

Research article

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***Kryptochroma*: a new genus of bark-dwelling crab spiders (Araneae, Thomisidae)**Miguel MACHADO ^{1,*}, Rafaela VIECELLI², Catherine GUZATI³,
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Abstract. A recent phylogenetic analysis has shown that the genus *Stephanopsis* comprises several different lineages of bark-dweller crab spiders. The ones with South American distribution that present a close relationship with other Neotropical genera like *Epicadus*, *Onocolus*, *Rejanellus* and *Epicadinus* were recovered in a single clade, with good support and stability. Here, we present a taxonomic review of *Stephanopsis* species attributed to the ‘*pentacantha* clade’, proposing the new genus *Kryptochroma* Machado gen. nov. to accommodate them. New distribution records are provided and the following species are described for the first time: *Kryptochroma gigas* Machado & Viecegli gen. et sp. nov., *Kryptochroma hilaris* Machado & Teixeira gen. et sp. nov., *Kryptochroma quadrata* Machado & Viecegli sp. nov. and *Kryptochroma septata* Machado & Teixeira sp. nov. The species *Stephanopsis borgmeyer* is considered a nomen dubium, *Stephanopsis aheneus* is a junior synonym of *Epicadus tuberculatus*, *Stephanopsis quimiliensis* is transferred to *Ulocymus* and *Stephanopsis stelloides* is transferred to *Epicadus*, being *Epicadus stelloides* the senior synonym of *Stephanopsis salobrensis*, *Stephanopsis trilobata* and *Epicadus caudatus*.

Keywords. Stephanopinae, taxonomy, new species, new records, *Stephanopsis*.

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Introduction

The morphological aspects and taxonomic boundaries of Neotropical stephanopines have been extensively studied during the past years (Machado *et al.* 2015, 2018, 2019a; Silva-Moreira & Machado 2016). Meanwhile, phylogenies based on morphological and molecular data were congruent in recovering some close related genera, corroborating classic propositions for the possible existence of tribes or even certain “groups” in this subfamily (Benjamin 2011; Benjamin *et al.* 2008; Wheeler *et al.* 2017; Machado *et al.* 2017, 2019b; Machado & Teixeira 2021).

In the taxonomic review of *Epicadus* Simon, 1895, Silva-Moreira & Machado (2016) highlighted that the morphological resemblances between this genus with *Epicadinus* Simon, 1895, *Onocolus* Simon, 1895 and *Rejanellus* Lise, 2005 could be a strong indication for a common ancestry of what the authors called the “*Epicadus* group”, despite the absence of a phylogenetic approach to test such hypothesis. One year later, Machado *et al.* (2017) stated that at least two features of the male genitalia of species of the genera mentioned above could be synapomorphies for the “*Epicadus* group”; however, the placement of *Rejanellus* remained uncertain. Recently, the more inclusive approach on Australian stephanopines allowed Machado & Teixeira (2021) to widely score genital features of several representatives of this subfamily, helping not only to elucidate the relationships in *Stephanopsis* O. Pickard-Cambridge, 1869 but also compile more evidences that help to justify the proposition of the “*Epicadus* group”, originally suggested by Silva-Moreira & Machado (2016) based on taxonomic insights.

Machado & Teixeira (2021) recovered a stable and well-supported clade of *Stephanopsis* species that, not only emerged apart from the “*Stephanopsis stricto sensu*”, but also gathered individuals presenting two synapomorphic characters that were for the first time observed in Thomisidae (presence of ventral macrosetae on patellae I and II, and male genitalia having a pear-shaped tegulum). The authors named this group of five species the “*pentacantha* clade”, which was recovered as sister to *Rejanellus*. Besides the striking morphological resemblance to *Epicadus*, *Epicadinus*, *Rejanellus* and *Onocolus*, the “*pentacantha* clade” has coincident geographical distribution with these four genera, known as the “*Epicadus* group” (Silva-Moreira & Machado 2016). Even so, Machado & Teixeira (2021) refrained from proposing major taxonomic acts such as new generic assignments to these species. According to the authors, the conservative morphology of species belonging to the “*pentacantha* clade” made it difficult to resolve the internal topology of the group, since they can only be distinguished from each other by details on their genitalia, as the curvature, size and shape of the RTA and embolus, or presence/absence of a median septum on the epigynal plate.

The Neotropical species of *Stephanopsis* that compose the above mentioned clade were mostly described by Mello-Leitão (1929) in his extensive work on Brazilian crab spiders. However, the illustrations and descriptions provided by this author lacks clear diagnostic characters that would allow the recognition of the taxonomic entities. Considering the compiled evidence and the need of a proper morphological study on the group, hereinafter we formally propose *Kryptochroma* Machado gen. nov. All species hitherto attributed to the “*pentacantha* clade” (sensu Machado & Teixeira 2021) are transferred from *Stephanopsis* to this new genus, which is diagnosed here through detailed representations of both somatic and genital features. New distribution records are provided and four new species are described.

Material and methods

Repositories

The specimens examined are deposited in the following institutions (curators in parentheses):

- | | | |
|------|---|--|
| FMNH | = | The Field Museum, Chicago, United States (Petra Sierwald) |
| IBSP | = | Instituto Butantan, São Paulo, Brazil (Antonio D. Brescovit) |

INPA	=	Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (Luiz. R. França)
MACN-Ar	=	Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, Argentina (Martín J. Ramírez)
MCN	=	Museu de Ciências Naturais da Fundação Zoo-Botânica do Rio Grande do Sul, Brazil (Ricardo Ott)
MCTP	=	Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil (Renato A. Teixeira)
MCZ	=	Museum of Comparative Zoology of Harvard, Cambridge, United States (Gonzalo Giribet and Laura Liebensperger)
MLP	=	Museo de La Plata, La Plata, Argentina (Cristina Damborenea and Luis A. Pereira)
MNHN	=	Museum national d’histoire naturelle, Paris, France (Christine Rollard)
MNRJ	=	Museu Nacional do Rio de Janeiro, Brazil (Adriano B. Kury)
MPEG	=	Museu Paraense Emílio Goeldi, Belém, Brazil (Alexandre B. Bonaldo)
MZPW	=	Museum of the Zoological Institute of the Polish Academy of Sciences, Warsaw, Poland (Jerzy Prószyński)
MZSP	=	Museu de Zoologia da Universidade de São Paulo, Brazil (Ricardo Pinto-da-Rocha)
NHMUK	=	Natural History Museum, London, United Kingdom (Janet Beccaloni)
OUMNH	=	Oxford University Museum of Natural History, Oxford, United Kingdom (Zoë M. Simmons)
SMNK	=	Staatliches Museum für Naturkunde Karlsruhe, Germany (Hubert Höfer)
UFMG	=	Universidade Federal de Minas Gerais, Belo Horizonte, Brazil (Adalberto J. Santos).
ZMHB	=	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (Jason Dunlop)

Laboratory procedures and abbreviations

All measurements provided were taken in millimeters and the terminology used to name both somatic and copulatory structures follows Machado *et al.* (2018). The dissection procedure applied to study the female genitalia consisted in detaching the epigynal plate from the spider body and immersing it in proteolytic enzyme (pancreatine solution). In order to accelerate the process of digestion of the soft tissues, the solution was placed in a double boiler for a few minutes. Males had their left palps removed and represented in ventral and retrolateral views. Most photographs of the habitus, front and both male and female genitalia were taken on a Multipurpose Zoom Microscope Leica M205A with a digital camera. Scanning electron microscopy images were taken at the Centro de Microscopia e Microanálises (CEMM) of the Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), where the examined material was prepared, receiving a coat of AuPd and placed in a high vacuum chamber to be properly analyzed and photographed with a microscope model Inspect F50 (FEI).

Anatomical abbreviations

A	=	atrium
ALE	=	anterior lateral eye
AME	=	anterior median eye
CD	=	copulatory duct
CO	=	copulatory opening
EF	=	epigynal fold
FD	=	fertilization duct
MS	=	median spire
PLE	=	posterior lateral eye
PME	=	posterior median eye
RTA	=	retrolateral tibial apophysis
S	=	spermatheca

Results

Taxonomy

Class Arachnida Lamarck, 1801
 Order Araneae Clerck, 1757
 Family Thomisidae Sundevall, 1833
 Subfamily Stephanopinae O. Pickard-Cambridge, 1871

***Kryptochroma* Machado gen. nov.**

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Type species

Stephanopis pentacantha Mello-Leitão, 1929. Designated here.

Diagnosis

The species of *Kryptochroma* gen. nov. resemble some of those of *Epicadus* [e.g., *Epicadus caudatus* (Mello-Leitão, 1929) and *Epicadus tuberculatus* (Petrunkévitch, 1910)] by their cryptic bark-dwelling habitus with predominant brown or reddish-brown body coloration, and those of *Epicadinus*, especially by their small size (varying from approximately three millimeters of the total body length for males and nine to females) and spiny habitus (body covered by many setae and rugose teguments, and opisthosoma bearing stout conical projections) (Fig. 2A–D). However, they can be easily recognized and distinguished from *Epicadus*, *Epicadinus* and other genera of Stephanopinae by the presence of a pair of ventral macrosetae on their anterior patellae (I and II) (Fig. 1D), sensorial pits (three to five trichobothria surrounded by a small group of duster-shaped setae) on dorsal tibial depressions preceded by a strong plumose macroseta (Fig. 1C), and a pair of circular taints on the posterior slope of the prosoma (Figs 3A, 4A, 7A). Differently from *Epicadinus*, the species of *Kryptochroma* gen. nov. have five opisthosomal projections instead of three, and short leaf-shaped setae covering their entire body instead of long needle-shaped ones (Fig. 1A–B). Females present a flat epigynal plate, short copulatory ducts and a single pair of oval spermathecae (Fig. 10C–F); the male palp bears a pear-shaped tegulum with a short and fixed embolus, and a single tipped, stout and conical RTA (Fig. 11C–F).

Etymology

The name of the genus is a combination of the Greek words ‘*kryptos*’ (κρυπτός) and ‘*chroma*’ (χρῶμα), which respectively mean ‘hidden’ and ‘color’. The name is a reference to the general color pattern of these spiders, which is associated to their cryptic behavior. Gender feminine.

Description

PROSOMA. Granular surfaced due to the presence of spherical setae sockets (Fig. 1A–B); slightly longer than wide, pear-shaped and usually covered with organic particles. ALE almost two times as large as AME, prosoma coloration shows a gradient of brown and dark-yellow shades (predominantly reddish brown in *Kryptochroma hilaris* Machado & Teixeira gen. et sp. nov.), lighter on the posterior slope, where there is a pair of rounded spots close to the anterior border of the opisthosoma (Figs 3A, 4A, 7A); in some cases the individual has a yellow longitudinal line between the MS and PME (Figs 3A, 5A, 7A, 9A). Anterior eye row strongly recurved, AME close to each other, and posterior eye row procurved (Fig. 11A–B). Clypeus with a central pair of serrated macrosetae (Fig. 1A). Sternum scutiform, slightly longer than wide in females and as long as wide in males, with brush-shaped setae. Carapace with a conical median-posterior projection pointing backwards (except for *K. hilaris* gen. et sp. nov. and *K. parahybana* (Mello-Leitão, 1929) gen. et comb. nov., which have just an obtuse and slight elevation on the top of the thoracic area); opisthosoma short with five stout projections (two lateral pairs and one single and larger terminal

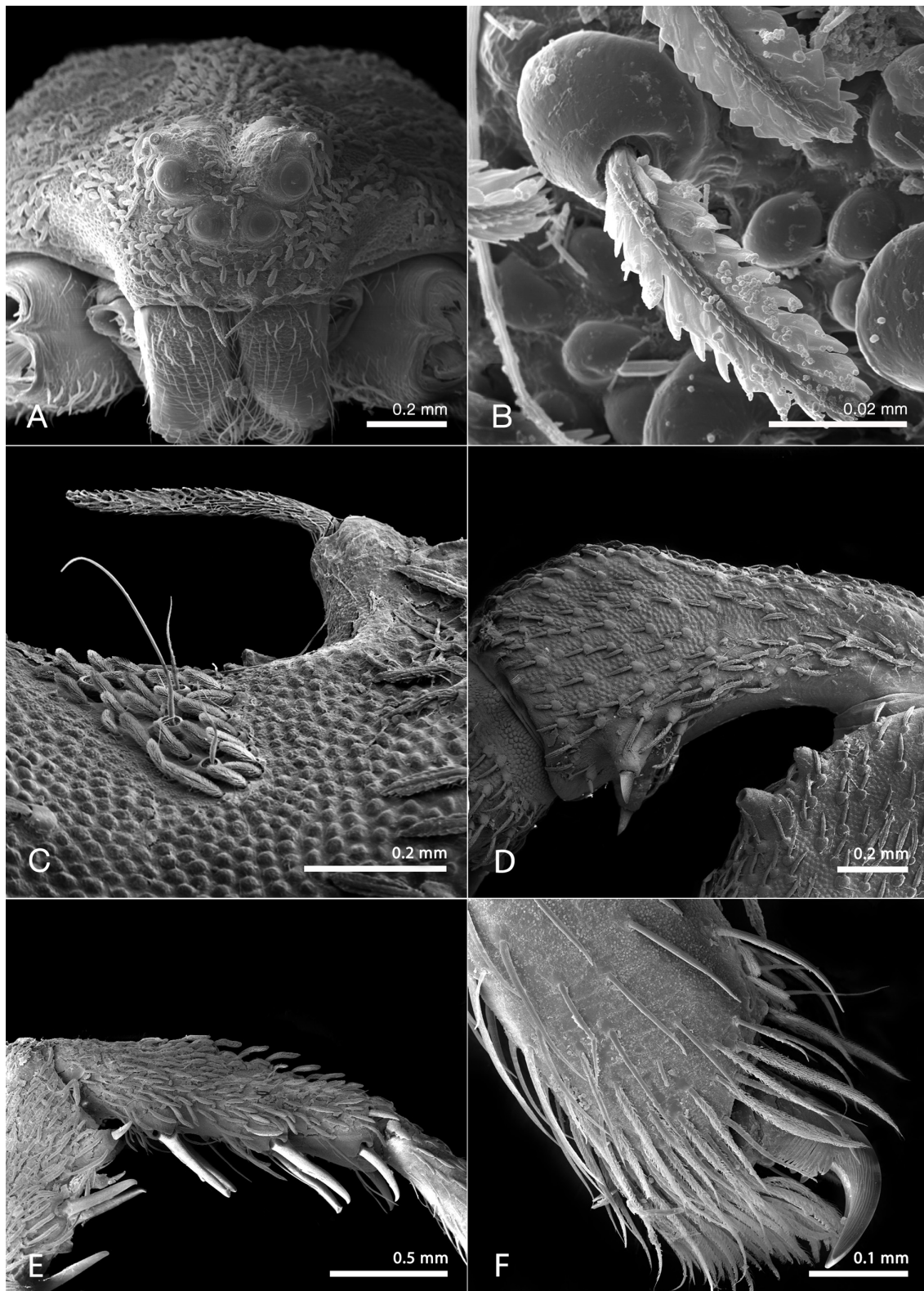


Fig. 1. Scanning electron microscopy of a male of *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 7362). **A.** Prosoma, frontal view. **B.** Detail of a leaf-shaped setae and its spherical socket. **C.** Sensorial pit preceded by a plumose macrosetae on tibia I. **D.** Pair of ventral macrosetae on patella I. **E.** Metatarsal macrosetae. **F.** Tarsal claw and detail of setae tuft.

projection), anal region and spinneret ring area projected backwards. Mouthparts: chelicerae with five equal-sized teeth; three on the promarginal row and two on the retromarginal. Labium truncated, slightly wider than long. Endites truncated, longer than wide, with scarce promarginal scopula.

LEGS. Anterior femora enlarged and bearing many conical setiferous tubercles, legs I and II stouter and longer than legs III and IV, femora I and II with dorsal and dorsolateral stout macrosetae in conical sockets. Tibia I and II with five pairs of ventral macrosetae, metatarsi I and II with three ventral and one dorso-distal pair (Fig. 1E). Tarsal claws curved, pectinated, unequal in number of teeth (mesial claw with numerous thin teeth and ectal having three stout ones); subungueal tufts scarce, with brush-shaped setae (Fig. 3B).

OPISTHOSOMA. Five short conical projections (two dorsolateral consecutive pairs, and a single caudal one), straight or slightly concave anterior border and rough surfaced, covered by leaf-shaped setae (Fig. 1B). Anal region and spinneret ring projected backwards, elongated.

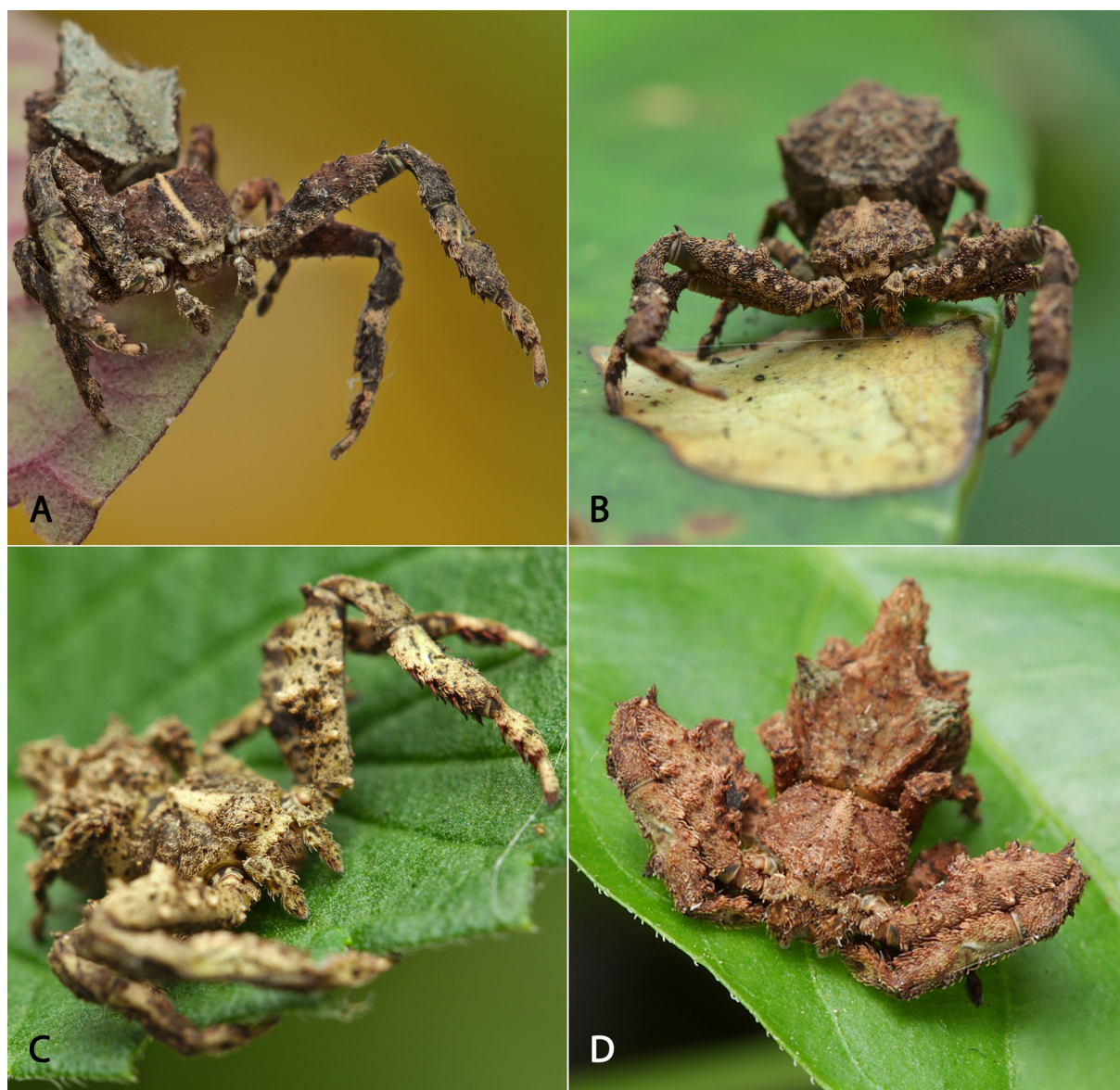


Fig. 2. A–D. Color variations of live specimens of *Kryptochroma* Machado gen. nov. Photo credits: Thiago Carvalho.

GENITALIA. Palpus with cymbium and tegulum pear-shaped, without apophyses; RTA single tipped, stout and presenting grooves at the apex (Figs 8D, 11D, 13D). The internal morphology of female genitalia is very conservative, presenting a single pair of reniform spermathecae without any accessory glands or coiled ducts (Figs 3D, 4D, 7D, 10D, 12D, 16D); in ventral view the copulatory openings are excavated in relation to the rest of the surface of the genital area, separated by a septum and located close to the edges of the posterior margin of the epigynal plate (Figs 10C, 12C, 16C).

Composition

Nine species distributed within the Neotropical Region: *Kryptochroma gigas* Machado & Viecegli gen. et sp. nov., *Kryptochroma hiliaris* Machado & Teixeira gen. et sp. nov., *Kryptochroma macrostyla* (Mello-Leitão, 1929) gen. et comb. nov., *Kryptochroma parahybana* (Mello-Leitão, 1929) gen. et comb. nov., *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov., *Kryptochroma quadrata* Machado & Viecegli gen. et sp. nov., *Kryptochroma quinetuberculata* (Taczanowski, 1872) gen. et comb. nov., *Kryptochroma renipalpis* (Mello-Leitão, 1929) comb. nov. and *Kryptochroma septata* Machado & Teixeira gen. et sp. nov.

Distribution

Brazil (Amazonas, Bahia, Espírito Santo, Minas Gerais, Pará, Paraíba, Paraná, Pernambuco, Roraima, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, and São Paulo) and French Guiana (Cayenne, Maripasoula, Saint-Élie and Saül) (Figs 9, 18).

Variations

Each one of the color variations documented here (from greyish-green to dark-yellow or predominantly reddish-brown), as well as the stained (e.g., opisthosoma of *K. septata* sp. nov. – Fig. 16A) and striped patterns (e.g., prosoma of the specimen in the Fig. 2A) were observed in all species. Therefore, since all species of *Kryptochroma* gen. nov. can present any combination of tegument hue, is it virtually impossible to identify them solely based on their color.

***Kryptochroma gigas* Machado & Viecegli gen. et sp. nov.**
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Figs 3, 9, 21A

Diagnosis

The female of *Kryptochroma gigas* gen. et sp. nov. resembles those of *K. quadrata* sp. nov. and *K. pentacantha* by its large body size, which is significantly larger than in the other species here described. *Kryptochroma gigas* gen. et sp. nov. can be distinguished by the elevated and short opisthosoma and by the heart-shaped epigynal plate with a short and stout projection over a wide median septum, which divides the median field in two longitudinal gutters reaching the copulatory openings (Figs 3C–F, 21A).

Etymology

The epithet is a Latin feminine noun that means giant, referring to the bigger size of this species compared to other species of the genus.

Material examined

Holotype

BRAZIL • ♀; Minas Gerais, Simonésia, Estação Biológica da Mata do Sossego; 20°04'25" S, 42°04'13" W; 28–30 Nov. 2010; M.T.T. Santos leg.; UFMG 4734.

Additional material

None.

Description

Female (holotype, UFMG 4734)

PROSOMA. Anterior eye row very recurved and posterior slightly procurved; prosoma dark yellow with large lateral black taints, median region and posterior slope yellow, contoured by black lines (Fig. 3A–B). Chelicerae dark yellow with black stains, endites and labium black, sternum black with a median yellow taint.

LEGS. Femora I and II dorsally enlarged and with many setiferous tubercles, femora III and IV bicolor, half black, half yellow.

