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Catanduba, a new Theraphosinae spider genus from Central Brazil (Araneae, Theraphosidae)

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Abstract

A new genus, *Catanduba,* is proposed and supported on the cladistic analysis with the following synapomorphies: embolus tapering abruptly from half of the length, embolus tooth associated with PIK and a triangular basal nodule on male metatarsus I. *Homoeomma simoni* and *Plesiopelma flavohirtum* are transferred to *Catanduba* and five new species are described: *C. tuskae*, *C. araguaia*, *C. piauiensis*, *C. canabrava* and *C. peruacu.* The species occur mainly in central Brazil, in Cerrado areas, with some species also occurring in Atlantic forest (*C. tuskae* **sp. n.**) and Caatinga (*C. piauiensis* **sp. n.** and *C. peruacu* **sp. n.**).

Key words: Spider, Mygalomorphae, cladistics, Cerrado

Introduction

The subfamily Theraphosinae is restricted to the New World. It contains about 30 genera and 400 species, most of them occurring in the Neotropical region (Raven, 1985). Unfortunately, the taxonomic state of the subfamily is problematic, with most of its genera lacking revisionary studies (Raven 1990).

In the last years, some research has improved the knowledge of the group with the revisions of genera, such as *Hemirrhagus* Simon, 1903 (Pérez-Miles 2003), *Cyriocosmus* Simon, 1903 (Pérez-Miles 1998; Fukushima *et al.* 2005), *Tmesiphantes* Simon, 1892 (Yamamoto *et al.* 2007), *Magulla* Simon, 1892 (Indicatti *et al.* 2007) and with proposition of new genera, like *Ami* Pérez-Miles 2008, *Kochiana* Fukushima, Nagahama & Bertani, 2008 and *Agnostopelma* Pérez-Miles & Weinmann 2010. Even though, most of the genera still need basic taxonomic studies as does *Homoeomma* Ausserer 1871.

In our revision of *Homoeomma* (Yamamoto *et al.* in prep.), we find that *H. simoni* Soares & Camargo 1948 does not resemble the other species of this genus and has unique features when compared to other Theraphosinae genera.

Other undescribed species with the same features were found, leading us to erect a new genus to include *Homoemma simoni*, *Plesiopelma flavohirtum* (Simon 1889) and five other new species. This hypothesis is based on the cladistic analysis here presented.

Material and methods

The material is deposited in the following institutions (acronym and curator in parentheses): Instituto Butantan, São Paulo (IBSP, D. Battesti); Museu de Zoologia da Universidade de São Paulo, São Paulo (MZSP, R. Pinto da Rocha); Muséum National d'Histoire Naturelle, Paris (MNHN, C. Rollard), Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (MCN, E.H. Buckup), Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (MCTP, A.A. Lise).

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Spine notation follows Petrunkevitch (1925). Palpal bulb structure classification follows Bertani (2000). Urticating hairs classification follows Cooke *et al.* (1972).

Abbreviations: AME, anterior median eyes; ALE, anterior lateral eyes; PLE, posterior lateral eyes and PME, posterior median eyes; PLS, posterior lateral spinnerets; PIK, prolateral inferior keel; PSK, prolateral superior keel; d, dorsal; v, ventral; p, prolateral; r, retrolateral; m, median. All measurements are in millimeters.

Cladistic analysis. The character matrix (Table 1) was edited with Mesquite version 2.72 (Maddison & Maddison 2009). Non-applicable and unknown data are presented as '–' and '?', respectively.

The parsimony analysis was performed with the software TnT, version 1.1 (Goloboff, Ferris & Nixon 2003), using the algorithm "implicit enumeration", with the same weight for all the characters and with the collapsing rule "minimum length = 0". The data matrix is composed by 38 characters (Table 1). Multistate characters were treated as non-additive.

A total of 20 taxa were used, including representatives of nine Theraphosinae genera (*Catanduba* **gen. nov.**, *Plesiopelma* Pocock, *Homoeomma* Ausserer, *Grammostola* Simon, *Tmesiphantes* Simon, *Cyriocosmus* Simon, *Hapalopus* Ausserer, *Magulla* Simon and *Maraca* Pérez-Miles) and one species of Ischnocolinae, *Oligoxystre caatinga* Guadanucci 2007. The last one was used as root, based on close relationships between Theraphosinae and Ischnocolinae (Raven 1985). The voucher list is in Appendix 1.

List of characters

1. Digitiform apophysis : (0) absent; (1) present, wider than higher; (2) present, higher than wider.
2. PSK: (0) absent; (1) present
3. PIK : (0) absent; (1) present
4. PSK in distal part of embolus: (0) absent; (1) present
5. Auxiliary keel under PIK: (0) absent; (1) present
6. Auxiliary keel tip: (0) pointed; (1) rounded
7. Embolus tapering: (0) gradual; (1) abrupt from half of the length
8. Angle formed between bulb and embolus: (0) 165–180º; (1) 90–135º
9. Transition tegulum-embolus: (0) not twisted; (1) twisted
10. Embolus tip: (0) thin; (1) thick
11. Spermatic duct: (0) curve; (1) straight; (2) S-shaped
12. Tooth on embolus: (0) absent; (1) present
13. Tooth on embolus: (0) free; (1) associated with PIK
14. Tooth with PIK: (0) PIK ends with tooth; (1) PIK extends after tooth
15. Paraembolic apophysis: (0) absent; (1) present
16. Subtegulum-tegulum shape: (0) oval; (1) rounded
17. Grooves on male palpal bub: (0) absent; (1) present
18. Male metatarsal I flexion: (0) retrolateral side of tibial apophysis; (1) between branches of tibial apophysis
19. Male leg I, tibial apophysis branches: (0) convergents; (1) divergents
20. Base of tibial apophysis branches: (0) separated; (1) fused
21. Male metatarsus I, basal nodule: (0) absent; (1) present
22. Male metatarsus I, basal nodule: (0) rounded; (1) triangular
23. Male metatarsus I: (0) straight; (1) curved at the base; (2) curved at the middle
24. Retrolateral process on male palpal tibia: (0) absent; (1) present
25. Spermathecae: (0) flat; (1) cylindrical
26. Cylindrical spermathecae: (0) straight; (1) spiral
27. Nodules on spermathecae: (0) absent; (1) present
28. Spermathecae with membranous base: (0) absent; (1) present
29. Spermathecae proportions: (0) higher than wide; (1) as high as wide
30. Subapical constriction on spermathecae: (0) absent; (1) present
31. Spermathecal receptacles: (0) independent bases; (1)attached at the base
32. Urticating hairs of type III on males: (0) absent; (1) present
33. Urticating hairs of type III on females: (0) absent; (1) present
34. Urticating hairs type IV on males: (0) absent; (1) present
35. Urticating hairs type IV on females: (0) absent; (1) present
36. Difference between dorsal and ventral abdomen color: (0) gradual; (1) abrupt
37. Division of abdomen color with abrupt difference: (0) with stripes; (1) with
38. Stridulatory setae on coxa I: (0) absent; (1) present

TABLE 1. Character state matrix. Taxa scored with more than one state are plotted with "&"

	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	1 3
Oligoxystre caatinga	0	0	0	0	0	-	0	0	0	0	0	0	-
Homoeomma montanum	2	1	1	1	0	-	0	1	1	1	2	0	-
Homoeomma stradlingi	2	1	1	1	0	-	0	1	1	1	1	0	-
Homoeomma elegans	2	0	1	0	0	-	0	1	1	1	1	0	-
Maraca cabocla	1	0	1	1	0	-	0	0	0	1	0	0	-
Plesiopelma longisternalis	1	1	1	0	0	-	0	0	1	0	1	1	-
Plesiopelma insulari	1	1	1	0	0	-	0	0	1	0	1	1	0
Plesiopelma sp.	1	1	1	0	0	-	0	0	1	0	1	1	0
Tmesiphantes nubilus	1	1	1	0	0	-	0	1	1	1	2	0	0
Grammostola mollicoma	1	1	1	0	0	-	0	0	1	0	2	0	-
Cyriocosmus ritae	1	1	0	0	0	-	0	0	1	0	0	0	-
Magulla obesa	1	1	1	0	0	-	0	0	1	0	2	0	-
Hapalopus sp.	1	1	1	0	0	-	0	0	1	1	0	0	-
Catanduba tuska	1	1	1	0	0	-	1	0	1	0	1	1	1
Catanduba simoni	2	1	1	0	1	1	1	0	1	0	1	1	1
Catanduba flavohirta	1	1	1	0	0	-	1	0	1	0	1	1	1
Catanduba peruacu	1	1	1	0	0	-	1	0	1	0	1	1	1
Catanduba piauiensis	1	1	1	0	1	0	1	0	1	0	1	1	1
Catanduba araguaia	1	1	1	0	1	0	1	0	1	0	1	1	1
Catanduba canabrava	1	1	1	0	0	-	1	0	1	0	1	1	1

continued.

	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4	2 5	2 6
Oligoxystre caatinga	0	0	0	0	0	0	0	0	-	0	0	0	0
Homoeomma montanum	0	0	0	0	1	1	0&1	0	-	0&1	0	0	0
Homoeomma stradlingi	0	0	0	0	1	1	1	0	-	1	0	0	0
Homoeomma elegans	0	0	0	0	1	1	1	1	0	1	0	0	0
Maraca cabocla	0	0	0	0	1	1	0	0	-	0	1	0	0
Plesiopelma longisternalis	0	0	1	0	1	1	0	1	0	0	1	1	1
Plesiopelma insulari	0	0	1	0	1	1	0	1	0	0	?	1	1
Plesiopelma sp.	0	0	1	0	1	1	0	1	0	0	?	1	1
Tmesiphantes nubilus	0	0	0	0	0	0	0	0	-	0	0	0	0
Grammostola mollicoma	0	0	0	0	0	0	0	0	-	2	0	0	0
Cyriocosmus ritae	0	1	1	0	1	1	1	0	-	1	2	1	1
Magulla obesa	0	0	0	0	0	0	0	0	-	1	0	0	0
Hapalopus sp.	0	0	1	0	0	1	1	0	-	0	1	1	0
Catanduba tuska	1	0	0	0	1	1	0	1	1	0	0	1	0
Catanduba simoni	0	0	0	1	1	1	0	1	1	0	0	1	0
Catanduba flavohirta	0	0	0	0	1	1	0	1	1	0	0	1	0
Catanduba peruacu	0	0	0	0	1	1	0	1	1	0	0	1	0
Catanduba piauiensis	0	0	0	1	1	1	0	1	1	0	0	?	?
Catanduba araguaia	0	0	0	1	1	1	0	1	1	0	0	?	?
Catanduba canabrava	1	0	0	0	1	1	0	1	1	0	0	?	?

continued.

