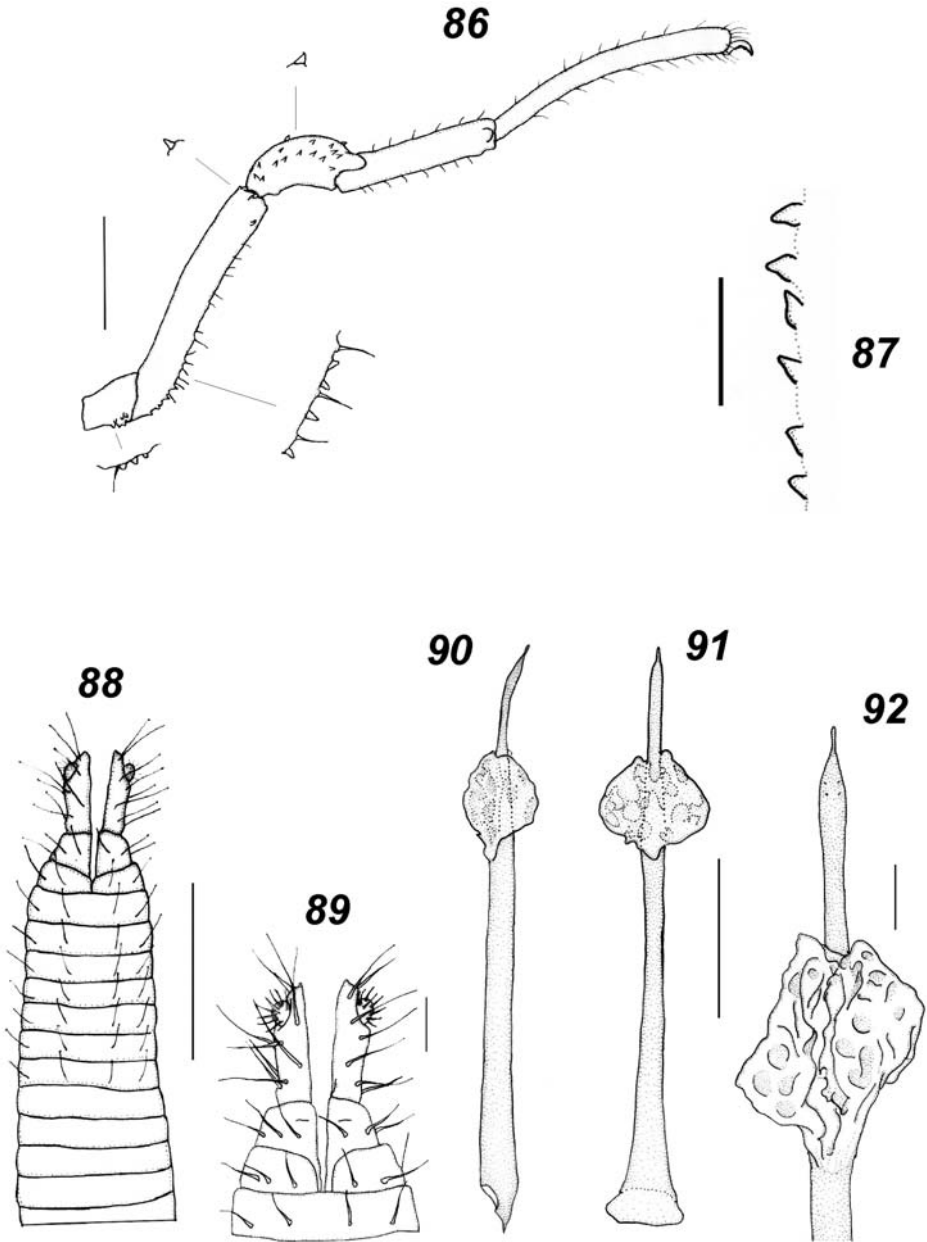
Measurements. Body 4.8 mm, carapace 1.2 mm, dorsal scute 3.1 mm, chelicera: 1.6 mm, pedipalps 5.6 mm, ovipositor 2.1 mm. *Colour.* As in the male (Figs



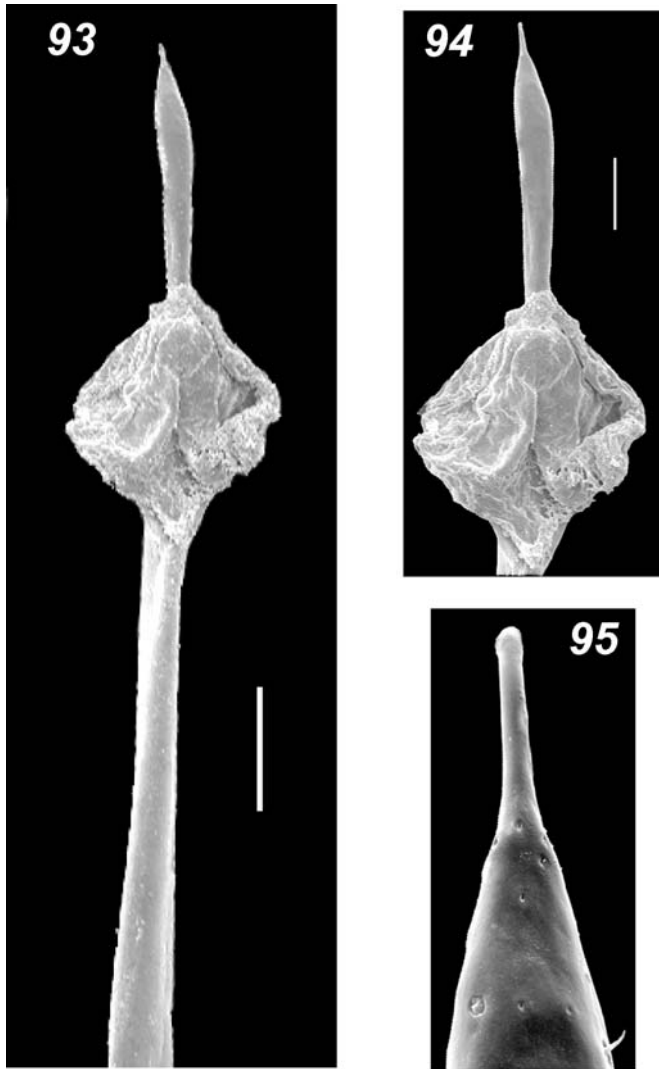
Figs 73-78. — *Jussara aureopunctata* (Roewer 1953) n. comb. Female paralectotype (SMF RII/98030/581): Fig. 73, dorsal view; Fig. 74, ventral view; Fig. 75, lateral view; Fig. 76, right chelicera showing ventrobasal spine in detail, lateral view; Fig. 77, ovipositor, dorsal view; Fig. 78, right pedipalp showing armature in detail, lateral view. Scale bars: 1.0 mm for Figs 75-77; 0.5 mm for Fig. 78.



Figs 79-85. — *Jussara avati* n. sp. Male paratype (MNRJ 6206): Fig. 79, dorsal view; Fig. 80, ventral view; Fig. 81, lateral view; Fig. 84, right chelicera showing ventrobasal spine in detail, lateral view; Fig. 85, supracheliceral laminae, dorsal view. Female (MNRJ 5928): Fig. 82, dorsal view; Fig. 83, lateral view. Scale bars: 1.0 mm for Figs 79-83; 0.1 mm for Figs 84-85.



Figs 86-92. — *Jussara avati* n. sp. Male paratype (MNRJ 6206): Fig. 86, right pedipalp showing armature in detail, lateral view; Fig. 87, armature of lateral border of genital operculum, ventral view; Fig. 90, penis, ventral view; Fig. 91, penis, lateral view; Fig. 92, anterior portion of penis, ventral view. Female paratype (MNRJ 5928): Fig. 88, ovipositor, dorsal view; Fig. 89, anterior portion of ovipositor, dorsal view. Scale bar: 0.5 mm for Figs 86, 88, 90-91; 0.1 mm for Figs 87, 89, 92.



Figs 93-95. — *Jussara avati* n. sp. Male paratype (MNRJ 6206): Fig. 93, penis, ventral view; Fig. 94, anterior portion of penis, ventral view; Fig. 95, anterior portion of glans, stylus and left setae, ventral view. Scale bars: 0.1 mm for Figs 93-94; 0.01 for Fig. 95.

82-83). *Dorsal and ventral surfaces*. As in the female of *J. albiarcuata* (Figs 82-83). *Chelicera, pedipalp and legs*. As in the male. *Ovipositor*. Body in eight segments (Fig. 88). Second segment of the furca with a distal lyrifissure (Fig. 89).

Remarks. *J. avati* can be separated from *J. aurantiaca* and *J. rosea* by the following: eye mound slightly depressed dorsoventrally, only the anterior granules of eye mound visible in lateral view. Glans almost as wide as shaft, winglets sub-triangular and totally fused in ventral view, dorsal and ventral blades of the winglets fused and stylus straight.

Jussara flamengo n. sp. (Figs 96-117)

Etymology. Species name refers to the internationally famous soccer club from Rio de Janeiro, Clube de Regatas Flamengo. In reference to the red and black colouring of the body as the official colours of that club; a noun in apposition.

Type locality. Brazil, Rio de Janeiro State, Parati, Península de Jurumirim (23°12'20"S, 44°39'00"W).

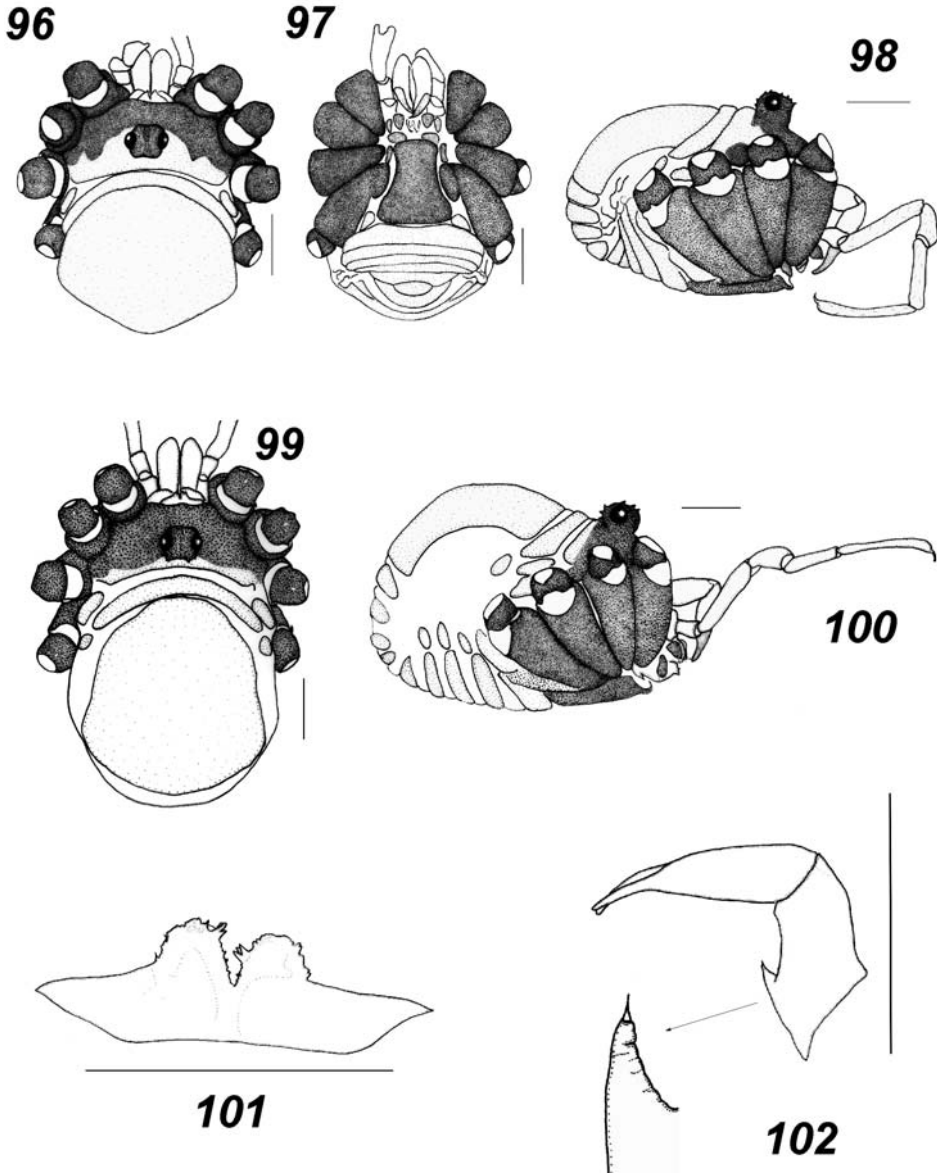
Distribution. Brazil, Rio de Janeiro (Parati: Peninsula de Jurumirim) and São Paulo, Ubatuba, Picinguaba) (Fig. 236).

Type material. 1 ♂ holotype (MNRJ 5991) Brazil, Rio de Janeiro, Parati, Península de Jurumirim, Amir Klink's house, 18.IX.1999, leg. A.B. Kury; 3 ♂ 4 ♀ paratypes (MNRJ 5964) the same; 1 ♂ paratype (MNRJ 5968) the same; 1 ♀ paratype (MNRJ 5969), 1 ♀ paratype (MNRJ 5351) same place, leg. A.B. Kury; 2 ♂ 3 ♀ (MNRJ 5672) Brazil, São Paulo, Picinguaba, Morro do Cuscuzeiro. 20.VII.1995 leg. G. Machado; 4 ♂ paratypes (MNRJ 5671) same place, 22.VII.1995; 1 ♀ paratype (MNRJ 5353) same place, 20.XII.1995; 1 ♂ 1 ♀ (MNRJ 5673) Brazil, São Paulo, Ubatuba, Faz. Capricórnio, 25.I.1996 leg. G. Machado, 1 ♀ (MNRJ 5670) same place, 11.VII.1996; 1 ♂ paratype (MNRJ 5667) same place, 11.VII.1996; 5 ♂ 3 ♀ (MNRJ 6925) Brazil, São Paulo, Ubatuba, Picinguaba, 19-22.VI.1995 leg. M. Vogt & M. Baptista; 1 ♂ paratype (MNRJ 6977) Brazil, São Paulo, Ubatuba, Moinho Comunitário, Rio da Fazenda, 7.IX.1989 leg. A.B. Kury & L. Kury, R.L.C. Baptista & A. Baptista; 1 ♂ 1 ♀ paratype (MZSP 16789) same place; 5 ♀ paratypes (MNRJ 6992) Brazil, São Paulo, Ubatuba, Picinguaba, Parque Nacional Serra do Mar, XII.1995 leg. G. Machado.

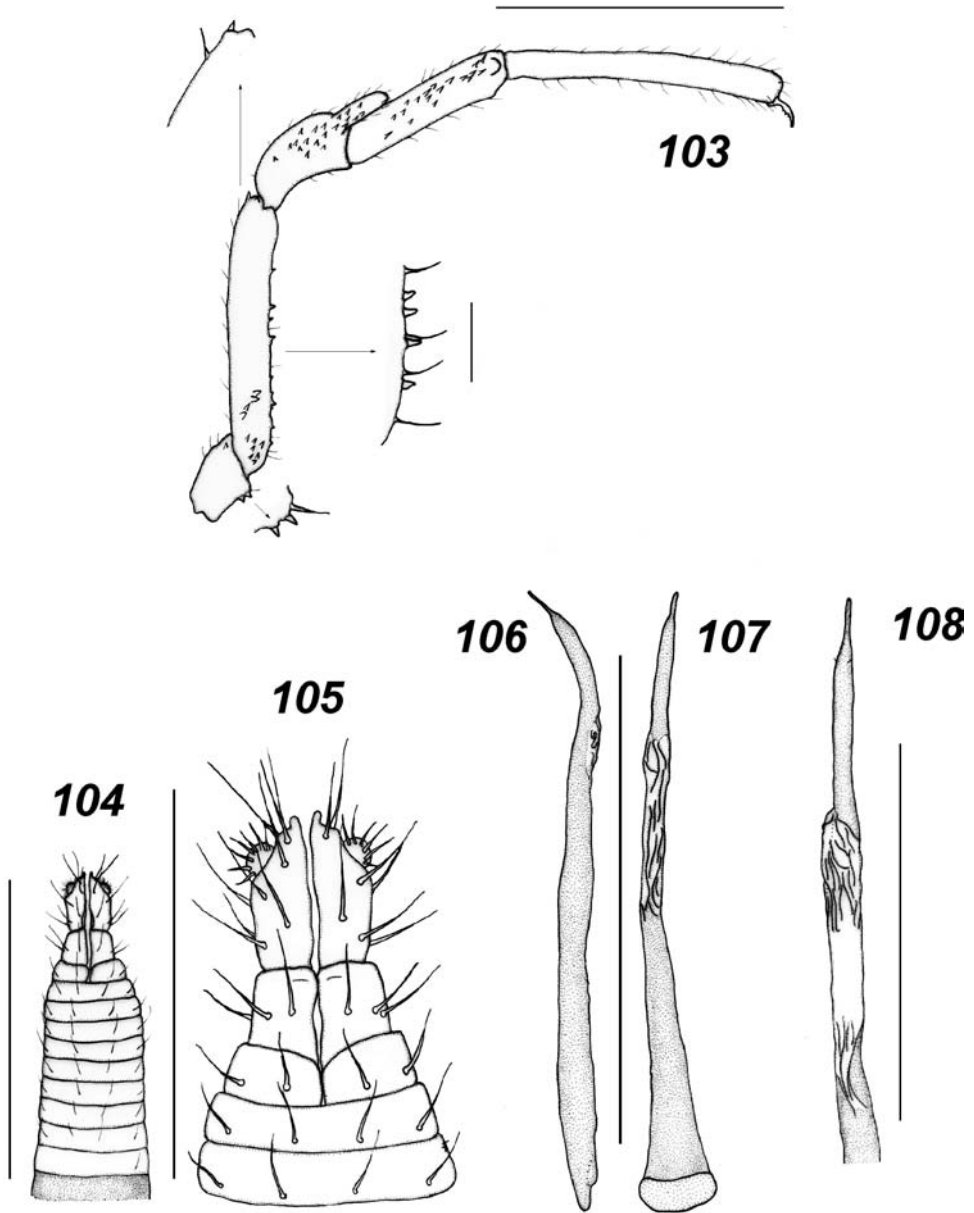
Diagnosis. Anterior half of carapace black, posterior half and dorsal scute red (specimens in alcohol usually with yellow dorsal scute) (Figs 96, 98-100). Inner apophysis of patella 60% of the length of patella (Fig. 103). Winglets of penis reduced (approximately the same width as shaft) and prolonged longitudinally (Figs 106-107, 114).

Description. Male holotype.