OPISTHOSOMA. Predominantly dark-yellow, black on the back of the abdominal projections and on the sides, rough surfaced and slightly concave on the anterior border (Fig. 3A–B).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.09, ALE 0.14, PME 0.12, PLE 0.12, AME–AME 0.08, AME–ALE 0.12, PME–PME 0.24, PME–PLE 0.06, MOQ length 0.43, MOQ width 0.48; leg formula: 1-2-4-3: leg I – femur 4.66/ patella 2.59/ tibiae 3.10/ metatarsus 2.17/ tarsus 1.29/ total 13.81; II – 3.83/ 2.07/ 2.84/ 1.86/ 1.29/ 11.89; III – 2.07/ 1.29/ 1.86/ 1.19/ 0.82/ 7.23; IV – 2.59/ 1.19/ 1.86/ 1.29/ 0.82/ 7.75. Total body length 9.62; prosoma 4.40 length, 4.04 width; opisthosoma

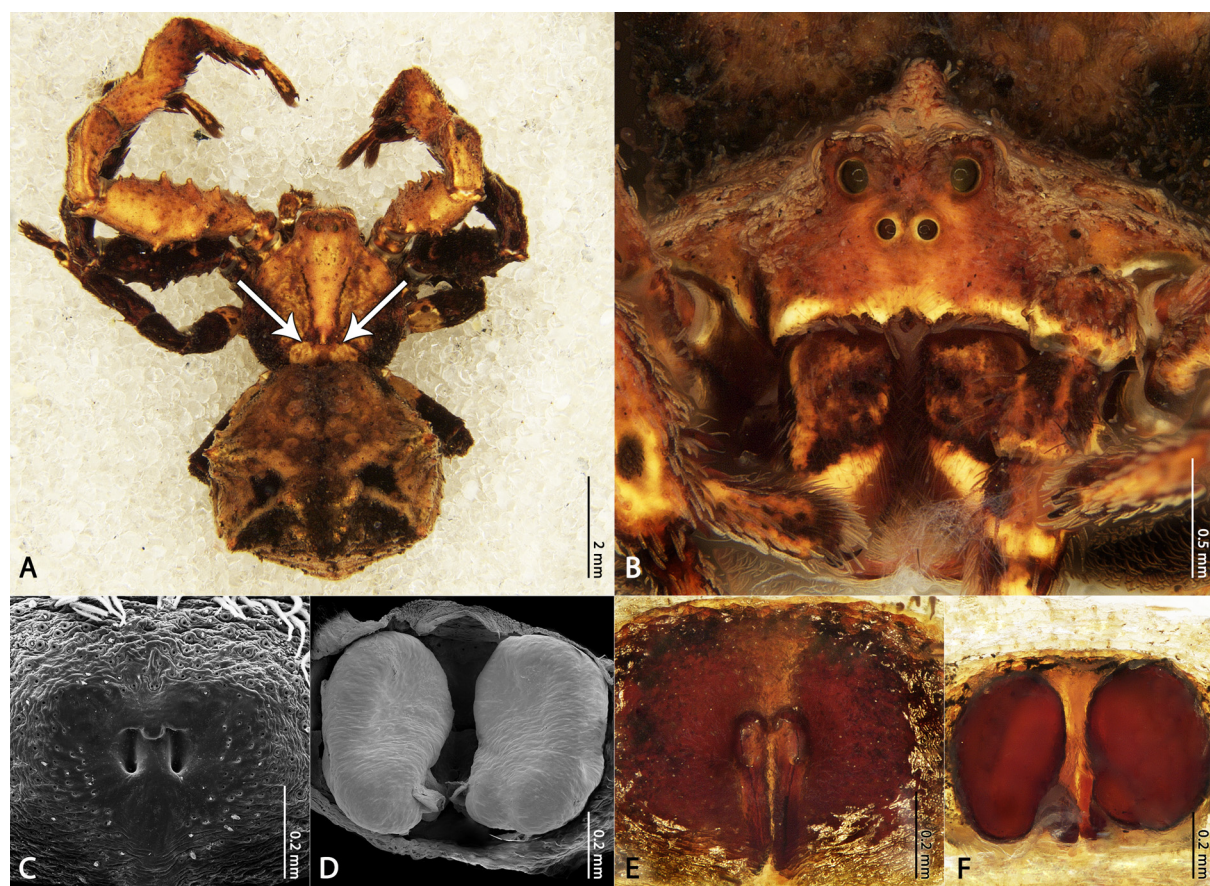


Fig. 3. Female of *Kryptochroma gigas* Machado & Vicelli gen. et sp. nov. Holotype (UFMG 4734). A. Habitus, dorsal view (arrows indicate the pair of circular taints on the posterior slope of the prosoma). B. Front. C, E. Epigynal plate, ventral view. D, F. Spermathecae, dorsal view.

length 4.62; clypeus 0.37 height; sternum 1.45 length, 1.20 width; endites 0.69 length, 0.40 width; labium 0.48 length, 0.53 width.

Male

Unknown.

Distribution

Central Brazil (Minas Gerais) (Fig. 9).

Kryptochroma hilaris Machado & Teixeira gen. et sp. nov.

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Figs 4–5, 9, 20B, 21B

Diagnosis

The male of *K. hilaris* gen. et sp. nov. has a body coloration that resemble that of *K. parahybana*. However, it can be distinguished by the stouter, shorter and round embolus, which points retro-ventrally (Figs 5C, E, 20B). The most striking differences between *K. hilaris* gen. et sp. nov. and other species of the genus are the discrete MS on prosoma, that is more like an median elevation on the thoracic area (absent in males), and the number of ventral macrosetae on tibiae I and II: while other species have four pairs on each leg for both sexes, in *K. hilaris* sp. nov. the females bear six ventral macrosetae on tibia I (Fig. 4A) while males present only five (Fig. 5A). Females can also be distinguished by the presence of two anterolateral and one median depression on the epigynal plate and by the copulatory openings located in a demilune-shaped concavity delimited by the posterior folds of the tegument (Figs 4C, E, 21B).

Etymology

The specific name – a Latin adjective that means cheerful – is a reference to the shape of the posterior fold of the epigynal plate, which resembles a smiling face (Figs 4C–F, 21B).

Material examined

Holotype

BRAZIL • ♀; Amazonas, Coari, Porto Urucu, Base de Operações Geólogo Pedro de Moura; 04°48'41" S, 65°02'01" W; Jul. 2006; S.C. Dias leg.; MPEG 13322.

Paratypes

BRAZIL • 1 ♀; same collection data as for holotype; Sep.–Nov. 2006; N.F. Lo Man Hung leg.; MCTP 42643 • 1 ♀; same collection data as for holotype; 13 Jul. 2003; D. Guimarães leg.; MCTP 42642 • 1 ♀; same collection data as for holotype; Sep. 2006; C.A.C. Santos Jr. leg.; MPEG 13311.

Additional material

BRAZIL – **Amazonas State** • 1 ♀; Tefê; 03°21'14" S, 64°42'39" W; Nov. 1919; H.S. Parrish leg.; MCZ • 1 ♂; Coari; 04°51'35" S, 65°06'17" W; Sep. 2006; C.A.C. Santos Jr. leg.; MPEG 13302 • 1 ♀; same locality as for preceding; 04°53'45" S, 65°19'11" W; Oct. 2006; J.O. Dias leg.; MPEG 13307 • 1 ♀; same locality as for preceding; 04°48'56" S, 65°01'53" W; Jul. 2006; C.A.C. Santos Jr. leg.; MPEG 13318 • 1 ♂; same locality as for preceding; 04°50'01" S, 65°03'53" W; Sep. 2006; D.F. Candiani leg.; MPEG 13354 • 1 ♀; same locality as for preceding; 04°52'47" S, 65°20'09" W; Oct. 2006; N.F. Lo-Man-Hung leg.; MPEG 13363 • 1 ♀; same locality as for preceding; 04°52'07" S, 65°15'53" W; 13 Jul. 2003; D. Guimarães leg.; MPEG 22795 • 1 ♂; same locality as for preceding; 04°51'35" S, 65°06'17" W; Sep. 2006; S.C. Dias leg.; MPEG 13306 • 1 ♂; same locality as for preceding; 04°52'36" S, 65°09'05" W; 14 Jul. 2003; J.O. Dias leg.; MPEG 22819 • 1 ♂; same locality as for preceding; 04°51'54" S, 65°20'02" W;

Oct. 2006; N.F. Lo-Man-Hung leg.; MPEG 13239 • 1 ♂; same collection data as for preceding; N.C. Bastos leg.; MPEG 13243 • 1 ♀; same collection data as for preceding; MPEG 13245 • 1 ♂; same locality as for preceding; 04°52'46" S, 65°09'50" W; Nov. 2006; N.F. Lo-Man-Hung leg.; MPEG 13247 • 1 ♂; same locality as for preceding; 04°54'16" S, 65°19'37" W; Nov. 2006; C.A.C. Santos Jr. leg.; MPEG 13251 • 1 ♀; same locality as for preceding; 04°48'47" S, 65°01'57" W; Jul. 2006; L.T. Miglio leg.; MPEG 13253 • 1 ♂; same locality as for preceding; 04°51'35" S, 65°06'17" W; Sep. 2006; N.F. Lo-Man-Hung leg.; MPEG 13263 • 1 ♂; same locality as for preceding; MPEG 13272 • 1 ♂; same locality as for preceding; 04°48'47" S, 65°01'57" W; Jul. 2006; L.T. Miglio leg.; MPEG 13279 • 1 ♂; same locality as for preceding; 04°52'25" S, 65°09'05" W; Oct. 2006; N.C. Bastos leg.; MPEG 13280 • 1 ♀; same locality as for preceding; 04°50'30" S, 65°03'51" W; Sep. 2006; C.A.C. Santos Jr. leg.; MPEG 13289 • 1 ♂; same locality as for preceding; 04°52'31" S, 65°10'27" W; Jul. 2006; L.T. Miglio leg.; MPEG 13290 • 1 ♀; same locality as for preceding; 04°53'30" S, 65°20'07" W; Nov. 2006; N.F. Lo-Man-Hung leg.; MPEG 13298 • 1 ♂; same locality as for preceding; 04°48'41" S, 65°02'01" W; Jul. 2006; J.O. Dias leg.; MPEG 13299 • 1 ♂; same locality as for preceding; 04°52'06" S, 65°15'52" W; Jul. 2006; L.T. Miglio leg.; MPEG 13304 • 1 ♀; same locality as for preceding; 04°48'56" S, 65°01'53" W; Jul. 2006; J.O. Dias leg.; MPEG 13317 • 1 ♀; same locality as for preceding; 04°51'38" S, 65°20'04" W; Oct. 2006; N.F. Lo-Man-Hung leg.; MPEG 13321 • 1 ♀; same locality as for preceding; 04°52'06" S, 65°15'52" W; Jul. 2006; C.A.C. Santos Jr. leg.; MPEG 13327) • 2 ♂♂; same locality as for preceding; 04°48'45" S, 65°01'58" W; Jul. 2006; J.O. Dias leg.; MPEG 13329 • 1 ♀; same locality as for preceding;

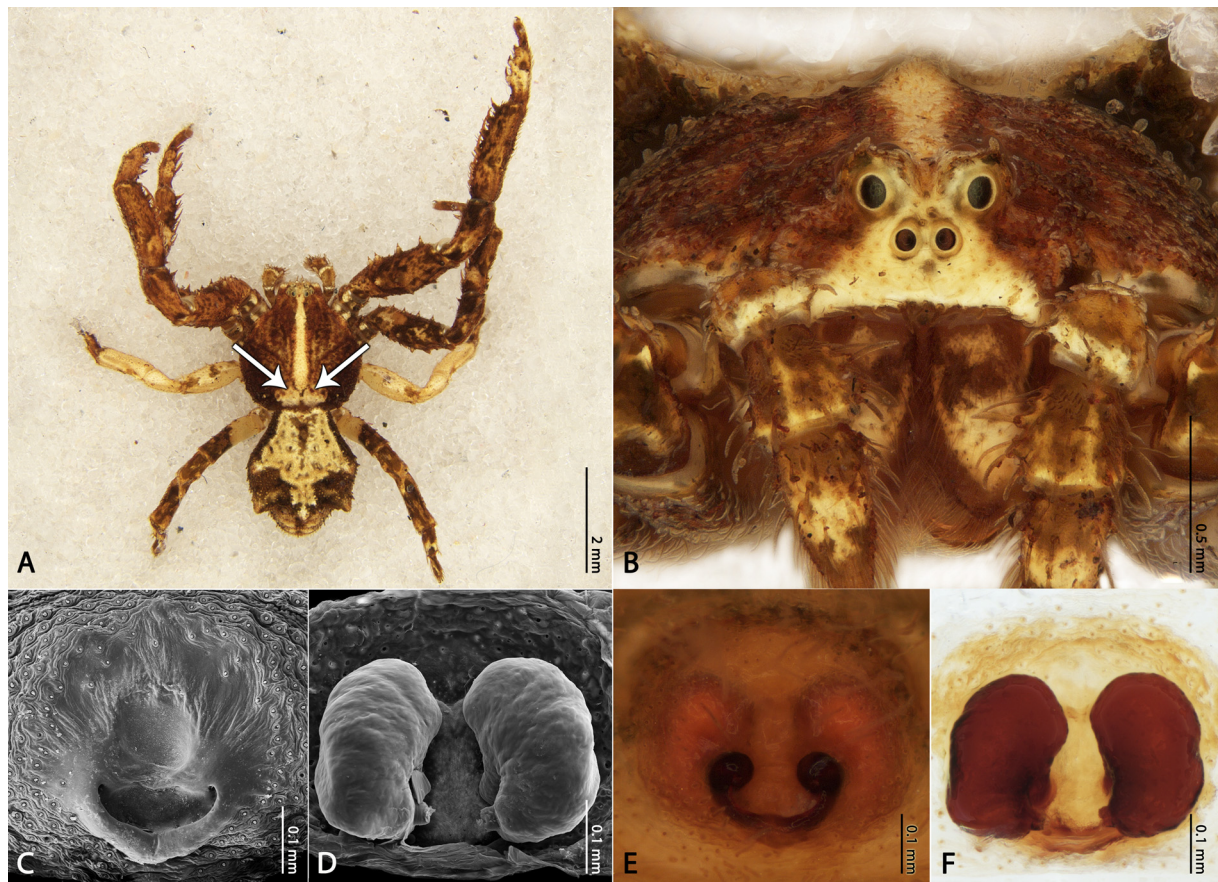


Fig. 4. Female of *Kryptochroma hilaris* Machado & Teixeira gen. et sp. nov. Holotype (MPEG 13322). **A.** Habitus, dorsal view (arrows indicate the pair of circular taints on the posterior slope of the prosoma. **B.** Front. **C, E.** Epigynal plate, ventral view. **D, F.** Spermathecae, dorsal view.

04°53'14" S, 65°13'37" W; Sep. 2006; J.O. Dias leg.; MPEG 13337 • 1 ♂, 1 juv.; same locality as for preceding; 04°51'54" S, 65°20'02" W; Oct. 2006; J.O. Dias leg.; MPEG 13342 • 1 ♂; same locality as for preceding; 04°45'47" S, 65°02'41" W; Jul. 2006; C.A.C. Santos Jr. leg.; MPEG 13345 • 1 ♂; same locality as for preceding; 04°50'32" S, 65°04'08" W; Sep. 2006; C.A.C. Santos Jr. leg.; MPEG 13348 • 1 ♂; same locality as for preceding; 04°50'30" S, 65°03'51" W; Sep. 2006; J.O. Dias leg.; MPEG 13349 • 2 ♂♂; same locality as for preceding; 04°51'54" S, 65°20'02" W; Oct. 2006; N.F. Lo-Man-Hung leg.; MPEG 13352 • 1 ♂; same locality as for preceding; 04°50'32" S, 65°04'08" W; Sep. 2006; N.F. Lo-Man-Hung leg.; MPEG 13359 • 1 ♂; same locality as for preceding; 04°45'47" S, 65°02'41" W; Jul. 2006; L.T. Miglio leg.; MPEG 13362 • 1 ♂; same locality as for preceding; 04°50'50" S, 65°05'03" W; Sep. 2006; C.A.C. Santos Jr. leg.; MPEG 13368 • 1 ♀; same locality as for preceding; 04°52'36" S, 65°09'05" W; 13 Jul. 2003; J.O. Dias leg.; MPEG 22822 • 1 ♀; same locality as for preceding; 04°51'17" S, 65°04'14" W; 17 Jul. 2003; A.B. Bonaldo leg.; MPEG 22830 • 1 ♂; same locality as for preceding; 19 Jul. 2002; A.B. Bonaldo leg.; MPEG 22835 • 2 ♀♀; same collection data as for preceding; 21 Jul 2003; J.O. Dias leg.; MPEG 22840 • 1 ♂; same locality as for preceding; A.B. Bonaldo leg.; MPEG 22846.

Description

Female (holotype, MPEG 13322)

PROSOMA. Anterior eye row strongly recurved, ALE slightly larger than AME, posterior eye row procurved with subequal eyes; prosoma knobby, light brown with a thin longitudinal yellow line which widens

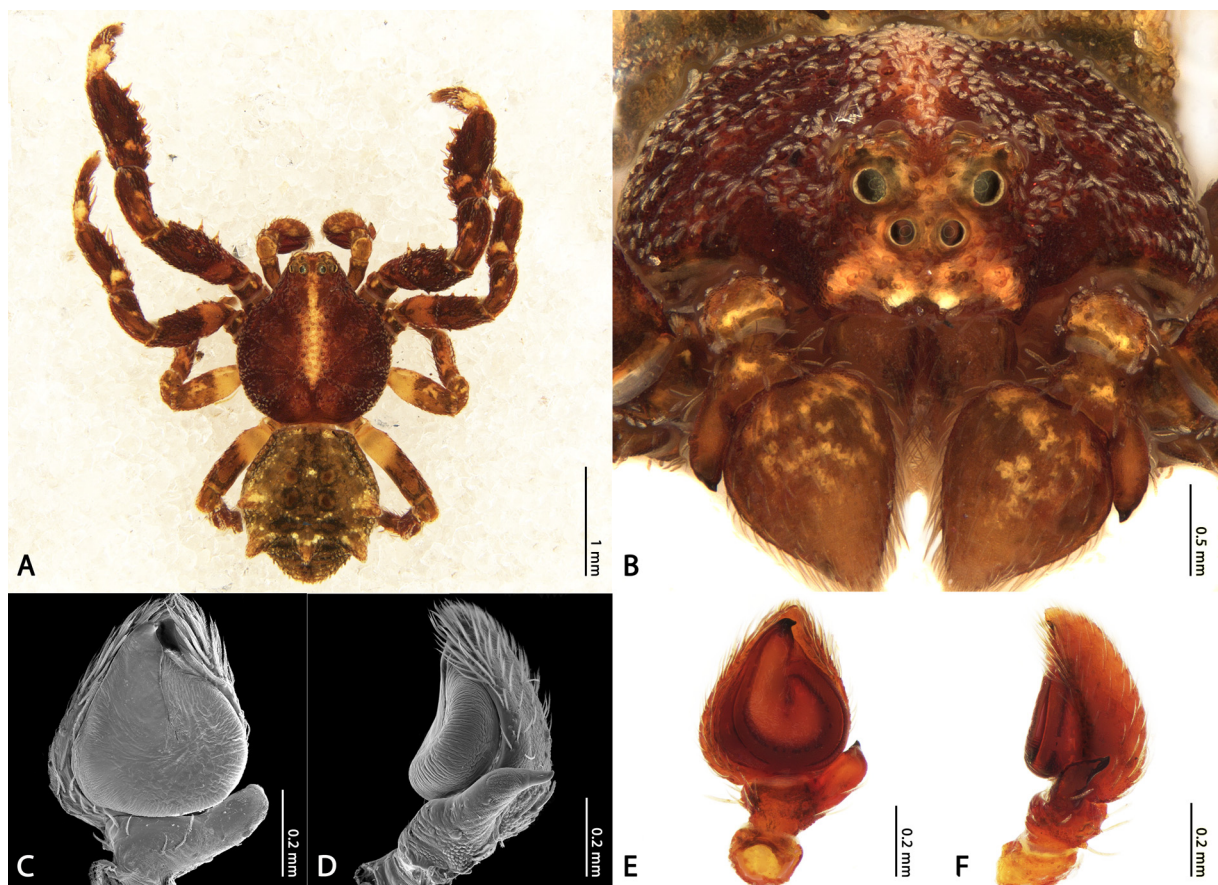


Fig. 5. Male of *Kryptochroma hilaris* Machado & Teixeira gen. et sp. nov. (MPEG 13239). A. Habitus, dorsal view. B. Front. C–F. Left male palp. C, E. Ventral view. D, F. Retrolateral view.

anteriorly on clypeus (Fig. 4A–B). Chelicerae and sternum light brown with yellow stains, endites and labium truncated and totally light brown.

OPISTHOSOMA. Rough surfaced with a large yellow taint covering the entire dorsal region, except the posterolateral abdominal projections.

LEGS. Anterior coxae and trochanters brown with dorsal yellow stains; other segments of legs I and II light brown with darker taints randomly distributed; legs III entirely yellow, except by metatarsi and tarsi and legs IV with femora half yellow, half light brown (Fig. 4A)

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.08, AME–ALE 0.08, PME–PME 0.14, PME–PLE 0.06, MOQ length 0.32, MOQ width 0.32; leg formula: 1-2-4-3: leg I – femur 2.95/ patella 1.55/ tibiae 2.33/ metatarsus 1.45/ tarsus 0.93/ total 9.21; II – 2.33/ 1.24/ 1.55/ 1.29/ 0.77/ 7.18; III – 1.55/ 0.77/ 1.24/ 0.72/ 0.51/ 4.79; IV – 2.07/ 0.77/ 1.29/ 0.88/ 0.67/ 5.68. Total body length 5.94; prosoma 2.84 length, 2.69 width; opisthosoma length 3.10; clypeus 0.16 height; sternum 1.0 length, 0.88 width; endites 0.48 length, 0.29 width; labium 0.32 length, 0.38 width.

Male (MPEG 13239)

PROSOMA. Reddish-brown with a median yellow stripe and dark posterior slope (Fig. 5A–B); MS absent and eye disposition as in females. Sternum scutiform, as long as wide, light brown with a large yellow taint; labium and endites totally light brown and truncated.

LEGS. Legs I and II predominantly light brown with proximal yellow stains on tibiae and distal on metatarsi; posterior legs light brown, except by the bicolor femora (Fig. 5A).

OPISTHOSOMA. Greyish-brown with dark-yellow projections.

MEASUREMENTS. Eye diameters and eyes interdistances: AME 0.06, ALE 0.09, PME 0.06, PLE 0.06, AME–AME 0.06, AME–ALE 0.06, PME–PME 0.11, PME–PLE 0.04, MOQ length 0.24, MOQ width 0.25; leg formula: 1-2-4-3: leg I – femur 1.32/ patella 0.67/ tibiae 1.03/ metatarsus 0.72/ tarsus 0.45/ total 4.19; II – 0.96/ 0.53/ 0.77/ 0.56/ 0.40/ 3.22; III – 0.72/ 0.40/ 0.64/ 0.33/ 0.32/ 2.41; IV – 0.88/ 0.40/ 0.69/ 0.45/ 0.37/ 2.79. Total body length 3.06; prosoma 1.61 length, 1.43 width; opisthosoma length 1.45; clypeus 0.16 height; sternum 0.72 length, 0.62 width; endites 0.32 length, 0.19 width; labium 0.16 length, 0.24 width.

Distribution

Brazil (Amazonas) (Fig. 9).

Kryptochroma macrostyla (Mello-Leitão, 1929) comb. nov.

Figs 6, 9, 20C

Stephanopsis macrostyla Mello-Leitão, 1929: 61, fig. 145.

Diagnosis

The male of *K. macrostyla* resembles that of *K. pentacantha* by its robust body and large size when compared to other males of the genus, and by the stout and conical RTA (Figs 6D, F, 20C), but can be easily distinguished by their long, free and filiform embolus (Fig. 6C, E).

Material examined

Holotype

BRAZIL • ♂; Rio de Janeiro, Teresópolis; C.F. Mello-Leitão leg.; MNHN 11467.