	27	28	29	30	31	32	33	34	35	36	37	38
Oligoxystre caatinga	0	0	0	0	0	0	0	0	0	0	-	0
Homoeomma montanum	0	1	1	0	0	1	0	0&1	0&1	0	-	0
Homoeomma stradlingi	0	0	1	0	0	1	0	1	1	0	-	0
Homoeomma elegans	0	1	1	0	0	1	0	0	1	0	-	0
Maraca cabocla	0	0	1	0	0	1	1	0	1	0	-	0
Plesiopelma longisternalis	0	0	0	0	0	1	0	1	1	0	-	0
Plesiopelma insulari	0	0	1	0	0	1	0	1	1	0	-	0
Plesiopelma sp.	0	0	0	0	0	1	0	1	1	0	-	0
Tmesiphantes nubilus	0	0	1	1	1	1	0	0	1	0	-	0
Grammostola mollicoma	0	0	0	0	1	1	1	1	1	0	-	1
Cyriocosmus ritae	0	0	0	1	1	1	0	1	0	0	-	0
Magulla obesa	0	0	0	0	1	1	1	1	1	0	-	0
Hapalopus sp.	0	0	1	1	0	1	1	1	1	1	2	0
Catanduba tuska	1	0	1	0	0	1	0	1	0	0	-	0
Catanduba simoni	2	0	1	0	0	1	0	1	0	1	0	0
Catanduba flavohirta	1	0	1	0	0	1	0	1	0	1	1	0
Catanduba peruacu	2	0	1	0	0	1	0	1	0	1	0	0
Catanduba piauiensis	?	?	?	?	?	1	0	?	?	1	0	0
Catanduba araguaia	?	?	?	?	?	1	0	?	?	1	0	0
Catanduba canabrava	?	?	?	?	?	1	0	?	?	0	-	0

Results

The parsimony analysis of 20 taxa and 38 characters resulted in two most parsimonious trees, with 78 steps (CI= 0.56, RI= 0.70, Figs 1B, 1C). *Catanduba* **gen. nov.** emerges as monophyletic in both trees, with the inclusion of *Homoeomma simoni* and *Plesiopelma flavohirtum*. The difference between the two topologies refers to distinct relationships within *Catanduba* **gen. nov.**

Catanduba **gen. nov.** is supported by the following autapomorphies: embolus tapering abruptly from half of the length, embolus tooth associated with PIK and a triangular basal nodule on male metatarsus I (Figs 2–8 D). Additionally, females of *Catanduba* lack urticating hairs of type IV, as do females of *Cyriocosmus ritae* Pérez-Miles 1998; in both cases, these are considered secondary losses. *Oligoxystre caatinga* lacks urticating hairs, as do all Ischnocolinae species.

Catanduba **gen. nov.** is fully resolved in one of the trees, with a dichotomy pattern relationship (Fig. 1B). In the other, *C. canabrava* **sp. nov.** and *C. tuskae* **sp. nov.** appear closely related, both being the sister group of the clade formed by the other species. In this clade, *C. flavohirta* n. comb. and *C. peruacu* **sp. nov.** appears in polytomy with the clade formed by another tricotomy of *C. simoni* n. comb., *C. piauiensis* **sp. nov.** and *C. araguaia* (Fig. 1C).

The strict consensus resulted in similar topology to Fig. 1C, the only difference being that *C. canabrava* **sp. nov.** and *C. tuskae* **sp. nov.** are in a polytomy with the clade of the others *Catanduba* species (Fig. 1A). The sister group of *Catanduba* is proposed to be *Plesiopelma*, with an embolus tooth as a synapomorphy and a basal nodule on male metatarsus I, also present in *Homoeomma elegans* (Gerschman & Schiapelli 1958).

Although some may argue that *Catanduba* **gen. nov.** and *Plesiopelma* are the same genus since they form a monophyletic group, our hypothesis shows that *Catanduba* **gen. nov.** is an independent evolutionary lineage, with unique morphology of males palpal bulb and females spermathecae when compared to *Plesiopelma* species. The

last ones present a palpal bulb with long and slender embolus with uniform tapering from base to tip and spermathecae with spiral shape spermathecae (Schiapelli & Gerschman 1970, figs 1–18 ; Pérez-Miles *et al*. 1996, figs 38–40).

Additionally, *Catanduba* has a distribution pattern associated with Cerrado and Caatinga vegetation (Fig. 10), while *Plesiopelma* species occur mainly on Chaco and Atlantic forest (Schiapelli & Gerschman 1970), probably due to differences in biogeographical history.

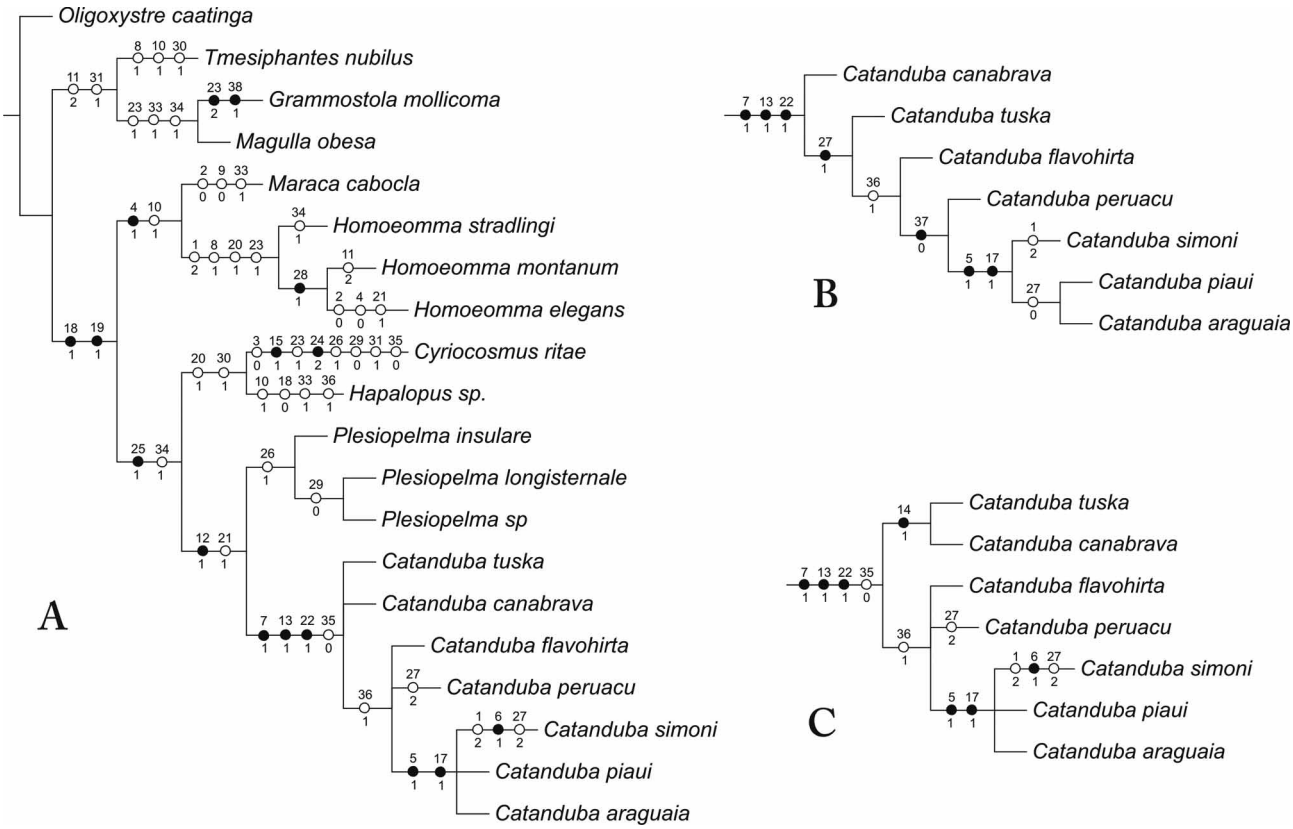

FIGURE 1. Consensus tree (A) and the two alternative topologies for *Catanduba* **gen. nov.** presented in the most parsimonious trees (B, C). Unambiguous characters optimizations are presented in circles. White circles represent homoplasies and black circles synapomorphies.

Taxonomy

Catanduba gen. nov.

Type-species. *Catanduba tuskae* **sp. nov.**

Etymology. Catanduba is a noun in apposition from Tupí language, meaning Cerrado (Brazilian savanna), habitat of most species of the genus. The gender is feminine.

Diagnosis. Males of *Catanduba* **gen. nov.** differ from those of other Theraphosinae genera by the presence of a PIK tooth in the middle of the embolus (Figs 2–8 A, B, C) and a triangular basal nodule on metatarsus I (Figs 2–8D) in males and large number of spherical nodules on the spermathecae in females (Figs 2–4, 7 E, F).

Description: Medium-sized spiders: total length of males 7.7–19.2, of females 13.8–26.5. Chelicerae without rastellum, furrow with prolateral line of larger teeth and group of smaller teeth on retrolateral base. Ocular tubercle wider than longer, anterior eye row procurved., posterior row recurved. Carapace longer than wider, with procurved fovea. Labium wider than longer, with cuspules on apical third (15–71). Endites with distinct anterior lobe, with 100–140 cuspules on internal basal angle. Sternum rounded, as wide as long, with one to three pairs of sigilla apparent. Stridulatory setae absent. Metatarsal scopula not divided or divided only by median longitudinal rows of stiff setae. Scopulae on metatarsus I and II longer than on III, IV. Tarsi with ventral face scopulated, divided by 1–

10 longitudinal rows of stiff setae. All tarsi without spines, claw tufts well developed. Inferior tarsal claw absent. Superior tarsal claws with one row of small teeth, medially. Two pairs of spinnerets. Posterior medium spinnerets short, one-fifth of length of posterior lateral spinnerets. Posterior lateral spinnerets three-segmented, with apical segment digitiform. Abdomen with triangular area of urticating hairs, with ornamental color in *Catanduba peruacu* **sp. nov.**, *C. simoni* (Soares & Camargo 1948), *C. flavorhirta* (Simon 1889) and *C. piauiensis* sp. nov (Fig. 8). Urticating hairs of type III present in males and females. Male palpal bulb with PSK and PIK. Embolus thin, with PIK tooth in median portion. Basal digitiform apophysis weak. Cymbium with two lobes, retrolateral larger than retrolateral. Leg I tibial apophysis with two branches, prolateral smaller than retrolateral. Metatarsus I with triangular basal nodule (Figs 2D–8D) and bending between branches of tibial apophysis. Females spermathecae with two cylindrical receptacles bearing large number of nodules of different sizes (Figs 2–5 and 7 E, F).