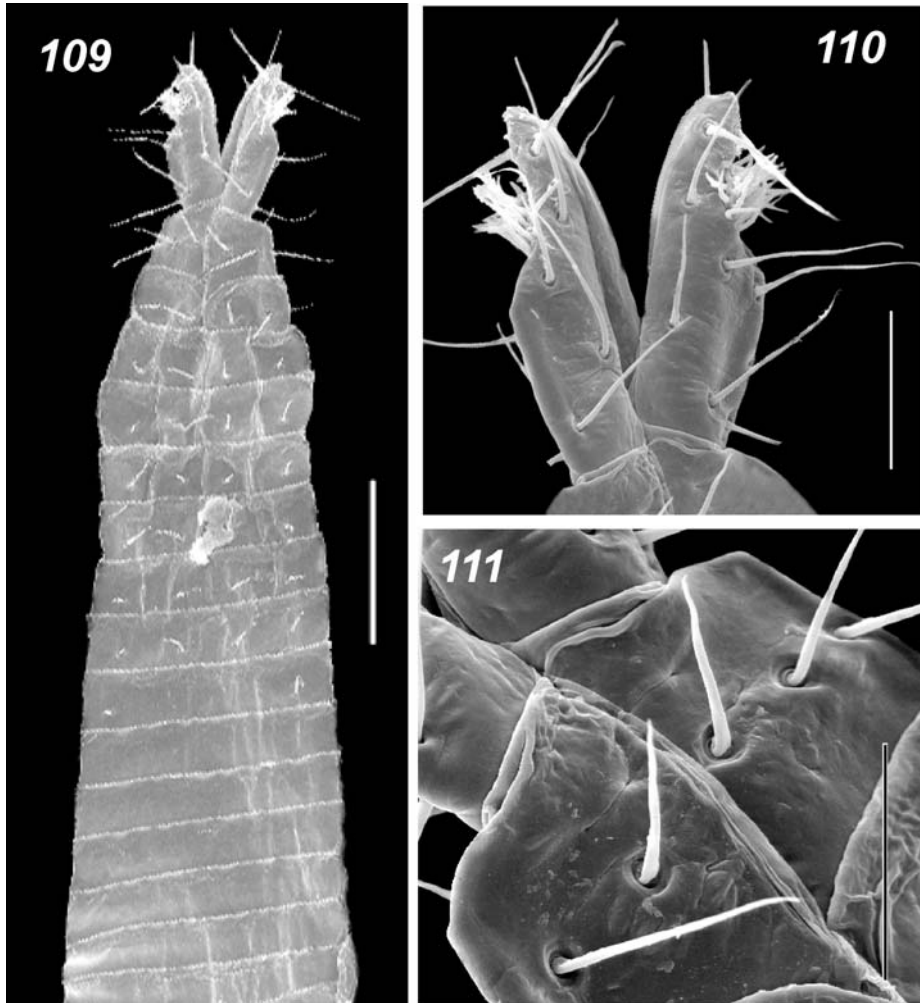
Measurements. Body 4.4 mm, carapace 1.3 mm, dorsal scute 2.8 mm, chelicera 1.6 mm, pedipalps 5.8 mm, penis 1.3 mm. *Colour.* Eye mound, maxillary lobes of the coxae, *arculus genitalis*, *arculi genitales*, anal operculum and legs black. Second prosomatic tergite and FLS T6, opisthosomatic sternites and free lateral sternites, FLS S8 and anal operculum red. Pedipalps and chelicerae cream (Figs 96-97). *Dorsal surface.* Surface of body densely reticulate. Supracheliceral laminae armed distally with three-pointed sharp granules (Fig. 101). Eye mound armed with two rows of sharp-pointed granules. *Ventral surface.* Lateral borders of genital operculum unarmed, *arculi genitales* III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 102). *Pedipalp.* As in *J. albiarcuata* except for: ventral apophysis of trochanter absent. Inner apophysis of patella longer than wide and armed with sharp pointed granules. Inner apophysis of tibia unarmed and three times shorter than apophysis of patella (Fig. 103). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft slender, approximately same width as glans (Figs 106, 112). Lateral borders covered with slit-shaped openings, reaching winglet area in dorsal view (Figs 114, 117). Winglets very reduced laterally, not very prolonged longitudinally, right and left units of winglets in ventral view fused only at their anterior portion, dorsal and ventral laminae free only at their anterior portion (Figs 114). Glans covered with simple pores, two pairs of apical setae, superior pair inserted more anteriorly (Figs 115-116). Stylus straight (Fig. 115).



Figs 96-102. — *Jussara flamenco* n. sp. Male holotype (MNRJ 5991): Fig. 96, dorsal view; Fig. 97, ventral view; Fig. 98, lateral view; Fig. 101, supracheliceral laminae, dorsal view; Fig. 102, right chelicera showing ventrobasal spine in detail, lateral view. Female paratype (MNRJ 5964): Fig. 99, dorsal view; Fig. 100, lateral view. Scale bars: 1.0 mm for Figs 96-100, 102; 0.25 mm for Fig. 101.



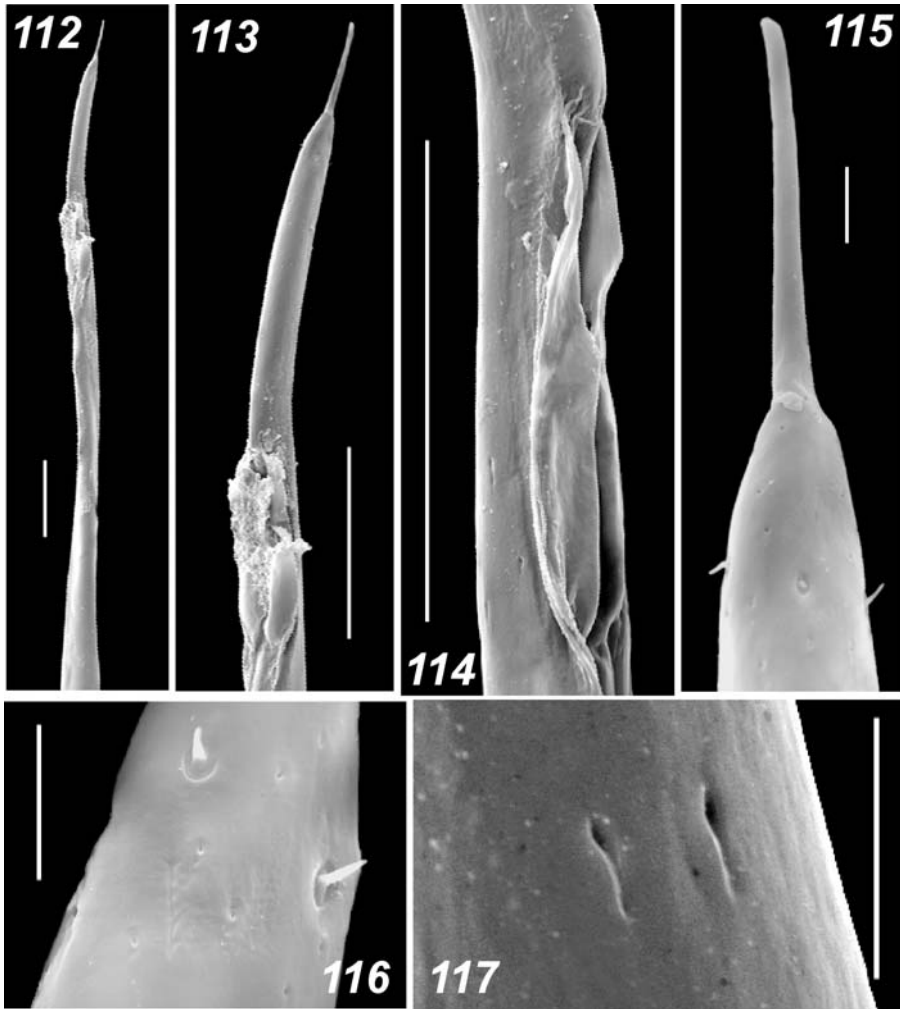
Figs 103-108. — *Jussara flamengo* n. sp. Male holotype (MNRJ 5991): Fig. 103, right pedipalp showing armature in detail, lateral view; Fig. 106, penis, lateral view; Fig. 107, penis, ventral view; Fig. 108, anterior portion of penis, ventral view. Female paratype (MNRJ 5964): Fig. 104, ovipositor, dorsal view; Fig. 105, anterior portion of ovipositor, dorsal view. Scale bar: 1.0 mm for Figs 103, 106-107; 0.5 mm for Figs 104-105, 108.



Figs 109-111. — *Jussara flamengo* n. sp. Female paratype (MNRJ 5353): Fig. 109, ovipositor, dorsal view; Fig. 110, anterior portion of furca, dorsal view; Fig. 111, second segment of furca with a distal lyrifissure, dorsal view. Scale bars: 0.2 mm for Fig. 109; 0.1 mm for Figs 110-111.

Description. Female paratype.

Measurements. Body 4.1 mm, carapace 1.0 mm, dorsal scute 3.0 mm, chelicera 1.6 mm, pedipalps 4.7 mm, ovipositor 1.2 mm. *Colour.* As in the male except for having almost the whole carapace black, only the posterior margin red (Figs 99-100). *Dorsal and ventral surfaces.* As in the female *J. albiarcuata* (Figs 99-100). *Chelicera, pedipalp and legs.* As in the male. *Ovipositor.* Body with nine segments (Figs 104, 109). Second segment of the furca with a distal lyrifissure (Figs 105, 110-111).



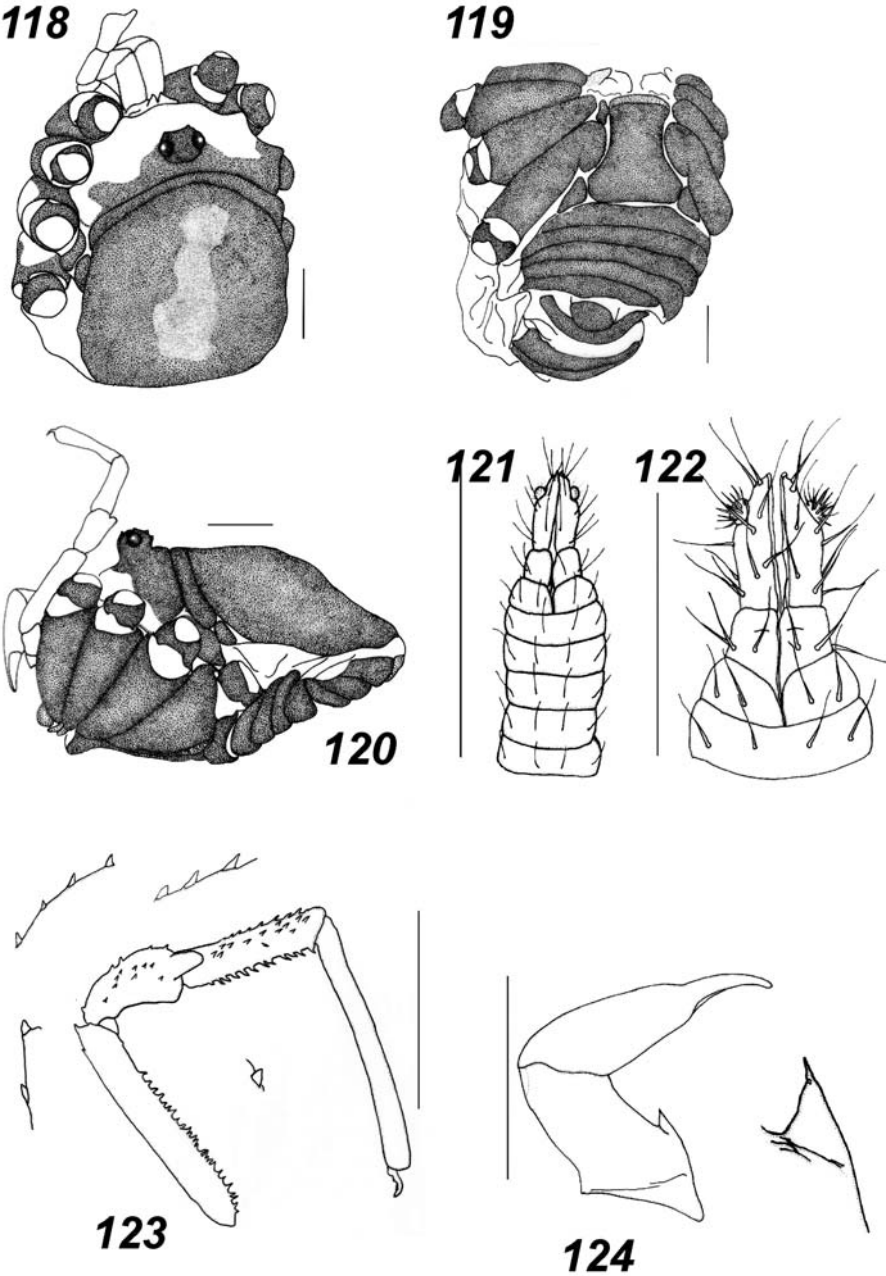
Figs 112-117. — *Jussara flamengo* n. sp. Male paratype (MNRJ 5671): Fig. 112, penis, laterodorsal view; Fig. 113, anterior portion of penis, laterodorsal view; Fig. 115, anterior portion of glans of penis, laterodorsal view. Male paratype (MNRJ 5351): Fig. 114, alate portion of shaft showing slit-shaped openings, lateral view; Fig. 116, anterior portion of glans showing laterosuperior setae, lateral view; Fig. 117, slit-shaped openings of lateral border of shaft, lateral view. Scale bar: 0.1 mm for Figs 112-114; 0.01 mm for Figs 115-117.

Jussara lineata (Roewer 1953) n. comb. (Figs 118-124)

Holcobunus lineatus ROEWER 1953: 247, fig. 35.

Type locality. Brazil, Santa Catarina State, Nova Teutônia.

Distribution. Known only from the type locality (Fig. 237).



Figs 118-124. — *Jussara lineata* (Roewer 1953) n. comb. Female holotype (SMF RII/6447/427): Fig. 118, dorsal view; Fig. 119, ventral view; Fig. 120, lateral view; Fig. 121, ovipositor, dorsal view; Fig. 122, anterior portion of ovipositor, dorsal view; 123, right pedipalp showing armature in detail, lateral view; Fig. 124, right chelicera showing ventrobasal spine in detail, lateral view. Scale bars: 1.0 mm for Figs 118-120, 123-124; 0.1 mm for Figs 121-122.

Type material. ♂ holotype (SMF RII/6447/427) Brazil, Santa Catarina, Nova Teutônia, examined.

Emended diagnosis. Body blackish-brown, anterior margin and lateral borders of carapace with a yellowish-white arched mark anterior to the eye mound. Eye mound and second prosomatic tergite black. Dorsal scute with a wide longitudinal yellowish-brown stripe. Legs, chelicerae and pedipalps pale yellow (Figs 118, 120). Ventrobasal spine of chelicera 30% of the length of the movable finger (Fig. 124).

Redescription. Female holotype.

Measurements. Body 3.8 mm, carapace 1.0 mm, dorsal scute 2.0 mm, chelicera 1.6 mm, pedipalps 1.8 mm, ovipositor 1 mm. *Colour.* Second prosomatic tergite and FLS T6, opisthosomatic sternites, free lateral sternites and anal operculum blackish brown. Pedipalps and chelicerae cream (Figs 118-120). *Dorsal surface.* Surface densely reticulate. Supracheliceral laminae distally armed with blunt granules. Eye mound armed with two rows of blunt granules. *Ventral surface.* Lateral borders of the genital operculum unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 124). *Pedipalp.* As in *J. albiarcuata* except for: trochanter broken. Inner apophysis of patella longer than wide. Tibia densely armed with sharp-pointed granules (Fig. 123). *Legs.* Femoral formula 1/3/1/1. *Ovipositor.* Body broken, only five segments preserved (Fig. 121). Second segment of the furca with a distal lyrifissure (Fig. 122).

Jussara luteovariata (Mello-Leitão 1932) n. comb. (Figs 125-142)

Holcobunus luteovariatus MELLO-LEITÃO 1932: 438, fig. 2; MELLO-LEITÃO 1938: 333; ROEWER 1953: 247.

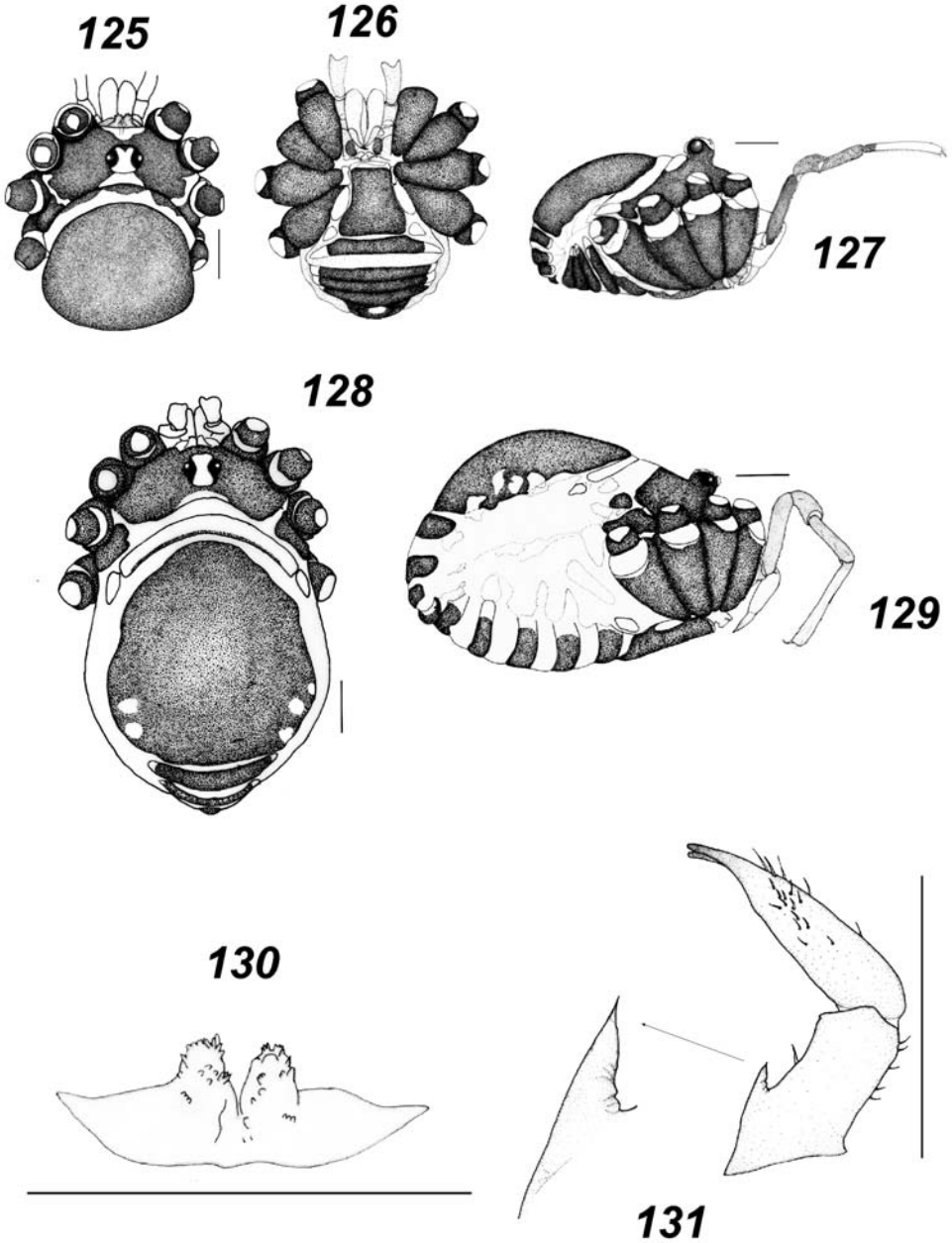
Holcobunus sigillatus MELLO-LEITÃO 1944: 13, fig. 2; ROEWER 1953: 247. Syn. nov.

Type locality. Brazil, Rio de Janeiro State, Mendes (22°31'36"S, 43°43'58"W).