Additional material

BRAZIL – **Rio de Janeiro State** • 1 ♂; Nova Friburgo; 22°22'11" S, 42°27'52" W; 30 Aug. 1996; R.S. Bérnils leg.; MZSP 15320. – **São Paulo State** • 1 ♂; Estação Biológica de Boracéia; 23°37'51" S, 45°52'11" W; Jul. 2005; A.D. Brescovit leg.; IBSP 55197. – **Paraná State** • 1 ♂; Pinhais; 25°23'45" S, 48°55'58" W; 15–20 Oct. 1995; lab staff leg.; MCTP 7665.

Description

Male (MZSP 15320)

PROSOMA. Anterior eye row strongly recurved, ALE slightly larger than AME (Fig. 6B); posterior eye row in a straight line with equal sized eyes. Carapace predominantly dark-brown with a longitudinal yellow line that goes from the middle of PME to the edge of the MS (Fig. 6A); clypeus region and ocular tubercles lighter than the rest of the prosoma (Fig. 6B).

LEGS. Legs I and II reddish-brown, coxae I and II dark-brown with yellowish stains; legs III and IV dark-brown except by the femora which are yellow on its proximal region.

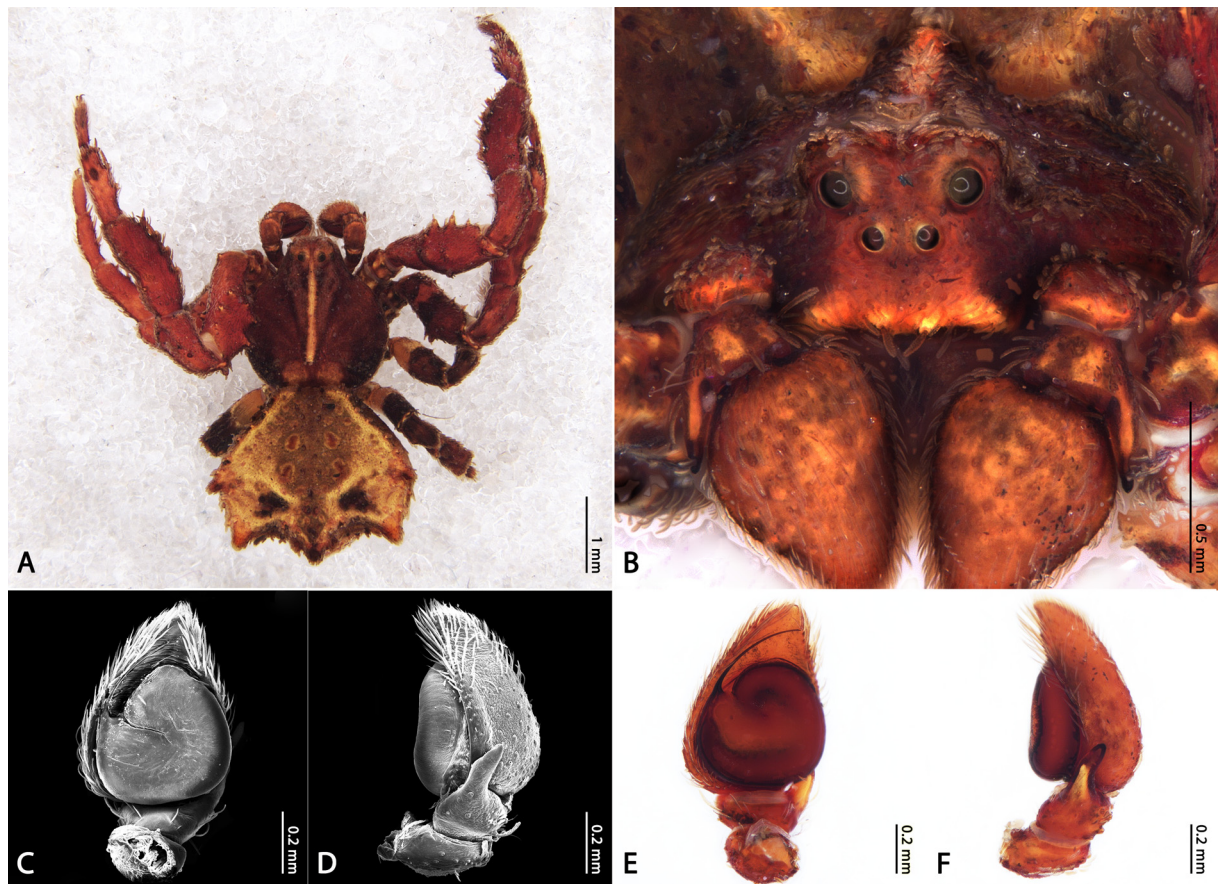


Fig. 6. Male of *Kryptochroma macrostyla* (Mello-Leitão, 1929) gen. et comb. nov. (MZSP 15320). **A.** Habitus, dorsal view. **B.** Front. **C–F.** Left male palp. **C, E.** Ventral view. **D, F.** Retrolateral view.

OPISTHOSOMA. Rough surfaced, predominantly yellow with dark-brown stains between the abdominal projections and on the sides; lateral projections orange and median dark-brown (Fig. 6A).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.11, PME 0.08, PLE 0.08, AME–AME 0.09, AME–ALE 0.11, PME–PME 0.17, PME–PLE 0.08, MOQ length 0.40, MOQ width 0.38; leg formula: 1-2-4-3: leg I – femur 2.43/ patella 1.04/ tibiae 1.61/ metatarsus 0.96/ tarsus 0.72/ total 6.76; II – 2.22/ 0.88/ 1.25/ 0.88/ 0.59/ 5.82; III – 1.12/ 0.64/ 1.01/ 0.56/ 0.48/ 3.81; IV – 1.29/ 0.61/ 0.96/ 0.64/ 0.53/ 4.03. Total body length 5.28; prosoma 2.59 length, 2.43 width; opisthosoma length 2.69; clypeus 0.27 height; sternum 0.96 length, 0.88 width; endites 0.43 length, 0.24 width; labium 0.27 length, 0.32 width.

Female

Unknown.

Distribution

Brazil (Paraná, Rio de Janeiro and São Paulo) (Fig. 9).

Kryptochroma parahybana (Mello-Leitão, 1929) gen. et comb. nov.
Figs 7–9, 20D, 21C

Stephanopsis parahybana Mello-Leitão, 1929: 58, fig. 140.

Stephanopsis salobrensis – Mello-Leitão 1929: 57, figs 137–139 (misidentification, only female paralectotypes).

Note

The type series of *S. salobrensis* is constituted by four syntype individuals of two different species. As the male has remarkable genitalic features and clear diagnostic somatic characters (Fig. 26A–B), we designate it as lectotype (see the section Additional taxonomic acts). The rest of the specimens in the type series are a juvenile and two adult females of *K. parahybana*, misidentified (Fig. 26C–D).

Diagnosis

The female of *K. parahybana* resembles that of *K. hilaris* gen. et sp. nov. by the light median line on prosoma and whitish clypeus (Fig. 7A); however, it can be distinguished from this latter by the five pairs of ventral macrosetae on the anterior tibiae instead of four, small and elliptical copulatory openings (Figs 7C, E, 21C) and epigynal plate lacking the median septum. Males may present a body coloration pattern similar to that of *K. hilaris* gen. et sp. nov.; however, can be easily differentiated by the shorter abdominal projections (Fig. 8A–B), reduced RTA with distal indentations (Figs 8D, F, 20D) and by the apical and sinuous embolus (Figs 8C, E, 20D).

Material examined

Holotype

BRAZIL • ♂; Paraíba; C.F. Mello-Leitão leg.; MNHN 17824.

Paralectotypes of *Stephanopsis salobrensis*

BRAZIL • 2 ♀♀; Bahia, Salobro; C.F. Mello-Leitão leg.; MNHN 3973

Additional material

BRAZIL – Amazonas State • 1 ♀; Manaus, Reserva da Campina; 2°36'19" S, 60°02'11" W; 18 Jul. 1973; L. Albuquerque leg.; INPA • 1 ♂; same collection data as for preceding; 11 Jun. 1973; INPA

• 1 ♂; same locality as for preceding; 11 Jun. 1973; INPA • 2 ♂♂; same locality as for preceding; 21 Mar. 1974; INPA • 1 ♀; same locality as for preceding; 18 Jun. 1973; INPA • 1 ♂; same locality as for preceding; 18 Jun. 1973; INPA • 1 ♂, 3 juvs; same locality as for preceding; 12 Jan. 1973; INPA • 2 ♂♂, 1 juv.; same locality as for preceding; 25 Apr. 1973; INPA • 1 ♂; Manaus, Reserva Ducke; 02°57'42" S, 59°55'40" W; 13 Nov. 1973; L. Albuquerque leg.; INPA • 1 ♀; same locality as for preceding; INPA • 1 ♂; same locality as for preceding; 16 Oct. 1973; INPA • 1 ♂; same locality as for preceding; 28 May 1973; INPA • 1 ♂; same locality as for preceding; 13 Aug. 1973; INPA • 2 ♂♂, 1 juv., same locality as for preceding; 12 Mar. 1987; A.A. Lise leg.; INPA • 1 ♂, 2 juvs; same locality as for preceding; 4 Aug. 1987; INPA • 1 ♀; same locality as for preceding; 5 Aug. 1987; INPA • 1 ♂; same locality as for preceding; 12 Mar. 1987; L. Aquino leg.; INPA • 1 ♀; Manaus, Fazenda Esteio; 02°22'60" S, 59°51'00" W; 30 Oct. 1985; B.C. Klein leg.; INPA 1208 • 1 ♂; Manaus, PDBFF Dimona; 02°25'00" S, 60°00'00" W; 20 Dec. 2001–20 Mar. 2002; F. Rego & A. Cardoso leg.; INPA 2772 • 1 ♂; same locality as for preceding; INPA 2773 • 1 ♂; same locality as for preceding; INPA 2774 • 1 ♂; same locality as for preceding; INPA 2775 • 1 ♂; same locality as for preceding; INPA 2776 • 1 ♀; Manaus, Reserva da Campina; 2°36'19" S, 60°02'11" W; 2 Sep. 1991; A.D. Brescovit leg.; MCN 21261 • 2 ♂♂; Manaus, Reserva Ducke; 02°57'42" S, 59°55'40" W; 14–25 Aug. 1991; A.D. Brescovit leg.; MCTP 1080 • 2 ♂♂, 1 juv.; same locality as for preceding; 19–24 Feb. 1992; A.A. Lise leg.; MCTP 1693 • 1 ♂; same locality as for preceding; 4 Aug. 1987; MCTP 29942 • 1 ♂, 3 juvs; same locality as for preceding; 12 Mar. 1987; MCTP 29943 • 1 ♀; same locality as for preceding; 28 May 1973; L. Albuquerque leg.; MCTP 29944 • 1 ♂, 1 ♀, 1 juv.; Manaus, Reserva da Campina; 2°36'19" S, 60°02'11" W; 25 Apr. 1973; L. Albuquerque leg.; MCTP 29946 • 1 ♂, 1 ♀, 1 juv.; same locality as for preceding; 12 Jan. 1973; MCTP 29947 • 1 ♀; same locality as for preceding; 14 May 1973; MCTP 29948 • 1 ♀; Manaus, Br. 174. ZF 2. Km 34. LBA; 02°40'34" S, 60°02'47" W; 15 Nov. 2005; S.M. Ketelhut leg.; MPEG 22723 • 1 ♂; Manaus; 2°35'54" S, 60°2'15" W; 17–19 Nov. 2013; B.T. Faleiro leg.; UFMG 14478 • 1 ♂; Manaus, Reserva Ducke; 02°57'42" S, 59°55'40" W; 14–25 Aug. 1991; A.D. Brescovit leg.; MACN-Ar 39669 • 1 ♂; same locality as for preceding; 12 Mar. 1987; A.A. Lise leg.; MACN-Ar 39672. – **Pará State** • 1 ♂; Oriximiná, Reserva Biológica do Trombetas; 01°11'56" S, 56°41'49" W; 17 Dec. 1979; J. Grazia leg.; MCTP 4762 • 5 ♂♂, 1 ♀; Melgaço, Flona Caxiuanã; 01°44'13" S, 51°25'32" W; 11 Aug. 1996; A.A. Lise leg.; MCTP 9514 • 8 ♂♂, 1 ♀; same locality as for preceding; MCTP 9515 • 7 ♂♂, 1 ♀; same locality as for preceding; MCTP 9516 • 4 ♂♂; Vale do Igarapé Mutum; 02°36'45" S, 56°11'38" W; 4 Aug. 2004; D.R. Santos-Souza leg.; MPEG 8767 • 2 ♂♂; Juruti, Sítio Três Irmãos; 02°27'51" S, 56°00'08" W; 4 Mar. 2006; S.C. Dias leg.; MPEG 9067 • 1 ♂; Melgaço, Estação Científica Ferreira Penna; 01°44'14" S, 51°27'19" W; 22 Nov. 2000; D.M. Takyia leg.; MPEG 37 • 1 ♂; same locality as for preceding; A.M. Barros leg.; MPEG 41 • 1 ♀; Juruti, Sítio Barroso; 02°27'41" S, 56°00'11" W; 14 Aug. 2006; D.F. Candiani leg.; MPEG 8391 • 2 ♂♂; Juruti, Platô do Rio Juruti; 02°36'45" S, 56°11'38" W; 13 Aug. 2006; D.F. Candiani leg.; MPEG 8398 • 1 ♂; Juruti, Sítio Barroso; 02°27'41" S, 56°00'11" W; 14 Aug. 2006; N.F. Lo-Man-Hung leg.; MPEG 8415 • 1 ♂; same locality as for preceding; MPEG 8430 • 1 ♂; Vale do Igarapé Mutum; 02°36'45" S, 56°11'38" W; 6 Aug. 2004; D.R. Santos-Souza leg.; MPEG 8750 • 1 ♂; same locality as for preceding; 4 Aug. 2004; D.F. Candiani leg.; MPEG 8754 • 4 ♂♂; same locality as for preceding; 6 Aug. 2004; MPEG 8757 • 1 ♂; Juruti, Sítio Barroso; 02°27'41" S, 56°00'11" W; 13 Aug. 2004; D.R. Santos-Souza leg.; MPEG 8758 • 1 ♀; same locality as for preceding; MPEG 8762 • 1 ♀; Vale do Igarapé Mutum; 02°36'45" S, 56°11'38" W; 5 Aug. 2004; D.F. Candiani leg.; MPEG 8765 • 1 ♂; same locality as for preceding; MPEG 8766 • 1 ♂; Platô Capiroanga, Linha 168E; 02°28'22" S, 56°12'29" W; 10 Mar. 2006; D.R. Santos-Souza leg.; MPEG 9062 • 3 ♂♂; same locality as for preceding; S.C. Dias leg.; MPEG 9064 • 2 ♂♂, 2 juvs; same locality as for preceding; 7 Mar. 2006; MPEG 9066 • 2 ♂♂; same locality as for preceding; 10 Mar. 2006; MPEG 9069 • 1 ♂, 1 juv.; Juruti, Sítio Três Irmãos; 02°27'51" S, 56°00'08" W; 4 Mar. 2006; D.R. Santos-Souza leg.; MPEG 9065 • 1 ♂; same locality as for preceding; 02°27'41" S, 56°00'11" W; 11 Feb. 2007; J.A.P. Barreiros leg.; MPEG 14941 • 1 ♀; same locality as for preceding; 8 Feb. 2007; N.F. Lo-Man-Hung leg.; MPEG 14944 • 1 ♂; same locality as for preceding; 02°36'45" S, 56°11'38" W; 7 Feb. 2007; J.A.P. Barreiros leg.; MPEG

14942 • 1 ♂; same locality as for preceding; 12 Feb. 2007; MPEG 14953 • 1 ♂; same locality as for preceding; 02°27'51" S, 56°00'08" W; 11 Feb. 2007; J.A.P. Barreiros leg.; MPEG 14951 • 1 ♀; Melgaço; 01°44'13" S, 51°25'32" W; 10 Jun. 2006; E.J. Sales leg.; MPEG 30335 • 2 ♂♂, 1 ♀; same locality as for preceding; J.A.P. Barreiros leg.; MPEG 30336 • 1 ♀; same locality as for preceding; 27 May 2006; E.J. Sales leg.; MPEG 30337 • 1 ♀; same locality as for preceding; 31 May 2006; B.B. Santos leg. MPEG 30338 • 1 ♀; same locality as for preceding; 5 Jun. 2006; B.C. Araújo leg.; MPEG 30339 • 1 ♂, 1 ♀; same locality as for preceding; 26 May 2006; E.J. Sales leg.; MPEG 30340 • 1 ♀; same locality as for preceding; 27 May 2006; J.A.P. Barreiros leg.; MPEG 30341 • 3 ♂♂; same locality as for preceding; 5 Jun. 2006; B.C. Araújo leg.; MPEG 30342 • 4 ♂♂; same locality as for preceding; 1 Jun. 2006; B.B. Santos leg.; MPEG 30343 • 1 ♂; same locality as for preceding; 26 May 2006; E.J. Sales leg.; MPEG 30344 • 6 ♂♂; same locality as preceding; 1 Jun. 2006; J.A.P. Barreiros leg.; MPEG 30345 • 1 ♂; same locality as for preceding; 27 May 2006; MPEG 30346 • 2 ♂♂; same locality as for preceding; 5 Jun. 2006; B.C. Araújo leg.; MPEG 30347 • 1 ♂; Juruti, Sítio Três Irmãos; 02°27'51" S, 56°00'08" W; 4 Mar. 2006; S.C. Dias leg.; MPEG 9068; • 1 ♂; Melgaço, Flona Caxiuanã; 01°44'13" S, 51°25'32" W; 11 Aug. 1996; A.A. Lise leg.; MACN-Ar 39670 • 1 ♂; same locality as for preceding; MACN-Ar 39671. **Roraima State** • 1 ♂; Ilha de Maracá, Fazenda Dínamo; 03°24'00" N, 61°42'00" W; 20 Aug. 1987; A.A. Lise leg.; MCTP 29949.

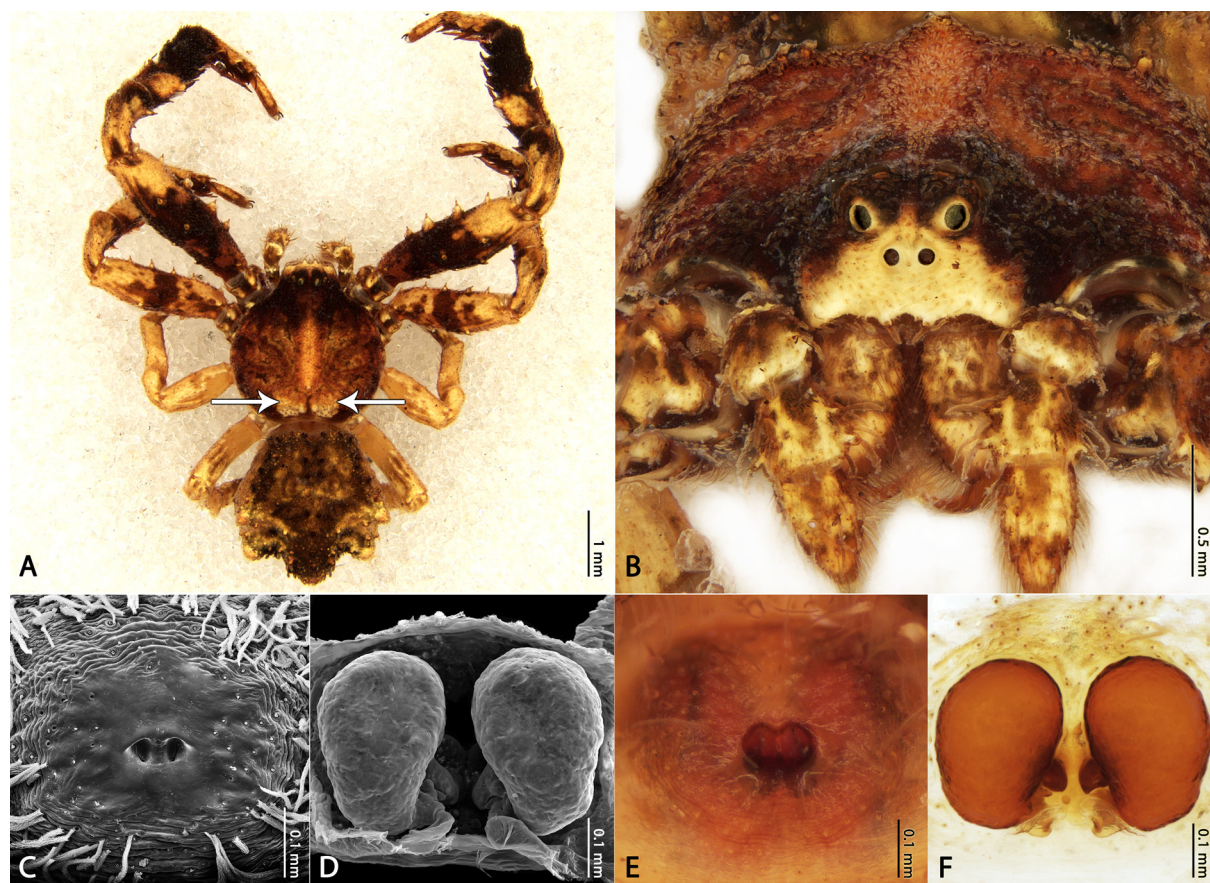


Fig. 7. Female of *Kryptochroma parahybana* (Mello-Leitão, 1929) gen. et comb. nov. (MPEG 30339) **A.** Habitus, dorsal view (arrows indicate the pair of circular taints on the posterior slope of the prosoma). **B.** Front. **C, E.** Epigynal plate, ventral view. **D, F.** Spermathecae, dorsal view.

FRENCH GUIANA • 1 ♂; Sant-Élie, Trinité Reserve; 04°35'00" N, 53°18'00" W; 7 Oct. 2010; V. Vedel leg.; MCTP 31973 • 1 ♂; same locality as for preceding; 9 Sep. 2010; MCTP 31992 • 1 ♂; Saül; 3°37'22" N, 53°12'30" W; 2015; V. Vedel leg.; MCTP 41965 • 1 ♂; same locality as for preceding; MCTP 41966 • 1 ♂; same locality as for preceding; MCTP 41967 • 1 ♂; same locality as for preceding; MCTP 41968 • 1 ♂; same locality as for preceding; MCTP 41969 • 1 ♂; same locality as for preceding; MCTP 41970 • 1 ♂; same locality as for preceding; MCTP 41971 • 1 ♂; Saül, Les Gros Arbres; 03°37'29" N, 53°12'28" W; 31 Mar. 2011; D. Comus leg.; MCTP 31965.

Description

Female (MPEG 30339)

PROSOMA. Anterior eye row strongly recurved, posterior eye row slightly procurved, ocular mounds discrete (Fig. 7A–B). Carapace predominantly reddish-brown with black pigmentation increasing on the sides and on the cephalic area; pair of posterior slope scars whitish-yellow and surrounded by a pair of setae emerging from cylindrical sockets (Fig. 7A–B). Chelicerae yellow with dark-brown taints, sternum slightly longer than wide, brown with a median yellow taint; endites and labium truncated, brown.

LEGS. Legs I and II present femora and tibiae predominantly black, with some yellow regions, while posterior legs are lighter, predominantly light-yellow with few light brown spots (Fig. 7A).