Distribution. All species occur in Brazil, in the states of Piauí, Bahia, Goiás, Mato Grosso, Minas Gerais, Mato Grosso do Sul and São Paulo. Most species occur in areas of Cerrado vegetation (Brazilian savanna), with some introgression on Atlantic Forest by *C. tuskae* **sp. nov.** and Caatinga by *C. piauiensis* **sp. nov.** and *C. peruacu* **sp. nov.** (Fig. 10, see also Rizzini, 1978 for Brazilian vegetation).

***Catanduba tuskae* sp. nov.**
Figs 2 A–F

Type material: Holotype: male, Ilha Bandeirantes, Usina Hidrelétrica Sérgio Motta, Brasilândia, Mato Grosso do Sul, Brazil, (S23°28'00"; W46°40'59"), 20–25/III/2001, R. Bertani & J. P. L. Guadanucci col., deposited in IBSP 8976. **Paratypes**: male and female from Usina Hidrelétrica Sério Motta, Brasilândia, Mato Grosso do Sul, Brazil, (23°28'00"S; 46°40'59"W), 31/VII – 07/VIII/2000, D. Candiani & C.A.R. Souza col., deposited in IBSP 8976 and 8589, respectively; male. female. Estação Ecológica de Assis, Assis, São Paulo, Brazil, (22º35'14"S; 50º22'38"W), III/2009, F.T.S. Morimoto col., deposited in MZSP 36505.

Additional material examined. BRAZIL, *Mato Grosso do Sul*, 31/VII–07/VIII/2000, D. F. Candiani & C. A. R. Souza col., 1♂ (IBSP 8597); VII/2000, C. A. Rheims & E. Kashimata col., (IBSP 8605); Anaurilândia,Usina Hidrelétrica Engenheiro Sérgio Motta, (22°03'S; 52°45'W), XII/1998, Equipe Resgate de Fauna col., 1♂, 2♀ (IBSP 11401; 8973; 10814); Bataguassú, Usina Hidrelétrica Engenheiro Sérgio Motta, (21°40'00"S; 52°28'59"W), 26/III/2001, R. P. Indicatti & C. A. R. de Souza col., 1♀, 1♂ (IBSP 11589, 11594); Brasilândia, Usina Hidrelétrica Engenheiro Sérgio Motta, (23°28'00"S; 46°40'59"W) 08/VI/2000, C.A. Rheims & E. Kashimata col., 1♂ (IBSP 8541); 25/III/2001, R. Bertani & J.P. Guadanucci col., 1♂ (IBSP 10541); 20–25/III/2001, 1♂ (IBSP 10545); 20–26/III/2001, 1♂ (IBSP 10644); VI/2000, C. Rheims & E. Kashimata col., 1♀ (IBSP 10661); Usina Hidrelétrica Engenheiro Sérgio Motta, Usina Hidrelétrica Engenheiro Sérgio Motta, VII–VIII/2000, Equipe IBSP col., 1♂ (IBSP 8630); I/1999, 1♀ (IBSP 8784); 4♀, 2j (IBSP 8787); VI/2000, C. Rheims & E. K. Kashimata col., 1♀ (IBSP 9083); 11/XII/98, Equipe Resgate Fauna col., 1♀ (IBSP 9843); 23–27/IV/2001, R. Bertani & E. K. Kashimata col., 1♀ (IBSP 9034); 12/VI/2001, E. K. Kashimata & S. P. G. Guizze col., 1♀ (IBSP 9378); VI/2000, C. Rheims & E. K. Kashimata col., 1j (IBSP 9673); 20–25/III/2001, R. Bertani & J. P. L. Guadanucci col., 1j (IBSP 9674); 31/VII–07/VIII/2000, D. Candiani & C. A. R. de Souza col., (IBSP 8867); 25/V/2001, D. Candiani & C. Y. Fukami col., 1♀ (IBSP 8970); 23–27/IV/2001, R. Bertani & E. K. Kashimata col., 1♂, 2♀, 7j (IBSP 9029); 26–27/VIII/2000, I. Knysak & R. Martins col., 1♂ (IBSP 9119); (Ilha Bandeirantes), 20–25/III/2001, R. Bertani e J. P. L. Guadanucci col., 29♀, 31♂, 17 j (IBSP 8835–8841; 8945–8948; 8974–8980; 9118; 9120; 9302–9315; 9379; 9392; 9393; 9433; 9598; 9686; 9831; 10946; 11031; 11058–11061; 10007; 10022; 10031; 10145; 10354; 10363; 10367; 10370–10371; 10403–10404; 11402–11403; 11420; 11583); 11/XII/1998, Equipe IBSP col., 1♀ (IBSP 9903); (Fazenda Flórida), 11/VIII/2000, R. Bertani & C. Y. Fukami col., 1♀ (IBSP 8586); 15/VIII/2001, C. S. Fukushima & J. P. L. Guadanucci col., 1♀ (IBSP 9316); 15/VIII/2000, 1♂ (IBSP 8656); 15/VIII/2001, 1♀ (IBSP 9317); 11/VIII/2000, C. Y. Fukami & R. Bertani, 1♂ (IBSP 9320) 1j (IBSP 9608); 11/VIII/2000, R. Bertani & J. L. Guadanucci col., 1♀ (IBSP 10021); 15/VIII/2000, C. S. Fukushima & J. P. L. Guadanucci col., 1j (IBSP 9691); (Fazenda Cisalpina), 28/VII/2000, I. Knysak & R. Martins col., 1♀ (IBSP 8865); (Fazenda Orelha de Onça), 26/III/2001, R. P. Indicatti & C. A. R. de Souza col., (IBSP 9867); 25/VII/2000, I. Knysak & R. Martins, 1j (IBSP 9690); 10/VIII/2000, R. Bertani & C. Y. Fukami, 1♀ (IBSP 8588); (Ilha Capivara), 16/VIII/2000, C. S. Fukushima & J. P. L. Guadanucci, 1♂ (IBSP 8655); 15/VIII/2000, C. S. Fukushima & J. P. L. Guadanucci col., 1j (IBSP 9616); 27/VII/2000, I. Knysak &

R. Martins col., 1♂ (IBSP 9121); 31/VII–07/VIII/2000, D.F. Candiani & C.A.R. Souza, 1♂ (IBSP 8589); 27/VII/2000, I. Knysak & R. Martins col., 3♂ (IBSP 8590 – 8592); Rio Pardo, 26/III/2001, R. P. Indicatti & M. S. Sebastião col., 1♀, 1j (IBSP 9830, 9860) R. P. Indicatti & C. A . R. de Souza col., 1♂, 1♀, 2j (IBSP 9318, 9319, 9872, 9140); Cáceres, Bairro Jardim Paraíso, 10/VIII/2004, N. M. Rocha col., 1♂ (IBSP 11232). *São Paulo*, Presidente Epitácio, Usina Hidrelétrica Engenheiro Sérgio Motta, Rio do Peixe, (21°46'12"S; 52°06'W), 20–25/III/2001, R. Bertani & J. L. Guadanucci col., 1♂ 1♀ (IBSP 10036; 10054); Planalto, (21°01' 48"S; 49°55'12"W), 18–25/VIII/2007, Donizete col. (IBSP 14315); Salto de Pirapora, (23°38'24"S; 47°34'12"W), X/1979, A.B. Eisernger col. (IBSP 4492); Jarinu, (23°06'12"S; 46°43'41"W), 06/X/2004, J. Fitipaldi col. (IBSP 11051); Mairinque, (23°32'24"S 47°10'48"W), 08/VIII/2007, A.C.G. de Almeida col. (IBSP 14316, 160892); Assis, Estação Ecológica de Assis, (22º35'14"S; 50º22'38"W), III/2009, F.T.S. Morimoto col., 1♂ 1♀ (IBSP160890–16891).

Diagnosis. Males and females of *Catanduba tuskae* **sp. nov.** differ from those of all other species of the genus by the uniformly brown color of the abdomen, without ornamentation (Fig. 11A), the male palpal bulb with a long curved median tooth on the embolus (Figs 2 A–C) and female spermathecal receptacles bent to the outer side, with large nodules (Figs 2 E, F).