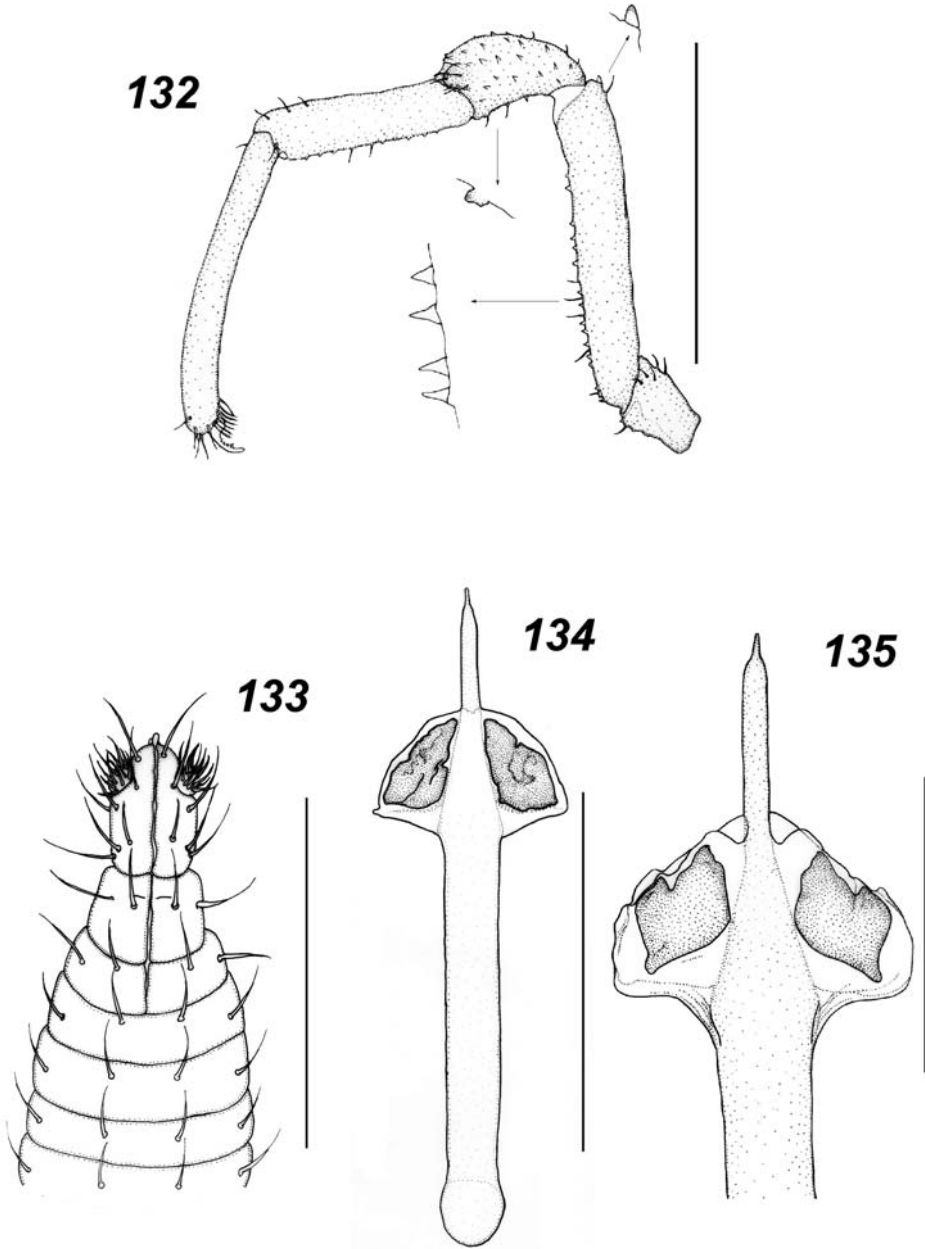
Distribution. Brazil, Rio de Janeiro (Guapimirim, Ilha Grande, Mangaratiba, Maricá, Mendes, Muriqui, Nova Friburgo and Rio de Janeiro) (Fig. 233).

Type material. ♀ holotype (MNRJ 8903) Brazil, Rio de Janeiro, Mendes, examined; 3 ♂ syntypes (*H. sigillatus*) (MNRJ 5084) Brazil, Rio de Janeiro, Jacarepaguá, Pau-da-Fome, leg. H. Berla, examined.

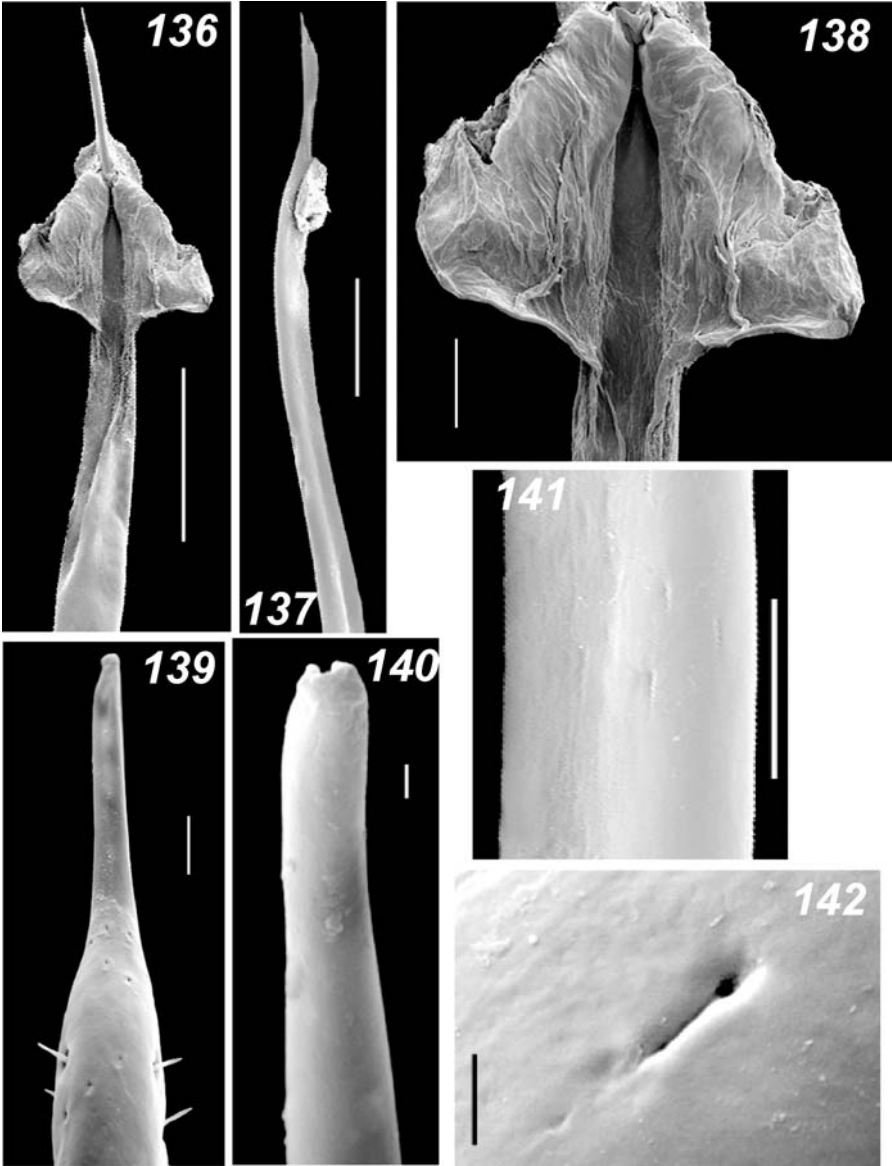
Other material examined. 2 ♀ (MNRJ 6339) Brazil, Rio de Janeiro, Maricá, Cachito Grande, 15.X.1988 leg. A.B. Kury; 2 ♀ (MNRJ 58815) Brazil, Rio de Janeiro, Ilha Grande, 06.I.2000, leg. G.B. Edwards; 10 ♂ (MNRJ 5843) Mangaratiba, Muriqui, Rodovia Rio-Santos, 27.V.1995; 1 ♂ (MNRJ 5842), Brazil, Rio de Janeiro, Parque Estadual da Pedra Branca, 27.V.1995 leg. A.B. Kury, M. Vogt & M. Baptista; 2 ♂ (MNRJ 5853), same place; 1 ♂ (MNRJ 5849) same place; 2 ♂ 3 ♀ 4 juveniles (MNRJ 5992), same place, 17.VII.1999 leg. S. Fonseca; 1 ♂ (MNRJ 5841), same place, 1989 leg. A.B. Kury & A.P.L. Giupponi; 2 ♀ (MNRJ 5762) same place, 06.V.1999; 2 ♂ 3 ♀ (MNRJ 5763) Brazil, Rio de Janeiro, Mangaratiba, leg. R.L.C. Baptista; 1 ♂ (MNRJ 5829) Brazil, Rio de Janeiro, RJ, Paineiras, 15.VIII.1963 leg. J. Becker; 2 ♂ (MNRJ 5824) Brazil, Rio de Janeiro, RJ, Jacarepaguá; 2 ♀ (MNRJ 5832) same place; 6 ♂ 4 ♀ (MNRJ 5840) Brazil, Rio de Janeiro, RJ, Jacarepaguá, Represa dos Ciganos, 12.VII.1989 leg. A.B. Kury; 1 ♀ (MNRJ 5839) same place; 1 ♀ (MNRJ 5838) same place; 2 ♂ (MNRJ 5828) Brazil, Rio de Janeiro, RJ, Jacarepaguá, Taquara, 23.XI.1963 leg. J. Becker; 4 ♀ (MNRJ 5826) same place; 1 ♀ (MNRJ 5833) same place, leg. R. Arlé; 2 ♀ (MNRJ 11371) same place, leg. H.



Figs 125-131. — *Jussara luteovariata* (Mello-Leitão 1932) n. comb. Male (MNRJ 5825): Fig. 125, dorsal view; Fig. 126, ventral view; Fig. 127, lateral view; Fig. 130, supracheliceral laminae, dorsal view; Fig. 131; right chelicera showing ventrobasal spine in detail. Female holotype (MNRJ 8903): Fig. 128, dorsal view; 129, lateral view. Scale bars: 1.0 mm for Figs 125-129, 131; 0.25 mm for Fig. 130.



Figs 132-135. — *Jussara luteovariata* (Mello-Leitão 1932) n. comb. Male (MNRJ 5825): Fig. 132, right pedipalp showing armature in detail, lateral view; Fig. 134, penis, ventral view; Fig. 135, anterior portion of penis, ventral view. Female (MNRJ 5825): Fig. 133, ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 132, 134; 0.5 mm for Figs 133, 135.



Figs 136-142. — *Jussara luteovariata* (Mello-Leitão 1932) n. com. Male (MNRJ 5849): Fig. 136, penis, ventral view; Fig. 138, winglets of penis, ventral view; Fig. 139, anterior region of glans, stylus and superior and inferior lateral setae, ventral view. Male (MNRJ 5782): Fig. 137, penis, lateral view; Fig. 140, stylus of glans penis, lateral view; Fig. 141, truncus penis basal to alate region covered with lyrifissures, lateral view; Fig. 142, lyrifissure of truncus penis just basal to winglets, lateral view. Scale bars: 0.5 mm for Figs 136-137; 0.1 mm for Fig. 141; 0.01 mm for Figs 138-139, 142; 1 m for Fig. 140.

Berla; 2 ♂ (MNRJ 8901) same place; 1 ♀ (MNRJ 5835), Brazil, Rio de Janeiro, RJ, Covanca; 1 ♀ (MNRJ 5837) Brazil, Rio de Janeiro, Mangaratiba, leg. A.B. Kury & R.L.C. Baptista; 1 ♂ (MNRJ 5836) same place; 2 ♂ 1 ♀ (MNRJ 5845) Brazil, Rio de Janeiro, Muriqui, Rio-Santos, leg. R.L.C. Baptista; 1 ♀ (MNRJ 5846), Brazil, Rio de Janeiro, Teresópolis, Parque Nacional Serra dos Orgãos, A. Pires & A. Giupponi; 1 ♀ (MNRJ 5847) same place; 1 ♂ (MNRJ 5848); 2 ♂ 1 ♀ (MNRJ 5825), Brazil, Rio de Janeiro, Rio de Janeiro, Pico da Tijuca, 14.VIII.1951 leg. J. Becker; 1 ♂ Brazil, Rio de Janeiro, RJ, Floresta da Tijuca; 1 ♂ 1 ♀ (MNRJ 5149) same place; 1 ♀ (MNRJ 6048) Brazil, Rio de Janeiro, RJ, Parque Lage, 18.V.1985 leg. Grupo fortaleza; 1 ♀ (MNRJ 5844) Brazil, Rio de Janeiro, Serra de Friburgo; 9 ♂ 5 ♀ (MNRJ 58842) Brazil, Rio de Janeiro, Guapimirim. 5-6.II.2000 leg. A.P.L. Giupponi, 1 ♂ (MNRJ 6451) Brazil, Rio de Janeiro, Petrópolis, Itaipava, 18.III.1989 leg. A.B. Kury & L. Kury.

Emended diagnosis. Body black, second prosomatic tergite almost totally covered by a white stripe forming an arch. Lateral portions of the carapace with a slender strip of the same colour. FLS T5, trochanter, femur and patella of pedipalps black, tibia and tarsus shiny white, *arculi genitales* II and III shiny white, opisthosomatic sternite XIII + XIV black with a white middle spot (Figs 125-129). Inner apophysis of patella 20% of the length of the patella (Fig. 132).

Description. Male.

Measurements. Body 4.5 mm, carapace 1.0 mm, dorsal scute 3.0 mm, chelicera 1.5 mm, pedipalps 4.9 mm, penis 2.1 mm. *Colour.* Eye mound with a shiny yellowish white X-shaped strip. Supracheliceral laminae pale yellow, dorsal scute and free tergites black. FLS S8, *arculus genitalis*, *arculi genitales* and maxillary lobes of coxae II shiny white. Sternites black, lateral borders with a shiny white spot, anal operculum black with a medium shiny white rounded spot, free lateral sternites white, trochanters of legs II dark grey, slightly clearer than the others. Chelicerae cream, trochanters, femora, patellae, tibiae and proximal third of tarsi of pedipalps black; mesal and apical thirds shiny white. Legs black (Figs 125-127). *Dorsal surface.* Surface of body reticulate. Supracheliceral laminae distally armed with blunt granules and three-pointed sharp granules (Fig. 130). Eye mound armed with two rows of sharp-pointed granules. *Ventral surface.* Lateral borders of the genital operculum unarmed, *arculi genitales* III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 131). *Pedipalp.* As in *J. albiarcuata* except for: tibia ventrally armed with blunt granules. Tarsus slightly bent in lateral view (Fig. 132). *Legs:* Femoral formula 1/3/1/1. *Penis.* Shaft 4 times wider than glans (Figs 134, 136-137). Lateral borders covered with slit openings, reaching winglet area in dorsal view (Figs 141-142). Winglets rounded-trapezoidal, very expanded laterally, not very prolonged longitudinally, lateral borders truncated, right and left units of winglets fused at their anterior portion in ventral view (Figs 135, 138). Dorsal and ventral laminae of winglets separated at their anterior portion (Fig. 139). Glans densely covered with simple pores, two pairs of apical setae, the superior pair inserted more anteriorly (Fig. 139). Stylus straight (Figs 139-140).

Description. Female holotype.

Measurements. Body 6.1 mm, carapace 1.2 mm, dorsal scute 2.6 mm, chelicera 1.4 mm, pedipalps 5.5 mm, ovipositor 2.4 mm. *Colour.* As in the male except for lateral borders of dorsal scute almost always with small white rounded spots forming a longitudinal row, and a white median transverse stripe (Figs 128-129). *Dorsal and ventral surfaces.* As in the female of *J. albiarcuata* (Figs 128-129). *Chelicera, pedipalp and legs.* As in the male. *Ovipositor.* Body with 10 to 12 segments. Second segment of the furca with a distal lyrifissure (Fig. 133).

Jussara marmorata (Mello-Leitão 1934) n. comb. (Figs 143-147)

Garleppa marmorata MELLO-LEITÃO 1934: 36, fig. 23; ROEWER 1953: 252.

Type locality. Brazil, Minas Gerais State, Cachoeira do Pajeú (22°24'44"S, 42°57'56"W).

Distribution. Known only from the type locality (Fig. 237).

Type material. 1 ♀ holotype (MNRJ 41854), Brazil, Minas Gerais, Cachoeira do Pajeú, leg. Oton Leonardos, examined.

Emended diagnosis. Body, eye mound and trochanter of legs II beige, trochanters of legs I, III and IV brown. Carapace with an inverted black stripe forming an arch anterior to the eye mound, second prosomatic tergite and free prosomatic tergites with spots and wide brown stripes irregularly disposed, dorsal scute with both rounded spots and brown stripes irregularly disposed. Anterior portion of pedipalpal femur, patella and tibia dark brown, tarsus and chelicerae cream (Figs 143-145). Femoral formula: 1/4/1/1.

Redescription. Female holotype.

Measurements. Body 4.8 mm, carapace 1 mm, dorsal scute 2.6 mm, chelicera 1.5 mm, pedipalps 4 mm. *Colour.* FLS T5, maxillary lobes of coxae I and II, posterior portion of coxae I and IV, *arculus genitales*, *arculi genitales*, opisthosomatic sternites and free lateral sternites XI to XIV and anal operculum beige. Anterior portion of coxae I and/or IV, lateral sternites IX and X, almost entire surface of the genital operculum and legs brown (Figs 143-145). *Dorsal surface.* Surface of the body densely reticulate. Supracheliceral laminae distally armed with sharp-pointed granules. Eye mound armed with two rows of sharp-pointed low spines. *Ventral surface.* Lateral borders of genital operculum unarmed, *arculi genitales* II unarmed. *Chelicera.* Ventrobasal spine of basichelicerite blunt (Fig. 147). *Pedipalp.* As in *J. albiarcuata* except for: inner apophysis longer than wide, armed with sharp-pointed granules (Fig. 146). *Legs.* Femoral formula 1/4/1/1. *Ovipositor.* Genitalia in bad condition, not allowing a description.

Jussara obesa Mello-Leitão 1935 (Figs 148-168)

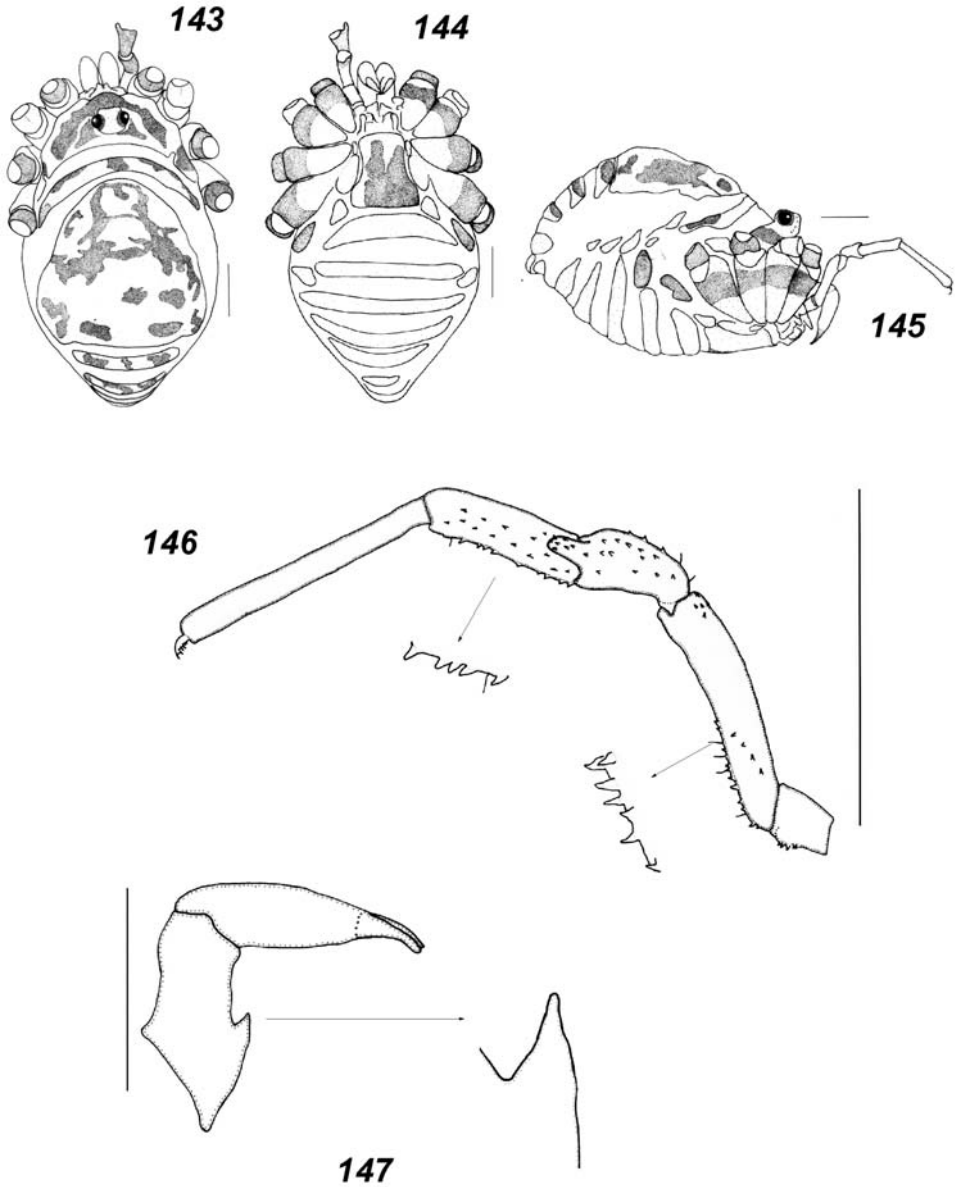
Jussara obesa MELLO-LEITÃO, 1935: 371, fig. 2; ROEWER 1953: 254.