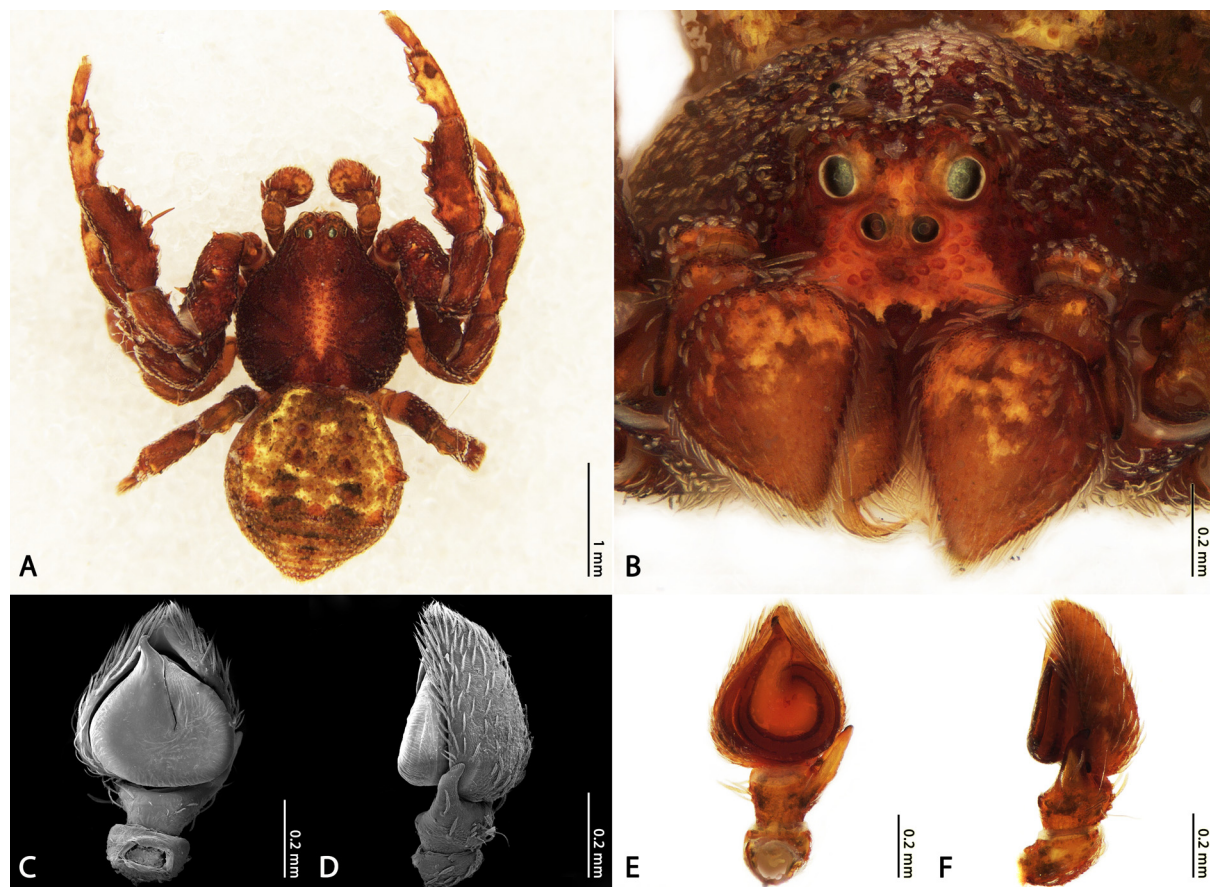


Fig. 8. Male of *Kryptochroma parahybana* (Mello-Leitão, 1929) gen. et comb. nov. (MPEG 9069). A. Habitus, dorsal view. B. Front. C–F. Left male palp. C, E. Ventral view. D, F. Retrolateral view.

OPISTHOSOMA. Opisthosoma predominantly brown with yellow pigmentation on the edge of the abdominal projections; spermathecae rounded, slightly narrowed posteriorly (Fig. 7D, F).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.13, PME 0.09, PLE 0.09, AME–AME 0.09, AME–ALE 0.11, PME–PME 0.22, PME–PLE 0.04, MOQ length 0.38, MOQ width 0.43; leg formula: 1-2-4-3; leg I – femur 3.62/ patella 2.17/ tibiae 2.84/ metatarsus 1.76/ tarsus 1.03/ total 11.42; II – 2.95/ 1.65/ 2.12/ 1.34/ 0.93/ 8.99; III – 1.76/ 1.03/ 1.60/ 0.77/ 0.56/ 5.72; IV – 1.96/ 1.03/ 1.55/ 1.03/ 0.72/ 6.29. Total body length 7.24; carapace 3.62 length, 3.36 width; opisthosoma length 3.62; clypeus height 0.24; sternum 1.20 length, 1.04 width; endites 0.61 length, 0.33 width; labium 0.40 length, 0.45 width.

Male (MPEG.ARA 9069)

PROSOMA. Anterior eye row strongly recurved, posterior slightly procurved; prosoma predominantly brownish-red with median thoracic region and clypeus light-yellow (Fig. 8A–B). Labium, endites and chelicerae brown.

LEGS. Predominantly brownish-red with yellowish taints on anterior tarsi (I and II) and on the proximal half of the posterior femora (III and IV).

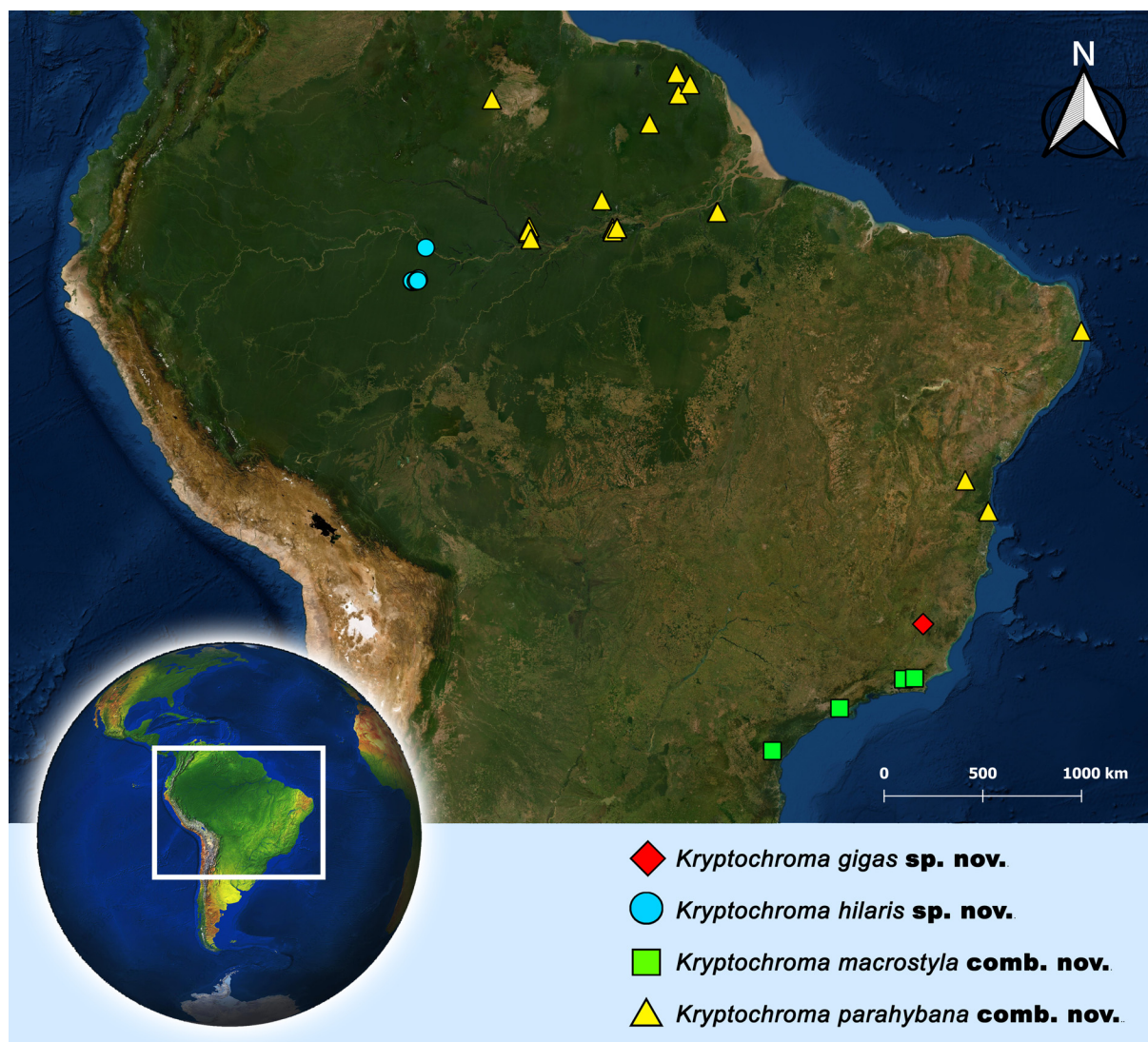


Fig. 9. Distribution records of species of *Kryptochroma* Machado gen. nov.

OPISTHOSOMA. Predominantly yellow with a whitish line-like macula connecting the five reddish spiniform projections (Fig. 8A).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.08, ALE 0.12, PME 0.10, PLE 0.10, AME–AME 0.06, AME–ALE 0.06, PME–PME 0.16, PME–PLE 0.06, MOQ length 0.44, MOQ width 0.30; leg formula: 1-2-4-3: leg I – femur 1.60/ patella 0.90/ tibiae 1.10/ metatarsus 0.90/ tarsus 0.50/ total 5; II – 1.40/ 0.76/ 1/ 0.70/ 0.44/ 4.30; III – 0.90/ 0.50/ 0.80/ 0.50/ 0.40/ 3.10; IV – 1.10/ 0.50/ 0.80/ 0.56/ 0.40/ 3.36. Total body length 4.03; carapace 2 length, 1.76 width; opisthosoma length 2.03; clypeus height 0.20; sternum 0.90 length, 0.84 width; endites 0.48 length, 0.24 width; labium 0.26 length, 0.26 width.

Distribution

Brazil (Amazonas, Bahia, Pará, Roraima) and French Guiana (Maripasoula, Saint-Élie and Saül) (Fig. 9).

Kryptochroma pentacantha (Mello-Leitão, 1929) gen. et comb. nov.

Figs 1, 10–11, 18, 19A, 22A

Stephanopis pentacantha Mello-Leitão, 1929: 59.

Stephanopis bellus Soares & Soares, 1946: 58, fig. 7. **syn. nov.**

Stephanopis colatinae Soares & Soares, 1946: 60, figs 8–9. **syn. nov.**

Stephanopis quinetuberculata (misidentification) – Machado *et al.* 2017: 454, figs s4d, s5b, s7e, s10c, s11d, s13e, s14d.

Diagnosis

The male of *K. pentacantha* resembles that of *K. quadrata* sp. nov. by the shape of the tegulum and embolus (Fig. 11C, E); however, it can be distinguished by its stout and conical RTA (Figs 11D, F, 19A) and larger body size, since they are the largest males of genus, being the sexual size dimorphism in this species less pronounced. Females can be recognized by the external genitalia bearing a noticeable median septum and a pair of long longitudinal depressions leading to the copulatory openings (Figs 10C, E, 22A). The most common body color pattern for both males and females usually present a diagnostic median white spot on the dorsum of the opisthosoma (Figs 10A, 11A).

Material examined

Lectotype (designated here)

BRAZIL • ♂; Minas Gerais, Caraça; C.F. Mello-Leitão leg.; MNHN 8227.

Paralectotypes (designated here)

BRAZIL • 2 ♀♀, 3 ♂♂; Rio de Janeiro; C.F. Mello-Leitão leg.; MNHN 8203.

Holotype of *S. bellus*

BRAZIL • ♀; Espírito Santo, Colatina, Rio São José; 29 Sep. 1942; B.A.M Soares leg.; MZSP 661.

Holotype of *S. colatinae*

BRAZIL • ♂; Espírito Santo, Colatina, Rio São José; 21 Sep. 1942; B.A.M Soares leg.; MZSP 566.

Additional material

BRAZIL – **Amazonas State** • 1 ♂; Manaus, Fazenda Esteio; 02°22'60" S, 59°51'00" W; 16 Dec. 1988; M.V.B. Garcia leg.; SMNK • 1 ♂; São Gabriel da Cachoeira, Morro dos Seis Lagos; 0°16'57" N, 66°40'44" W; 1 Oct. 1990; A.A. Lise leg.; MCTP 1195. **Espírito Santo State** • 1 ♀; São Mateus,

Reserva Florestal Vale do Rio Doce; 19°09'05" S, 40°04'15" W; 19–25 Jul. 1997; A.D. Brescovit *et al.* leg.; IBSP 12719 • 3 ♂♂; same locality as for preceding; IBSP 24354 • 1 ♂; Santa Tereza, Estação Biológica Santa Lucia; 19°57'54" S, 40°32'25" W; May 2007; T. Souza *et al.* leg.; IBSP 160118 • 1 ♂; same locality as for preceding; IBSP 160128 • 1 ♂, 1 ♀; Linhares; 19°23'27" S, 40°04'19" W; Aug. 1997; A. Santos leg.; MCTP 10366 • 1 ♂; same locality as for preceding; 19°57'43" S, 40°31'56" W; 7 Sep. 1999; R.L.C. Baptista leg.; MNRJ 13922 • 1 ♂; same locality as for preceding; 7 Jul. 2013; P.H. Martins and M.T.T. Santos leg.; UFMG 14048 • 1 ♂; Domingos Martins; 20°25'57" S, 41°01'12" W; 12 Jul. 2013; P.H. Martins and M.T.T. Santos leg.; UFMG 16338. – **São Paulo State** • 2 ♂♂, 1 juv.; Itanhaém, Ilha da Queimada Grande; 24°29'16" S, 46°40'27" W; 4–5 Dec. 1995; A.D. Brescovit and R. Bertani leg.; IBSP 10097 • 1 ♂; Vale do Ribeira; 24°32'15" S, 48°41'52" W; 26 Jun. 2005; D. Batesti leg.; IBSP 55502 • 1 ♂; Guarapiranga, Parque Ilha dos Eucaliptos; 23°44'02" S, 46°44'00" W; 6–12 Nov. 1999; R.P. Indicatti leg.; IBSP 132306 • 1 ♂; Vale do Ribeira; 24°39'42" S, 47°30'16" W; Jun. 2002; E.H. Wienkoski leg.; MNRJ 11511 • 1 ♂; Cananeia; 25°00'53" S, 47°55'36" W; Oct. 2001; E.H. Wienkoski leg.; MNRJ 11515 • 1 ♂; Pariqueira-Açu; 24°42'54" S, 47°52'33" W; Dec. 2001; E.H. Wienkoski leg.; MNRJ 11534 • 1 ♂; Micaratu, Morro do Fau; 24°16'51" S, 47°27'36" W; 19 Dec. 1998; R. Pinto-da-Rocha, R.S. Bérnills and E. Howaldt leg.; MZSP 16980 • 1 ♀; Peruíbe, Estação Ecológica de Juréia-Itatins; 24°23'13" S, 47°01'03" W; 21–26 Apr. 2012; G.H.F. Azevedo and J.P.P. Pena-Barbosa leg.; UFMG 13029. – **Paraná State** • 1 ♂; Morretes, Serra da Graciosa; 25°22'31" S, 48°52'09" W; 9–20 Jan. 1995; A.A. Lise *et al.* leg.; MACN-Ar 39674 • 1 ♂, 4 juvs; same collection data as for preceding; lab staff leg.; MCTP 7166 • 1 ♂, 2 juvs; same locality as for preceding; A.A. Lise leg.; MCTP 7362 • 1 ♂; Antonina; 25°25'44" S, 48°42'43" W; 1 Dec. 1986; Profaupar leg.; MCTP 19453 • 1 ♂; Jundiá do Sul; 23°26'13" S, 50°14'52" W; 1 Sep. 1986; Profaupar leg.; MCTP 19646 • 1 ♂, 2 juvs; same locality as for preceding; 27°17'45" S, 48°21'25" W; 6 Oct. 1995; A.A. Lise leg.; MCTP 7447 • 1 ♂; same locality as for preceding; 27°17'45" S, 48°21'25" W; 3 May 1996; A.A. Lise leg.; MCTP 9703. – **Santa Catarina State** • 1 ♂; São Francisco do Sul, Centro de Estudos e Pesquisas Ambientais Vila da Glória; 26°13'13" S, 48°41'19" W; 12–15 Dec. 2011; I.L.F. Magalhães leg.; UFMG 10317 • 1 ♂; Reserva Biológica Marina do Arvoredo; 27°17'45" S, 48°21'25" W; 5 Oct. 1995; A.A. Lise *et al.* leg.; MACN-Ar 39675 • 1 ♂; same locality as for preceding; 14 Oct. 1994; MACN-Ar 39676 • 1 ♂; same locality as for preceding; 27°17'45" S, 48°21'25" W; 13–14 Oct. 1994; A.A. Lise leg.; MCTP 5119 • 1 ♂, 1 ♀, 1 juv.; Rancho Queimado; 27°40'22" S, 49°01'19" W; 8–12 Oct. 1994; A.B. Bonaldo and L.A. Moura leg.; MCTP 5960 • 1 ♂; same locality as for preceding; 9–13 Oct. 1995; A.A. Lise leg.; MCTP 6982. – **Rio Grande do Sul State** • 3 ♂♂, 2 ♀♀, 10 juvs; Montenegro; 29°41'20" S, 51°27'39" W; 3 Nov. 1977; A.A. Lise leg.; MCN 8075 • 2 ♂♂, 3 ♀♀, 4 juvs; Canela; 29°21'56" S, 50°48'56" W; 2 Dec. 1976; A.A. Lise leg.; MCN 8079 • 1 ♀; São Francisco de Paula, Fazenda Três Cachoeiras; 29°27'15" S, 50°33'36" W; 16 Dec. 1999; A. Franceschini leg.; MCN 32046 • 1 ♀, 17 juvs; Montenegro; 29°41'20" S, 51°27'39" W; 15 Dec. 1977; A.A. Lise leg.; MCN 7509 • 1 ♀, 4 juvs; same locality as for preceding; 29 Sep. 1977; MCN 8080 • 1 ♂, 4 juvs; Maquiné, Estação Experimental da Fepagro; 29°39'41" S, 50°12'47" W; 6–8 Mar. 1998; L. Moura leg.; MCN 29059 • 3 ♂♂, 1 ♀, 10 juvs; São Francisco de Paula, Barragem dos Bugres; 29°20'34" S, 50°41'46" W; 1–4 Feb. 1999; L. Moura leg.; MCN 30853 • 1 ♀; Estrela Velha, Barragem de Itaúba; 29°15'36" S, 53°14'14" W; 17–21 Jan. 2000; A. Franceschini leg.; MCN 32130 • 1 ♀; same locality as for preceding; 7 Mar. 2001; R. Ott leg.; MCN 33697 • 1 ♂; São Francisco de Paula; 29°26'52" S, 50°35'02" W; 21–24 Mar. 1996; A.A. Lise leg.; MCTP 9855 • 1 ♀; Santa Maria; 29°41'02" S, 53°48'25" W; 17 Jan. 1995; L. Indrusiak leg.; MCTP 10257 • 1 ♂; São Francisco de Paula; 29°26'52" S, 50°35'02" W; 9–12 Jan. 1997; A.A. Lise leg.; MCTP 10742 • 1 ♂; São Francisco de Paula, Potreiro Velho, Pró-Mata; 29°28'51" S, 50°10'28" W; 5–8 Dec. 1996; A.A. Lise leg.; MCTP 13988 • 1 ♀; same locality as for preceding; 23–25 Jul. 1996; MCTP 13992 • 1 ♂; same locality as for preceding; Dec. 2001; L.A. Bertoncetto and A.A. Lise leg.; MCTP 19427 • 1 ♂; same locality as for preceding; Sep. 2001; MCTP 25750 • 1 ♂; same locality as for preceding; Oct. 2001; MCTP 25761 • 1 ♂; same locality as for preceding; Jul. 2001; MCTP 25762 • 1 ♀; same locality as for preceding;

Jan 2002; MCTP 19429 • 1 ♂; same locality as for preceding; Nov. 2001; MCTP 19430 • 1 ♀; same locality as for preceding; Feb. 2002; MCTP 19435 • 1 ♀; same locality as for preceding; Dec. 2001; MCTP 19437 • 1 ♀; Maquiné, Barra do Ouro; 29°32'18" S, 50°14'48" W; 23 Mar. 2011; R.A. Teixeira leg.; MCTP 35069 • 1 ♂; same locality as for preceding; 5 Jun. 2011; MCTP 35109 • 1 ♀; same locality as for preceding; 4 May 2011; MCTP 39906 • 1 ♂; Floresta Nacional de "São Chico"; 29°25'24" S, 50°23'13.0" W; 19 Dec. 2010; R.A. Teixeira leg.; MCTP 39903 • 1 ♀; same locality as for preceding; 23 Jan. 2011; MCTP 39904 • 1 ♀; Viamão; 30°04'25" S, 51°06'27" W; 23 Sep. 1994; A.A. Lise leg.; MACN-Ar 39673 • 1 ♂; Sapiranga; 29°37'59" S, 51°00'00" W; 14 Nov. 2005; E.L.C. da Silva leg.; MCTP 19755 • 1 ♀, 1 juv.; Maquiné, Barra do Ouro; 29°32'18" S, 50°14'48" W; 3 Dec. 2010; R.A. Teixeira leg.; MCTP 31532 • 1 ♀; Santa Maria, Cidade dos Meninos; 29°40'31" S, 53°43'10" W; 15 Jan. 1998; L. Indrusiak and M. Monteiro leg.; MCTP 38671 • 1 ♂; Maquiné, Barra do Ouro; 29°32'18" S, 50°14'48" W; 5 Jun. 2011; R.A. Teixeira leg.; MCTP 39905 • 1 ♂; Santa Maria; 29°41'02" S, 53°48'25" W; 15 Dec. 2004; L. Indrusiak leg.; MCTP 40017 • 1 ♂; same locality as for preceding; 27 Aug. 2003; MCTP 40019 • 1 ♂; Viamão, Estação Fitotécnica de Viamão; 30°02'11" S, 51°01'18" W; 6 May 1994; A.A. Lise leg.; MCTP 4678 • 1 ♂, 1 ♀; Viamão; 30°04'25" S, 51°06'27" W; 23 Sep. 1994; A.A. Lise leg.; MCTP 8407 • 1 ♂; São Francisco de Paula, Potreiro Velho; 29°28'51" S, 50°10'28" W; Jul. 2001; L.A. Bertoncello and A.A. Lise leg.; MCTP 19434 • 1 ♂; same locality as for preceding; Oct. 2001; MCTP 19436.

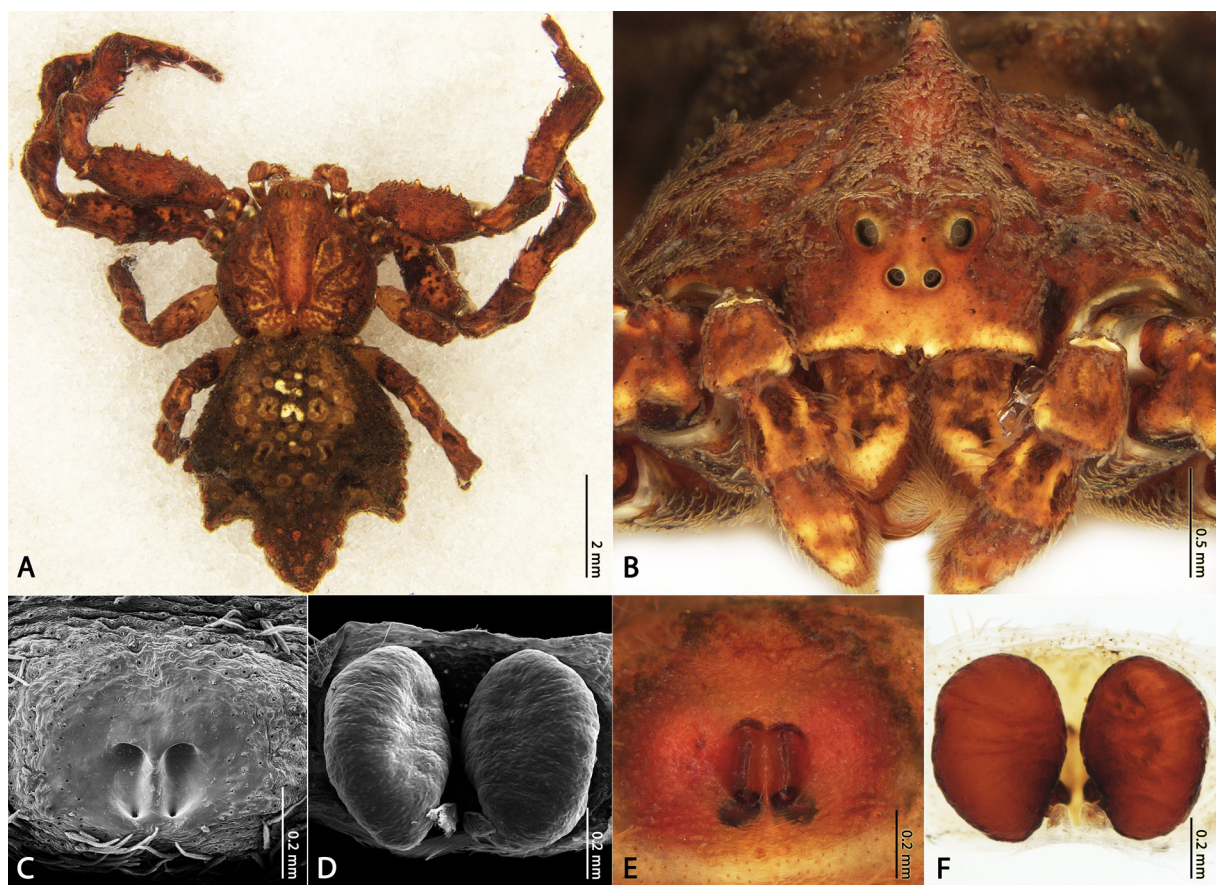


Fig. 10. Female of *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 38671) **A.** Habitus, dorsal view. **B.** Front. **C, E.** Epigynal plate, ventral view, **D, F.** Spermathecae, dorsal view.