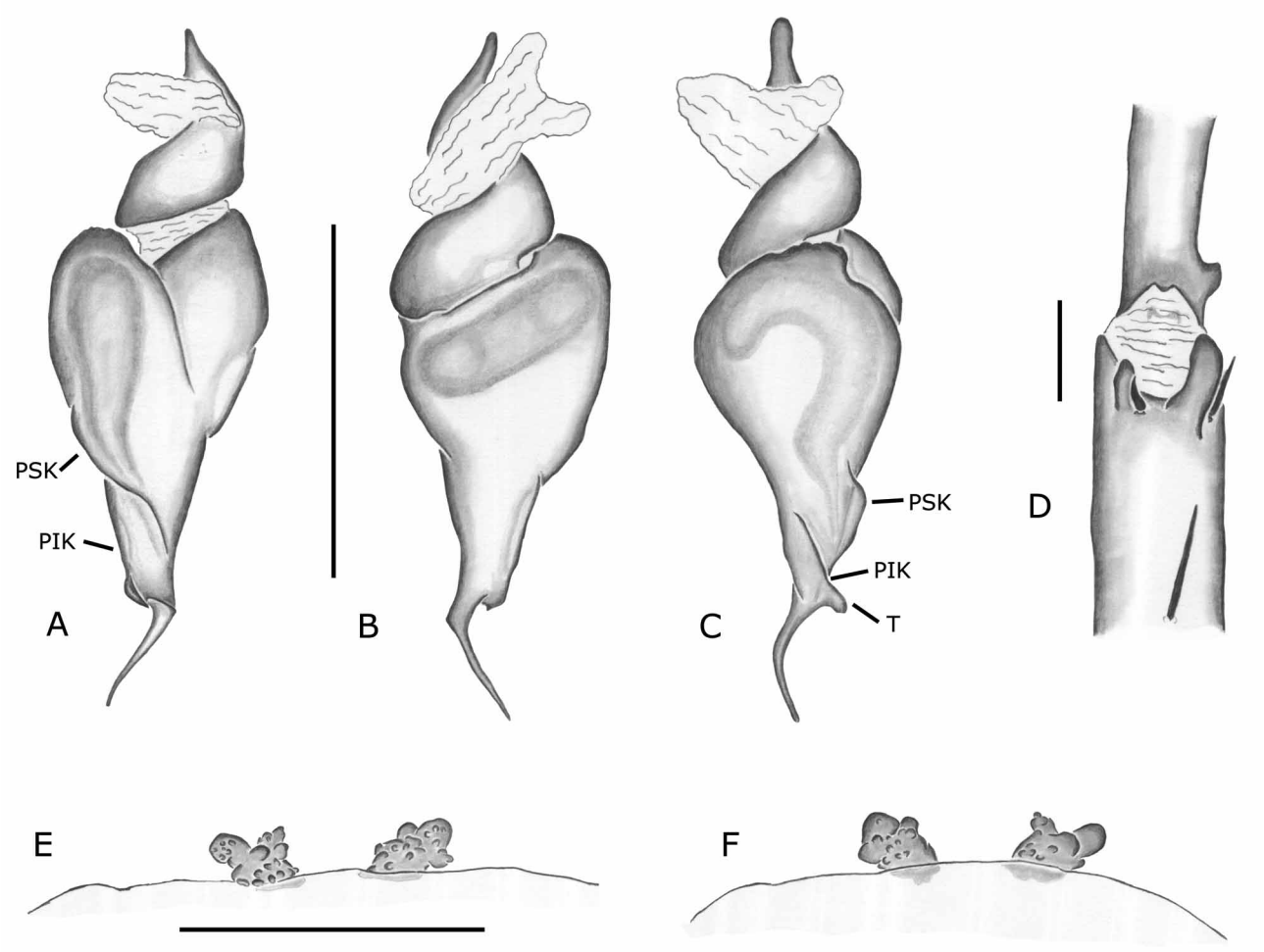

FIGURE 2. *Catanduba tuskae* **sp. nov.**: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view; (D) Male left leg I, tibial apophysis, ventral view. (E, F) Spermathecae: (E) dorsal view; (F) ventral view. Scale bar = 1 mm. Abbreviation: PSK = prolateral superior keel; PIK= prolateral inferior keel, T= tooth.

Etymology. In honor of Ana Carolina Tuska de Almeida Yamamoto, biologist, wife of the first author.

Description. Male (Holotype): Color in ethanol: body dorsally brown and ventrally light brown (Fig. 9 A). Color *in vivo* (Fig. 11A): body brown with sparse light brown setae. Urticating hairs of type III. Total length, 13.75. Carapace: length 6.50; width 5.81. Ocular tubercle: length 0.86; width 1.13. Eyes size: AME 0.18, ALE 0.33, PME 0.23, PLE 0.28. Labium: length 0.76; width 1.29. Sternum: length 3.41; width 2.72. Basal segment of chelicera with row of 9 teeth on prolateral margin and group of 14 small teeth concentrated on basal third. Labium with 34

cuspules. Endites with *ca.* 110 cuspules. Palp: femur 3.56/ patella 2.25/ tibia 3.13/ cymbium 1.13/ total 10.06. Leg I: femur 5.69/ patella 3.38/ tibia 4.31/ metatarsus 3.81/ tarsus 2.69/ total 19.88. II: 5.38/ 2.94/ 3.56/ 3.50/ 2.63/ 18.00. III: 4.31/ 2.31/ 2.88/ 3.75/ 2.63/ 15.88. IV: 5.44/ 2.75/ 4.25/ 5.31/ 3.19/ 20.94. Spinnerets: basal segment 1.33; medium 0.70; apical 1.35. Spination: Palp: femur d0-0-1p, patella r0-1-0, tibia d1p-0-0, p0-1-0; Leg I: femur d0-0-1p, tibia v1-1-0, p1-0-1, metatarsus p0-1-0; II: femur d0-0-1p, tibia v1-2-0-2ap, p0-1-1, metatarsus v0-1-0, p0-1-0; III: femur d0-0-2, patella r0-1-0; tibia v1r-2-0-2ap, p1-0-1, r1-0-1, metatarsus v2-1-1p-3ap, p1-1-1, r1-0-1. IV: femur d0-0-1r, tibia v2-2-0-2ap, p0-1-1, v1-0-1, metatarsus v2-1p-1r-3ap, p0-1-1, r1-1-1. Scopula: metatarsus I with 0.42 of total length scopulated, II with 0.48 of total length, III with 0.43 and IV with 0.22. Tarsus: I divided by one row of strong setae, II divided by 2–3 rows, III by 3–4 and IV by 4–5. PSK and PIK well developed and distant from each other. PSK extends to basal third of embolus. PIK with long curved tooth at median embolus. Embolus thin. Digitiform apophysis weak (Figs 2 A, B and C). Tibial apophysis on I formed by two branches with distinct bases: prolateral branch smaller, with retrolateral spine beside it; retrolateral larger. Metatarsus I with triangular basal nodule and flexes between branches of tibial apophysis, touching their median portion (Fig. 2D).

Female (IBSP 13047): Color as in male. Urticating hairs of type III. Total length, 20.01. Carapace: length 7.76; width 6.16. Eye tubercle: length 1.02; width 1.24. Eyes size: AME 0.18, ALE 0.31, PME 0.17, PLE 0.28. Labium: length 1.00; width 1.58. Sternum: length 3.53; width 3.22. Basal segment of chelicera with row of 10 teeth on prolateral margin, group of 20 small teeth concentrated on basal third. Labium with 51 cuspules. Endites with *ca.* 142 cuspules. Palp: femur 3.75/ patella 2.44/ tibia 2.25/ cymbium 2.31/ total 10.75. Leg I: femur 5.06/ patella 3.31/ tibia 3.38/ metatarsus 2.44/ tarsus 2.00/ total 16.19; II: 4.31/ 2.81/ 2.63/ 2.19/ 2.13/ 14.06; III: 3.88/ 2.63/ 2.00/ 2.81/ 2.00/ 13.31; IV: 5.13/ 2.94/ 3.25/ 4.31/ 2.38/ 18.00. Spination: Palp: tibia v0-0-0-3ap. Leg I: metatarsus v0-0-0-1ap. II: metatarsus v0-1-0-1ap. III: tibia v0-1p-0-2ap, p1-1-0, r0-1-0 metatarsus v2-2-0-3ap, p1-1-1, r0-0-1. IV: tibia v0-2-0-2ap, r1-0-1, metatarsus v2-1p-2-3ap, p0-1-1, r0-1-1. Scopula: metatarsus I with 1.13 of total length scopulated, II with 0.48, III with 0.35, IV with 0.20. Tarsus: I divided by 3–4 rows of larger setae, II divided by 5 rows of larger setae, III by 6–7 rows and IV by 8. Spinnerets: basal segment 1.44; medium 1.09; apical 1.31. Spermathecae formed by two cylindrical receptacles leaning out, covered by nodules of different sizes (Figs 2 E, F).

Variation. Males (n = 15): total length 13.75–16.30; carapace 6.20–7.80; cuspules on labium: 31–53. Females (n = 15): total length: 13.80–26.50; carapace 5.3–9.90; cuspules on labium: 30–71.

Distribution. States of São Paulo and Mato Grosso do Sul, Brazil (Fig. 10).

***Catanduba simoni* (Soares & Camargo 1948) comb. nov.**
Figs 3 A–F

Homoeomma simoni Soares & Camargo, 1948: 404, figs 81–85 .
Platnick, 2010 (accessed 13 December 2010)

Type material. Holotype: male**,** Chavantina, Mato Grosso, Brazil, (14°40'00"S; 52°21'W), 1946, H. Sick col., deposited in MZSP 1251, examined.

Other material examined. BRASIL, *Goiás*: Campinaçú, Serra da Mesa, (13º52'S; 48º23'W), 18/II–02/III/1996, Silvestre, Brandão & Yamamoto col., 1♀ 1j (MZSP 28591); Colinas do Sul, Serra da Mesa, (14º01'S; 48º12'W), 2–15/XII/1995, Silvestre, Dietz & Campaner col., 4♂ 1♀ (MZSP 28592); Corumbá, Fazenda Monjolinho, 1946, H. Levi col., 1♂ (MZSP 28601); Luziânia, Barragem de Corumbá IV, (16º19'38"S 48º13'22''W), 24/XI/2005, Eq. IBSP col. (IBSP 14289); (Usina Hidrelétrica de Corumbá), XI/2005, Eq. IBSP col., 1♀ (IBSP 13707); Minaçú, Usina Hidrelétrica de Serra da Mesa, (13°50'01"S; 48°18'10"W), 18–30/XI/1996, A.A. Bonaldo & L. Moura col., 3♂ 2♀ 1j (MCN 28122); *Mato Grosso*: Chapada dos Guimarães, (15°25'59"S; 55°45'W), 20–29/XI/2000, C. Strussman col., 1j (MCTP 11509); Chavantina, (14°40'00"S; 52°21'W), XII/1946, H. Sick col., 1♀ (MZSP 14884).

Diagnosis. *Catanduba simoni* resembles *C. arauguaia* **sp. nov.** and *C. peruacu* **sp. nov.** by the pattern of abdominal color but differs from these species by the overall orange color and dorsal abdomen with four pairs of lateral black stripes (Fig. 9 C), male palpal bulb with accessory keels (Figs 3 A–C) and large nodules on spermathecae of female (Figs 3 E, F).

Description. Male (MZSP 28592): Color in alcohol: carapace and legs dark orange. Dorsal abdomen dark brown, with 4 pairs of black stripes laterally (Fig. 9). Abdomen venter light brown. Urticating hairs of type III.