Type locality. Brazil, Rio de Janeiro State, Angra dos Reis, Jussaral, 350 m (22°56'32"S, 44°16'02"W).

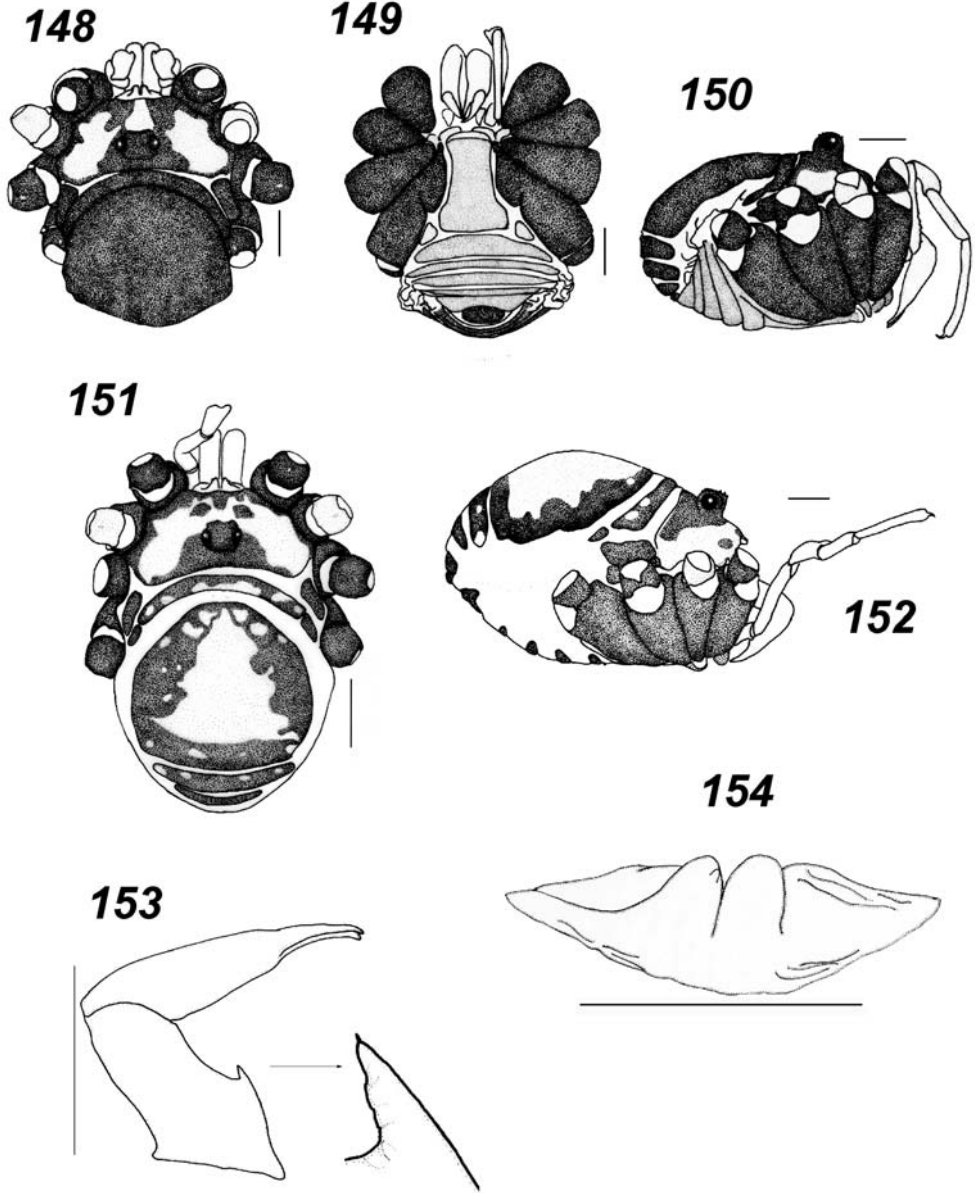
Distribution. Brazil, Rio de Janeiro (Angra dos Reis, Ilha Grande, Jussaral, Parati) and São Paulo (Picinguaba, São Luiz do Paraitinga and Ubatuba) (Fig. 236).

Type material. 1 ♀ holotype (MNRJ 42426) Brazil, Rio de Janeiro, Angra dos Reis, Jussaral (350 m), leg. J. Lins, examined.

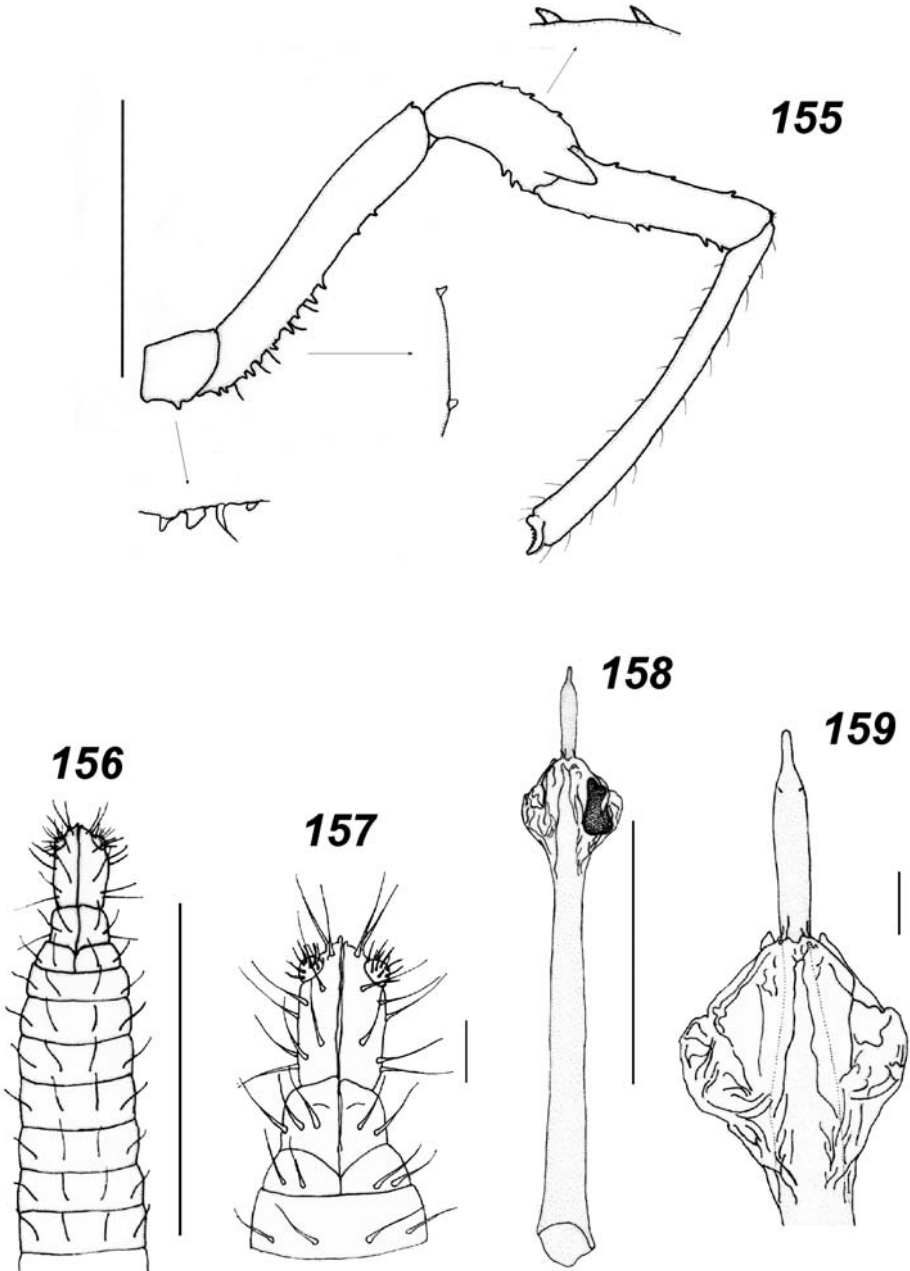
Other material examined. 1 ♀ (MNRJ 6040) Brazil, São Paulo, Ubatuba, km 11 Rio-Santos, 13.X.1985 leg. R.L.C. Baptista; 1 ♂ (MNRJ 5947), V.1989 leg. A.B. Kury & L.A. Souza; 1 ♂ (MNRJ 5753) Brazil, Rio de Janeiro, Rio de Janeiro, Parati; Riacho da Cachoeira, 01.XI.1988



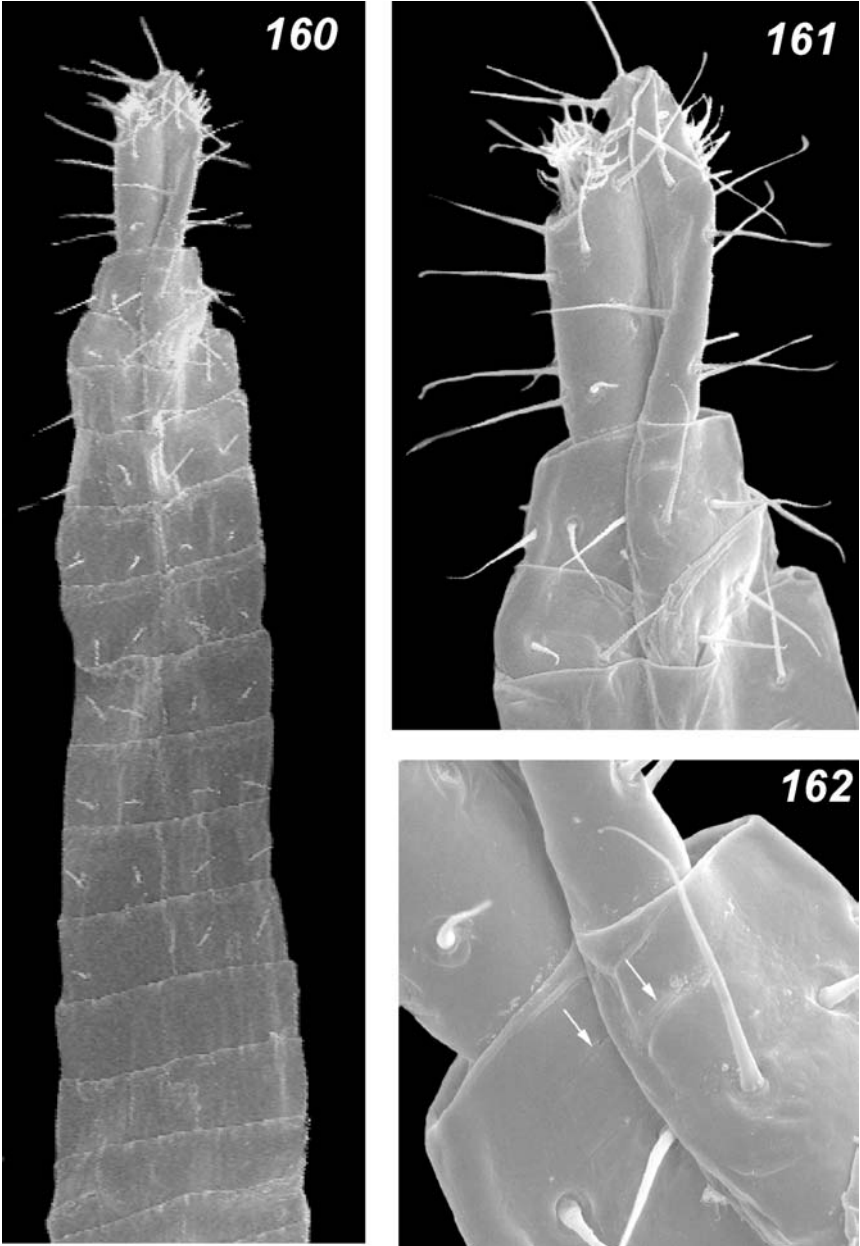
Figs 143-147. — *Jussara marmorata* (Mello-Leitão 1934) n. comb. Female holotype (MNRJ 41854): Fig. 143, dorsal view; Fig. 144, ventral view; Fig. 145, lateral view; Fig. 146, right pedipalp showing armature in detail, lateral view; Fig. 147, right chelicera showing basoventral spine in detail, lateral view. Scale bars: 1.0 mm for Figs 143-147.



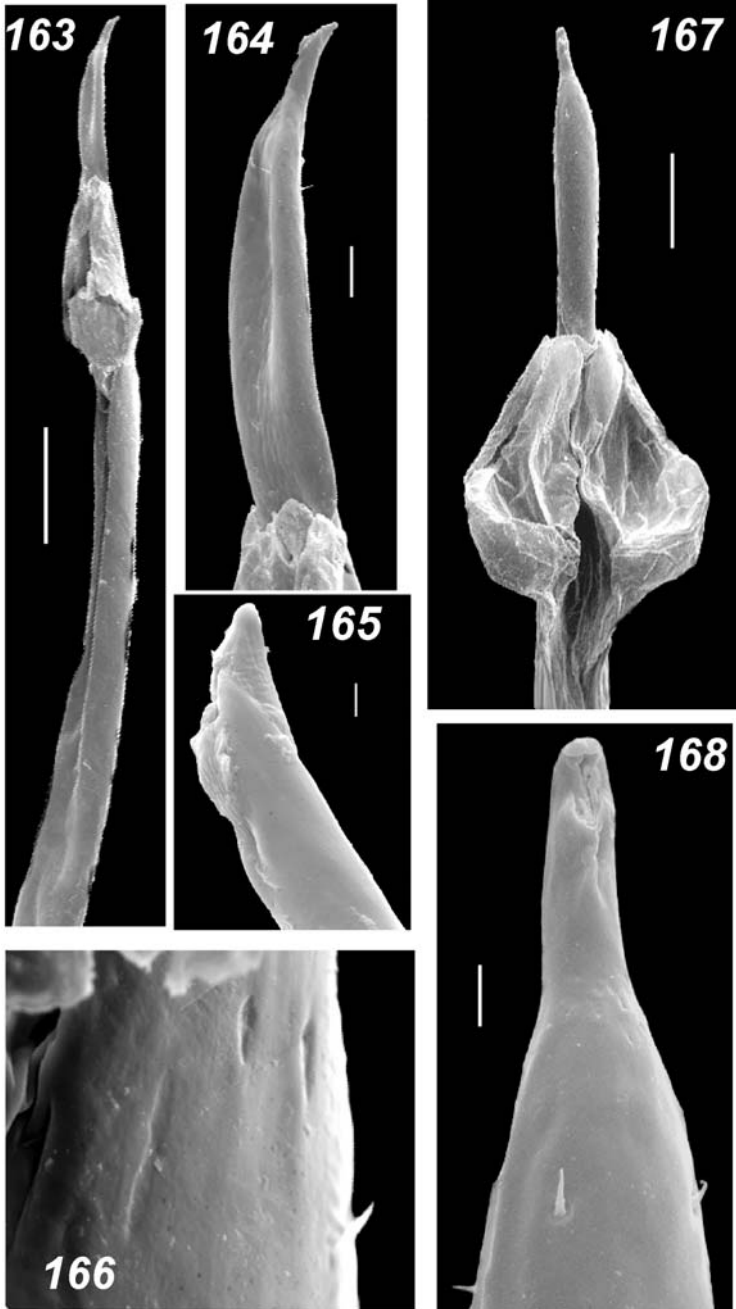
Figs 148-154. — *Jussara obesa* Mello-Leitão 1935. Male (MNRJ 5947): Fig. 148, dorsal view; Fig. 149, ventral view; Fig. 150, lateral view; Fig. 153, right chelicera showing ventrobasal spine in detail; Fig. 154, suprachelical laminae, dorsal view. Female holotype (MNRJ 42426): Fig. 151, dorsal view; Fig. 152, lateral view. Scale bar: 1.0 mm for Figs 148-153; 0.25 mm for Fig. 154.



Figs 155-159. — *Jussara obesa* Mello-Leitão 1935. Male (MNRJ 5947): Fig. 155, pedipalp showing armature in detail, lateral view; Fig. 158, penis, ventral view; Fig. 159, anterior portion of penis, ventral view. Female holotype (MNRJ 42426): Fig. 156, ovipositor, dorsal view; Fig. 157, anterior portion of ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 155-156, 158; 0.1 mm for Figs 157, 159.



Figs 160-162. — *Jussara obesa* Mello-Leitão 1935. Female (MNRJ 6040): Fig. 160, ovipositor, dorsal view; Fig. 161, ovipositor furca, dorsal view; Fig. 162, second segment of the furca, showing a pair of lyrifissures indicated by arrows, dorsal view. Scale bars: 1.0 mm for Fig. 160; 0.1 mm for Fig. 161; 0.01 mm for Fig. 162.



Figs 163-168. — *Jussara obesa* Mello-Leitão 1935. Male (MNRJ 5947): Fig. 163, penis, laterodorsal view; Fig. 164, glans, laterodorsal view; Fig. 165, anterior portion of stylus, laterodorsal view; Fig. 166, shaft right below the alate portion showing slit-shaped depression, lateral view. Male (MNRJ 5753): Fig. 167, anterior portion of penis, ventral view; Fig. 168, anterior portion of glans showing stylus, superior and inferior setae and pores, ventral view. Scale bars: 0.1 mm for Figs 163, 167; 0.01 mm for Fig. 164, 166, 168; 1 μ m for Fig. 165.

leg. R.L.C. Baptista; 2 ♂ 3 ♀ (MNRJ 6765) Brazil, Rio de Janeiro, Angra dos Reis, Ilha Grande, 17.II.1992 leg. L.B.N. Coelho; 1 ♂ (MNRJ 4377) Brazil, São Paulo, Ubatuba, Picinguaba, Parque Serra do Mar, 01-04.IV.1996 leg. G. Machado; 1 ♂ (MNRJ 58833) Brazil, São Paulo, Ubatuba; 1 ♂ (MNRJ 5630) Brazil, Ubatuba, Picinguaba, PN Serra do Mar, XII.1995 leg. G. Machado; 1 ♀ (MNRJ 5629) same place; 6 ♂ 4 ♀ (MZSP 15828) Brazil, São Paulo, São Luiz do Paraitinga: núcleo Santa Virgínia, 2.XI.1998 leg. L. Suesdiek.