Description

Female (MCTP 38671)

PROSOMA. Anterior eye row strongly recurved and posterior slightly procurve, carapace predominantly dark-brown with yellowish stains on sides; thoracic region with a pronounced median spire (Fig. 10A–B). Clypeus lighter than the rest of carapace, with a marginal yellowish triangle-shaped mark; chelicerae brown with yellowish stains (Fig. 10B), sternum scutiform, slightly longer than wide, dark-brown with a yellow median macula, endites and labium truncated and totally dark-brown.

LEGS. Predominantly dark-brown with dispersed lighter stains; femora I and II dorsally enlarged, suffused with dorsolateral and ventral conical sockets with a conical macrosetae in each one; tibia I and II with four pairs of ventral macrosetae (Fig. 10A).

OPISTHOSOMA. Dark-brown, rough surfaced, with concave anterior border and a remarkable white taint between the anterior muscular sigilla; the median posterior opisthosomal projection presents acuminate orange tubercles at the tip, with many leaf-shaped setae (Fig. 10B).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.09, ALE 0.14, PME 0.09, PLE 0.09, AME–AME 0.09, AME–ALE 0.12, PME–PME 0.24, PME–PLE 0.08, MOQ length 0.45, MOQ width 0.40; leg formula: 1-2-4-3: leg I – femur 3.83/ patella 2.07/ tibiae 2.59/ metatarsus 1.81/ tarsus 1.29/ total 11.59; II – 3.78/ 1.96/ 2.38/ 1.76/ 1.29/ 11.17; III – 1.96/ 1.29/ 1.70/ 1.03/ 0.77/ 6.75; IV – 2.48/ 1.29/ 1.81/ 1.34/ 0.82/

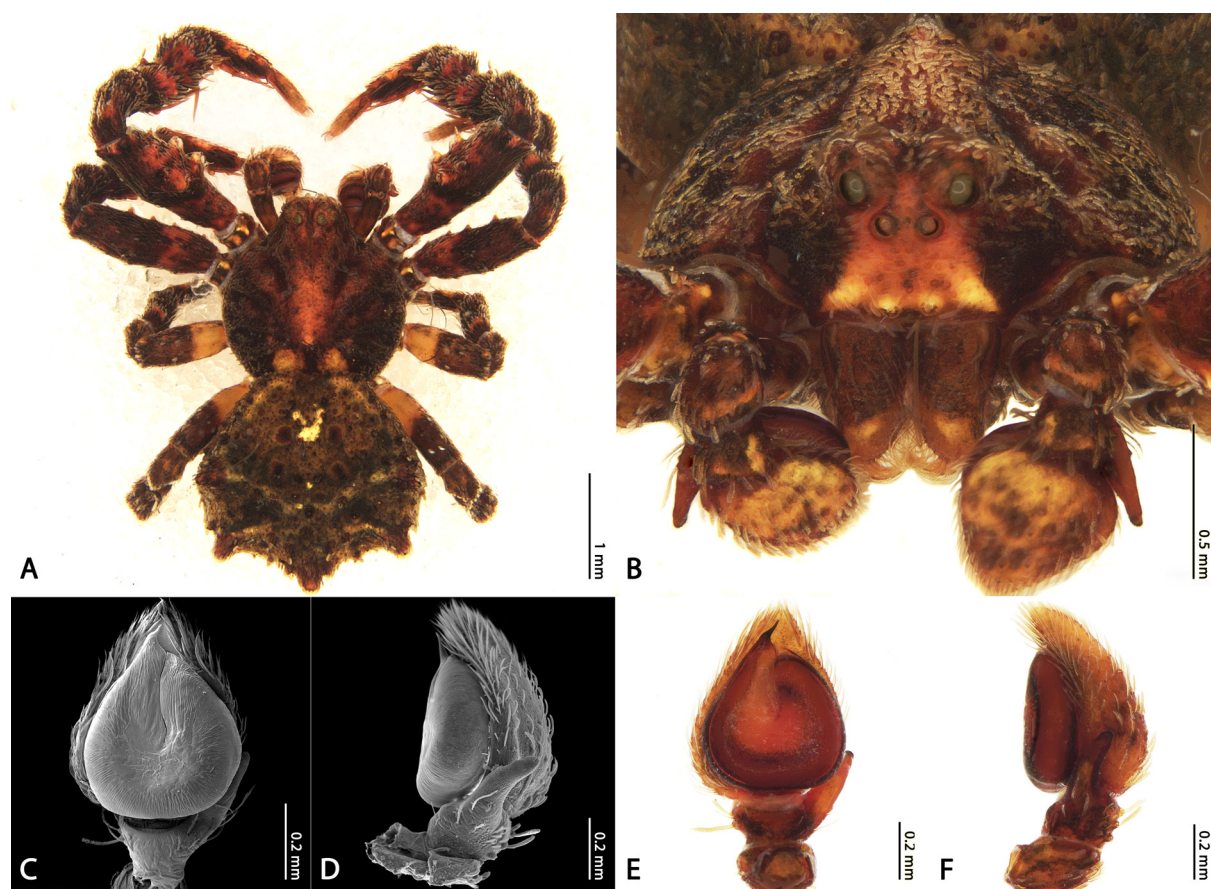


Fig. 11. Male of *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 25762). A. Habitus, dorsal view. B. Front. C–F. Left male palp. C, E. Ventral view. D, F. Retrolateral view.

7.74. Total body length 9.81; carapace 4.14 length, 3.83 width; opisthosoma length 4.87; clypeus 0.28 height; sternum 1.41 length, 1.12 width; endites 0.74 length, 0.38 width; labium 0.41 length, 0.51 width.

Male (MCTP 25762)

PROSOMA. Eye disposition and carapace coloration pattern as in female, except by the posterior slope scars, which are yellow (Fig. 11A). Front lighter than the rest of carapace due to a yellowish triangular mark that extends from the clypeus until the ALE (Fig. 11B). Sternum scutiform, as long as wide, dark-brown with a yellow taint; labium and endites totally dark-brown and truncated.

LEGS. Metatarsi of all legs with a distal yellow stain and posterior femora noticeably bicolor, half yellow, half dark-brown; other leg characteristics as in females (Fig. 11A).

OPISTHOSOMA. As in female, except by the shorter median posterior opisthosomal projection and the lack of agglomerated orange tubercles.

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.08, ALE 0.11, PME 0.08, PLE 0.08, AME–AME 0.06, AME–ALE 0.06, PME–PME 0.16, PME–PLE 0.06, MOQ length 0.32, MOQ width 0.35; leg formula: 1-2-4-3; leg I – femur 1.61/ patella 0.88/ tibiae 1.24/ metatarsus 0.91/ tarsus 0.56/ total 5.20; II – 1.38/ 0.72/ 0.88/ 0.75/ 0.51/ 4.24; III – 0.88/ 0.48/ 0.72/ 0.48/ 0.35/ 2.91; IV – 1.12/ 0.48/ 0.72/ 0.56/ 0.40/ 3.28. Total body length 5.17; carapace 2.43 length, 2.33 width; opisthosoma length 2.74; clypeus 0.29 height; sternum 0.87 length, 0.80 width; endites 0.04 length, 0.24 width; labium 0.25 length, 0.32 width.

Distribution

Brazil (Amazonas, Espírito Santo, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul) (Fig. 18).

Kryptochroma quadrata Machado & Viecegli gen. et sp. nov.

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Figs 12–13, 18, 19B, 22B

Diagnosis

The male of *K. quadrata* sp. nov. resembles that of *K. pentacantha* by the shape and disposition of embolus (Figs 13C, E, 19B), however, it can be distinguished from that and other species of the genus by the rounded tegulum, which also presents a retrolateral reentrance, and by the squared-tipped RTA with remarkable grooved surface (Figs 13D, F, 19B). The females have an anterior longitudinal ruckle connected to a shallow and convex fold on the epigynal plate, with no median outgrowth, gutters or septum separating the copulatory openings (Figs 12C, E, 22B).

Etymology

The epithet – a Latin feminine adjective that means squared – is a direct reference to the shape of the RTA tip, which ends abruptly.

Material examined

Holotype

BRAZIL • ♂; Amazonas, Coari, Porto Urucu, Base de Operações Geólogo Pedro de Moura; 4°53'42.5" S, 65°11'18.2" W; 28 Sep. 2006; C.A.C. Santos Jr. leg.; UFMG 22673.

Paratypes

BRAZIL • 1 ♀; same collection data as for holotype; MPEG 22669 • 1 ♀; same locality as for preceding; 4°50'01" S, 65°03'53" W; 28 Sep. 2006; D. Guimarães leg.; UFMG 22673 • 1 ♀, same collection data as for preceding; Sep. 2006; D. Candiani leg.; MPEG 13297.

Additional material

None.

Description

Female (paratype, MPEG 13297)

PROSOMA. Anterior eye row strongly recurved and posterior procurve, ocular mounds discrete, not as elevated as in other species, carapace predominantly yellow, black on the sides, MS well developed (Fig. 12A–B). Chelicerae yellow with two pairs of dark stains, sternum slightly longer than wide, brown with a large yellow stain, endites and labium truncated and totally brown.

LEGS. Leg coloration pattern as in *K. gigas* gen. et sp. nov.

OPISTHOSOMA. Concave anterior border, predominantly yellow, dark-brown on sides and on the back of the abdominal projections (Fig. 12A). Spermathecae rounded and smooth surfaced (Fig. 12D, F).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.11, PME 0.08, PLE 0.08, AME–AME 0.12, AME–ALE 0.16, PME–PME 0.27, PME–PLE 0.09, MOQ length 0.48, MOQ width 0.51; leg formula: 1-2-4-3; leg I – femur 5.18/ patella 2.59/ tibiae 3.47/ metatarsus 2.07/ tarsus 1.39/ total 14.70; II – 4.14/ 2.33/ 2.84/ 1.81/ 1.29/ 9.57; III – 2.33/ 1.29/ 2.07/ 1.03/ 0.88/ 7.60; IV – 2.90/ 1.29/ 1.91/ 1.24/ 0.93/ 8.27. Total body length 7.25; carapace 3.50 length, 3.37 wide; opisthosoma

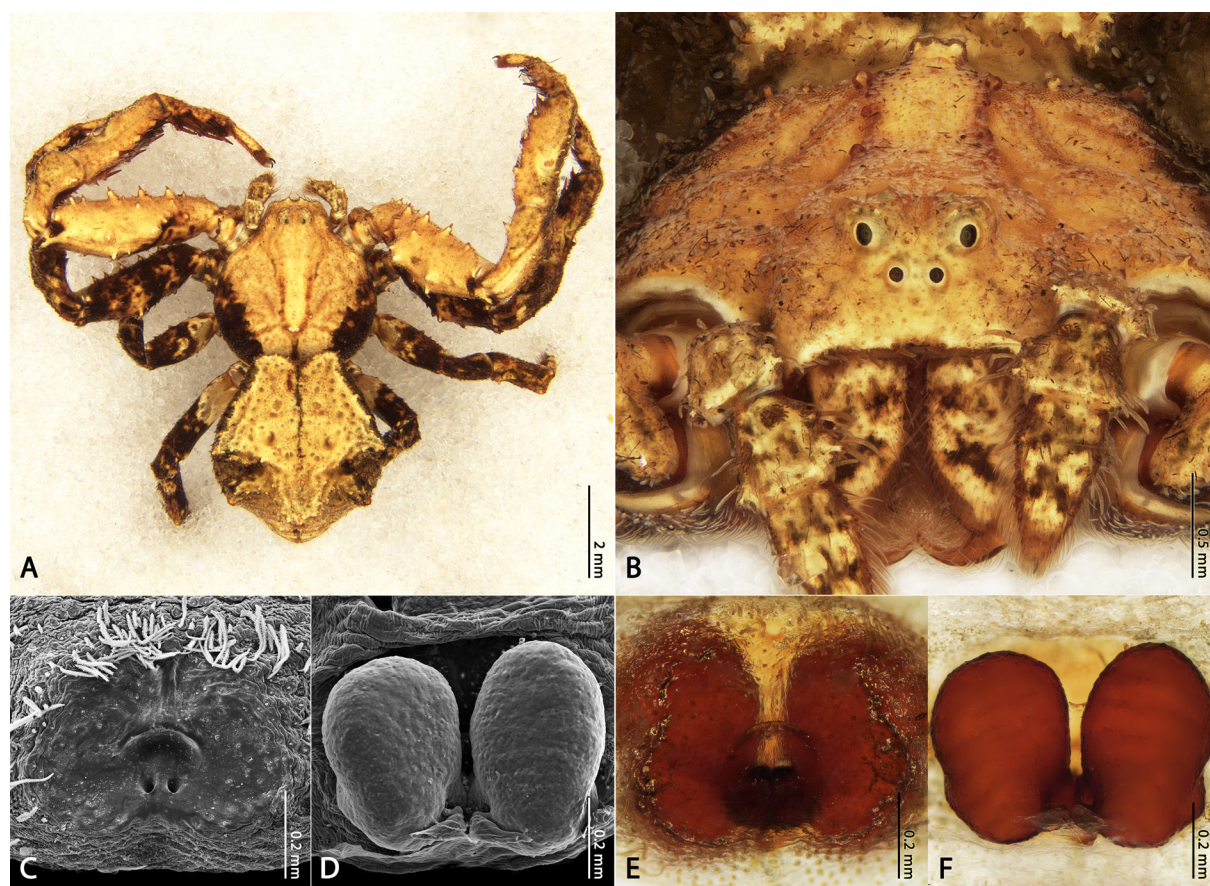


Fig. 12. Female of *Kryptochroma quadrata* Machado & Viegas gen. et sp. nov., paratype (MPEG 13297). **A.** Habitus, dorsal view. **B.** Front. **C, E.** Epigynal plate, ventral view. **D, F.** Spermathecae, dorsal view.

length 3.75; clypeus 0.32 height; sternum 1.53 length, 1.29 width; endites 0.80 length, 0.40 width; labium 0.56 length, 0.58 width.

Male (holotype, MPEG 22673)

PROSOMA. Anterior eye row very recurved, posterior procurved, ALE with almost two times the size of AME; carapace knobby, predominantly light brown with its median region, clypeus and posterior slope scars yellowish; medial spine absent (Fig. 13A–B). Sternum scutiform, light brown with a median white stain.

LEGS. Anterior legs light brown with some darker taints while legs III and IV are lighter, with extensive whitish areas; anterior femora enlarged, with dorsolateral setiferous tubercles randomly distributed and ventral region dark-brown; tibia I and II with four pairs of ventral macrosetae and anterior metatarsi with three pairs (Fig. 13A).

OPISTHOSOMA. Predominantly pale yellow with small white punctuations and posterior black spots; straight anterior border and five short spiniform projections.

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.08, PME 0.06, PLE 0.06, AME–AME 0.06, AME–ALE 0.08, PME–PME 0.16, PME–PLE 0.06, MOQ length 0.29, MOQ width 0.32; leg formula: 1-2-4-3; leg I – femur 2.23/ patella 1.24/ tibiae 1.33/ metatarsus 0.88/ tarsus 0.56/ total 6.24; II –

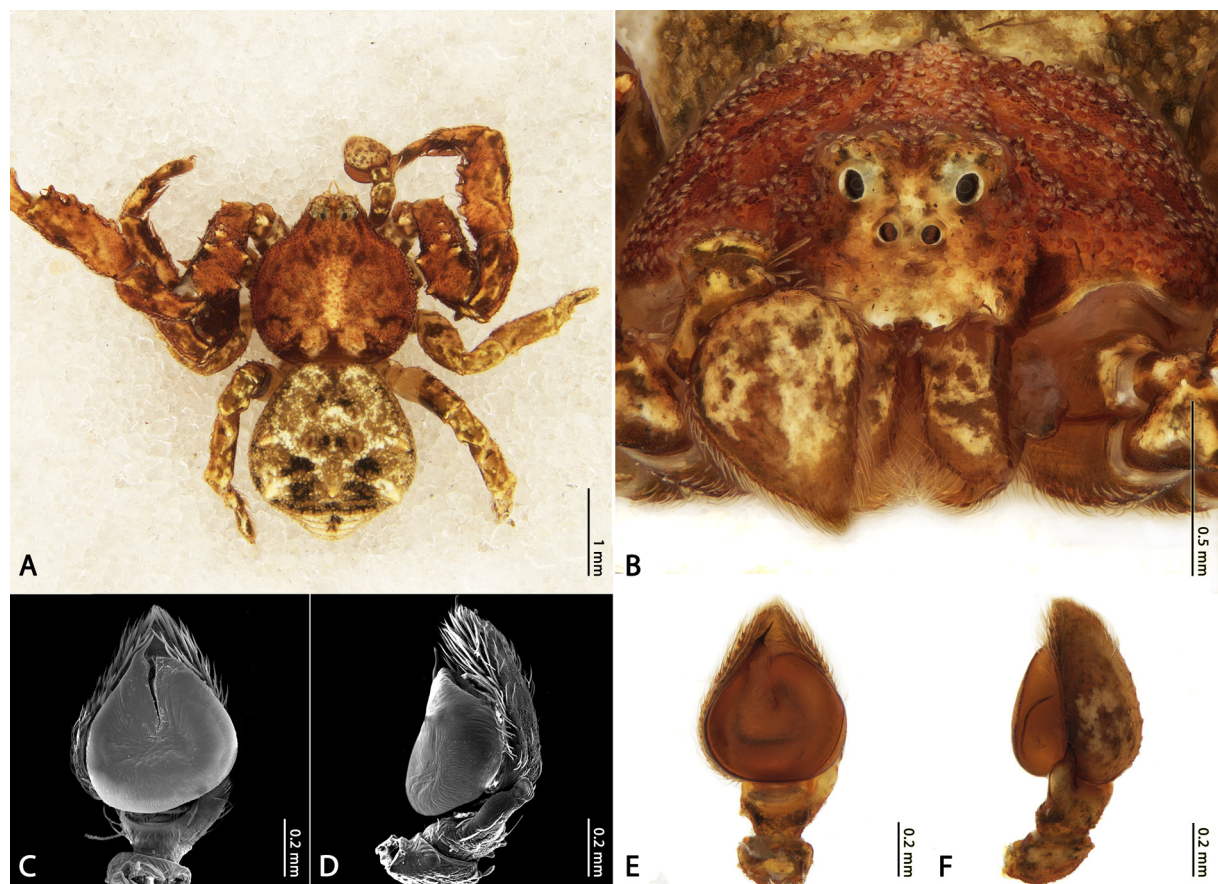


Fig. 13. Male of *Kryptochroma quadrata* Machado & Viecelli gen. et sp. nov., holotype (MPEG 22673). **A.** Habitus, dorsal view. **B.** Front. **C–F.** Left male palp. **C, E.** Ventral view. **D, F.** Retrolateral view.

1.45/ 0.72/ 1.04/ 0.72/ 0.50/ 4.43; III – 0.87/ 0.48/ 0.80/ 0.45/ 0.37/ 2.97; IV – 1.12/ 0.48/ 0.80/ 0.56/ 0.40/ 3.36. Total body length 4.61; carapace 2.28 length, 2.18 width; opisthosoma length 2.33; clypeus 0.24 height; sternum 0.83 length, 0.72 width; endites 0.40 length, 0.24 width; labium 0.20 length, 0.32 width.

Distribution

Brazil (Amazonas) (Fig. 18).

Kryptochroma quinquetuberculata (Taczanowski, 1872) gen. et comb. nov.
Figs 14, 18, 19C

Thomisus quinquetuberculatus Taczanowski, 1872: 100.

Stephanopis acanthogastra Mello-Leitão, 1929: 53, fig. 135. **syn. nov.**

Stephanopis quinquetuberculata – Keyserling 1880: 171, pl. 3 fig. 94. — Mello-Leitão 1929: 62.

Tobias quinquetuberculatus – Simon 1895: 1053.

Notes

According to Keyserling (1880), the description of the species in his work was based on the holotype originally proposed by Taczanowski (1872), from Cayenne (French Guiana), which is presumably lost. We had access to a specimen from the Natural History Museum of London (BMNH 1890.7.1.3479) that is labeled as “type” (Fig. 14G–H); however, it is clearly not the holotype because it was collected after the original description. Since this specimen is strikingly similar to the one represented in the original illustrations (where the author highlighted the diagnostic features of the male palpus: sinuous RTA and the tip-narrowed tegulum) and was found near the original locality (New Granada, currently corresponding to the Colombian territory), we propose it as the neotype for *K. quinquetuberculata* comb. nov. (Fig. 14G–H).

Diagnosis

The male of *K. quinquetuberculata* resembles that of *K. pentacantha* by its stout opisthosomal projections and by the presence of a dorsal white macula on the opisthosoma (Fig. 14A). However, it can be recognized by the tegulum in the shape of a water drop, bearing a straight and tip-narrowed embolus instead of a curved termination observed in its closest correlated species (Figs 14C, E, 19C). Moreover, *K. quinquetuberculata* has a remarkable RTA which is large at the basis, sharpen abruptly at the tip, and sinuous, pointing towards to the dorsum of the cymbium (Figs 14D, F, 19C).

Material presumably lost

Holotype

FRENCH GUIANA • ♂; Cayenne; MZPW.

Material examined

Neotype

COLOMBIA • ♂; BMNH 1890.7.1.3479.

Holotype of *S. acanthogastra* syn. nov.

BRAZIL • ♂; Bahia; MNHN 17126.

Additional material

FRENCH GUIANA • 1 ♂; Maripasoula, Massif du Mitaraka; 02°17'26" N, 54°31'18" W; 2015; Vedel leg.; MCTP 42644 • 1 ♂; Maripasoula, Sommet Tabulaire, Mont Itoupe; 03°32'13" N, 53°34'25" W; 13 Nov. 2014; Vedel and Lalague leg.; MCTP 42645.