Total length, without chelicera, 18.40. Carapace: length 9.10; width 7.70. Eye tubercle: length 1.15; width 1.43. Eyes size: AME 0.28, ALE 0.49, PME 0.26, PLE 0.41. Labium: length 1.10; width 1.65. Sternum: length 4.65; width 3.75. Basal segment of chelicera with row of nine teeth on prolateral margin and group of 23 small teeth concentrated on basal third. Labium with 40 cuspules. Endites with *ca.* 110 cuspules. Palp: femur 4.56/ patella 3.04/ tibia 3.68/ cymbium 1.44/ total 12.72. Leg I: femur 7.76/ patella 4.56/ tibia 5.84/ metatarsus 5.36/ tarsus 3.76/ total 27.28. II: 7.28/4.00/5.36/4.96/3.60/25.20. III: 6.40/3.44/4.48/5.84/3.76/23.92. IV: 8.48/3.76./6.48/8.08/4.56/31.36. Spinnerets: basal segment of PLS 1.72; medium 1.28; apical 2.36. Spination: Palp: femur d0-0-1p, tibia v0-1p-1p, p0-1-0; Leg I: femur d0-0-1p, tibia v2-2-1p-1ap, p0-1-0, metatarsus v0-0-0-1ap; II: femur d0-0-1p, tibia v1r-1-1r-3ap, p0-0-1, metatarsus v1-1-0; III: femur d0-0-2, tibia v2-2-0-2ap, p1-0-1, r1-1-0, metatarsus v2-1-0-3ap, p1-1-1, r1-0-1. IV: femur d0-0-1r, tibia v2-2-0-3ap, p1-0-1, v1-0-1, metatarsus v2-2-1p-3ap, p1-1-1, r0-1-0. Scopula: Metatarsus: I with 0.36 of total length scopulated, II with 0.46 of total length scopulated, III with 0.33 and IV with 0.15. Tarsus: I divided by three rows of larger setae, II and III divided by 4–5 rows and IV by 6. Palpal bulb with weak PSK, conspicuous PIK and three accessory keels above PSK. Thin embolus with tooth emerging from PIK. Digitiform apophysis well developed (Figs 3 A-C). Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger. Metatarsus I with triangular basal nodule and flexes between tibial apophysis branches, touching their median portion (Figs 3D).

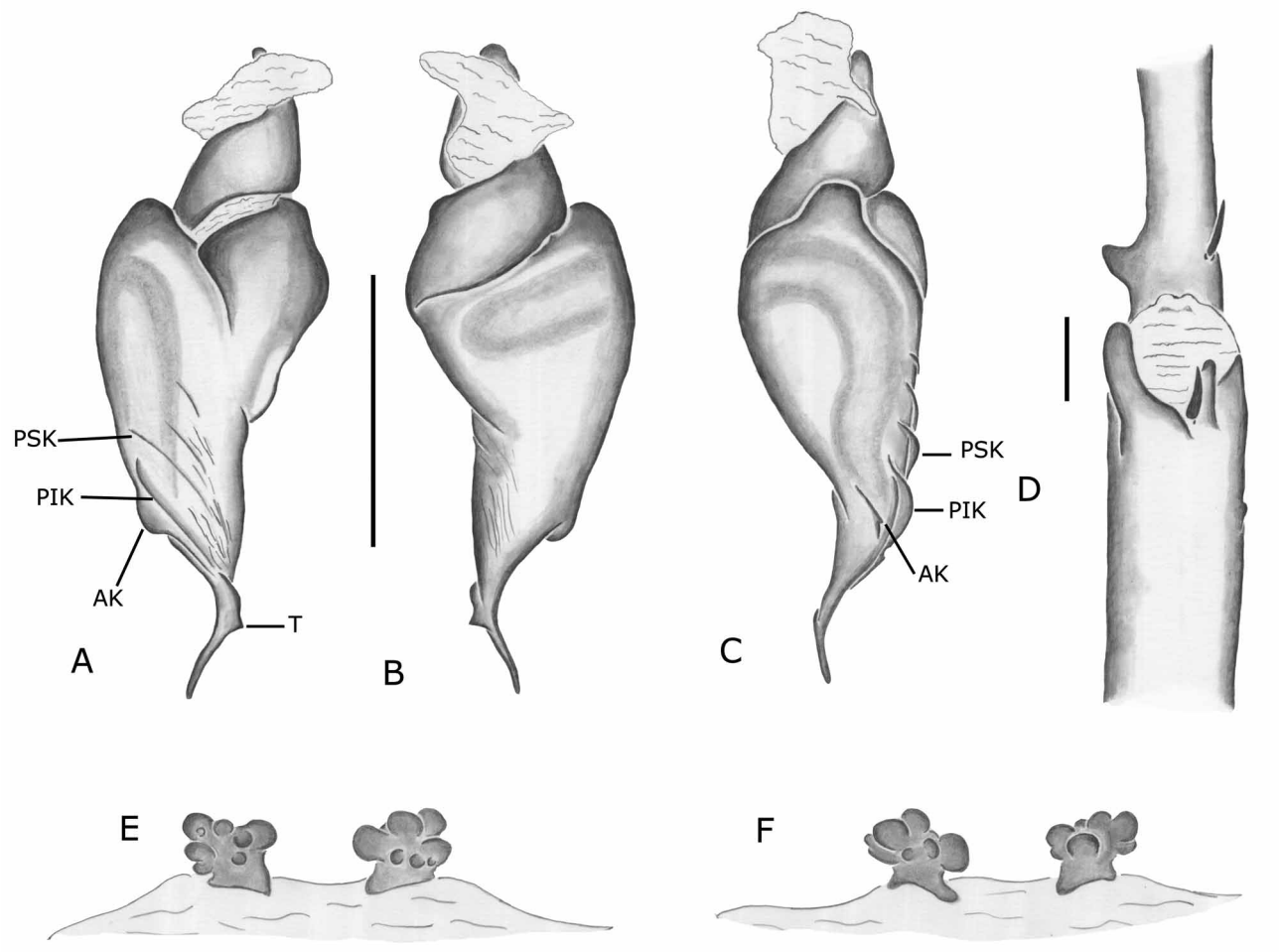

FIGURE 3. *Catanduba simoni* comb. nov.: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I, tibial apophysis, ventral view. (E, F) Spermathecae: (E) dorsal view; (F) ventral view. Scale bar = 1 mm.

Female (MZSP 28592): Color *in vivo* (Fig. 11 B): carapace and legs brown orange. Dorsal abdomen dark brown, with 4 pairs of black stripes laterally. Area of urticating hair triangular-shaped. Urticating hairs of type III. Total length, without chelicera, 25.48. Carapace: length 10.60; width 9.70. Eye tubercle: length 1.33; width 1.90. Eyes size: AME 0.26, ALE 0.53, PME 0.33, PLE 0.48. Labium: length 1.69; width 2.22. Sternum: length 5.25; width 5.30. Basal segment of chelicera with row of 11 teeth on prolateral margin and group of 7 smaller teeth in

basal third. Labium with 31 cuspules. Endites with *ca.* 102 cuspules. Palp: femur 6.64/ patella 3.76/ tibia 5.12/ cymbium 3.92/ total 19.44. Leg I: femur 8.24/ patella 4.16/ tibia 6.88/ metatarsus 4.32/ tarsus 3.04/ total 26.64. II: 7.36/ 4.48/ 5.68/ 4.08/ 3.36/ 24.96. III: 6.56/ 4.08/ 4.64/ 4.96/ 3.28/ 23.52. IV: 8.56/ 4.48/ 6.96/ 7.36/ 3.68/ 31.04. Spinnerets: basal segment 1.85; medium 1.15; apical 2.10 of PLS. Spination: Palp: tibia v0-0-0-2ap. Leg I: femur d0-0-1p, metatarsus v0-0-0-1ap. II: femur d0-0-p1, tibia v0-0-p1, metatarsus v1-0-0-2ap. III: tibia v0-1p-0-1ap, p0-1-0, metatarsus v2-p1-2-4ap, p1-1-1, r1-1-1. IV: tibia v0-p1-0-1ap, r0-0-1, metatarsus v1-1-2-1-2-4ap, p0-1-1, r1-1-1-2. Scopula: Metatarsus: I with 0.46 of total length scopulated, II with 0.41, III with 0.29, IV with 0.09. Tarsus: I divided by 1–2 rows of larger setae, II divided by 3–4 rows of larger setae, III by 6 rows and IV by 10. Spermathecae formed by two cylindrical receptacles with apical spherical nodules (Figs 3 E, F).

Variation. Males (n = 8): total length 7.7–19.2; carapace 4.2–10.2; cuspules on labium: 15–42. Females (n = 6): total length: 13.9–25.48; carapace 4.6 – 10.6; cuspules on labium: 20–34.

Distribution. Occurring in central Brazil, States of Mato Grosso and Goiás, Brazil (Fig 10).

Catanduba flavohirta (Simon, 1889) comb. nov.

Figs 4 A–F

Hapalopus flavohirtus Simon, 1889: 219; Mello-Leitão, 1923: 163–163; Smith, 1986; 83.
Ceropelma flavohirtus Schiapelli & Gerschman, 1970: 231, figs 19–25. Schmidt, 1993: 61, figs. 40–42;.
Plesiopelma flavohirtum Pérez-Miles *et al.*, 1996: 55; Schmidt, 1997; 1998: 16, figs 44, 47, 50; Schmidt, 2003: 184, figs 467–469.

Type material. Syntypes male and female from Santo Antonio da Barra (currently Condeúba), Bahia, Brazil, (14°52'59"S; 41°58'59"W), 1888, E. Gounelle col., deposited in MNHN 4567, examined, lectotype male and paralectotype female here designated.

Additional material examined. BRASIL, *Bahia*: Aracatu, (14°25'00"S; 41°27'W), VI/2002, A. Zanotti col., 1♀ (IBSP 11315); Anagé, (14°36'S; 41°07'59"W), 21/VI/2002, Equipe Resgate Fauna col., 1♀ (IBSP 11318); Contendas do Sincorá, Floresta Nacional Contendas do Sincorá (13º46'–14°00'S; 41º03'–41º10'W), X/2007–X/2008, Y.G. Santos col. (IBSP 126869); Poções, (14°33'00"S; 40°23'00"W); 04/VII/2000, A. Zanotti col., 1♀ (IBSP 11316).

Diagnosis. Males of *Catanduba flavohirta* comb. nov. differ from those of other species by the more rounded palpal bulb, shorter embolus, and an additional keel between PIK and PSK (Figs 4 A–C), and females differ by the presence of a greater number of small nodules on spermathecae (Figs 4 E, F).