Emended diagnosis. Body predominantly black, carapace rounded with a wide pale yellow spot covering almost all its extension, anterior margin of the carapace (usually females) with two or three black spots, posterior half of the carapace with a black spot surrounding eye mound. Dorsal scute, second tergite and free tergites black, females with shiny yellow rounded spots, and dorsal scute with a big triangular shiny yellow spot. Trochanter of legs II pale yellow, legs I, III and IV black. Lateral borders of the carapace with a shiny pale yellow spot on each side (Figs 148-152). Ventrobasal spine of basichelicerite blunt (Fig. 153). Femoral formula: 1-2/4-5/1/1-2. Stylus opening irregularly shaped, with a longitudinal slit (Figs 165, 168).

Redescription. Male holotype.

Measurements. Body 4.6 mm, carapace 1.5 mm, dorsal scute 2.3 mm, chelicera 2.2 mm, pedipalps 5 mm, penis 2.3 mm. *Colour.* Second prosomatic tergite, FLS T5, legs, dorsal scute, free tergites, coxae and anal operculum black, maxillary lobes of coxae I and II brown, supracheliceral laminae cream. *Arculus genitalis* and *arculi genitales* II-III, genital operculum, FLS S8, opisthosomatic sternites and free sternites opaque yellow. Lateral portions of the carapace shiny light yellow. Chelicerae pale yellow and pedipalps cream (Figs 148-150). *Dorsal surface.* Surface of body densely reticulate. Supracheliceral laminae armed distally with very few blunt granules (Fig. 154). Eye mound armed with two rows of sharp-pointed granules. *Ventral surface.* Lateral borders of the genital operculum unarmed, *arculi genitales* III unarmed. *Pedipalp.* As in *J. albiarcuata* except for: inner apophysis of patella longer than wide. Tarsus slightly bent in lateral view (Fig. 155). *Legs.* Femoral formula 1-2/5-4/1/2. *Penis.* Shaft twice as wide as glans (Figs 158, 163). Lateral borders covered with slit-shaped depressions (Fig. 166), reaching winglet area in dorsal view. Winglets rounded-trapezoidal, lateral borders truncated, very expanded laterally and not very extended longitudinally, right and left units of winglets fused at their anterior portion in ventral view, dorsal and ventral laminae of the winglets separated at their anterior portion (Figs 160, 167). Glans covered with simple pores, two pairs of apical setae, superior pair inserted more anteriorly (Figs 164, 168). Stylus straight (Fig. 168).

Redescription. Female.

Measurements. Body 7.4 mm, carapace 1.7 mm, dorsal scute 4.1 mm, chelicera 2.1 mm, pedipalps 5.2 mm, ovipositor 2.5 mm. *Colour.* As in the male except for the free prosomatic tergites with shiny yellow rounded spots, dorsal scute with a large shiny yellow triangular mark. Genital operculum, opisthosomatic sternites and anal operculum black (Fig. 152). *Dorsal and ventral surfaces.* As in the female of *J. albiarcuata* (Fig. 151). *Chelicera, pedipalp and legs.* As in the male, except for femoral formula: 1-2/4/1/1-2. *Ovipositor.* Body with eight segments (Figs 156, 160). Second segment of the furca with a distal lyrifissure (Figs 157, 161-162).

Jussara quadrimaculata (Roewer 1953) n. comb. (Figs 169-176)

Holcobunus quadrimaculatus Roewer 1953: 246, fig. 34.

Type locality. Brazil, Santa Catarina State, Nova Teutônia (27° 03'00"S, 52° 24'00"W).

Distribution. Known only from the type locality (Fig. 237).

Type material. 1 ♂ lectotype and 2 ♂ 3 ♀ paralectotypes (SMF RII/6448/428), Santa Catarina, Nova Teutônia, examined.

Emended diagnosis. Body predominantly blackish-brown. Lateral borders of dorsal scute and carapace with a white stripe. Posterior half of carapace with a blackish-brown spot surrounding eye mound, lateral borders with two blackish-brown small rounded spots, FLS T5 and second prosomatic tergite white, chelicerae and pedipalp cream (Figs 169-171). Anterior margin of carapace straight (Fig. 169).

Redescription. Male lectotype.

Measurements. Body 4.3 mm, carapace 0.9 mm, dorsal scute 2.9 mm, chelicera 1.5 mm, pedipalps 4.7 mm, penis 1.8 mm. *Colour.* Eye mound, second prosomatic tergite, legs and ventral surface blackish-brown, anterior border of prosomatic tergite with a narrow white stripe (Figs 169, 171). *Dorsal surface.* Surface of the body reticulate, only the granular areas white. Suprachelicerar laminae distally armed with three-pointed sharp granules. Eye mound armed with sharp-pointed granules. *Ventral surface.* Lateral borders of genital opercle unarmed, *arculi genitales* III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 173). *Pedipalp.* As in *J. albiarcuata* except for: inner apophysis of tibia absent (Fig. 172). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft twice as wide as glans (Figs 174-175). Winglets rounded, curved only at their posterior margin, very expanded laterally and not very prolonged longitudinally, right and left units of winglets fused only at their anterior portion in ventral view, dorsal and ventral laminae separated from one another at their anterior portion in ventral view (Figs 176, 178). Glans densely covered with simple pores, two pairs of apical setae, the superior pair inserted more anteriorly (Fig. 176). Stylus straight (Figs 175-176).

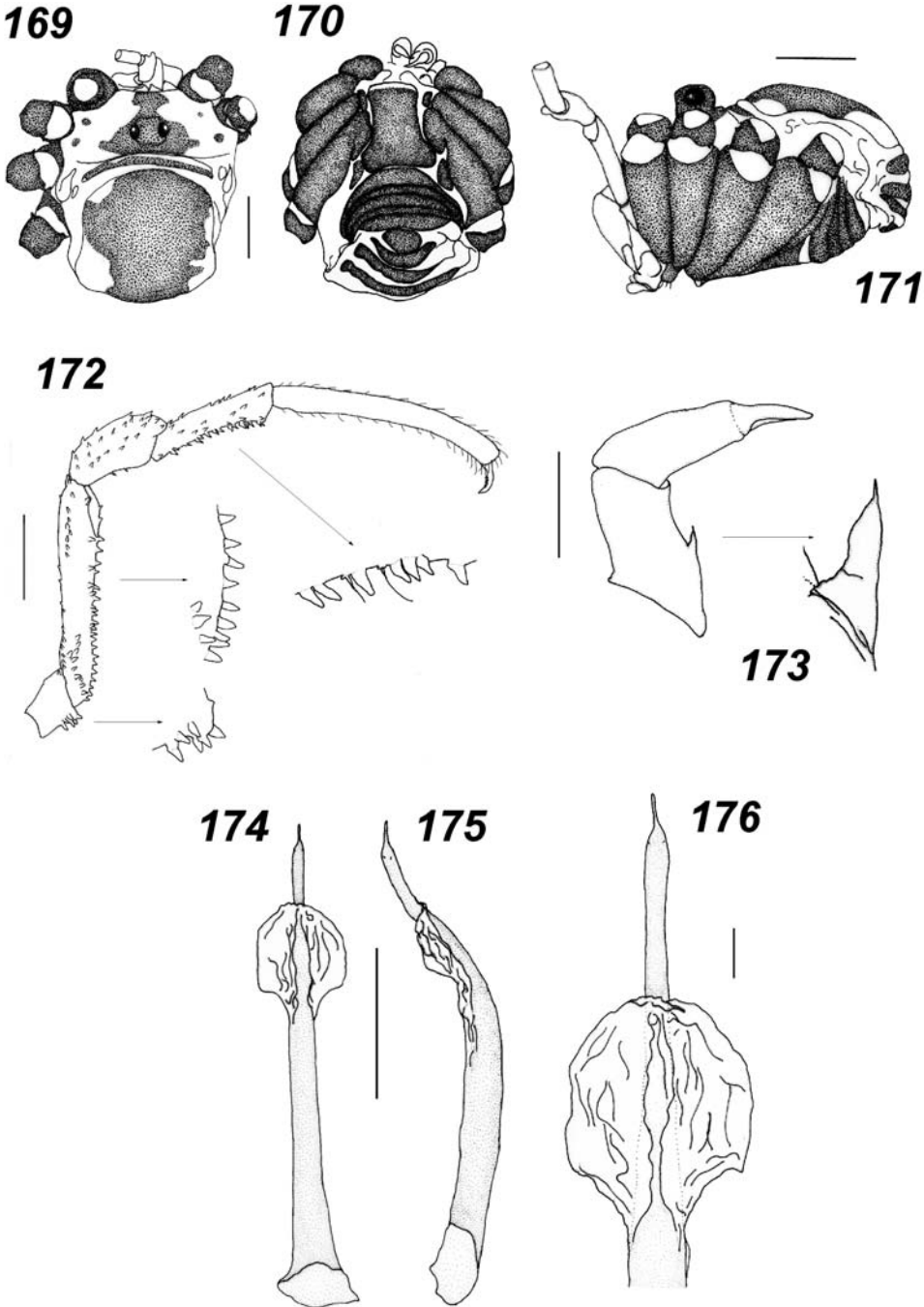
Jussara rosea (Mello-Leitão 1940) n. comb. (Figs 177-198)

Holcobunus roseus MELLO-LEITÃO 1940: 96; ROEWER 1953: 245.

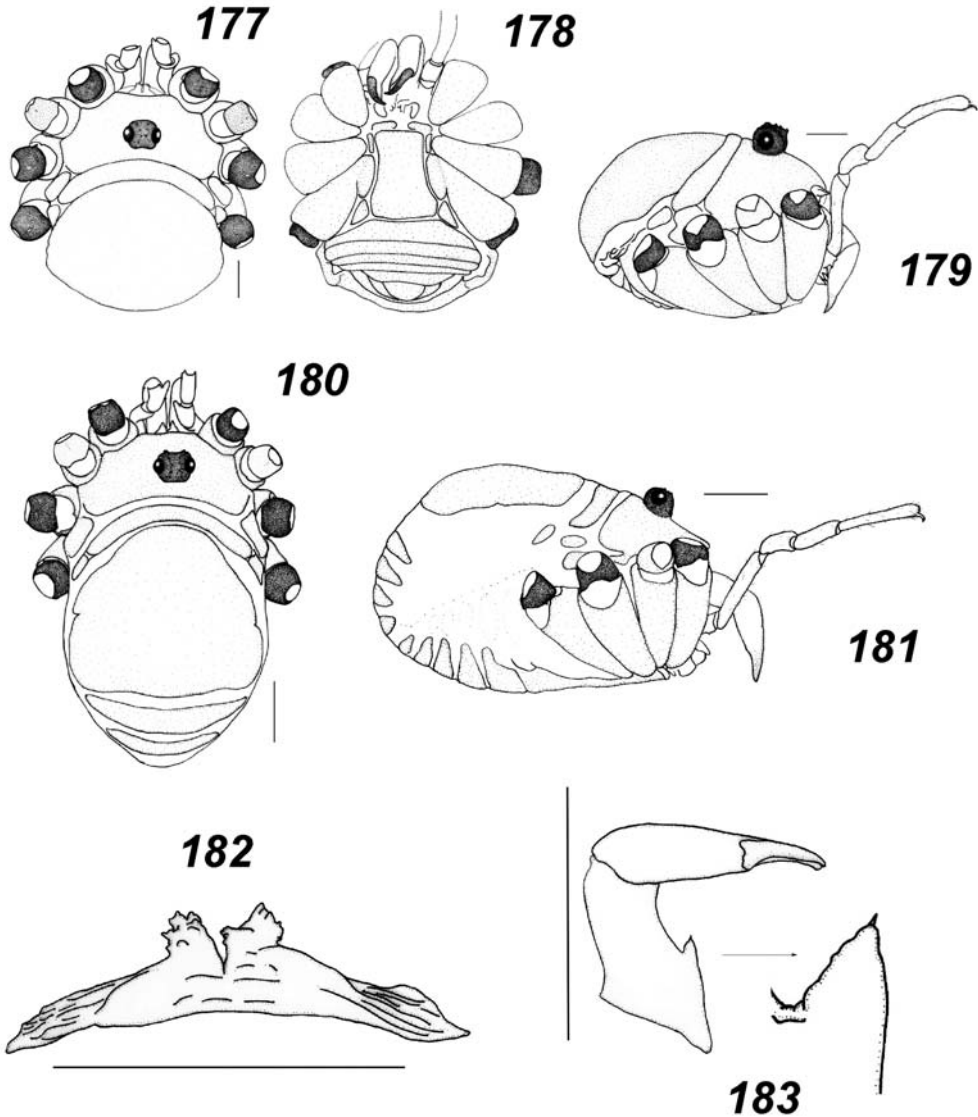
Type locality. Brazil, Espírito Santo State, Santa Teresa (19°56'08"S, 40°36'01"W).

Distribution. Brazil, Minas Gerais (Sete Lagoas), Espírito Santo (Apiacá, Linhares, Santa Teresa) and Rio de Janeiro (Angra dos Reis, Barra de São João, Casimiro de Abreu, Guapimirim, Magé and Rio de Janeiro) (Fig. 235).

Type material. ♂ holotype (MNRJ 133), Espírito Santo, Santa Teresa, leg. A. Ruschi.

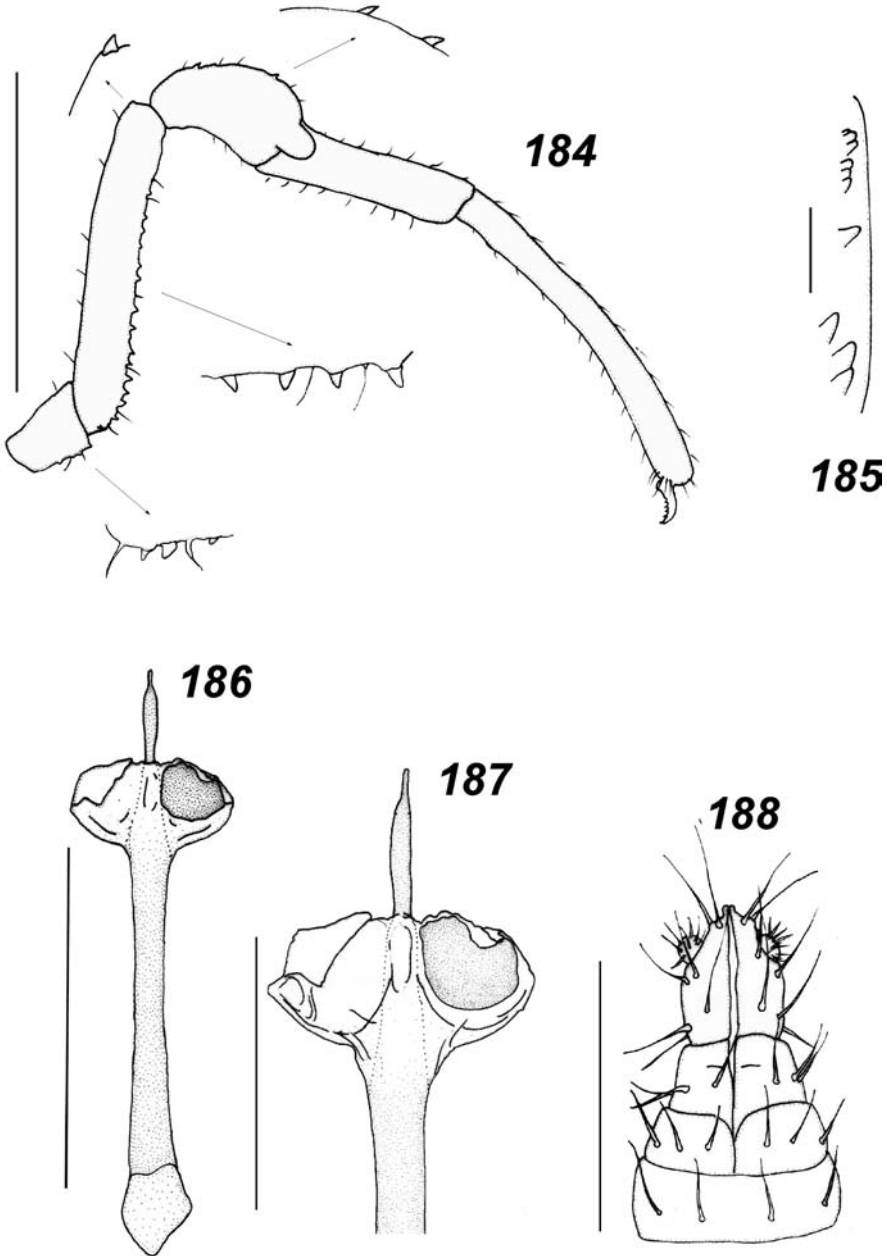


Figs 169-176. — *Jussara quadrimaculata* (Roewer 1953) n. comb. Male lectotype (SMF RII/6448/428): Fig. 169, dorsal view; Fig. 170, ventral view; Fig. 171, lateral view; Fig. 172, right pedipalp showing armature in detail, lateral view; Fig. 173, right chelicera showing ventrobasal spine in detail, lateral view; Fig. 174, penis, ventral view; Fig. 175, penis, lateral view; Fig. 176, anterior portion of penis, ventral view. Scale bars: 1.0 mm for Figs 169-171; 0.5 mm for Figs 172-175; 0.1 mm for Fig. 176.

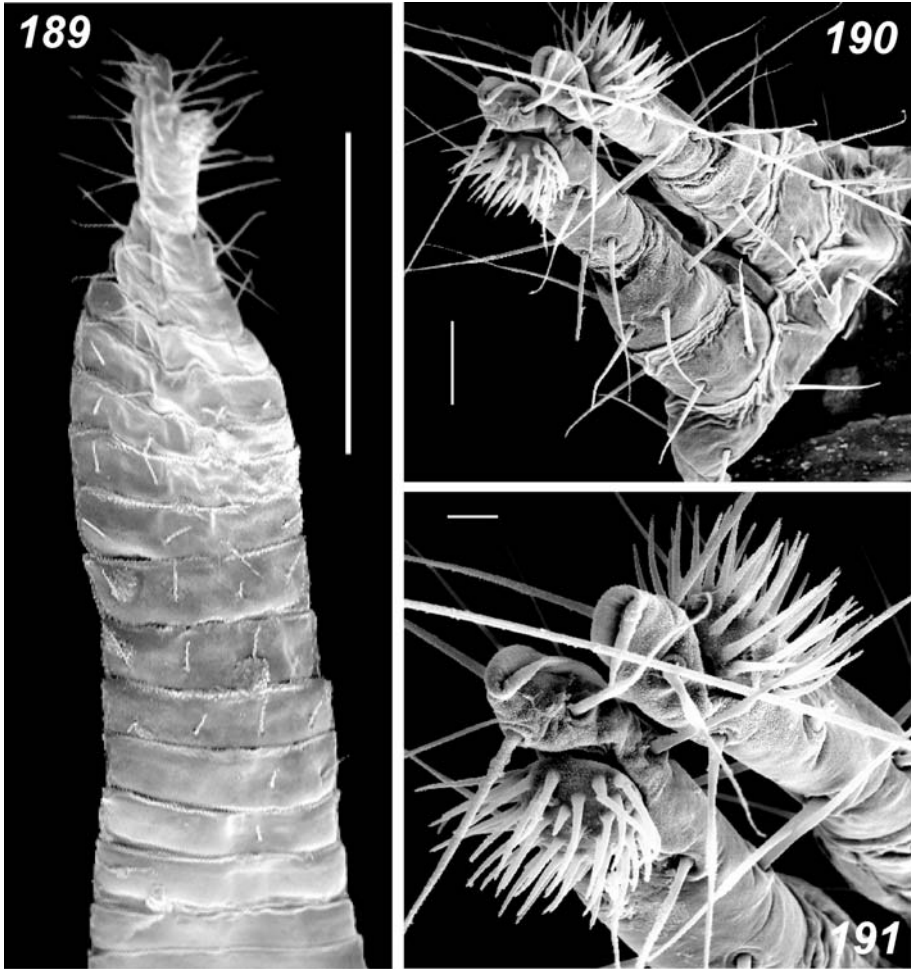


Figs 177-183. — *Jussara rosea* (Mello-Leitão 1940) n. comb. Male (MNRJ 5774): Fig. 177, dorsal view, Fig. 178, ventral view; Fig. 179, lateral view; Fig. 182, supracheliceral laminae, dorsal view; Fig. 183, right chelicera showing ventrobasal spine in detail, lateral view. Female (MNRJ 5925): Fig. 180, dorsal view; Fig. 181, lateral view. Scale bars: 1.0 mm for Figs 177-181, 183; 0.5 mm for Fig. 182.