BRAZIL – **Pernambuco State** • 1 ♂, 1 juv.; Recife, Horto Dois Irmãos; 8°00'35" S, 34°56'51" W; 13 Sep. 1999; M. Peres leg.; IBSP 38639. – **Bahia State** • 1 ♂; Una, Reserva Biológica de Una; 15°10'42" S, 39°06'13" W; 15–28 Nov. 2000; A.D. Brescovit leg.; IBSP 46738 • 1 ♂; same collection data as for preceding; IBSP 46712 • 1 ♂; same collection data as for preceding; IBSP 46714 • 1 ♂; same collection data as for preceding; IBSP 46724 • 1 ♂; same collection data as for preceding; IBSP 46726 • 1 ♂;

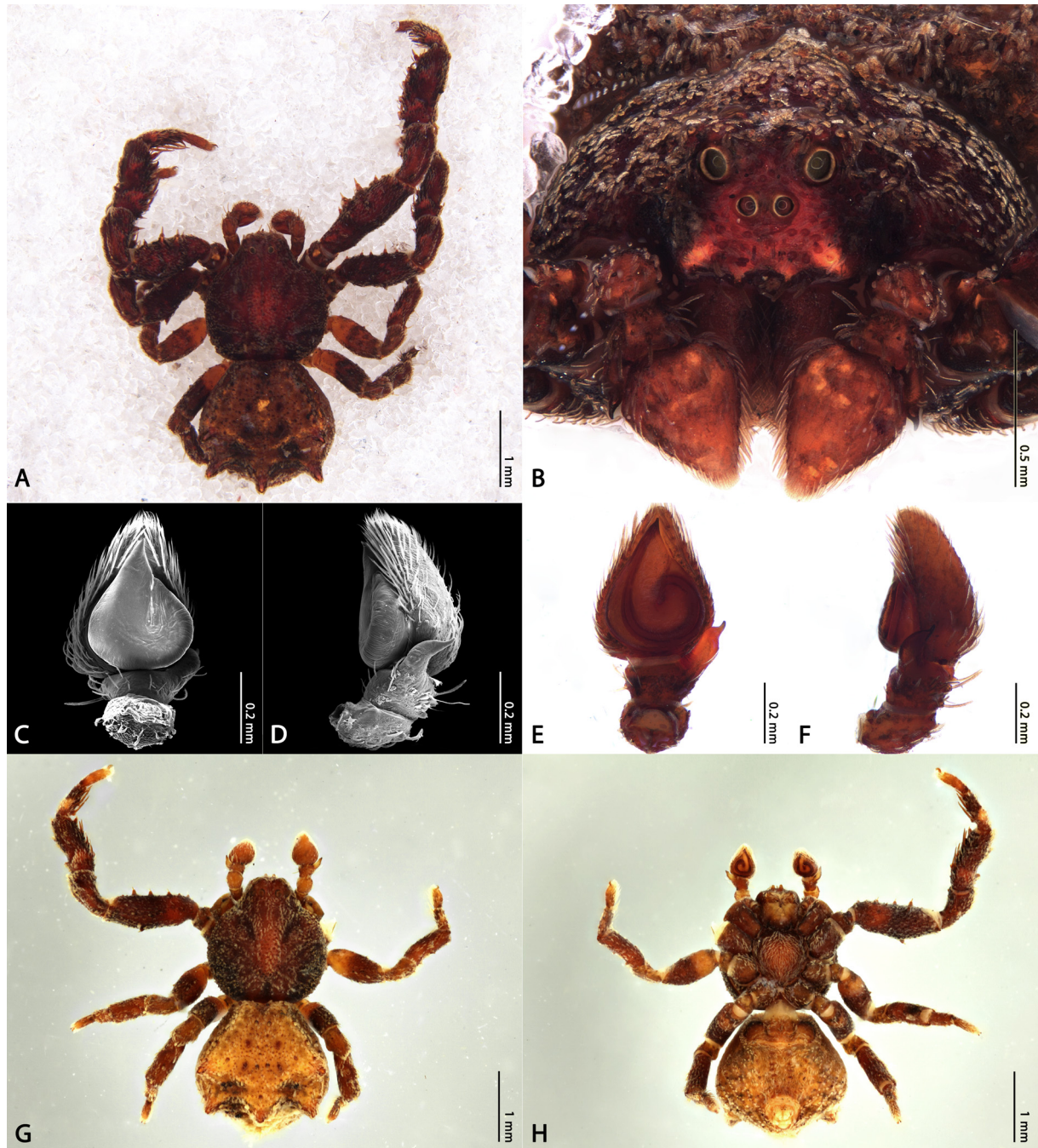


Fig. 14. Male of *Kryptochroma quinquetuberculata* (Taczanowski, 1872) gen. et comb. nov. A–F. Specimen IBSP 46712. A. Habitus, dorsal view. B. Front. C–F. Left male palp. C, E. Ventral view. D, F. Retrolateral view. G–H. Neotype of *K. quinquetuberculata* gen. et comb. nov. (BMNH 1890.7.1.3479).

same collection data as for preceding; IBSP 46740 • 1 ♂; Reserva Zoobotânica CEPLAC; 14°46'22" S, 39°13'13" W; 8 Dec. 2010; G.H.F. Azevedo and A.J. Santos leg.; UFMG 9484.

Description

Male (IBSP 46712)

PROSOMA. Anterior eye row strongly recurved, posterior slightly procurved; carapace predominantly dark-brown with discrete MS; clypeus lighter than the rest of carapace with light spots at its lateral margins (Fig. 14B). Labium, endites and chelicerae dark-brown.

LEGS. Anterior legs (I and II) dark-brown and posterior femora (III and IV) presenting their proximal half yellow.

OPISTHOSOMA. Predominantly brown with a dorsal white macula at its median region and a light transversal line connecting the anterolateral projections (Fig. 14A).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.11, PME 0.09, PLE 0.09, AME–AME 0.06, AME–ALE 0.08, PME–PME 0.16, PME–PLE 0.04, MOQ length 0.32, MOQ width 0.35; leg formula: 1-2-4-3; leg I – femur 1.61/ patella 0.88/ tibiae 1.19/ metatarsus 0.88/ tarsus 0.56/ total 5.12; II – 1.45/ 0.72/ 0.96/ 0.72/ 0.48/ 4.33; III – 0.88/ 0.48/ 0.72/ 0.48/ 0.37/ 2.93; IV – 1.01/ 0.48/ 0.80/ 0.48/ 0.40/ 3.17. Total body length 4.39; carapace 2.12 length, 2.07 width; opisthosoma length 2.22; clypeus 0.24 height; sternum 0.85 length, 0.72 width; endites 0.32 length, 0.25 width; labium 0.16 length, 0.29 width.

Female

Unknown.

Distribution

French Guiana (Cayenne and Maripasoula) and Brazil (Bahia and Pernambuco) (Fig. 18).

Kryptochroma renipalpis (Mello-Leitão, 1929) gen. et comb. nov.

Figs 15, 18, 19D

Stephanopsis renipalpis Mello-Leitão, 1929: 60, figs 143–144.

Note

Mello-Leitão (1929) also designated a “cotype” (MNHN 17335) of *S. renipalpis* from Pernambuco; however, the specimen was not found.

Diagnosis

The male of *K. renipalpis* is similar to that of *K. quinquetuberculata* due to their well-developed MS, light clypeus and white macula on dorsum (Fig. 15A–B). However, it can be distinguished from this and other congeneric species by the medially positioned spermatic duct (Figs 15C, E, 19D) and extreme curvature of the RTA, which is thinner than in the other species and smooth at the tip (Figs 15D, F, 19D).

Material examined

Holotype

BRAZIL • ♂; Rio de Janeiro; MNHN 6945.

Additional material

BRAZIL • 1 ♂; Rio de Janeiro, Angra dos Reis, Enseada das Palmas; 23°08'30" S, 44°08'26" W; 2–12 Feb. 1997; M. Ramírez leg.; MCTP 42730.

Description

Male (MCTP 42730)

PROSOMA. Anterior row eye strongly recurved and posterior slightly procurved (Fig. 15A–B); carapace predominantly reddish-brown with clypeus whitish (Fig. 15B); sternum slightly longer than wide, entirely reddish-brown; labium truncated and totally dark-brown; chelicerae reddish-brown with distal lighter spots.

LEGS. Anterior legs (I and II) mostly reddish-brown, with yellowish spots on the proximal portion of metatarsi and tarsi; posterior legs (III and IV) with bicolor femora.

OPISTHOSOMA. Rough surfaced, dark-yellow with red spiniform projections (Fig. 15A).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.06, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.08, AME–ALE 0.06, PME–PME 0.12, PME–PLE 0.04, MOQ length 0.27, MOQ width 0.37; leg formula: 1-2-4-3; leg I – femur 1.91/ patella 21.03/ tibiae 1.29/ metatarsus 1.03/ tarsus 0.67/ total 5.93; II – 1.29/ 0.67/ 0.88/ 0.70/ 0.48/ 4.02; III – 0.85/ 0.45/ 0.64/ 0.41/ 0.32/ 2.67; IV – 0.91/ 0.40/ 0.72/ 0.51/ 0.37/ 2.91. Total body length 4.24; carapace 2.07 length, 1.96 width; opisthosoma length 2.17; clypeus 0.19 height; sternum 0.74 length, 0.67 width; endites 0.38 length, 0.29 width; labium 0.22 length, 0.29 width.

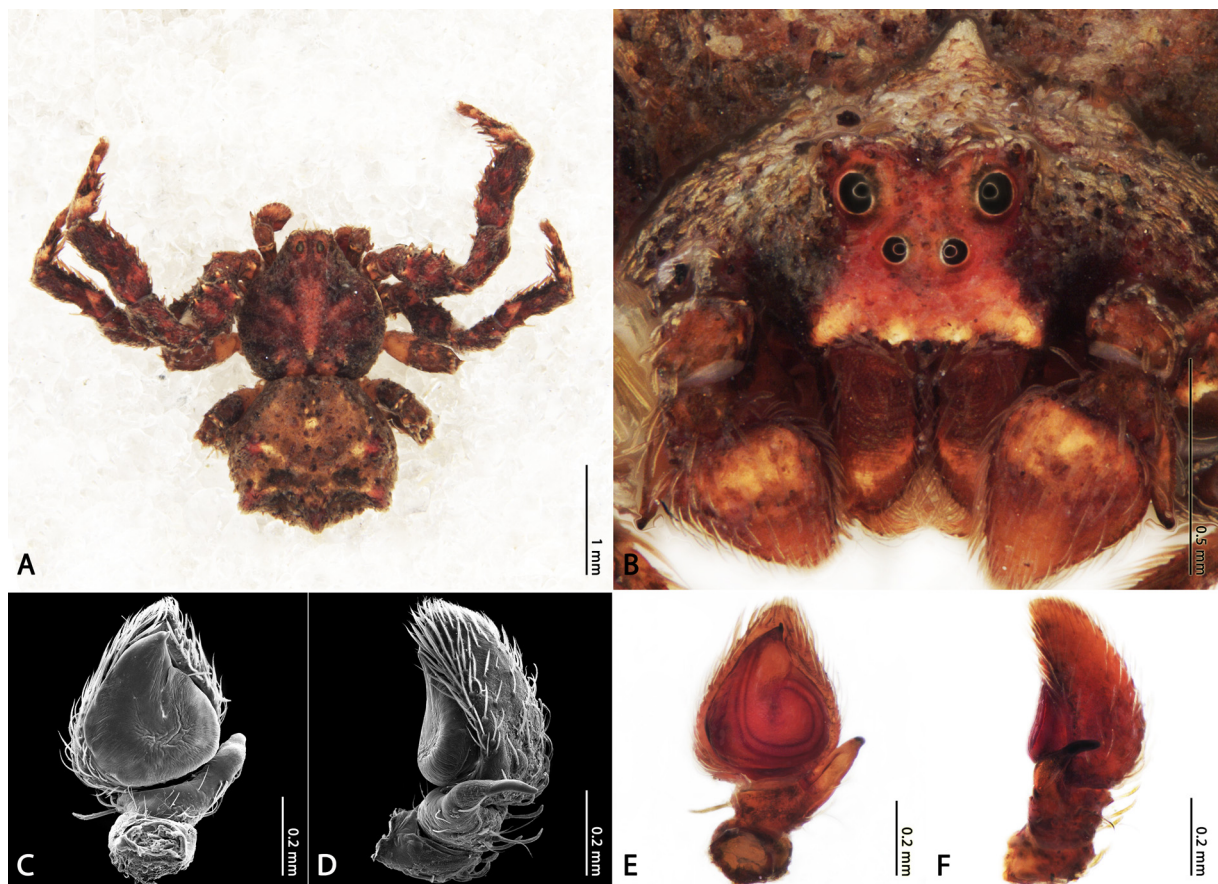


Fig. 15. Male of *Kryptochroma renipalpis* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 42730). **A.** Habitus, dorsal view. **B.** Front. **C–F.** Left male palp. **C, E.** Ventral view. **D, F.** Retrolateral view.

Female

Unknown.

Distribution

Brazil (Rio de Janeiro) (Fig. 18).

Kryptochroma septata Machado & Teixeira gen. et sp. nov.

urn:lsid:zoobank.org:act:96E641ED-BE48-4D11-A39B-DED89D51FE29

Figs 16–18, 20A, 22C

Diagnosis

The female of *K. septata* sp. nov. is similar to that of *K. pentacantha* by its general body shape, prominent MS and well-developed median opisthosomal projection. However, females of *K. septata* sp. nov. can be recognized by the large median septum on the epigynal plate and by the deep excavations where the elliptical copulatory openings are located (Figs 16C, E, 22C). The male is similar to that of *S. quadrata* sp. nov. by the rounded tegulum and to *K. pentacantha* by the stout and conical RTA, however, can be distinguished from these two species by its shorter, thicker and more curved embolus (Figs 17C, E, 20A). Differently from *K. pentacantha*, in males of *K. septata* sp. nov. the RTA presents a terminal curvature that makes this apophysis points vertically rather to the backwards of the cymbium (Figs 17D, F, 20A).

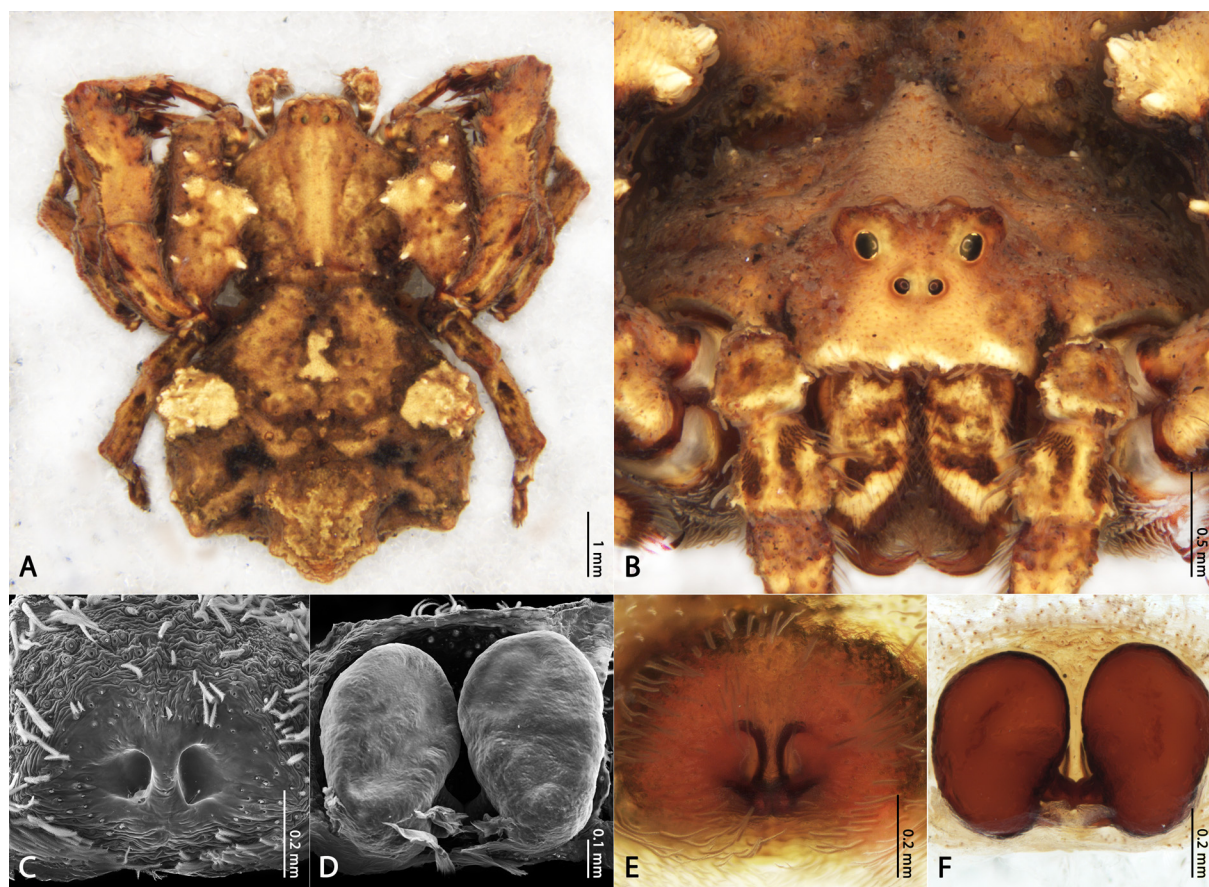


Fig. 16. *Kryptochroma septata* Machado & Teixeira gen. et sp. nov., holotype, ♀ (UFMG 18269). **A.** Habitus, dorsal view. **B.** Front. **C, E.** Epigynal plate, ventral view. **D, F.** Spermathecae, dorsal view.

Etymology

The name is a reference to the remarkable median septum on the epigynal plate of females.

Material examined

Holotype

BRAZIL • ♀; Minas Gerais, Vale Verde, Parque Nacional do Caparaó; 20°25'5.9" S, 41°50'48.7" W; 24–30 Nov. 2014; B.T. Faleiro leg.; UFMG 18269.

Paratype

BRAZIL • 1 ♂; same collection data as for holotype; UFMG 22431.

Additional material

None.

Description

Female (holotype, UFMG 18296)

PROSOMA. Anterior row eye strongly recurved and posterior slightly procurved (Fig. 16B); ALE slightly larger than AME; carapace predominantly dark-yellow with cephalic region dark-brown; clypeus yellow; sternum slightly longer than wide, dark-brown with a central yellow stain; labium truncated and totally dark-brown; chelicerae dark-yellow

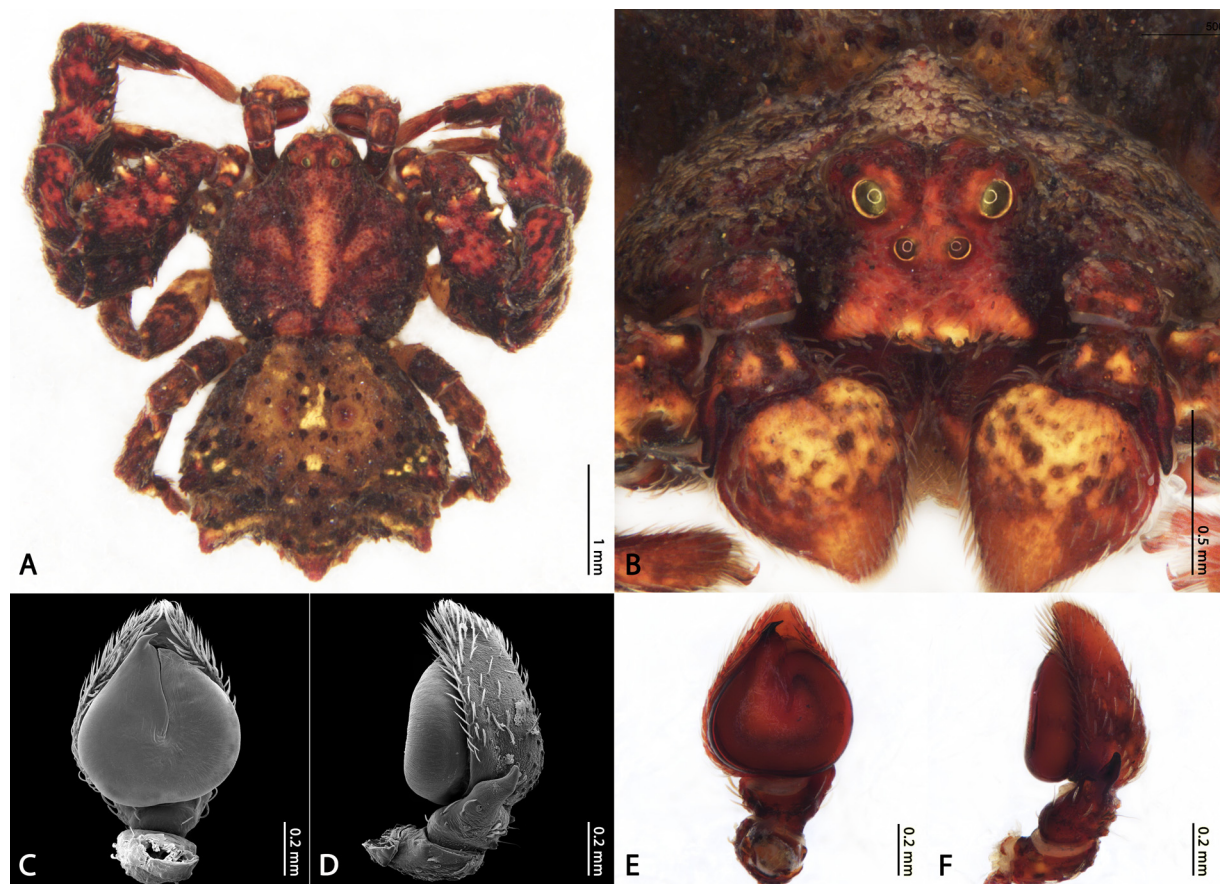


Fig. 17. Male of *Kryptochroma septata* Machado & Teixeira gen. et sp. nov., paratype (22431). **A.** Habitus, dorsal view. **B.** Front. **C–F.** Left male palp. **C, E.** Ventral view. **D, F.** Retrolateral view.

LEGS. Anterior legs (I and II) dark-yellow with dark taints randomly distributed; posterior legs (III and IV) predominantly yellow.

OPISTHOSOMA. Rough surfaced, predominantly dark-yellow, with dark-brown stains bypassing the upper-lateral opisthosomal projections and the median posterior one; a central white macula can be observed on the dorsum (Fig. 16A); spermathecae smooth surfaced and kidney-shaped (Fig. 16D, F).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.10, ALE 0.16, PME 0.14, PLE 0.14, AME–AME 0.12, AME–ALE 0.14, PME–PME 0.22, PME–PLE 0.07, MOQ length 0.12, MOQ width 0.20; leg formula: 1-2-4-3: leg I – femur 4/ patella 2.15/ tibiae 2.75/ metatarsus 1.75/ tarsus 1.15/ total 11.80; II – 3.25/ 1.80/ 2.25/ 1.50/ 1.15/ 9.95; III – 1.75/ 1/ 1.50/ 0.90/ 0.90/ 6.05; IV – 2.25/ 0.75/ 1.75/ 1/ 0.80/

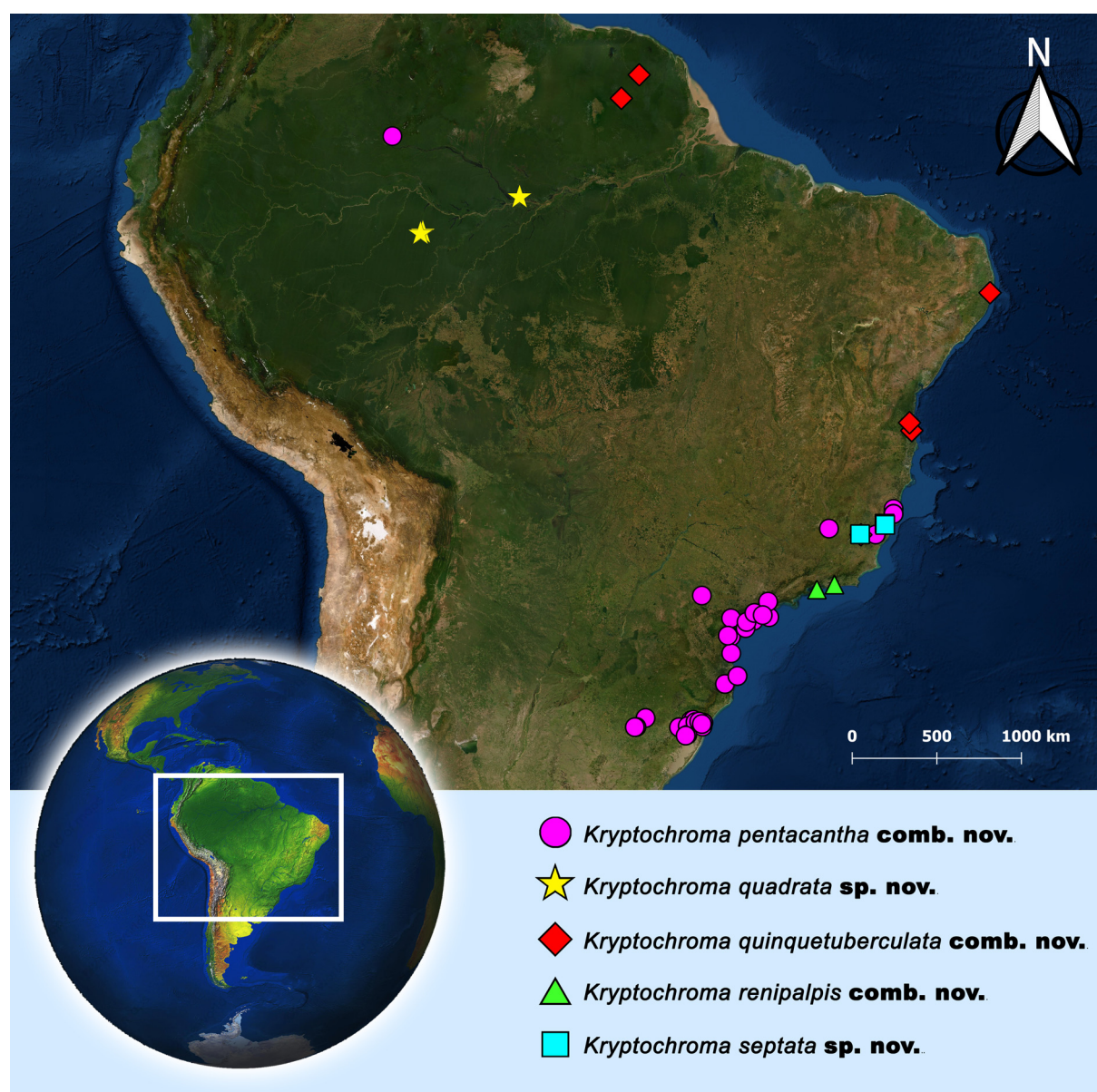


Fig. 18. Distribution records of species of *Kryptochroma* Machado gen. nov.