Description. Male. (Lectotype): Color in alcohol: carapace and legs brown. Sternum and coxae light brown. Abdomen dorsally dark brown and ventrally light brown (Fig. 9B). Urticating hairs of type III. Total length, without chelicera, 12.08. Carapace: length 5.92; width 4.88. Eye tubercle: length 0.78; width 1.01. Eyes size: AME 0.24, ALE 0.33, PME 0.19, PLE 0.25. Labium: length 0.78; width 1.08. Sternum: length 3.28; width 2.48. Basal segment of chelicera with row of 9 teeth on prolateral margin and group of 14 small teeth concentrated on basal third. Labium with 21 cuspules. Endites with *ca.* 84 cuspules. Palp: femur 3.12/ patella 2.16/ tibia 2.80/ cymbium 0.88/ total 8.96. Leg I: femur 4.72/ patella 2.96/ tibia 3.68/ metatarsus 3.28/ tarsus 2.16/ total 16.80. II: 4.40/ 2.72/ 3.04/ 3.28/ 2.24/ 15.68. III: 4.64/ 2.08/ 2.48/ 3.44/ 2.32/ 14.96. IV: 5.28/ 2.56/ 4.24/ 4.72/ 2.80/ 19.60. Spinnerets: basal segment 0.85; medium 0.83; apical 1.33. Spination: Palp: femur d0-0-1p, tibia p 0-0-1; Leg I: femur d0-0-1p, tibia v1-1-0-1p, p1-0-1; II: femur d0-0-1p, tibia v1-1-0-1ap, p1-0-1, metatarsus v1-1-0-1ap, p1-0-1; III: femur d0-0-1r, tibia v1-2-0-2ap, p1-0-1, r1-0-1, metatarsus v1p-1-1p-3ap, p1-0-1, r0-1-1. IV: femur d0-0-1r, tibia v1-2-0-2ap, r1-0-1, metatarsus v1r-2-1p-3ap, p0-1-1, r0-1-1. Scopula: Metatarsus: I lost all scopula by damage, II with 0.46 of total length scopulated, III with 0.42 and IV without scopula. Tarsus: I undivided, II divided by 2 rows of larger setae, III divided by 3–4 rows of larger setae and IV divided by 5 rows. Metatarsus of leg I with basal triangular nodule and flexes between tibial apophysis branches, touching their median portion (Figs 4D). Palpal bulb with well developed PIK and PSK. Embolus short with strong curvature. PIK end with conspicuous tooth. Digitiform apophysis weakly developed (Figs 4 A–C). Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger.

Female (IBSP 11315): Color as in male. Urticating hairs of type III. Total length, without chelicera, 19.93. Carapace: length 7.68; width 6.64. Eye tubercle: length 1.17; width 1.48. Eyes size: AME 0.39, ALE 0.49, PME

0.28, PLE 0.38. Labium: length 1.20; width 1.68. Sternum: length 4.35; width 3.70. Basal segment of chelicera with row of nine teeth on prolateral margin and group of 23 smaller teeth basal third. Labium with 44 cuspules. Endites with *ca*. 124 cuspules. Palp: femur 4.72/ patella 2.72/ tibia 2.88/ cymbium 2.80/ total 13.12. Leg I: femur 6.24/ patella 4.08/ tibia 4.16/ metatarsus 3.44/ tarsus 2.24/ total 20.16. II: 5.52/ 3.28/ 3.52/ 3.28/ 2.48/ 18.08. III: 4.40/ 2.88/ 2.88/ 4.00/ 2.48/ 17.04. IV: 6.72/ 3.12/ 4.96/ 6.00/ 2.88/ 23.68. Spinnerets: basal segment 1.96; medium 1.32; apical 1.96. Spination: Palp: femur d0-0-p1, tibia v0-0-0-3ap. Leg I: femur d0-0-p1, tibia v0-0-0-1ap, metatarsus v0-0-0-1ap. II: metatarsus v0-1-0-1ap. III: femur 0-0-1r, patella p0-0-1, tibia v0-2-0-2ap, p 1-0-1, r0-0-1, metatarsus v1p-2-1p-3ap, p1-1-1, r0-1-1. IV: femur 0-0-1r, tibia v1-2-0-3ap, r1-0-1, metatarsus v2-2-1-3ap, p0-1-1, r1-1-1. Scopula: Metatarsus: I with 0.60 of total length scopulated, II with 0.49, III with 0.38, IV with 0.24. Tarsus: I divided by 1-2 rows of larger setae, II and III divided by 3–4 rows of larger setae and IV by 5 rows. Spermathecae formed by two cylindrical receptacles covered by small nodules (Figs 4 E, F).

Variation. Females (n = 4): Total length: 16.5–19.9; Carapace 6.7–9.2; cuspules no. labium: 31–44.

Distribution. Restricted to southern Bahia, Brazil (Fig. 10).

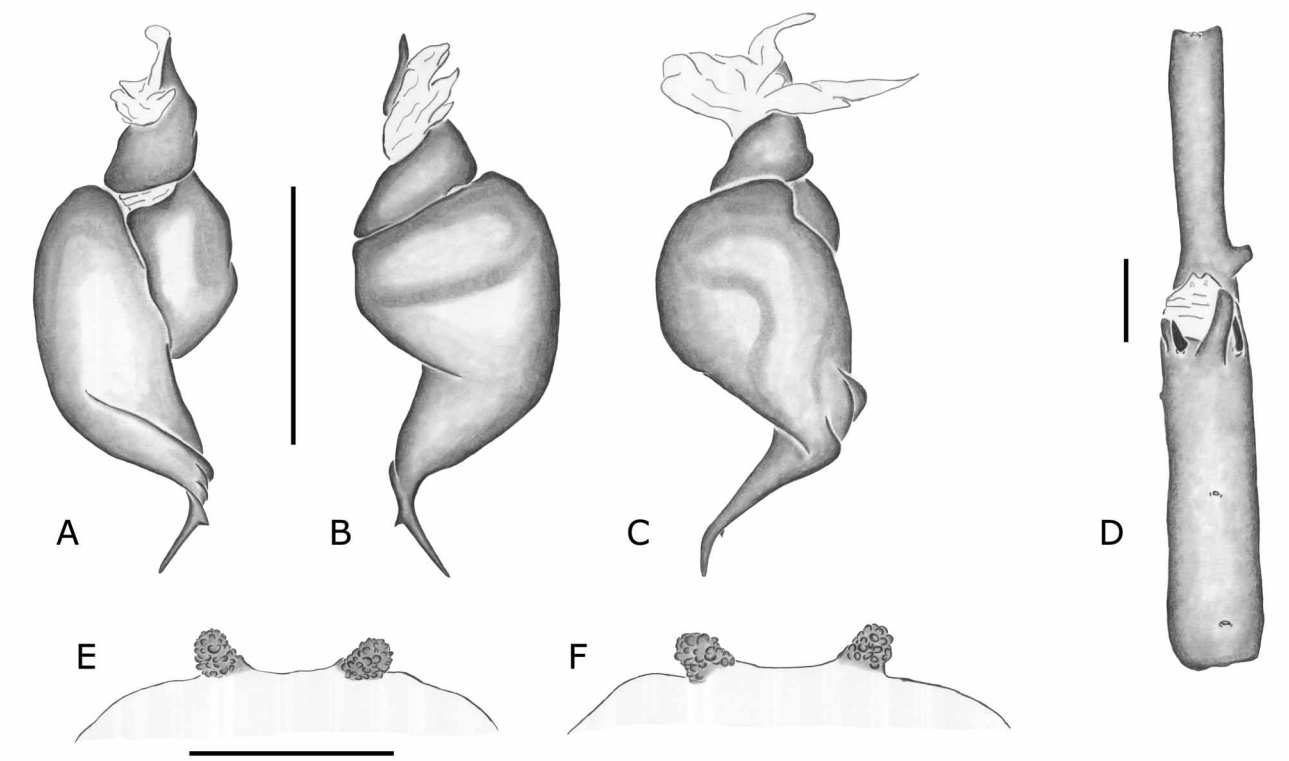

FIGURE 4. *Catanduba flavohirta* comb. nov.: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I, tibial apophysis, ventral view. (E, F) Spermathecae: (E) dorsal view; (F) ventral view. Scale bar = 1 mm.

***Catanduba peruacu* sp. nov.**

Figs 5 A–F

Type-material. Holotype: male from Januária, Minas Gerais, Brazil. (44°22'43"W; 15°28'44"S) 16.XII.2007, C.A.R. De Souza *et al* col., deposited in IBSP 11316. **Paratypes:** one female from Parque Nacional Cavernas do Peruaçú, Januária, Minas Gerais, Brasil, (44°14'28"W; 15°07'26"S), 24–25/I/2009, M. Teixeira Jr. & R.S. Recoder col., deposited in IBSP 144799, one male, one female with same locality and collector as paratype, deposited in MZSP 36506.

Additional material examined. BRASIL, *Minas Gerais*: Januária, Parque Nacional Cavernas do Peruaçú, (44°14'28"W; 15°07'26"S), 8–30/VII/2009, M. Teixeira Jr. & R. S. Recoder col., 3♂ (IBSP 144798–144798); 4–25/I/2009, 4♀ (IBSP 144798, 144800–144802).

Etymology. The species epithet is a noun in apposition taken from type locality.