Material examined. 1 ♂ (MNRJ 5929), 1 ♀ (MNRJ 5930), 1 ♂ (MNRJ 5908), Brazil, Espírito Santo, Santa Teresa, leg. A.B. Kury; 1 ♂ (MNRJ 6402), Brazil, Espírito Santo, Santa Teresa, Reserva Santa Lúcia, leg. R.L.C Baptista & A. Baptista; 1 ♂ (MNRJ 58821), 1 ♀ (MNRJ 58822), 1 ♀ (MNRJ 58823), 1 ♀ (MNRJ 58824), 1 ♂ (MNRJ 5907), 1 ♂ (MNRJ 58825), Brazil, Rio de Janeiro, Casimiro de Abreu, Barra de São João, Faz. Reunidas, leg. Exped. UNI-RIO;

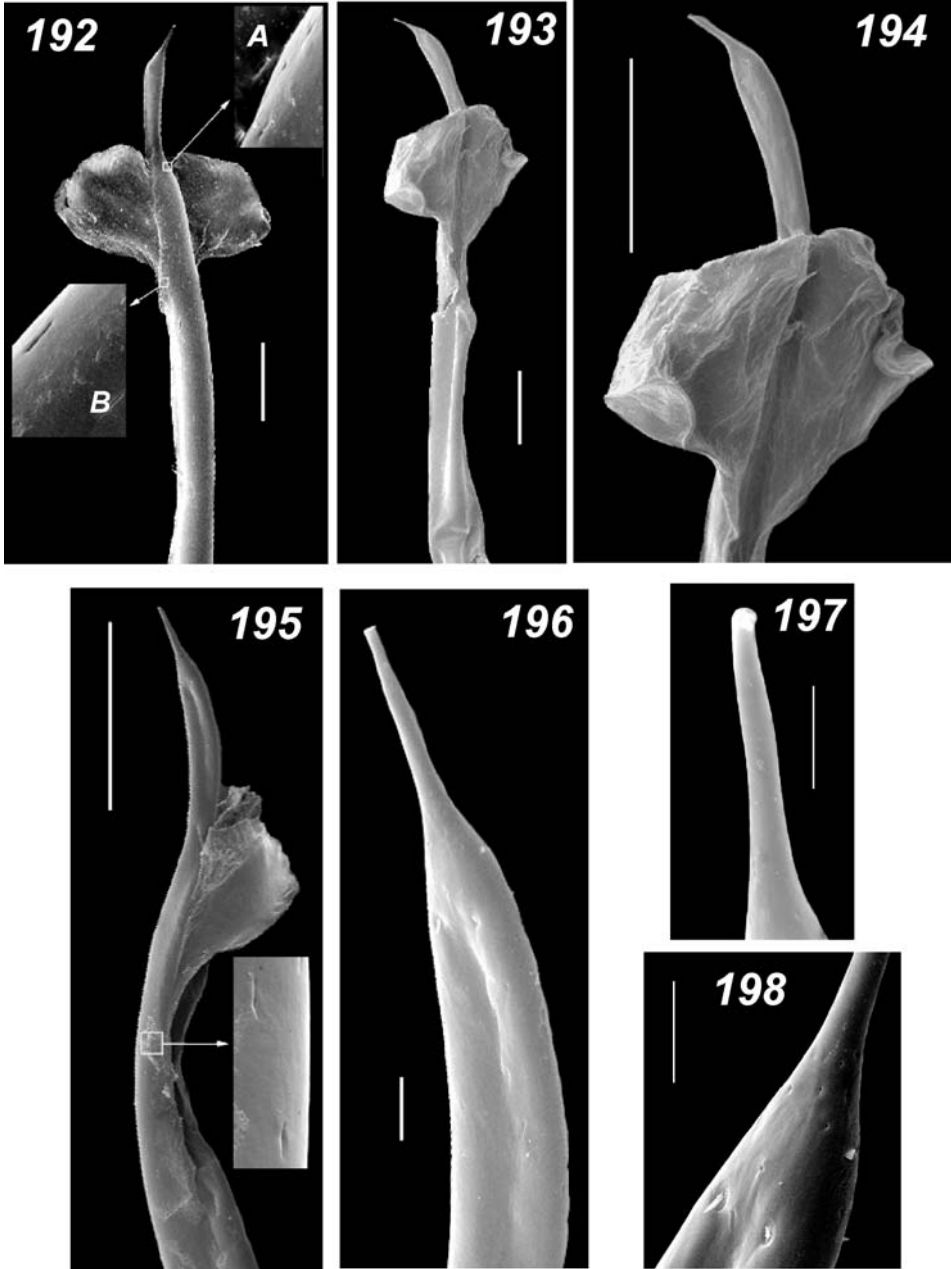


Figs 184-188. — *Jussara rosea* (Mello-Leitão 1940) n. comb. Male (MNRJ 5774): Fig. 184, right pedipalp showing armature in detail, lateral view; Fig. 185, armature of lateral border of genital operculum, ventral view; Fig. 186, penis, ventral view; Fig. 187, anterior portion of penis, ventral view. Female (MNRJ 5925): Fig. 188, anterior portion of ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 184-186; 0.5 mm for Figs 187-188.



Figs 189-191. — *Jussara rosea* (Mello-Leitão 1940) n. comb. Female (MNRJ 5926): Fig. 189, ovipositor, dorsal view. Female (MNRJ 58824): Fig. 190, furca showing lyrifissure of the second segment, dorsal view; Fig. 191, segment I of furca, dorsal view. Scale bar: 0.5 mm for Fig. 189; 0.1 mm for Fig. 190; 0.01 mm for Fig. 191.

5 ♀ (MNRJ 5904) Brazil, Rio de Janeiro, Espírito Santo, Parque Sooretama; 1 ♀ (MNRJ 6705) Brazil, Rio de Janeiro, Angra dos Reis, Rio Santos Km 98, leg. A.B. Kury & L. Kury, 1 ♀ (MNRJ 5906) Brazil, Minas Gerais, Sete Lagoas, leg. R. Glieschi, 1 ♂ (MNRJ 6902) Brazil, Espírito Santo, Apicá, Faz. Rio Doce, leg. R.L.C. Baptista & A. Baptista; 3 ♀ (MNRJ 5774) Brazil, Rio de Janeiro, Represa Piabetá, Magé, R.L.C. Baptista, 5 ♂ (MNRJ 6852) Brazil, Rio de Janeiro Casimiro de Abreu, Barra de São João, Faz. Reunidas, leg. Exped. UNI-RIO; 1 ♀ (MNRJ 6162), leg. G. Muricy; 4 ♂ 1 ♀ (MNRJ 58843), Brazil, Rio de Janeiro, Guapimirim, leg. A.P.L. Giupponi; 1 ♂ (MNRJ 5925) Brazil, Rio de Janeiro, Barra de São João, leg. A.B. Kury; 2 ♀ (MNRJ 5926) Brazil, Rio de Janeiro, Magé, leg. J. Leonel; 1 ♀ (MNRJ 5927) Brazil, Rio de Janeiro, Rio de Janeiro, leg. Brade.



Figs 192-198. — *Jussara rosea* (Mello-Leitão 1940) n. comb. Male (MNRJ 5774): Fig. 192, penis, (A) lateral border of shaft of alate portion showing pores distributed in pairs in detail, (B) lateral border of shaft showing slit-shaped depression in detail, dorsal view. Male (MNRJ 5907): Fig. 193, penis, laterodorsal view; Fig. 194, anterior portion of penis, laterodorsal view; Fig. 197, stylus, laterodorsal view. Male (MNRJ 5929): Fig. 195, penis, lateral view showing slit-shaped openings in detail; Fig. 196, glans of penis, stylus and superior and inferior setae, lateral view; Fig. 198, anterior portion of glans showing simple pores, superior and anterior setae, lateral view. Scale bars: 0.1 mm for Figs 192-195; 0.01 mm for Figs 196-198.

Emended diagnosis. Body and trochanters of legs II yellowish orange or pale yellow (for specimens in alcohol). Eye mound and legs including trochanters I, III-IV black, chelicerae and pedipalps yellowish-orange or pale yellow (for species in alcohol) (Figs 177-181). Posterior half of winglets rounded (Figs 187, 192).

Redescription. Male lectotype.

Measurements. Body 4.4 mm, carapace 1.2 mm, dorsal scute 2.8 mm, chelicera 1.7 mm, pedipalps 5.8 mm, penis 1.9 mm. *Colour.* Ventral surface and coxae yellowish orange or pale yellow (Figs 177-179). *Dorsal surface.* Surface of the body densely granular. Supracheliceral laminae distally armed with blunt granules (Fig. 182). Eye mound armed with two rows of sharp-pointed granules. *Ventral surface.* Lateral borders of the genital operculum armed with blunt granules with one to three points (Fig. 187), *arculi genitales* III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 183). *Pedipalp.* As in *J. albiarcuata* except for: trochanter armed with sharp-pointed granules irregularly disposed, ventral apophysis absent. Tarsus slightly bent ventrally in lateral view (Fig. 184). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft twice as wide as glans (Figs 186, 192-193). Lateral borders covered with slit-shaped depressions (Figs 192B, 195), reaching winglet area in dorsal view. Alate portion covered with pores distributed in pairs in dorsal view (Fig. 192A). Winglets rounded, very expanded laterally and not very prolonged longitudinally, right and left units of winglet fused only at their anterior portion in ventral view, dorsal and ventral laminae of winglets separated from one another at their anterior portion (Figs 187, 194). Glans slightly depressed in lateral view (Fig. 196), densely covered with simple pores, two pairs of apical setae, both inserted in the same direction (Fig. 198). Stylus straight (Figs 196-197).

Redescription. Female paralectotype.

Measurements. Body 4.8 mm, carapace 1.2 mm, dorsal scute 3.1 mm, chelicera 1.6 mm, pedipalps 5.6 mm, ovipositor 2.0 mm. *Colour.* As in the male (Figs 180-181). *Dorsal and ventral surfaces.* As in the female of *J. albiarcuata* (Figs 180-181). *Chelicera, pedipalp and legs.* As in the male. *Ovipositor.* Body in 11 to 12 segments (Fig. 189). Second segment of the furca with a distal lyrifissure (Figs 188, 190-191).

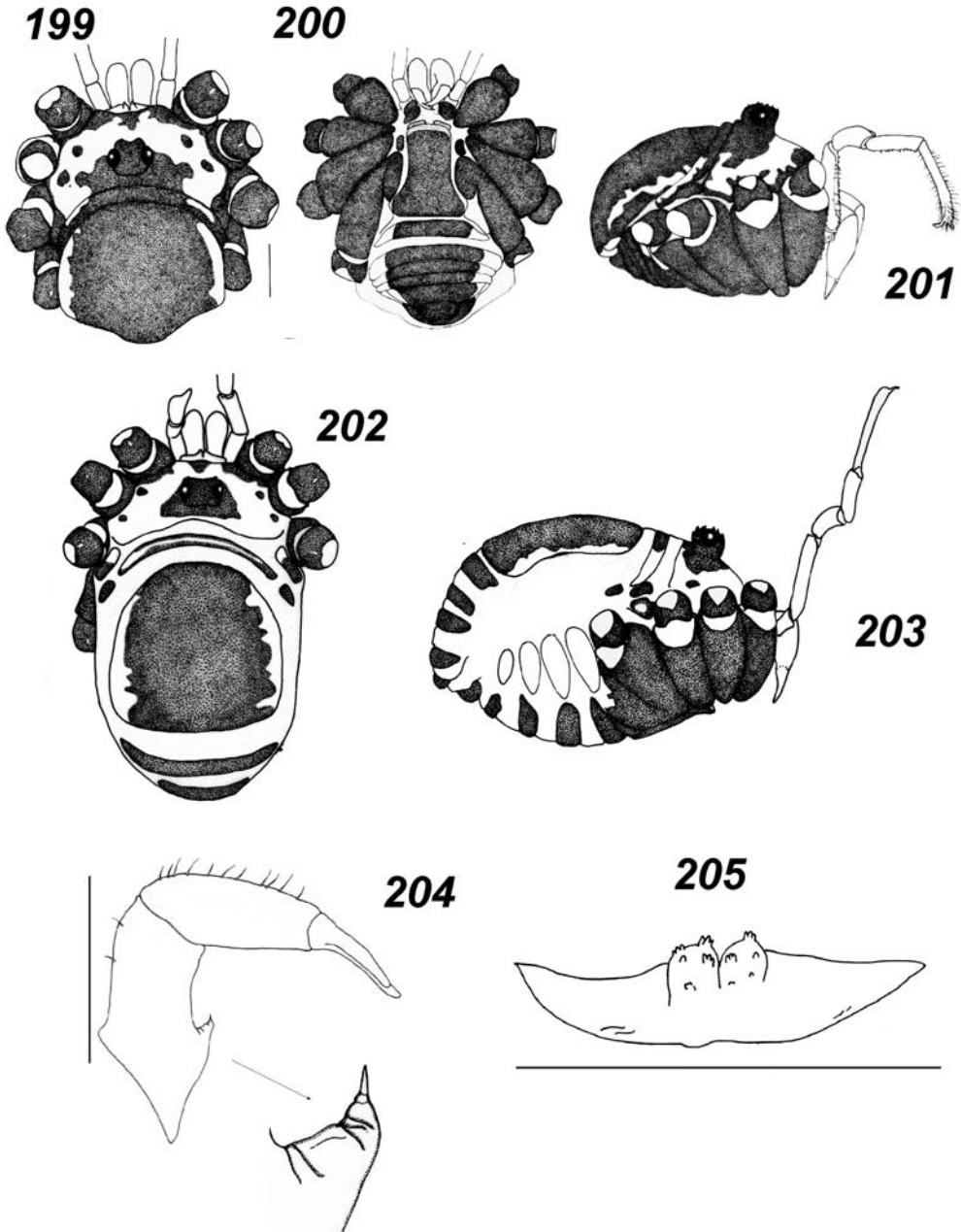
Remarks. *J. rosea* can be separated from *J. aurantiaca* and *J. avati* by the following: winglets rounded, right and left winglets fused only at their anterior portion in ventral view, dorsal and ventral laminae fused only in their anterior portion in lateral view, both pairs of apical setae inserted in the same direction.

***Jussara taeniata* n. sp. (Figs 199-220)**

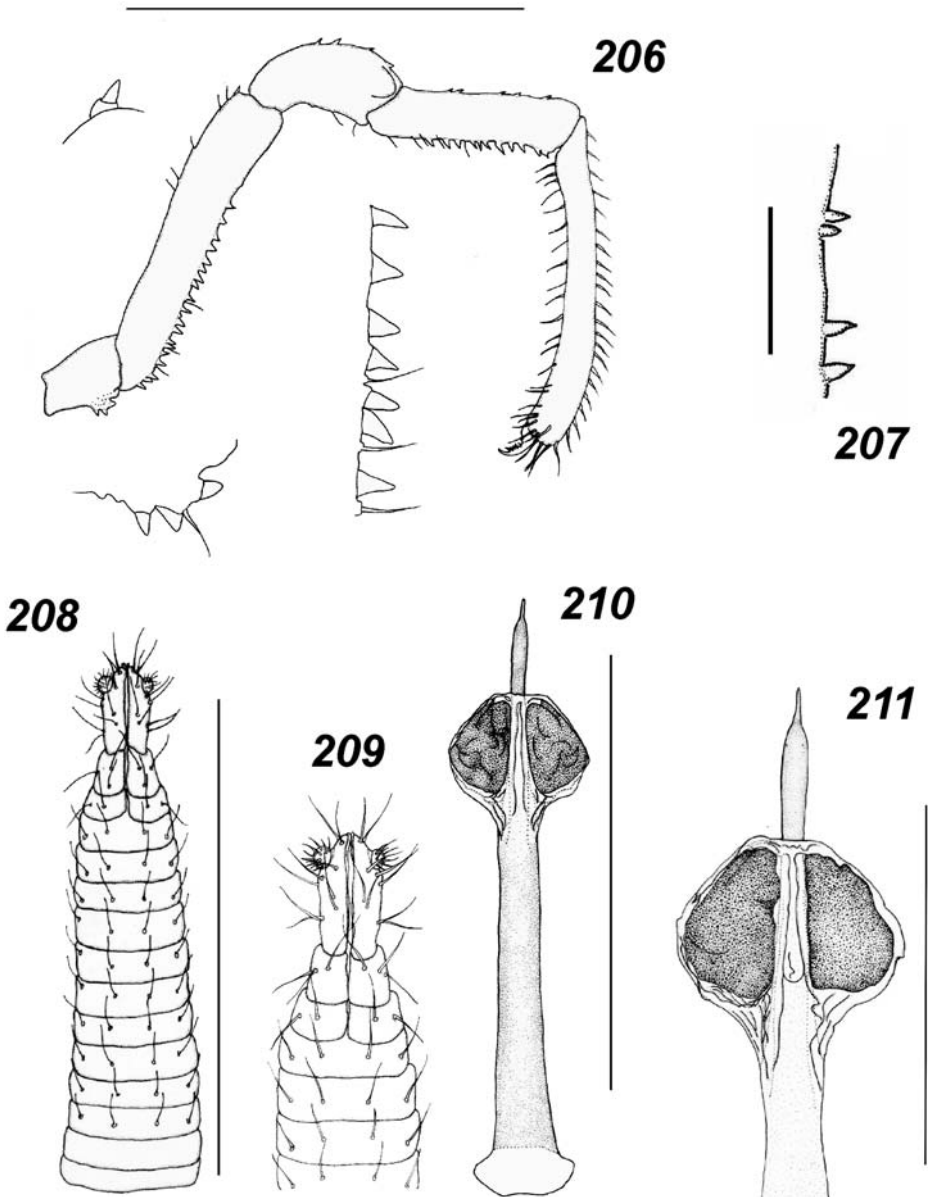
Etymology. From Latin *taeniata* (= having stripes) in reference to the longitudinal white stripes on the dorsal scute.

Type locality. Brazil, Rio de Janeiro State, Teresópolis (22°24'44"S, 42°57'56"W).