6.55. Total body length 7.80; carapace 3.65 length, 3.75 width; opisthosoma length 4.15; clypeus 0.40 height; sternum 1.70 length, 1.50 width; endites 0.90 length, 0.46 width; labium 0.48 length, 0.74 width.

Male (paratype, UFMG 22431)

PROSOMA. Reddish-brown with lighter median area and clypeus (Fig. 17A–B).

LEGS. Anterior legs (I and II) reddish-brown with macrosetae sockets yellowish-white; posterior femora (III and IV) bicolor, yellow on their proximal half and reddish-brown on its distal part.

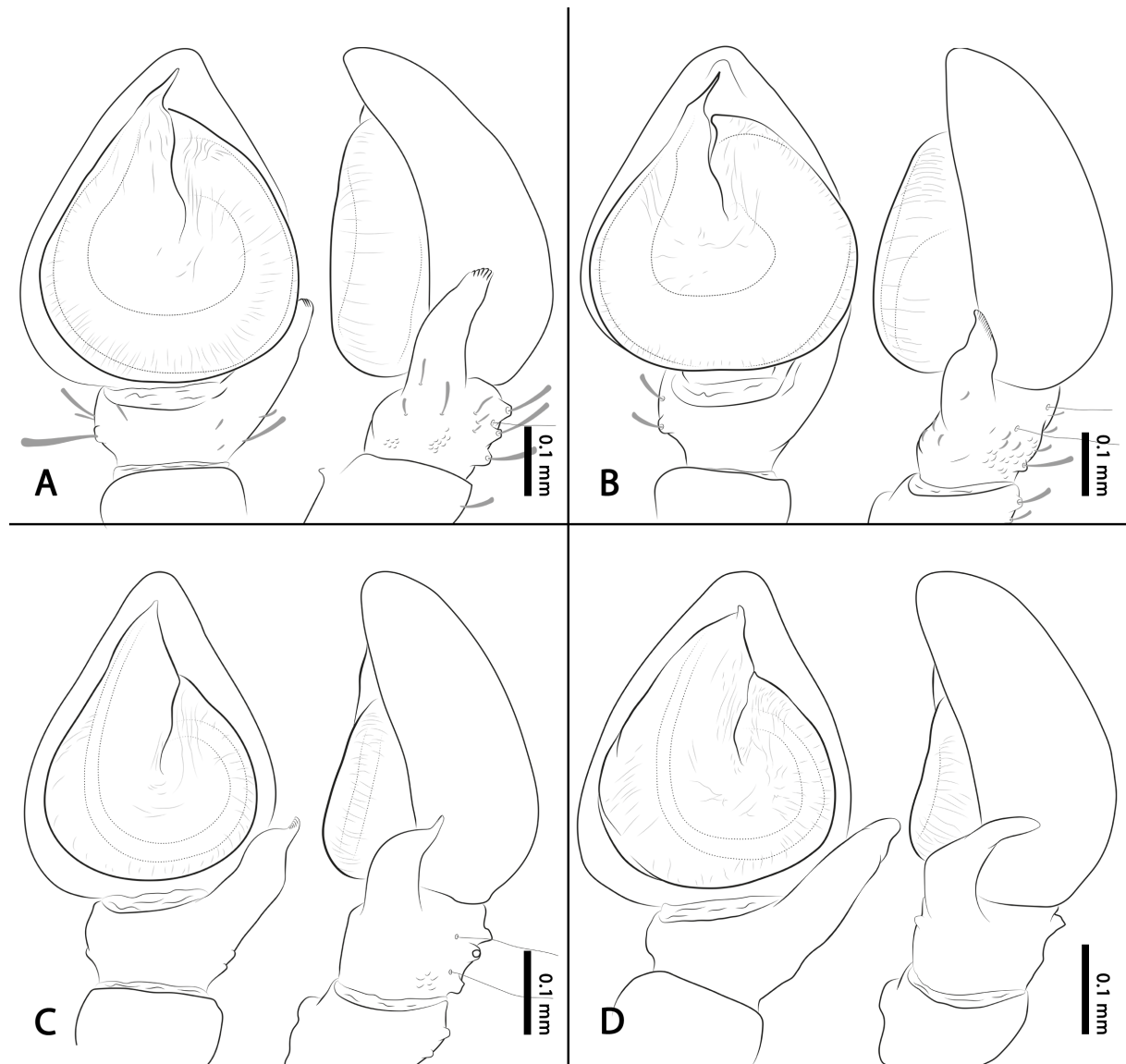


Fig. 19. Illustrations of the left male palp in ventral and retrolateral view. **A.** *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 25762). **B.** *K. quadrata* Machado & Viecegli gen. et sp. nov., holotype (MPEG 22673). **C.** *K. quinquetuberculata* (Taczanowski, 1872) gen. et comb. nov. (IBSP 46712). **D.** *Kryptochroma renipalpis* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 42730).

OPISTHOSOMA. Predominantly brown with black punctuations; opisthosomal projections are reddish and bear white maculae on its basis; a dorsal white guanine spot can be also observed on the median region of the dorsum (Fig. 17A).

MEASUREMENTS. Eye diameters and eye interdistances: AME 0.07, ALE 0.09, PME 0.07, PLE 0.07, AME–AME 0.09, AME–ALE 0.09, PME–PME 0.16, PME–PLE 0.07, MOQ length 0.28, MOQ width 0.23; leg formula: 1-2-4-3; leg I – femur 1.71/ patella 0.92/ tibiae 1.35/ metatarsus 1.02/ tarsus 0.57/ total 5.57; II – 1.33/ 0.83/ 1.04/ 0.80/ 0.59/ 4.59; III – 0.88/ 0.57/ 0.78/ 0.54/ 0.38/ 3.15; IV – 1.09/ 0.57/ 0.85/ 0.64/ 0.42/ 3.57. Total body length 4.16; carapace 1.97 length, 1.85 width; opisthosoma length

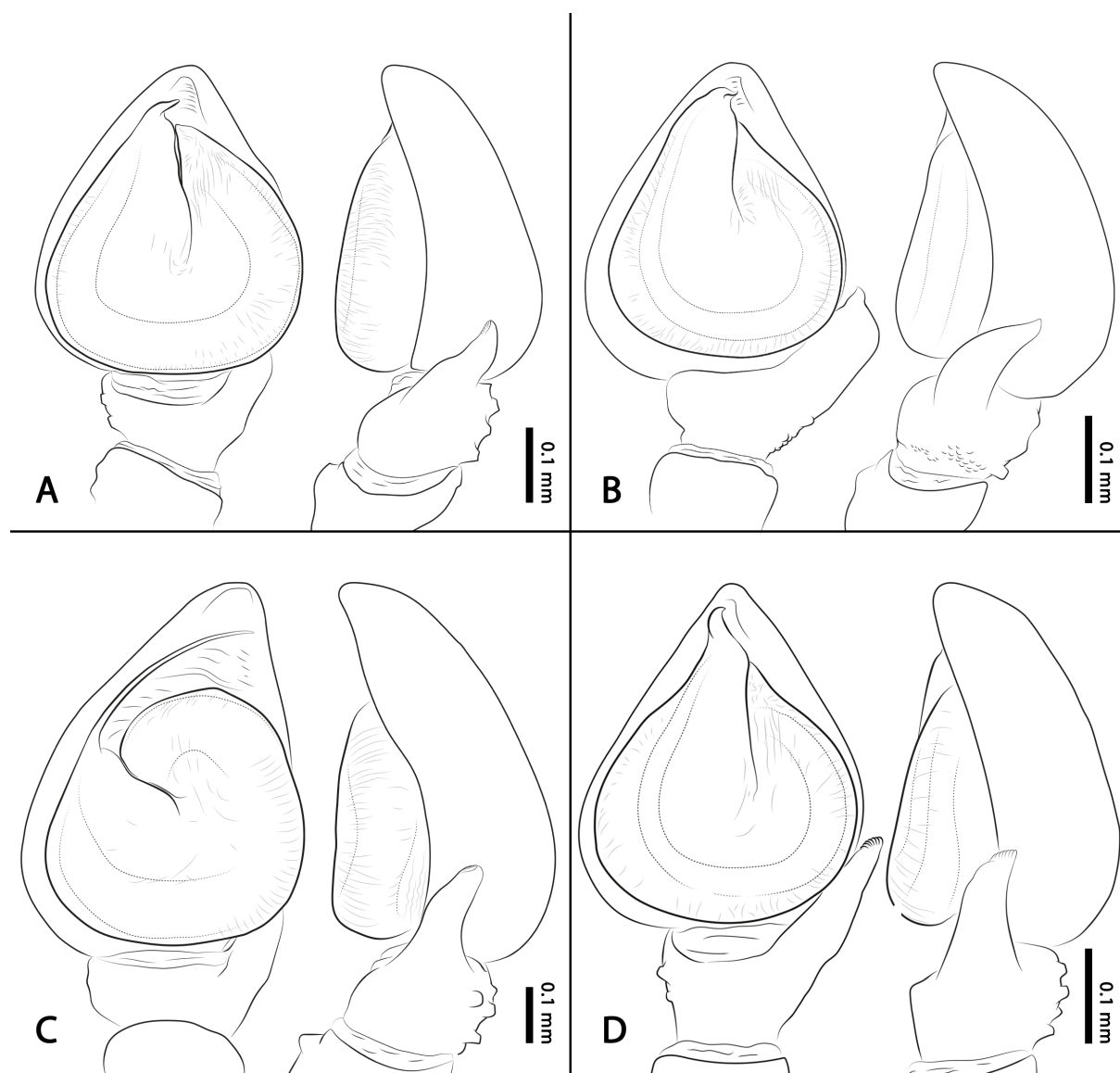


Fig. 20. Illustrations of the left male palp in ventral and retrolateral view. **A.** *Kryptochroma septata* Machado & Teixeira gen. et sp. nov., paratype (UFMG 22431). **B.** *K. hilaris* Machado & Teixeira gen. et sp. nov. (MPEG 13239). **C.** *K. macrostyla* (Mello-Leitão, 1929) gen. et comb. nov. (MZSP 15320). **D.** *K. parahybana* (Mello-Leitão, 1929) gen. et comb. nov. (MPEG 09069)

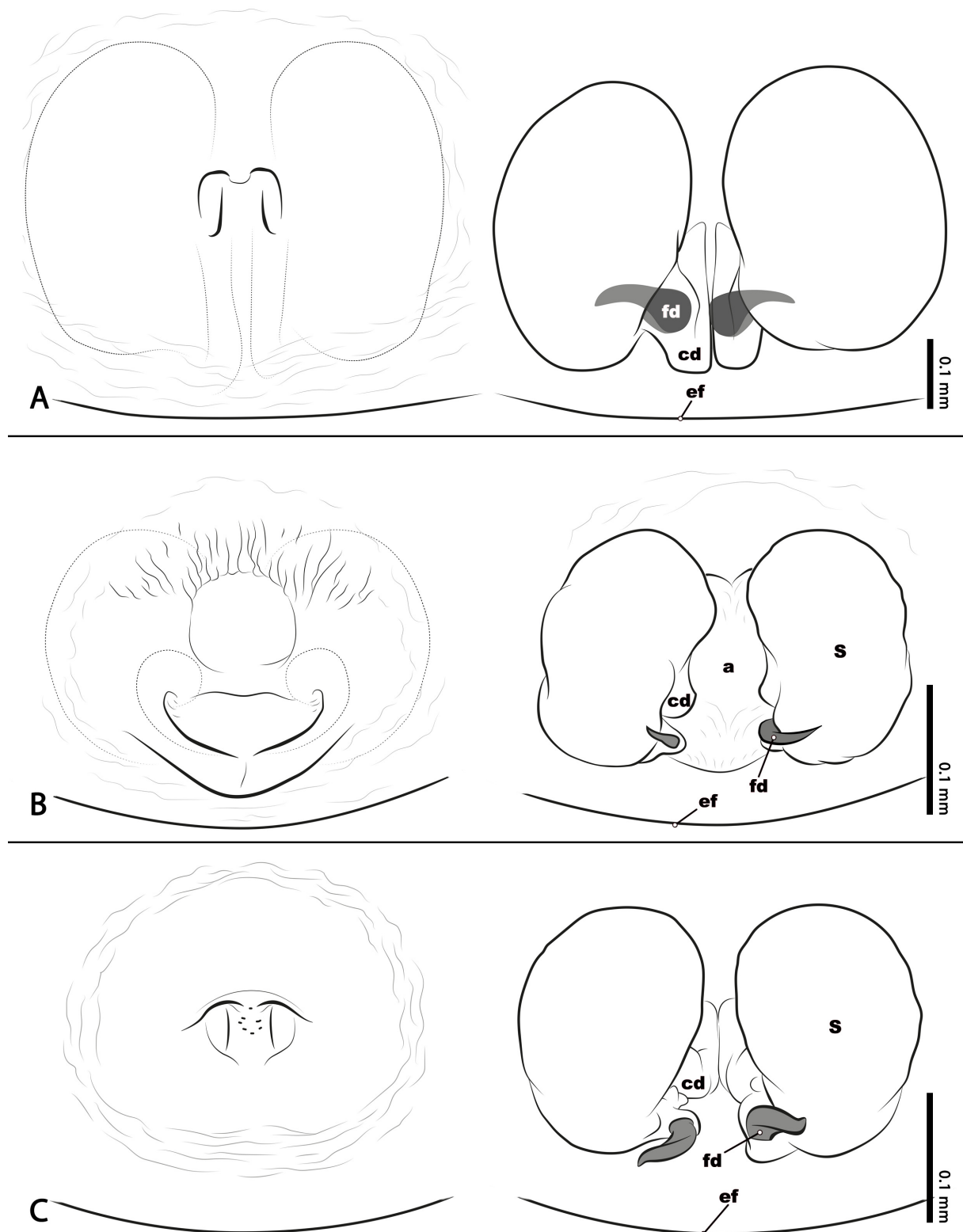


Fig. 21. Illustrations of epigynum in ventral and dorsal view. **A.** *Kryptochroma gigas* Machado & Viecegli gen. et sp. nov., holotype (UFMG 4734). **B.** *K. hilaris* Machado & Teixeira gen. et sp. nov., holotype (MPEG 13322). **C.** *K. parahybana* (Mello-Leitão, 1929) gen. et comb. nov. (MPEG 30339).

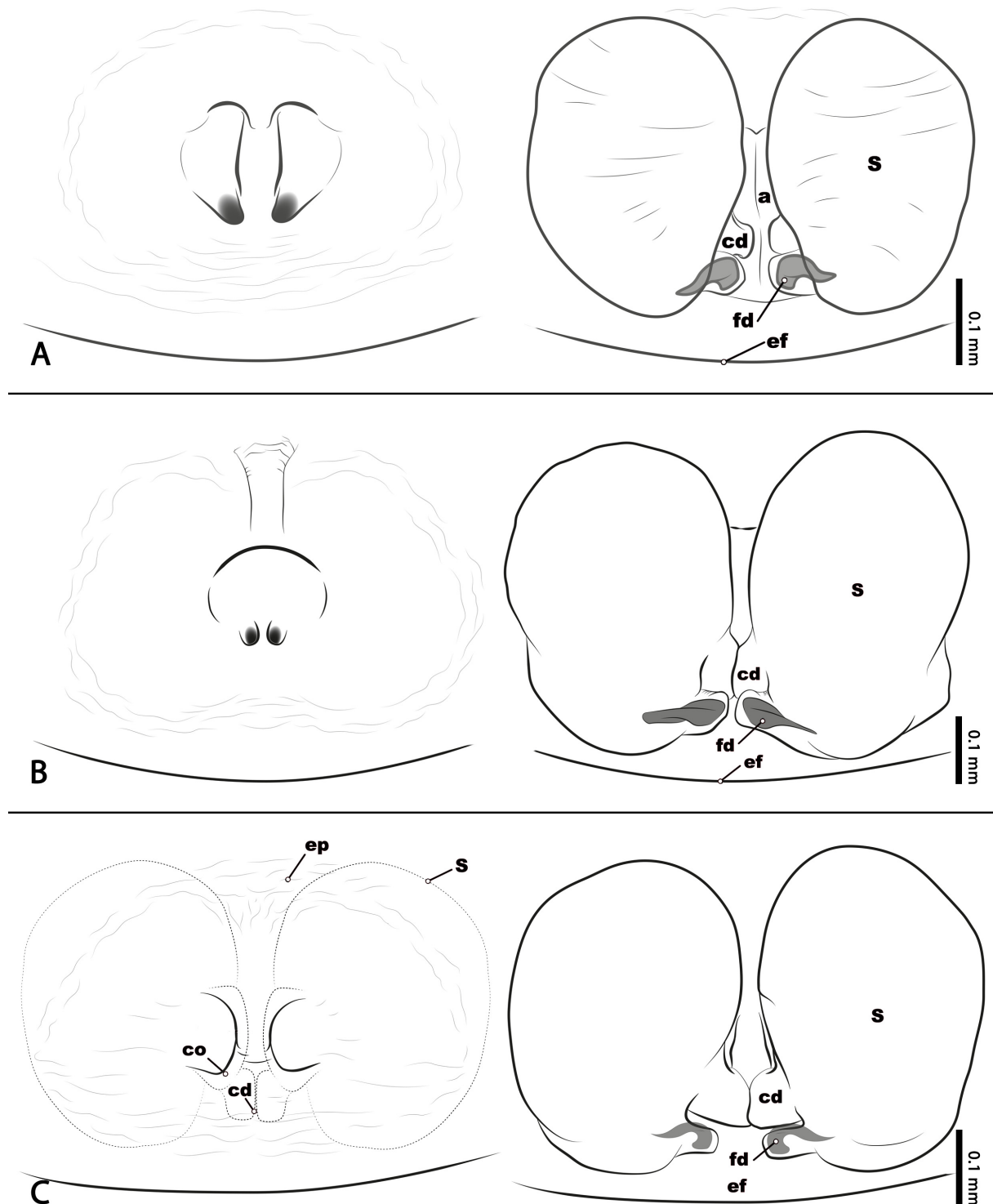


Fig. 22. Illustrations of epigynum in ventral and dorsal view. **A.** *Kryptochroma pentacantha* (Mello-Leitão, 1929) gen. et comb. nov. (MCTP 38671). **B.** *K. quadrata* Machado & Viecegli gen. et sp. nov., apratype (MPEG 13297). **C.** *K. septata* Machado & Teixeira gen. et sp. nov., holotype (UFMG 18296).

2.19; clypeus 0.23 height; sternum 0.88 length, 0.88width; endites 0.40 length, 0.21 width; labium 0.21 length, 0.30 width.

Distribution

Brazil (Espírito Santo and Minas Gerais) (Fig. 18).

Additional taxonomic acts

The type material of all other Neotropical species hitherto assigned to *Stephanopsis* was examined. The following species do not share the diagnostic characters proposed for *Kryptochroma* gen. nov., therefore

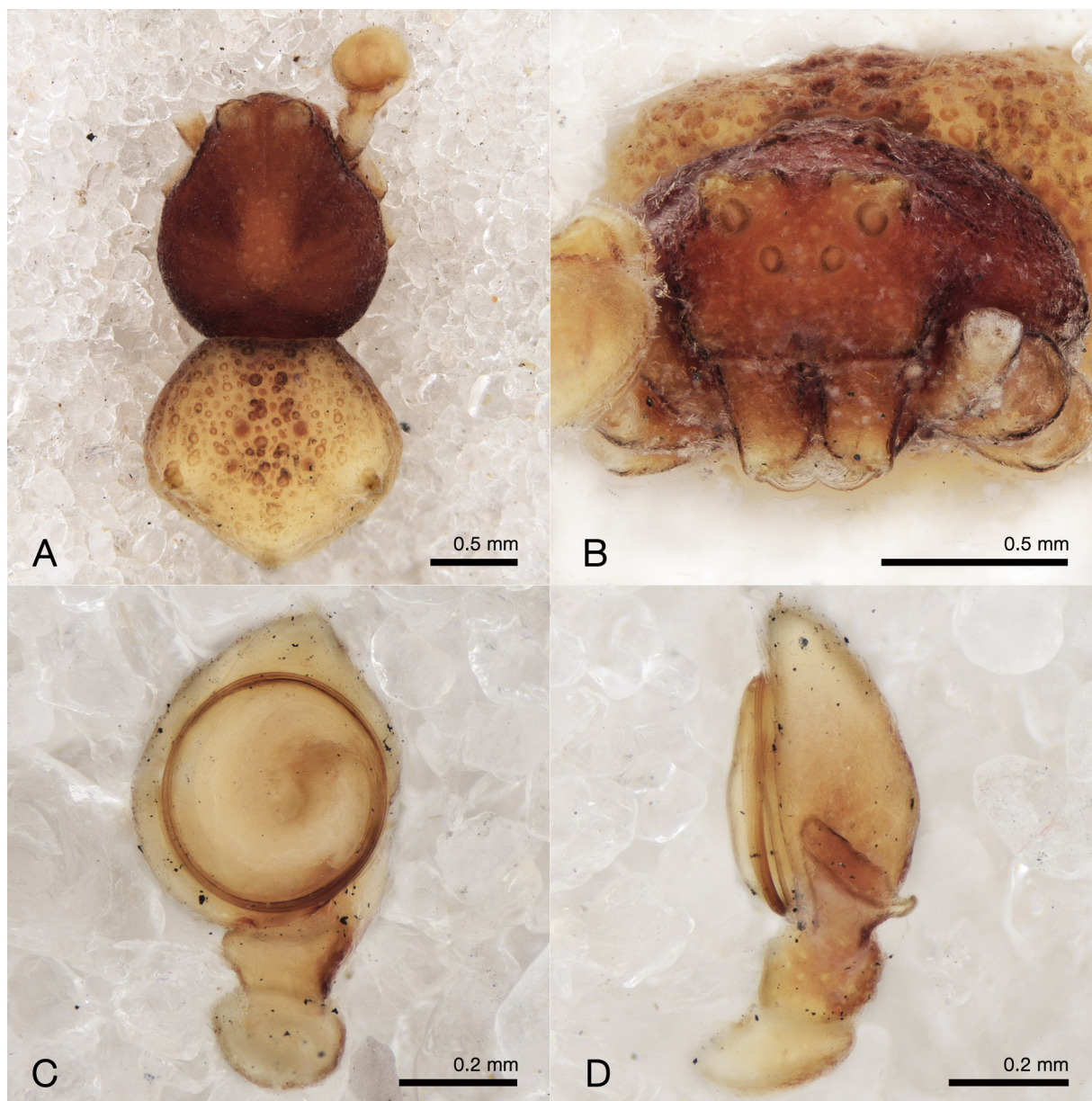


Fig. 23. *Stephanopsis aheneus* Soares & Soares, 1946. Holotype (MZSP 666). **A.** Habitus, dorsal view. **B.** Front. **C–D.** Left palp. **C.** Ventral view. **D.** Retrolateral view.

they are being considered as nomina dubia or transferred to other genera recently revised by Teixeira *et al.* (2014), Silva-Moreira & Machado (2016) and Machado *et al.* (2018, 2019a).