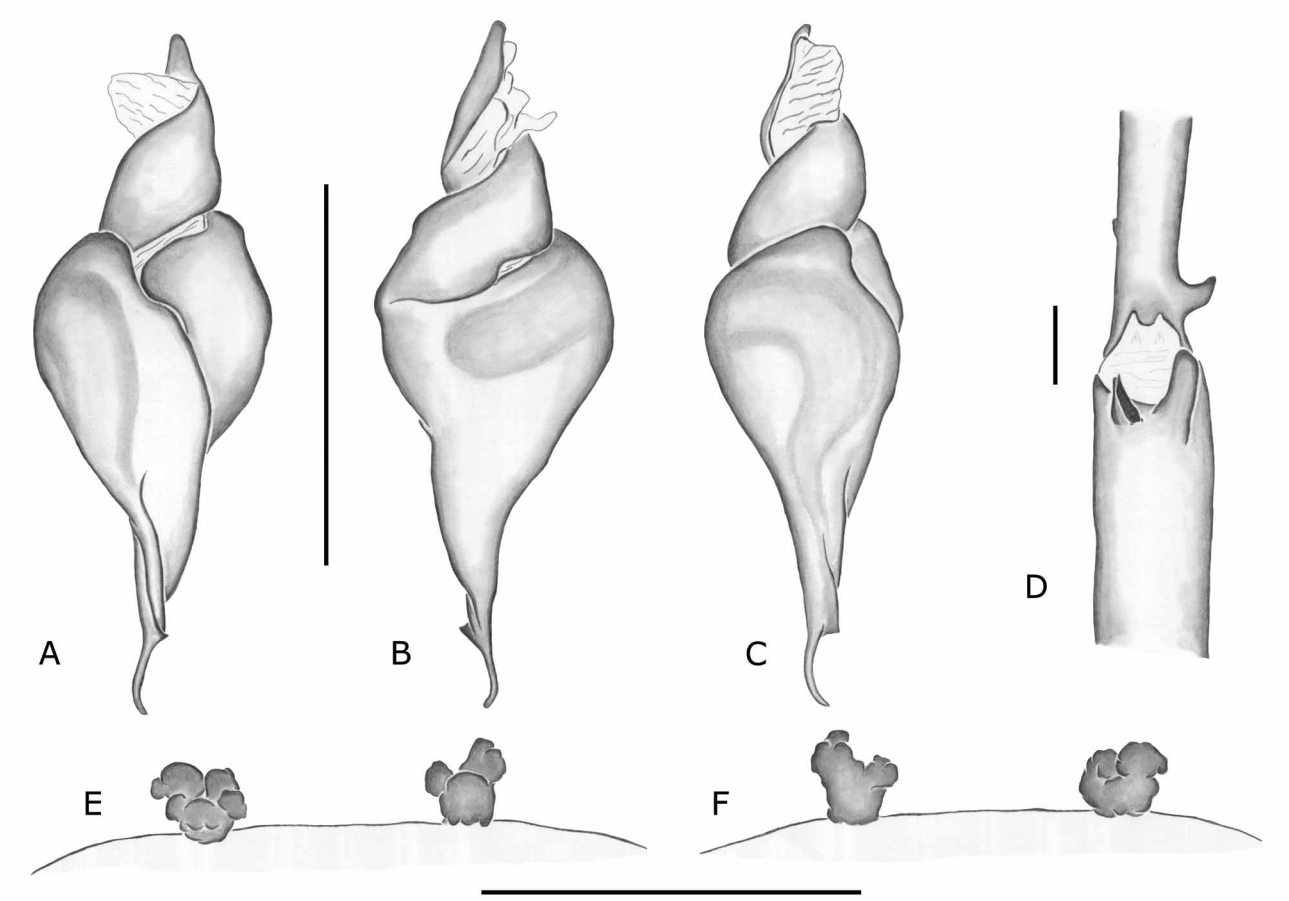

FIGURE 5. *Catanduba peruacu* **sp. nov.**: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I, tibial apophysis, ventral view. (E, F) Spermathecae: (E) dorsal view; (F) ventral view. Scale bar = 1 mm.

Diagnosis. Differs from others species by the abdomen being dorsally dark gray with a longitudinal strip of yellow hairs, mainly seen on live animals (Figs 11C, D), palpal bulb with PIK and PSK close and parallel (Figs 5 A–C) in males and spermathecae with large nodules, mainly in apical portion (Figs 5 E, F)

Description. Male (IBSP 15234). Color in alcohol: carapace and legs dark brown. Abdomen dorsally black, with a longitudinal strip of yellow setae and ventrally light brown. Color *in vivo* (Fig. 11 C): carapace and legs dark gray, Abdomen dorsally black with longitudinal strip of yellow setae and ventrally light brown. Urticating hairs of type III. Total length, without chelicera, 13.50. Carapace: length 5.56; width 6.63. Eye tubercle: length 0.76; width 1.19. Eyes size: AME 0.29, ALE 0.33, PME 0.33, PLE 0.21. Labium: length 0.76; width 1.24. Sternum: length 3.28; width 2.72. Basal segment of chelicera with row of 10 teeth on prolateral margin and group of 24 small teeth concentrated on basal third. Labium with 41 cuspules. Endites with *ca.* 118 cuspules. Palp: femur 3.60/ patella 2.32/ tibia 2.64/ cymbium 1.36/ total 9.92. Leg **I**: femur 5.60/ patella 3.04/ tibia 3.92/ metatarsus 3.68/ tarsus 2.48/ total 18.72. **II**: 5.04/ 2.72/ 3.52/ 3.52/ 2.64/ 18.72. **III**: 4.32/ 2.32/ 2.88/ 2.88/ 2.64/ 15.04. **IV**: 5.92/ 2.64/ 4.40/ 4.40/ 3.36/ 20.72. Spinnerets: basal segment 1.34; medium 0.91; apical 1.13. Spination: Palp: femur d0-0-1p, tibia v0-0-2p; Leg **I**: femur d0-0-1p, tibia v2-1p-0-2ap, p1-0-1, metatarsus v0-0-0-1ap, p0-1-0; **II**: femur d0-0-1p, tibia v1-2-p1-3ap, p1-1-1, metatarsus v2-1-0-2ap, p0-1-0; **III**: femur d2-2-2, patella 0-0-p1, tibia v1-2-0-3ap, p3-2-1, r1-0-1, metatarsus v5-p2-p2-3ap, p1-0-1, r0-1-1. **IV**: femur d0-0-1r, tibia v2-3-0-3ap, p0-1-1, r1-1-1, metatarsus v3-r1-p1-3ap, p1-1-1, r1-1-1. Scopula: Metatarsus: I 0.37 of total length scopulated, II 0.45, III with 0.50 and IV with 0.40. Tarsus: I undivided, II and III divided by 3 rows or larger setae and IV by 4 rows. Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger. Metatarsus I with strong basal triangular nodule and flexes between tibial apophysis branches, touching their median portion (Figs 5 D). Palpal bulb with conspicuous PIK and PSK close and parallel from each other, both extend to middle of embolus. Thin embolus with tooth emerging from PIK. Tooth with basal edge smooth and apical edge abrupt. Digitiform apophysis present (Figs 5 A–C).

Female (IBSP 144799): Color in alcohol: carapace and legs light brown. Abdomen dorsally black, with a longitudinal strip of yellow setae and ventrally light brown. Color *in vivo* (Fig. 11 D): carapace and legs brown, abdomen dorsally black, with longitudinal strip of yellow setae and ventrally light brown. Urticating hairs of type III. Total length, without chelicera, 16.72. Carapace: length 7.76; width 6.32. Eye tubercle: length 1.02; width 1.33. Eyes size: AME 0.26, ALE 0.36, PME 0.21, PLE 0.29. Labium: length 1.38; width 0.96. Sternum: length 3.84; width 3.28. Basal segment of chelicera with row of nine teeth on prolateral margin and group of 13 smaller teeth basal third. Labium with 47 cuspules. Endites with *ca.* 131 cuspules. Palp: femur 3.68/ patella 2.40/ tibia 2.48/ cymbium 2.40/ total 10.96. Leg **I**: femur 4.72/ patella 3.36/ tibia 3.52/ metatarsus 2.72/ tarsus 1.84/ total 16.16. **II**: 4.64/ 3.04/ 2.88/ 2.56/ 2.24/ 15.36. **III**: 4.48/ 2.56/ 2.32/ 3.60/ 2.32/ 15.28. **IV**: 5.44/ 3.04/ 4.08/ 5.20/ 2.56/ 20.32. Spinnerets: basal segment 1.55; medium 1.10; apical 1.50. Spination: Palp: femur d0-0-p1, tibia v0-0-0-3ap. Leg **I**: femur d0-0-p1, metatarsus v0-0-0-1ap. **II**: femur 0-0-1p, metatarsus v0-1-0-1ap. **III**: tibia v0-2-0-2ap, metatarsus v2-p-0-3ap, p0-1-1, r0-1-1. **IV**: tibia v0-2-1-2ap, r1-0-1, metatarsus vp1-2-p1-3ap, p0-1-1, r0-1-1. Scopula: Metatarsus: I with 0.41 of total length scopulated, II with 0.47, III with 0.31, IV with 0.40. Tarsus: I divided by 3 rows of larger setae, II and III divided by 4 rows of larger setae and IV by 5 rows. Spermathecae with two irregular receptacles with large nodules, mainly in apical portion (Figs 5 E, F).

Variation. 5 males: Total length 11.8–16.5; Carapace 5.9–8.3; cuspules on labium: 25–40. 5 females: Total length: 17–18.7; Carapace 6.2–9.1; cuspules on labium: 35–78.

Distribution. Known only from the state of Minas Gerais, Brazil (Fig. 10).

***Catanduba araguaia* sp. nov.**

Figs 6 A–D

Type-material. Holotype: male from São Félix do Araguaia, Mato Grosso, Brazil, (11°36'36"S; 50°39'36"W) XII/ 1972, I. Frasceschini col., deposited in IBSP 2605.

Etymology The species epithet is a noun in apposition taken from type locality.

Diagnosis Males of *Catanduba araguaia* **sp. nov.** differ from those of other species by the presence of an auxiliary keel under PIK with a pointed apical edge, as *C. piauiensis* **sp. nov.** (Figs 6 A–C). Differ *C. piuaiensis* **sp. nov.** by the presence of the curved apical portion of the metatarsus I basal nodule (Fig 6 D).

Description. Male (Holotype). Color in alcohol: carapace and legs dark brown. Sternum and coxae brown. Abdomen dorsally dark gray with four gray stripes extending to lateral sides and ventrally light brown. Urticating hairs of type III. Total length, without chelicera, 17.28. Carapace: length 8.32; width 7.12. Eye tubercle: length 1.08; width 1.41. Eyes size: AME 0.40, ALE 0.39, PME 0.19, PLE 0.33. Labium: length 0.98; width 1.56. Sternum: length 4.48; width 3.44. Basal segment of chelicerae with row of 11 teeth on prolateral margin and group of 13 small teeth concentrated on basal third. Labium with 19 cuspules. Endites with *ca.* 107 cuspules. Palp: femur 4.24/ patella 2.72/ tibia 3.68/ cymbium 1.28/ total 11.92. Leg I: femur 7.28/ patella 4.24/ tibia 4.72/ metatarsus 4.88/ tarsus 3.52/ total 24.64. II: 6.56/ 3.68/ 4.64/ 5.12/ 3.68/ 23.68. III: 5.68/ 3.04/ 3.84/ 5.36/ 3.52/ 21.44. IV: 7.44/ 3.44/ 5.44/ 7.44/ 4.16/ 27.92. Spinnerets: basal segment 1.75; medium 1.19; apical 1.59. Spination: Palp: femur d0-0-1p, tibia d0-p1-0, v0-1p-2p; Leg I: femur d0-0-1p, tibia v2-2-0-1ap, p1-0-1, metatarsus v0-0-1ap, p0-1-0; II: femur d0-0-1p, tibia v3-2-0-3ap, p1-0-1, metatarsus v1-1-0-2ap, p1-0-1; III: femur d0-0-2, tibia v2-3-0-2ap, p1-0-1, r1-0-1, metatarsus v2-2-p1-1ap, p1-1-1, r0-1-1. IV: femur d0-1r-1r, tibia v2-3-0-3ap, p1-0-1, r1-0-1, metatarsus v2-2-p1-3ap, p1-1-1, r1-1-1. Scopula: Metatarsus: I 0.69 of total length scopulated, II with 0.58, III with 0.54 and IV with 0.31. Tarsus: I–III undivided, IV by 3–4 rows of stronger setae. Palpal bulb with conspicuous PIK and PSK. An additional keel under PIK, with pointed end. Thin embolus with tooth emerging from PIK with bifid point. Digitiform apophysis present (Figs 6 A–C). Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger. Metatarsus I with strong basal triangular nodule with curved tip and flexes between the tibial apophysis branches, touching their median portion (Figs 6 D).