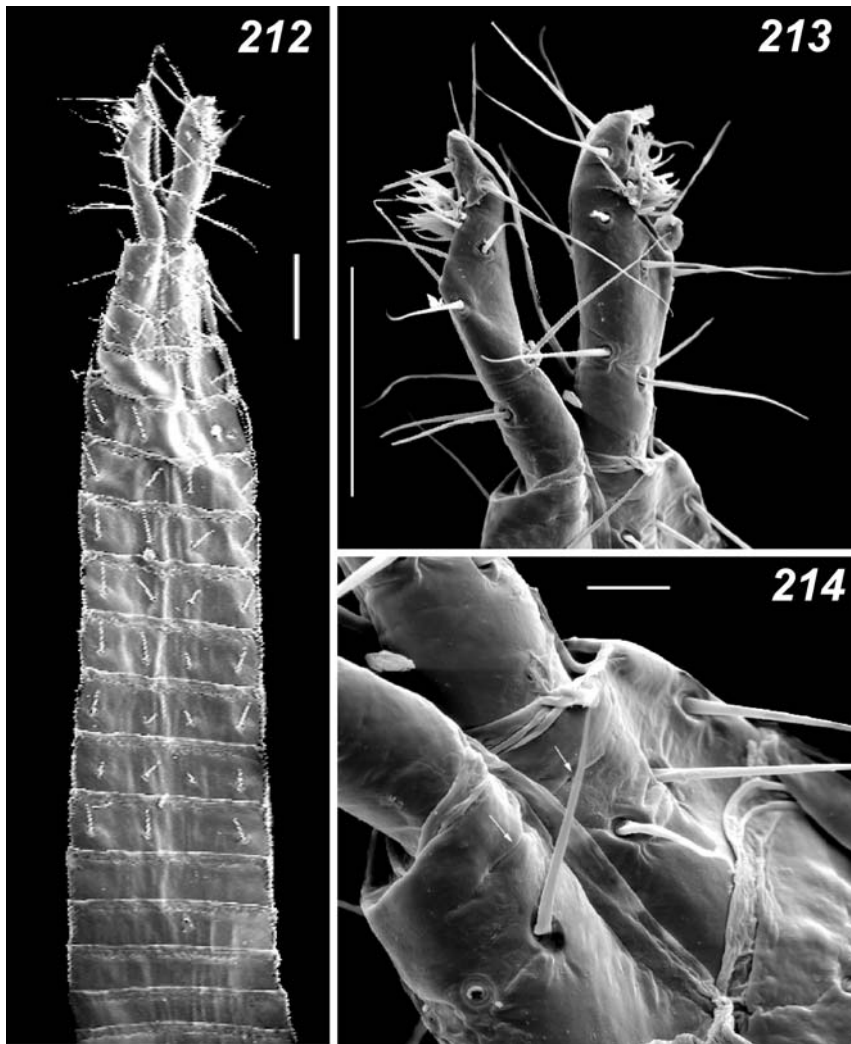
Distribution. Brazil, Rio de Janeiro (Nova Friburgo, Rio de Janeiro, Teresópolis) (Fig. 233).



Figs 199-205. — *Jussara taeniata* n. sp. Male holotype (MNRJ 4363): Fig. 199, dorsal view; Fig. 200, ventral view; Fig. 201, lateral view; Fig. 204, right chelicera showing ventrobasal spine in detail, lateral view; Fig. 205, supracheliceral laminae, dorsal view. Female paratype (MNRJ 6591): Fig. 202, dorsal view; Fig. 203, lateral view. Scale bars: 1.0 mm for Figs 199-204; 0.5 mm for Fig. 205.

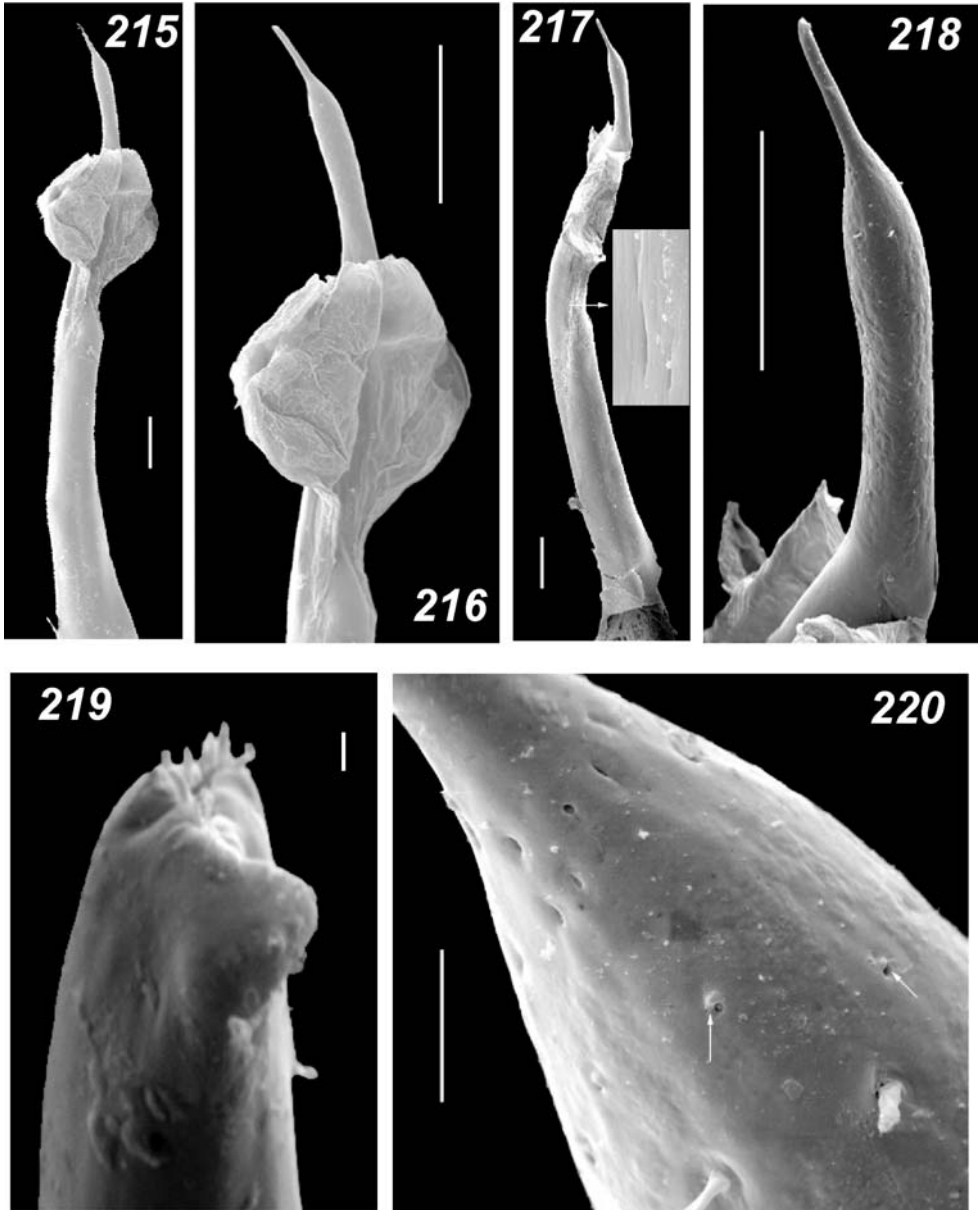


Figs 206-211. — *Jussara taeniata* n. sp. Male paratype (MNRJ 5926): Fig. 206, right pedipalp showing armature in detail, lateral view; Fig. 207, armature of lateral border of genital operculum, ventral view; Fig. 210, penis, ventral view; Fig. 211, anterior portion of penis, ventral view. Female paratype (MNRJ 6591): Fig. 208, ovipositor, dorsal view; Fig. 209, anterior portion of ovipositor, dorsal view. Scale bars: 1.0 mm for Figs 206, 208, 210; 0.5 mm for Fig. 211; 0.25 mm for Fig. 209; 0.1 mm for Fig. 207.



Figs 212-214. — *Jussara taeniata* n. sp. Female paratype (MNRJ 5352): Fig. 212, ovipositor, dorsal view; Fig. 213, segment I of furca, dorsal view; Fig. 214, Segment II of furca ovipositor; one pair of lyrifissures indicated by arrows, dorsal view. Scale bars: 0.1 mm for Figs 212-213; 0.01 mm for Fig. 214.

Type material. ♂ holotype (MNRJ 4363) Brazil, Rio de Janeiro, Teresópolis, leg. A.B. Kury; 5 ♀ paratypes (MNRJ 6571) Brazil, Rio de Janeiro, Teresópolis, Fazenda Vale da Revolta, leg. A.B. Kury & Expedição Entomológica. UFRJ; 1 ♂ paratype (MNRJ 5381) Brazil, Rio de Janeiro, Teresópolis, Subaio, Ex-Hotel Sayonara, leg. R.L.C. Baptista & I. Landim; 1 ♂ 1 ♀ paratypes (MNRJ 5384) Brazil, Rio de Janeiro, Rio de Janeiro, Floresta da Tijuca trilha do Alto da Bandeira, leg. A.P.L. Giupponi; 1 ♀ paratype (MNRJ 5352), 11.II.1990 leg. A.B. Kury; 2 ♀ paratypes (MNRJ 4362), Brazil, Rio de Janeiro, Nova Friburgo; 2 ♀ paratypes (MNRJ 6591) Brazil, Rio de Janeiro, Nova Friburgo, Rio Grande de Cima, Faz. São João, 11.II.1990



Figs 215-220. — *Jussara taeniata* n. sp. Male paratype (MNRJ 5966): Fig. 215, penis, laterodorsal view; Fig. 216, penis, anterior portion of penis, lateroanterior view. Male paratype (MNRJ 6591): Fig. 217, penis showing slit-shaped depressions in detail, lateral view; Fig. 218, glans, stylus and laterosuperior and inferior setae, lateral view; Fig. 219, anterior portion of stylus of glans, lateral view; Fig. 220, anterior portion of glans showing hooded pores indicated by arrows, lateral view. Scale bars: 0.1 mm for Figs 215-218; 0.01 mm for Fig. 220; 1 μ m for Fig. 219.

leg. A.B. Kury & L. Kury; 1 ♀ paratype (MNRJ 4376) leg. R.L.C. Baptista & A. Baptista; 5 ♂ paratypes (MNRJ 6454) Brazil, Rio de Janeiro, Teresópolis, Pedra do Sino, 20.III.1989 leg. A.B. Kury & L. Kury; 2 ♂ 3 ♀ paratypes (MNRJ 5996) Brazil, Rio de Janeiro, Teresópolis, Fazenda Vale da Revolta, leg. Sérgio Potsch; 1 ♂ paratype (MNRJ 6756) same place.

Diagnosis. Body predominantly black, coxae and trochanters of legs black, carapace with a wide white stripe rounding its outline, with two rounded black spots on lateral borders, lateral borders of the second opisthosomatic tergite with transverse white stripe, lateral borders of the dorsal scute with a narrow longitudinal white stripe, chelicerae and pedipalps cream (Figs 199, 201-203). Penis very similar to *J. albiarcuata* (Figs 215, 217).

Description. Male holotype.

Measurements. Body 3.7 mm, carapace 1.1 mm, dorsal scute 2.0 mm, chelicera 1.8 mm, pedipalps 1.8 mm. *Colour.* Second prosomatic tergite, FLS T5 black, free opisthosomatic tergites, maxillary lobes of coxae I and II, *arculus genitalis*, *arculi genitales* and genital operculum black, free opisthosomatic sternites black with lateral borders white, FLS S8 and free lateral sternites white, chelicerae and pedipalps cream (Figs 199-202, 205). Areas described as "white" with no reference to hue are shiny white. *Dorsal surface.* Surface of the body densely reticulate, white areas granular. Supracheliceral laminae distally armed with blunt granules with one to three points (Fig. 205). Eye mound armed with two rows of sharp-pointed low spines. *Ventral surface.* As the dorsal surface. Lateral borders of the genital operculum armed with sharp-pointed spines (Fig. 207), *arculi genitales* II and III unarmed. *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 205). *Pedipalp.* As in *J. albiarcuata* except for: tarsus slightly bent in lateral view (Fig. 206). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft twice as wide as glans (Figs 210, 215, 217). Lateral borders covered with slit-shaped depressions (Fig. 217), reaching winglet area in dorsal view. Winglets rounded-trapezoidal, very expanded laterally and not very prolonged longitudinally, anterior margin almost straight at their anterior portion, lateral borders slightly truncated, right and left units of winglets fused one to another only at their anterior median portion in ventral view, dorsal and ventral laminae of the winglets separated from each other their median and anterior portion in lateral view (Figs 211, 216). Surface of the glans slightly irregular (Fig. 218) and densely covered with simple pores and hooded pores (Fig. 220), two pairs of lateral setae, inserted in the same direction (Fig. 218). Stylus straight (Fig. 218), lateral borders of the apex with a blunt lobule (Fig. 220).

Description. Female paratype.

Measurements. Body 3.8 mm, carapace 1.0 mm, dorsal scute 2.0 mm, chelicera 1.6 mm, pedipalps 1.8 mm, ovipositor 1.7 mm. *Colour.* As in the male except for: anterior portion of FLS T5 white and second prosomatic tergite with narrow median stripe (Figs 202-203). *Dorsal and ventral surfaces.* As in the female of *J. albiarcuata* (Figs 202-203). *Chelicera, pedipalp and legs.* As in the male. *Ovipositor.* Body with 11 to 12 segments (Figs 208, 212). Second segment of the furca with a distal lyrifissure (Figs 209, 213-214).

Jussara una n. sp. (Figs 221-232)

Holcobunus ater ROEWER 1910 (part.): 165; ROEWER 1923: 1071; MELLO-LEITÃO 1932: 24; MELLO-LEITÃO 1938: 333; ROEWER 1953: 245.

Etymology. From Tupi *una* (= black), literal translation of the original name given by Roewer to that species together with *H. ater*.

Type locality. Brazil, Rio de Janeiro State, Petrópolis (22°30'18", 43°10'43"W).

Distribution. Known only from the type locality (Fig. 233).

Type material. 1 ♂ holotype and 3 ♀ paratypes (ZMH) [= ex syntypes of *H. ater*] Brazil, Rio de Janeiro, Petrópolis, examined;

Other material examined. 3 ♂ (MNRJ 5891) Brazil, Rio de Janeiro, Petrópolis, leg. Zeno Rohr; 1 ♂ (MNRJ 5890) Brazil, Rio de Janeiro, Petrópolis, leg. Zeno Rohr.

Diagnosis. Body uniformly black, only *arculi genitales* III and FLS S8 cream, pedipalp and chelicera cream (Figs 221-223). Posterior portion of penis shaft slightly swollen (Figs 228, 230).

Description. Male holotype.

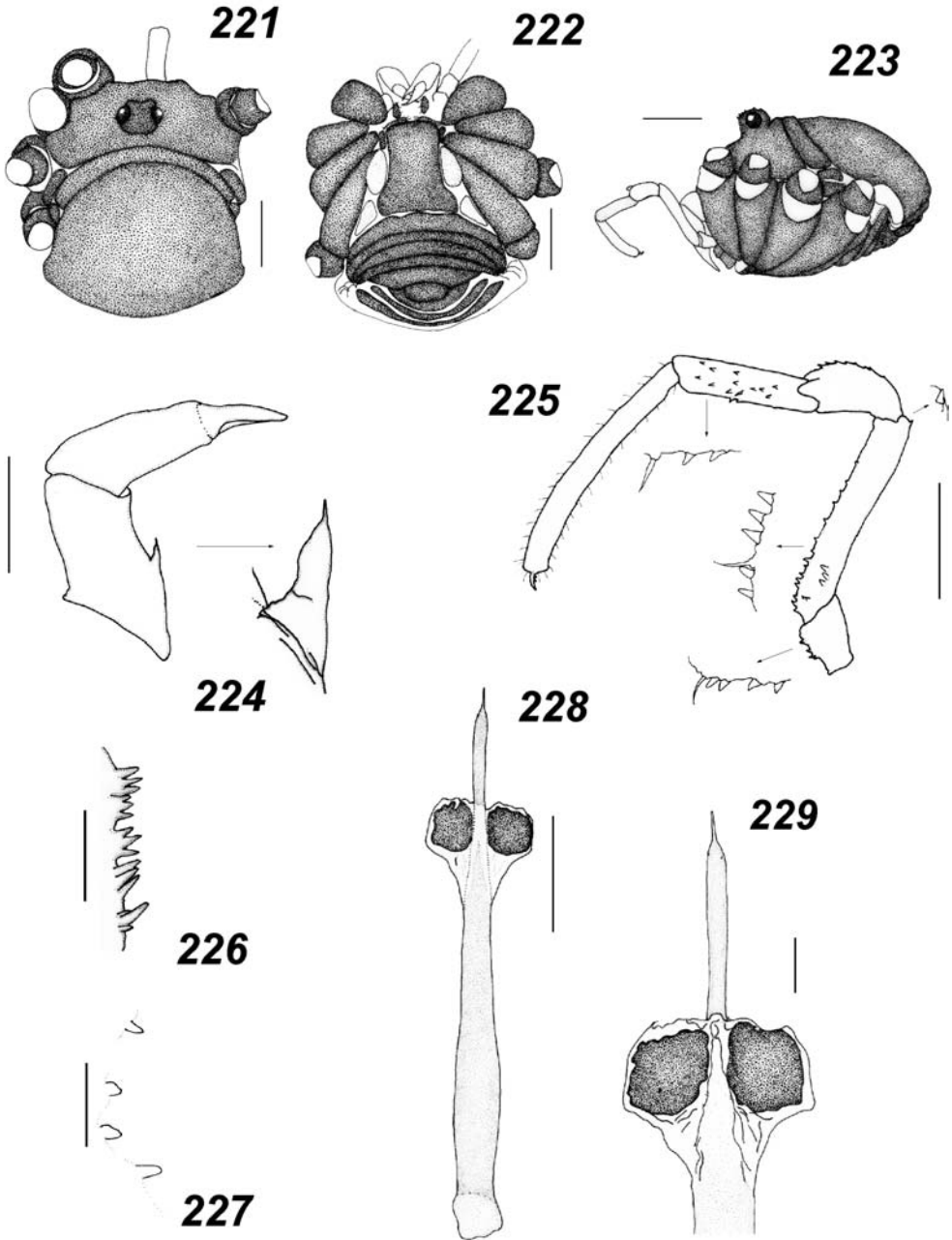
Measurements. Body 4.3 mm, carapace 1.0 mm, dorsal scute 2.4 mm, chelicera 1.5 mm, pedipalps 4.7 mm, penis 1.7 mm. *Colour.* As in the diagnosis. *Dorsal surface.* Surface of the body densely reticulate. Supracheliceral laminae armed distally with three-pointed sharp granules. Eye mound armed with two rows of sharp-pointed granules. *Ventral surface.* Lateral borders of the genital operculum armed with blunt granules (Fig. 228), lateral borders of the *arculi genitales* III armed (Fig. 226). *Chelicera.* Ventrobasal spine of basichelicerite sharp-pointed (Fig. 224). *Pedipalp.* As in *J. albiarcuata* (Fig. 225). *Legs.* Femoral formula 1/3/1/1. *Penis.* Shaft twice as wide as glans (Figs 228, 230). Winglets rounded-trapezoidal, anterior margin and lateral borders straight, very expanded laterally and not very prolonged longitudinally, right and left units of winglets in ventral view totally fused, dorsal and ventral laminae of winglets separated at their anterior portion in lateral view (Figs 229, 231). Surface of glans covered with simple pores, two pairs of apical setae, the left pair inserted more anteriorly than the right pair (Figs 229, 232). Stylus straight (Fig. 232).