Epicadus tuberculatus (Petrunkévitch, 1910)

Stephanopis aheneus Soares & Soares, 1946: 57, figs 5–6 (male holotype from Rio São José, Colatina, Espírito Santo, Brazil, Soares, B.A.M. leg., 15 September 1942, deposited in MZSP 666, examined).
syn. nov.

Note

This synonymy is proposed based on the shape of the tegulum, RTA and the presence of tubercles on the thoracic portion of the carapace (Fig. 23) – complete synonymic list in Prado *et al.* (2018).

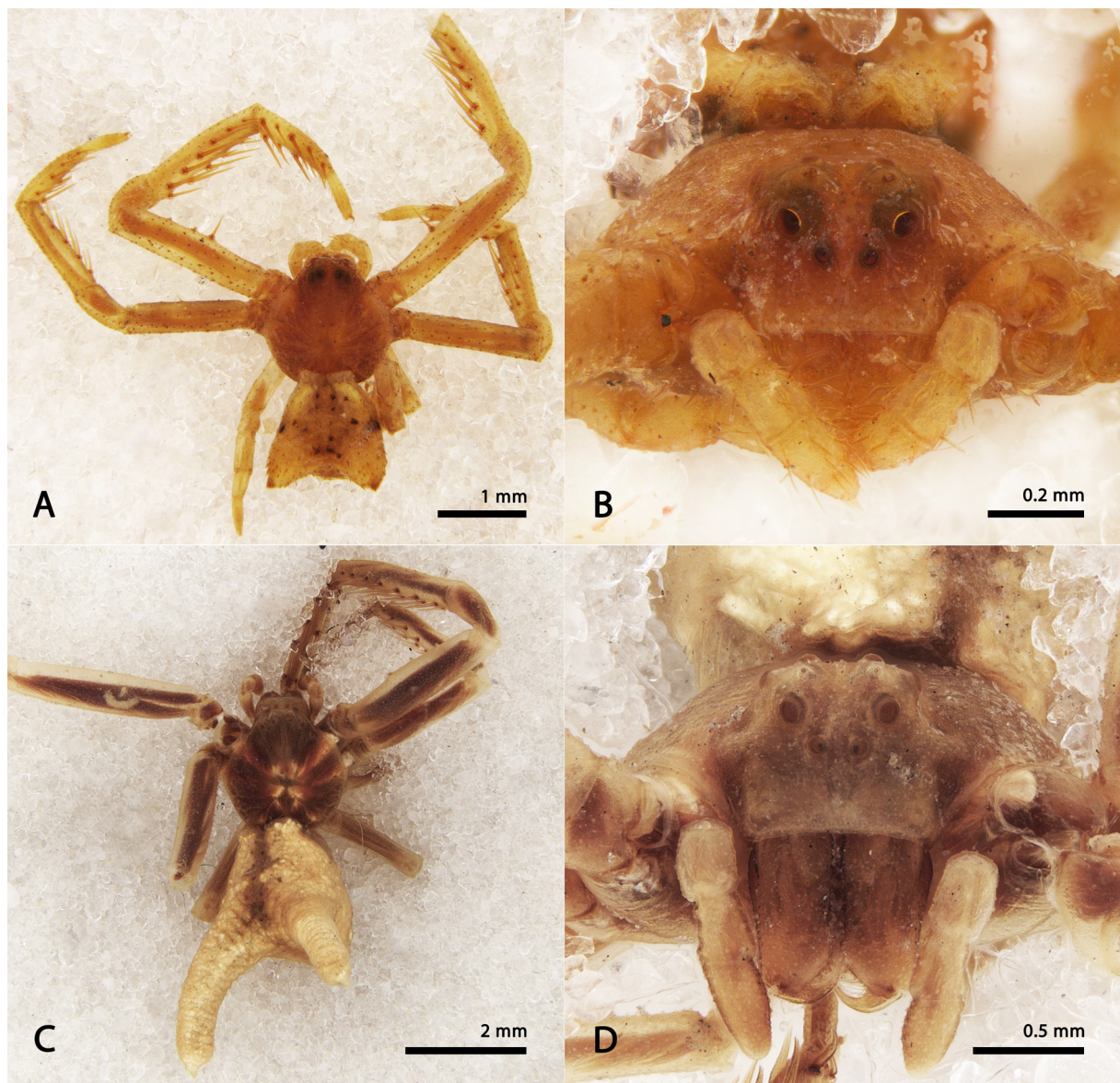


Fig. 24. A–B. Holotype of *Stephanopis borgmeyeri* Mello-Leitão, 1929. Holotype (MNRJ 917). A. Habitus, dorsal view. B. Front. C–D. *Stephanopis furcillata* Keyserling, 1880. Holotype (ZMHB 2406). C. Habitus, dorsal view. D. Front.

Stephanopis borgmeyeri Mello-Leitão, 1929 nom. dub.

Fig. 24A–B

Stephanopis borgmeyeri Mello-Leitão, 1929: 54, fig. 40 (immature female holotype from Petrópolis, Rio de Janeiro, Brazil, deposited in MNRJ 917, examined).

Note

Proposed as nomen dubium once the immature specimen does not allow a reliable identification (Fig. 24A–B).

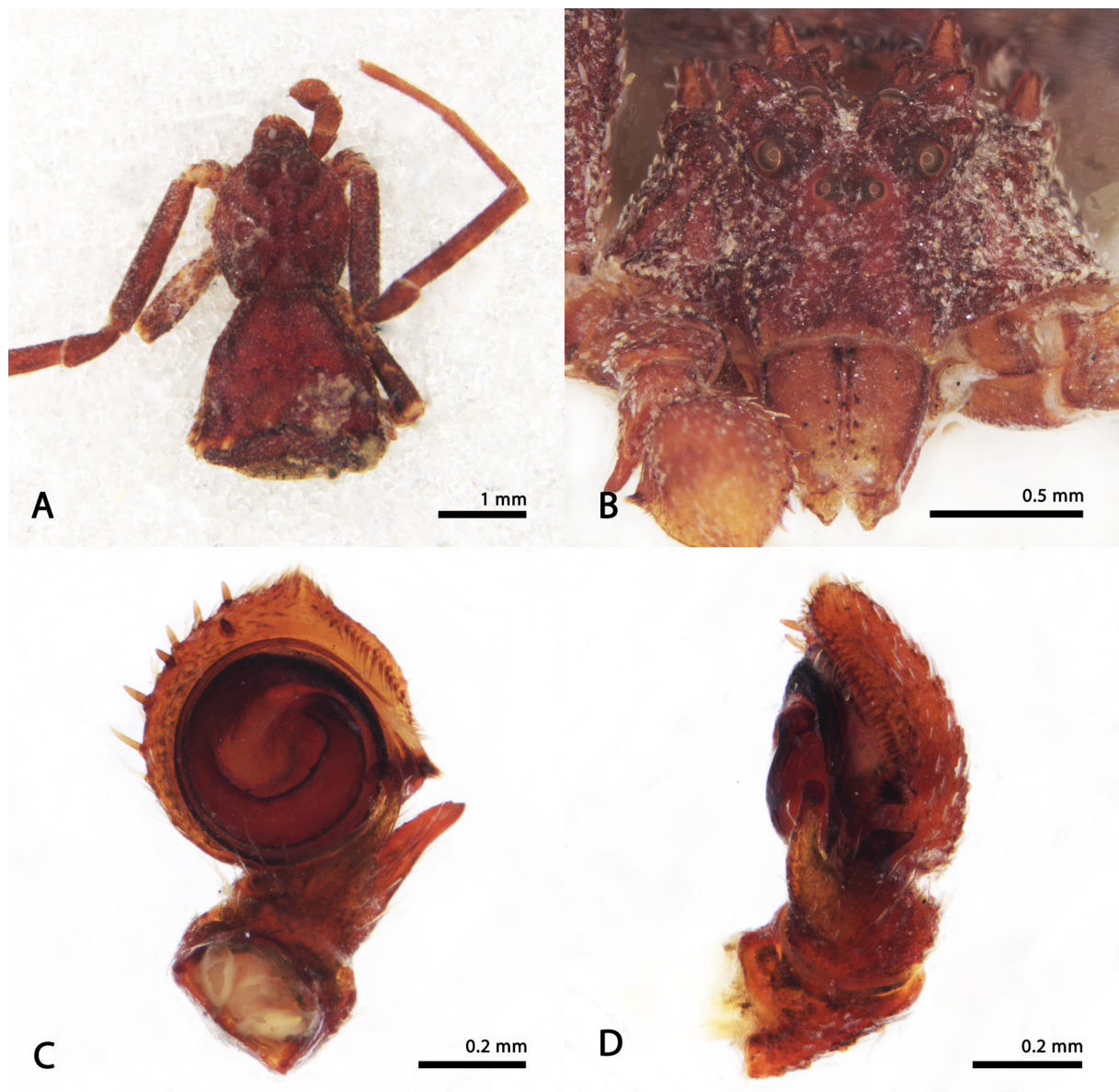


Fig. 25. *Stephanopis quimiliensis* Mello-Leitão, 1942. Holotype, ♂ (MLP 15455). **A.** Habitus, dorsal view. **B.** Front. **C–D.** Left palp. **C.** Ventral view. **D.** Retrolateral view.

***Stephanopsis furcillata* Keyserling, 1880**

Stephanopsis furcillata Keyserling, 1880: 179, pl. 4 fig. 98 (female holotype from Brazil, deposited in ZMHB 2406, examined).

Note

We propose *Stephanopsis furcillata* as senior synonym of *Sidymella multispinulosa* (Mello-Leitão, 1944), based on the distinct opisthosoma presenting a long pair of projections with a terminal tubercle at their tips (Fig. 24C–D).

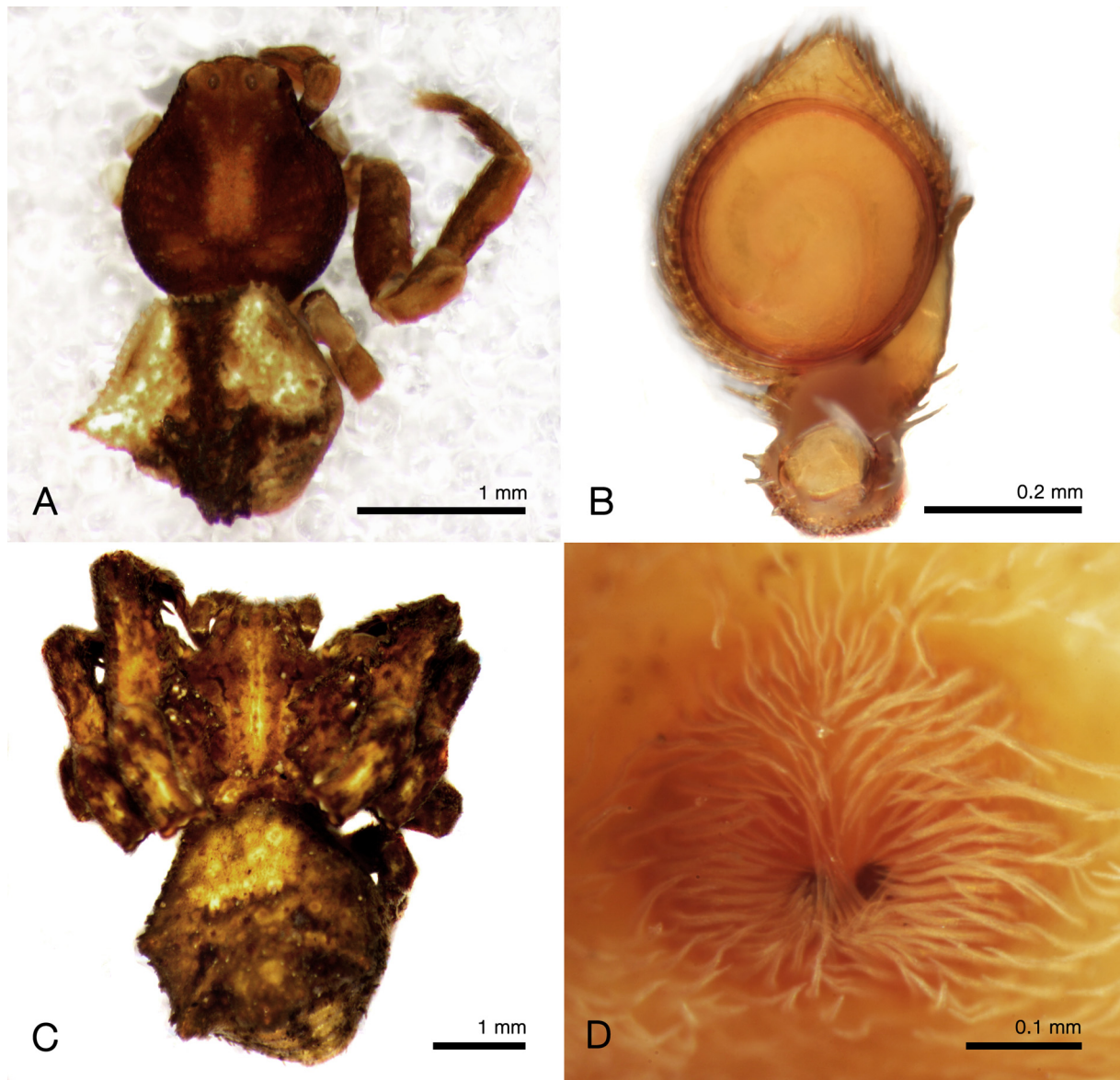


Fig. 26. Syntypes of *Stephanopsis salobrensis* Mello-Leitão, 1929 (MNHN 3973). **A.** Male habitus, dorsal view. **B.** Left palp, ventral view. **C.** Female habitus, dorsal view. **D.** Epigynal plate, ventral view.

Ulocymus quimiliensis (Mello-Leitão, 1942) comb. nov.

Fig. 25

Stephanopis quimiliensis Mello-Leitão, 1942: 408, figs 33–34 (male holotype from Quimilí, Santiago del Estero, Argentina, Birabén, M. leg., deposited in MLP 15455, examined). **syn. nov.**

Note

This species lacks the typical cheliceral teeth that are still considered as a diagnostic feature for Stephanopinae. Instead, its elongated labium and peglike-setae on endites (see Teixeira *et al.* 2014) allow us to undoubtedly consider this spider as an Aphantochilinae. We propose the transfer of *S. quimiliensis* to *Ulocymus* Simon, 1866 based on the presence of stout and conical projections on the dorsum of the carapace (see Teixeira *et al.* 2014) and shape of the copulatory structures (Fig. 25).

Epicadus stelloides (Walckenaer, 1837) comb. nov.

Thomisus stelloides Walckenaer, 1837: 514 (female holotype from “Île Tortue”, Tortuga, Haiti, deposited in MNHN, probably lost).

Stephanopis trilobata Mello-Leitão, 1929: 56, fig. 136 (female holotype collected in Goiás, Brazil, deposited in MNHN 21629, examined; female “cotype”, collected in Goiás, Brazil, deposited in MNHN 21628, examined). **syn. nov.** (Fig. 27E–F).

Stephanopis salobrensis Mello-Leitão, 1929: 57, figs 137–139 (2 females paralectotypes, misidentified; 1 male lectotype designated here, collected from Salobro, Bahia, Brazil, deposited in MNHN 3973, examined). **syn. nov.** (Fig. 26).

Stephanopis stelloides – Keyserling 1880: 173 (female cotype collected from “Tortosa” by Guérin-Meneville, not located). **syn. nov.** (Fig. 27C–D).

Note

Although the holotype described by Walckenaer (1837) is presumably lost, and the “conspecific” and sympatric specimen used by Keyserling (1880) to describe *S. stelloides* had not been found, the original descriptions and illustrations (Fig. 27C–D) allowed us to unequivocally identify this species as conspecific with *Epicadus caudatus* (Fig. 27A–B), a species that was recently examined and revised by Machado *et al.* (2015, 2017). Following the priority principle, we transfer *Stephanopis stelloides* to *Epicadus* and propose the name *E. stelloides* comb. nov. as a senior synonym over *E. caudatus* (Fig. 27). Thus, based on the images provided by Machado *et al.* (2015), we also recognize the identity of the male specimen of *S. salobrensis* as conspecific to *E. stelloides* comb. nov.

Discussion

The crab spiders assigned to the subfamily Stephanopinae were repetitively reported as a paraphyletic group whose recovered branches are usually unstable and weakly supported (Benjamin *et al.* 2008; Benjamin 2011; Ramírez 2014; Wheeler *et al.* 2017). This paraphyly and other insights about the taxonomic boundaries of *Stephanopis* were observed in the cladistic analysis provided by Machado *et al.* (2017). These preliminary results and seminal ideas that, at the time focused on the relationships of the genus *Epicadus*, led us (Machado & Teixeira 2021) to extend our sample and investigate the relationships of *Stephanopis* and its presumable paraphyly. Since this genus had several species described from the Australian and Neotropical regions, and its taxonomic background included many species currently assigned to *Sidymella*, both genera were studied by Machado & Teixeira (2021). The recent findings provided by these authors corroborate the hypothesis of the polyphyletism for *Stephanopis*. Among the distinct clades that emerged from the genus, there is a remarkable group of species with distribution restricted to the Neotropical Region, which Machado & Teixeira (2021) named “*pentacantha* clade”.

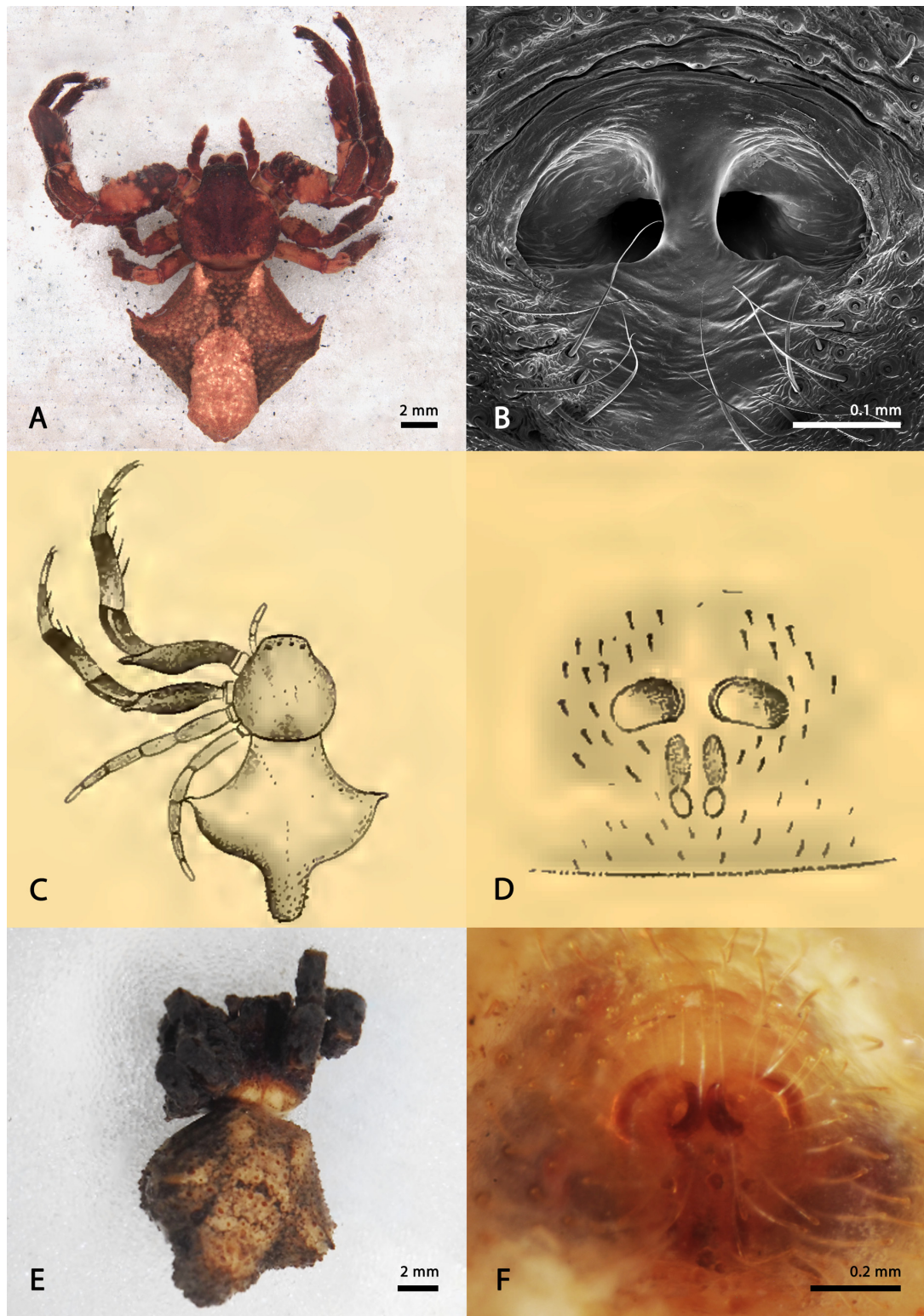


Fig. 27. A–B. Female of *Epicadus caudatus* (Mello-Leitão, 1929) (MCTP 7593) for comparison. A. Habitus, dorsal view. B. Epigynal plate, ventral view. — C–D. Sketches from the original description of *Stephanopsis stelloides* (Walckenaer, 1837). C. Habitus, dorsal view. D. Epigynal plate, ventral view. — E–F. *Stephanopsis trilobata* Mello-Leitão, 1929. Holotype, ♀ (MNHN 21629). E. Habitus, dorsal view. F. Epigynal plate, ventral view.

This group was recovered with significant stability and branch support, presenting two synapomorphies: (1) patellae I and II with a pair of ventral macrosetae; (2) pear-shaped tegulum. Here, we not only describe and provide detailed images of these traits but also formally propose a new generic assignment to this group of species provisionally treated as a clade that should not be recognized as part of *Stephanopsis* (stricto sensu).

Although these studies were based solely on morphological traits, their findings showed to be consistent with what molecular phylogenies have brought to the discussion regarding the relationships in Stephanopinae (Benjamin *et al.* 2008; Benjamin 2011; Wheeler *et al.* 2017). While few papers discussed the apparent “simplicity” of the copulatory features in the group, somatic characters (i.e., cryptic body coloration and rugose tegument usually with soil particles attached on it or associated lichen/fungi) have been constantly pointed out (Ramírez 2014; Machado *et al.* 2017; Machado & Teixeira 2021). These traits and behaviors could be a result of an evolutionary convergence related to hunt and camouflage adaptations or a plesiomorphic condition in Thomisidae that could have changed multiple times along the phylogeny. Although these evolutionary hypotheses are still open, the importance of a tegument hue and ability of UV reflection were tested and seem to have an effect on the fitness of the spiders and their hunting success (Viera *et al.* 2017). In this sense, it is obvious that to better understand the evolution and relationships in Stephanopinae, performing extensive phylogenies is a must. But to do so, either to sequence the right material or to score a matrix of morphological characters, it is imperative that we start from an accurate taxonomic basis. This is part of an initial effort to clarify the morphological boundaries of some groups of Stephanopinae that were discussed in Machado & Teixeira (2021). More genera are expected to be proposed in the near future since there are five other clades highlighted by these authors that are still in need of proper revisions.

Acknowledgments

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