DISCUSSION

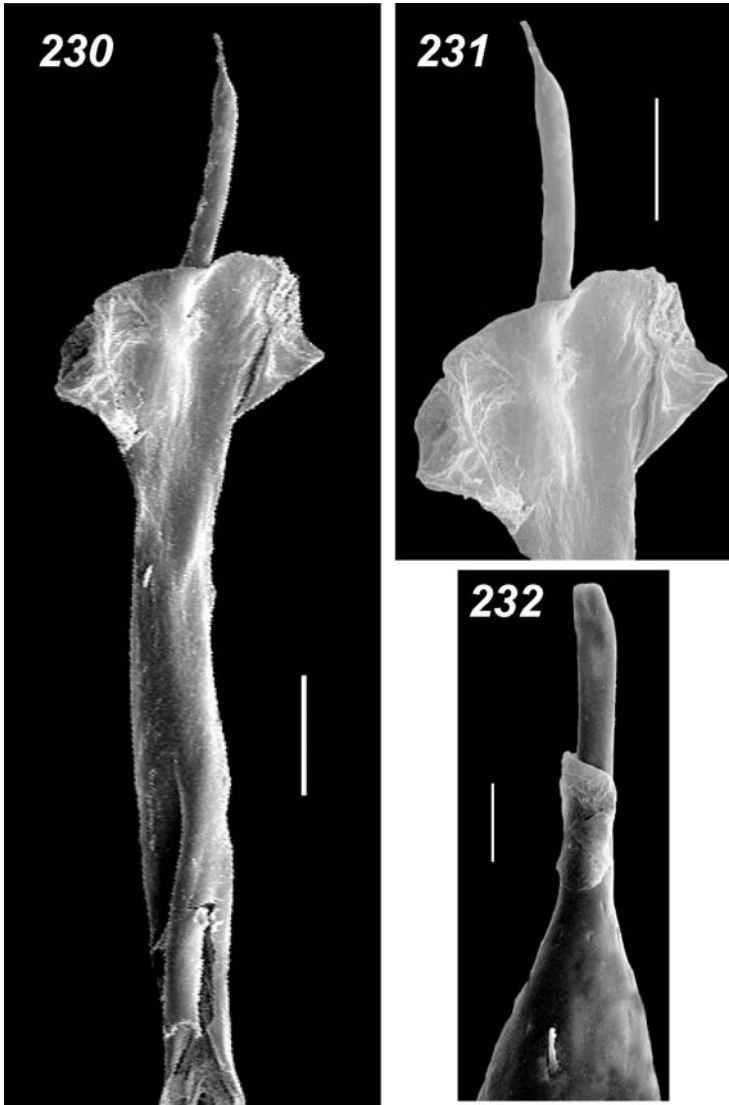
Diagnostic characters in Gagrellinae

For identification of the genera of Gagrellinae, it is recommended that the following characters be used: the shape of the pedipalpal femur in combination with the characters of the penis, the position of the pseudoarticular nodules, the colour pattern, and the outline of the dorsal scute (TOURINHO & KURY 2001, TOURINHO-DAVIS & KURY this paper).

The markings and colour pattern of the body of the Gagrellinae are very diverse, and typically do not overlap among species of the same genus. Although



Figs 221-229. — *Jussara una* n. sp. Male (MNRJ 5890): Fig. 221, dorsal view; Fig. 222, ventral view, Fig. 223, lateral view; Fig. 224, left chelicera showing ventrobasal spine in detail, lateral view; Fig. 225, right pedipalp showing armature in detail, lateral view. Fig. 226, armature of lateral border of *arculi genitales* III, ventral view; Fig. 227, armature of lateral border of genital operculum, ventral view; Fig. 228, penis, ventral view; Fig. 229, anterior portion of penis, ventral view. Scale bars: 1.0 mm for Figs 221-223; 0.5 mm for Figs 224-225, 228; 0.1 mm for Figs 226-227, 229.



Figs 230-232. — *Jussara una* n. sp. Male (MNRJ 5890): Fig. 230, penis, ventral view; Fig. 231, anterior portion of penis, ventral view; Fig. 232, anterior portion of glans, stylus and left superior setae, ventral view. Scale bar: 0.1 mm for Figs 230, 231; 0.01 mm for Fig. 232.

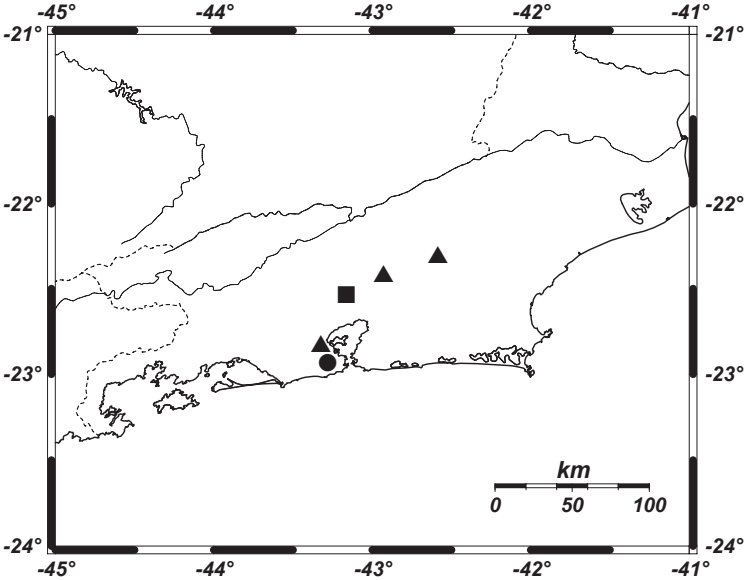


Fig. 233. — Rio de Janeiro state, showing the distribution of three species of *Jussara*. *Jussara atra* (circle); *Jussara taeniata* n. sp. (triangle); *Jussara una* n. sp. (square). Dotted lines = Brazilian State boundaries; thin lines = rivers.

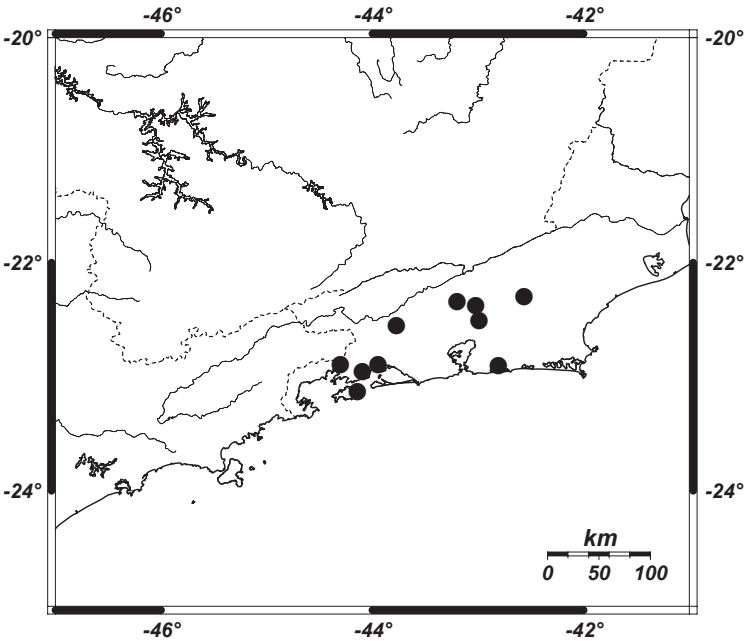


Fig. 234. — Southeastern Brazil, showing the distribution of *Jussara luteovariata* (circle). This map includes Rio de Janeiro state and part of Espírito Santo, Minas Gerais and São Paulo States (from the North, counterclockwise). Dotted lines = Brazilian State boundaries; thin lines = rivers.

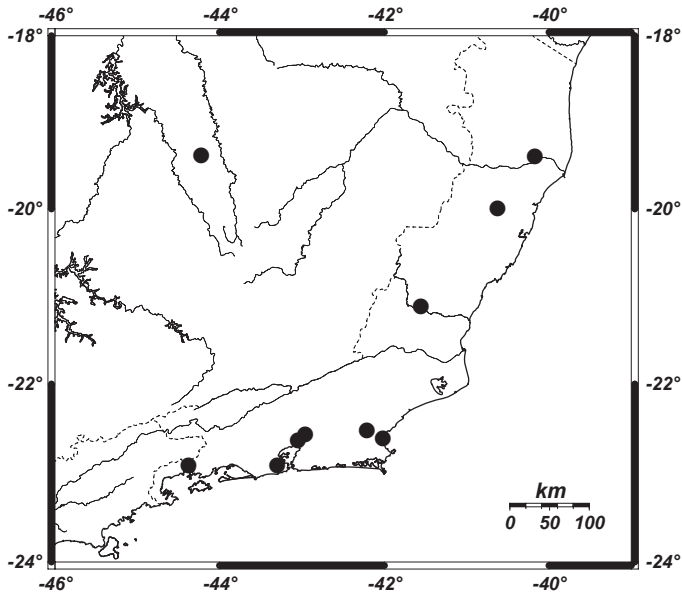


Fig. 235. — Southeastern Brazil, showing the distribution of *Jussara rosea* (circle). This map includes Rio de Janeiro State and part of Espírito Santo, Minas Gerais and São Paulo States (from the North, counterclockwise). Dotted lines = Brazilian State boundaries; thin lines = rivers.

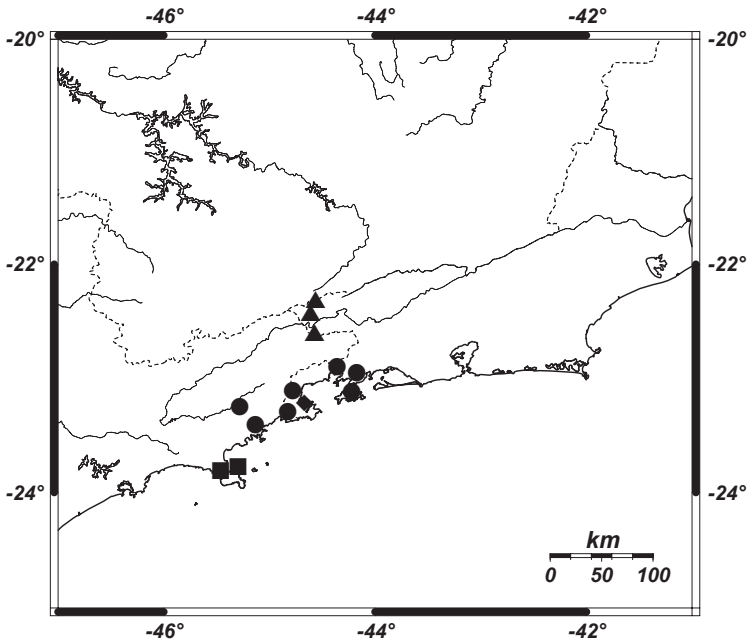


Fig. 236. — Southeastern Brazil, showing the distribution of four species of *Jussara*. This map includes Rio de Janeiro State and part of Espírito Santo, Minas Gerais and São Paulo State (from the North, counterclockwise). *Jussara albiarcuata* n. sp. (triangle); *Jussara aurantiaca* n. sp. (square); *Jussara flamengo* n. sp. (diamond); *Jussara obesa* (circle). Dotted lines = Brazilian State boundaries; thin lines = rivers.

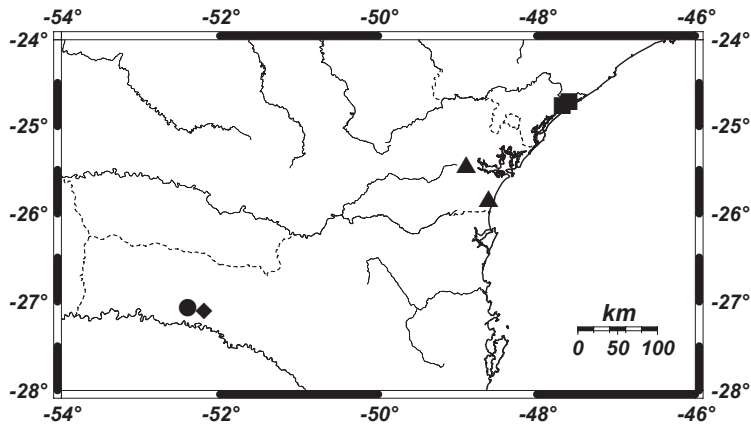


Fig. 237. — Southern Brazil, showing the distribution of four species of *Jussara*. This map includes part of São Paulo, Paraná and Santa Catarina States (from the North). *Jussara avati* n. sp. (triangle); *Jussara lineata* (diamond); *Jussara quadrimaculata* (circle); *Jussara marmorata* (square). Dotted lines = Brazilian State boundaries; thin lines = rivers.

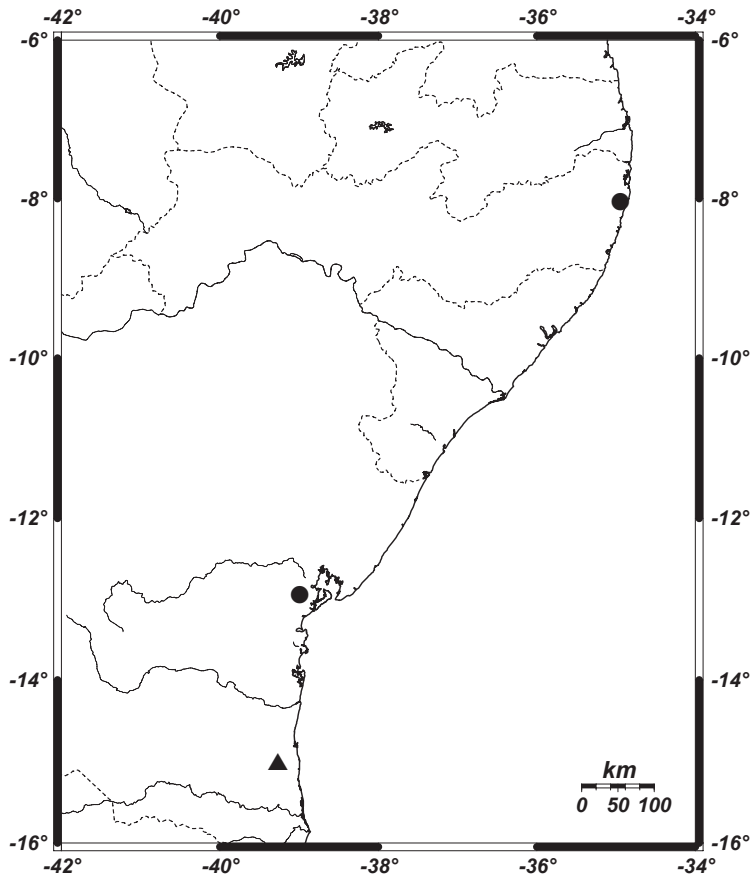


Fig. 238. — Northeastern Brazil, showing the distribution of two species of *Jussara*. States containing the species treated are (from North) Pernambuco and Bahia. *Jussara argentata* (circles); *Jussara aureopunctata* (triangle). Dotted lines = Brazilian State boundaries; thin lines = rivers.

ROEWER (1923, 1953) and MELLO-LEITÃO (1933, 1938) made use of colour to diagnose species, their descriptions are defective in this respect and mostly lack illustrations. MARTENS (1987) also used colour patterns in the diagnosis of Himalayan gaggrellines, and they are carefully illustrated in his paper. It is recommended that descriptions of colour pattern be as detailed as possible, with illustrations of the dorsal and ventral pattern, the colour of the pedipalps, and if possible, the differences between males and females, which tend to be dimorphic. Some species share the same colour combination, including the presence of stripes and spots; however, they are typically distributed in different areas, with distinct positions, number and size. This can be observed in *Jussara argentata* versus *Jussara luteovariata*, and in some Brazilian species of Gaggrellinae traditionally placed in *Prionostemma*, *Geaya* and *Garleppa* (TOURINHO 2000).

The species of *Jussara* can be divided into two large groups based on the colour pattern of the body, one group including the black, brown and blackish-brown species and another one including the yellow, orange and red species (including species mixing one of these colours with others such as black, white, etc.).

The three yellow/orange species, *J. aurantiaca*, *J. avati* and *J. rosea*, have very similar colour patterns: the trochanters of legs II are yellow/orange like the body while the eye mound + trochanter of all the other legs are black. *J. aurantiaca*, *J. avati* and *J. rosea* in alcohol present a very similar yellow colour. However, when recently collected, *J. aurantiaca* has a reddish-orange colour while *J. rosea* is yellowish-orange. In older samples, both species have a yellow body colour like the species of *J. avati*. Despite the similarity among the three species, *J. aurantiaca* has the trochanter of legs II black in ventral view; in dorsal view, it has the lateral borders black while they are completely yellow in the other two species. The morphological differences among the characters of the penis winglets and glans also supports the separation into three species.

Among the species of *Jussara* with predominantly black background, *J. argentata* and *J. luteovariata*, are worth mentioning because of the great similarity between the markings on the dorsal scute. The colour pattern which clearly separates those two species from the others is the presence of a dorsal shiny white stripe extending in an arch across the second prosomatic tergite, a pair of smaller stripes on the lateral posterior borders of the carapace and an x-shape on the eye mound. In ventral view, *J. argentata* has *arculi genitales* II-III black and sternites XIII+XIV white with a black spot in the middle, while in *J. luteovariata* the *arculi genitales* II-III are white and sternites XIII+XIV are black with a white spot in the middle. Besides those colour differences in the *arculi genitales* and sternites, *J. argentata* can also be distinguished from *J. luteovariata* by having lateral borders of the penis winglets with an outline that is gently arched (instead of truncate) and a little narrower than in *J. luteovariata*.

The unity of Jussara

The genus *Jussara*, created by MELLO-LEITÃO in 1935, was hitherto represented by a single species described from a single female. The male of this species is reported for the first time in this study and its genitalia are compared with those of species placed in other genera, providing evidence for the assignment to *Jussara* of some species included in the genera *Holcobunus* (*H. argentatus*, *H. ater*, *H. lineatus*,

H. luteovariatus, *H. quadrimaculatus*, and *H. roseus*) and *Prionostemma* (*P. aureopunctata*). One species previously included in *Garleppa* — *G. marmorata* — has also been transferred to *Jussara*. The male genital morphology is unknown, since this species is known only from the female holotype. The external characters on which this transfer was based are: dorsal scute rounded, trochanter of leg II lighter than the others and femoral formula: 1/4/1/1, which falls within the range now recognised for the genus.

Examination of the type series of *Holcobunus ater* revealed that ROEWER (1910, 1923) mixed three different species in it. According to his diagnosis, the species could sometimes have white spots on the dorsal scute and was distributed in Rio de Janeiro (lowland) and Petrópolis (submontane forest). In this study, it has been established that the type series of *Holcobunus ater* contained two different species of black coloured *Jussara*, one without white spots on the scute, endemic to the mountains of the Serra dos Órgãos (Petrópolis), and the other with white spots on the eye mound (also in the second prosomatic tergite) distributed in the forest in the metropolitan region of Rio de Janeiro. This second species keeps Roewer's name, emended to *Jussara atra* to agree with the feminine gender of *Jussara*, while the species from Petrópolis is here described under the name of *Jussara una*. These two species can be distinguished by the following characters: *Jussara atra* has overall body shape more ovoid, dorsal scute flat (convex in *J. una*), ventrobasal spine of chelicera blunt (sharp in *J. una*), winglets of penis fused along their anterior median portion in ventral view, and separated from each other anteriorly in lateral view (totally fused in ventral view, separated from each other anteriorly and medially in lateral view in *J. una*) and stylus gently arched ventrally in lateral view (with apex bent in *J. una*).

Morphological patterns of the penis in Jussara and Holcobunus

The following genital characters are synapomorphies for the genus *Jussara* and support the transfer of the six species from *Holcobunus* to this genus: (i) basal half of penis winglets elongate (winglets wider than long); (ii) winglets with two degrees of fusion (total or anterior half) and with outline rounded or truncate; (iii) shaft sinuous, not forming angle with glans; (iv) glans narrower than shaft and (v) stylus short (20% of the length of glans).

The penis of *Holcobunus* species can be distinguished from that of *Jussara* by the following synapomorphies: (i) winglets uniformly narrow (longer than wide) along all their extension, (ii) borders of winglets undulate, (iii) shaft strongly sinuous dorsoventrally, slightly bent but not forming a well marked angle at glans, (iv) glans globoid, and (v) stylus long (40% of the length of glans).

Another two characters separating *Jussara* (presence of hooded pores) for *Holcobunus* (winglets forming a collar) are not listed above. Only two species of the genus *Jussara* share the presence of hooded pores on the glans surface — *J. albiarcuata* and *J. taeniata*. In these two species, the penis is also extremely similar in shape and size, as are their body size and colour pattern. As described in TOURINHO & KURY (2001) the anterior part of the winglets forming a collar in ventral view, as in *Holcobunus nigripalpis*, is unknown for *H. bicornutus*, a species known only by its juvenile holotype. Therefore, these two characters do not represent putative synapomorphies for their respective genera.

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