Female. Unknown.

Distribution. Known only from the type locality (Fig. 10).

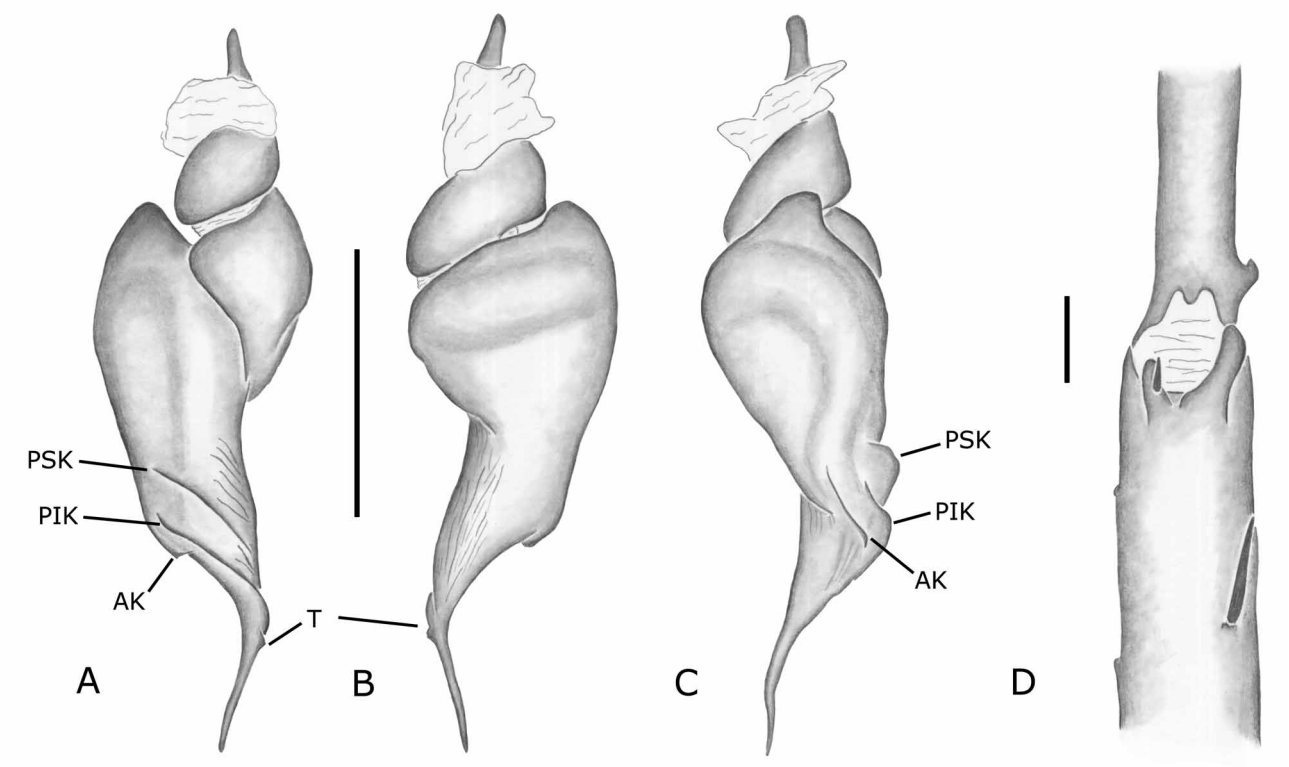

FIGURE 6. *Catanduba araguaia* **sp. nov.**: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I, tibial apophysis, ventral view. Scale bar = 1 mm.

***Catanduba canabrava* sp. nov.**
Figs 7A–D

Type-material. Holotype: male from Cana Brava, Minaçu, Goiás, Brazil, (13°50'01"S; 48°18'10"W), 03/V/1935, J. Blaser col., deposited in IBSP 3735. **Paratype:** two males from the same locality and collector as holotype, deposited in MZSP 36507 and IBSP 160893.

Additional material examined. BRASIL, *Goiás*, Minaçu, Cana Brava, (13°50'01"S; 48°18'10"W), XII/1972, I. Frasceschini col., 3♂ (IBSP 160894–160896).

Etymology. The specific name is a noun in apposition that refers to the type locality of the holotype.

Diagnosis. Males of *C. canabrava* **sp. nov.** differ from those of other species by the position of the embolus tooth in the middle of the PIK (Figs 7 A–C).

Description. Male (Holotype). Color in alcohol: carapace and legs dark brown. Sternum and coxae brown. Abdomen dorsally dark brown and ventrally brown (Fig. 29H). Specimens lost all urticating hairs, abdomen dorsal area is bare. Total length, without chelicera, 11.31. Carapace: length 5.06; width 4.69. Eye tubercle: length 0.73; width 1.00. Eyes size: AME 0.30, ALE 0.27, PME 0.15, PLE 0.24. Labium: length 0.58; width 0.98. Sternum: length 2.28; width 2.25. Basal segment of chelicera with row of 7 teeth on prolateral margin and group of 17 small teeth concentrated on basal third. Labium with 26 cuspules. Endites with *ca.* 81 cuspules. Palp: femur 2.94/ patella 1.75/ tibia 2.31/ cymbium 0.88/ total 7.88. Leg I: femur 4.75/ patella 2.75/ tibia 3.69/ metatarsus 3.19/ tarsus 2.19/ total 16.56. II: 4.19/ 2.44/ 2.94/ 3.00/ 2.13/ 14.69. III: 3.63/ 1.94/ 2.50/ 3.31/ 2.25/ 13.63. IV: 4.81/ 2.25/ 3.94/ 4.56/ 2.63/ 18.19. Spinnerets: basal segment 0.97; medium 0.72; apical 0.97. Spination: Palp: femur d0-0-1p, tibia d0-p1-0, p 0-1-1; Leg I: femur d0-0-1p, tibia d0p1-p1, v3-1-r1, metatarsus p0-1-0; II: femur d1-2-1p, patella v 0-0-1, tibia v2-2-0-2ap, p1-0-1, metatarsus d0-p1-0, v1-1-0-2ap; III: femur d1-2-1, r0-0-2, patella 0-2-0, tibia v2-1-2-3ap, p1-1-1, r1-1-1, metatarsus d r1-r1-r1, v1-1-0-3ap, p1-1-1, r1-1-1. IV: femur d1-2-2, tibia v1-1-2-3ap, p 1-2-1, r1-1-1, metatarsus v2-2-1p-3ap, p1-1-1, r0-1-1. Scopula: Metatarsus: I with 0.49 of total length scopulated, II with 0.40, III with 0.42 and IV with 0.33. Tarsus: I, II undivided, III divided by 3 rows of larger setae and IV divided by 6 rows. Palpal bulb with weak PIK and conspicuous PSK. Thin embolus with tooth emerging from middle of PIK.

Digitiform apophysis weakly developed (Figs 7 A–C). Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger. Metatarsus I with basal triangular nodule and flexes between tibial apophysis branches, touching their median portion (Fig 7 D).

Female. Unknown.

Distribution. Known only from the type locality (Fig. 10).

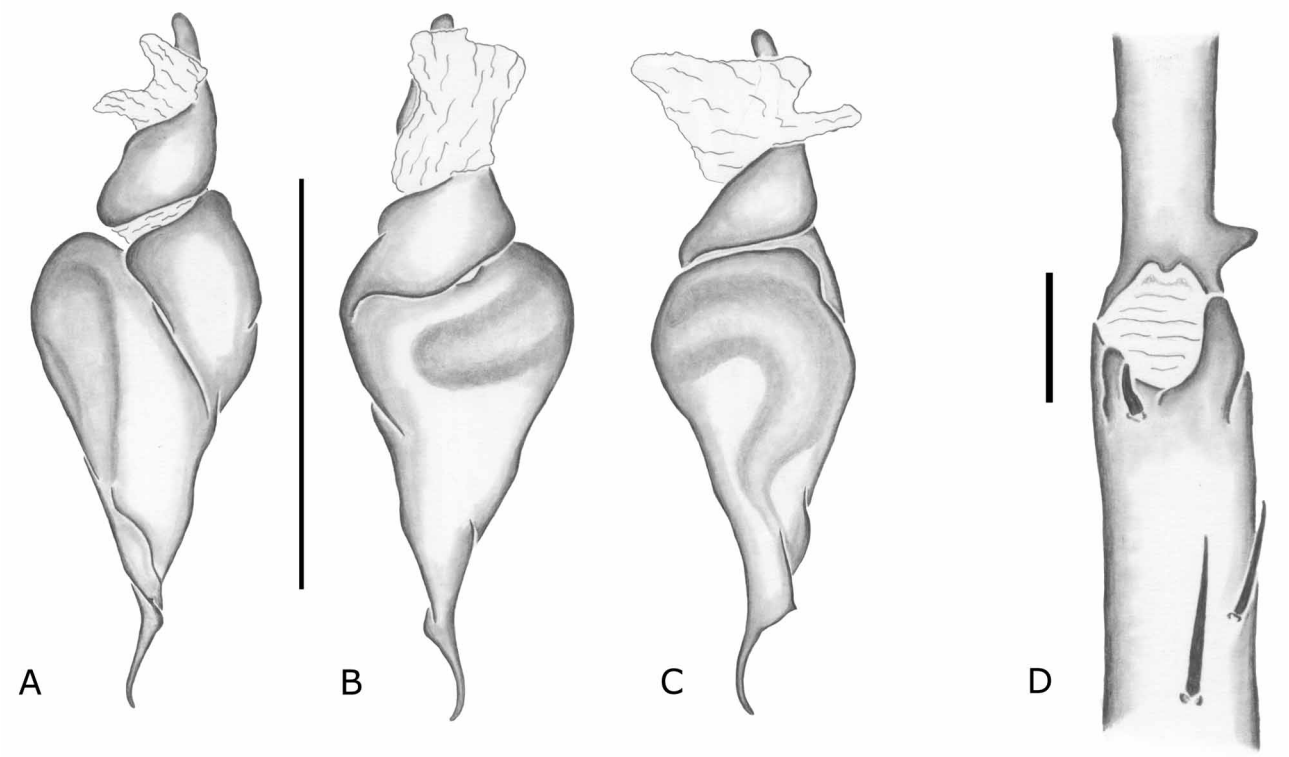

FIGURE 7. *Catanduba canabrava* **sp. nov.**: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I tibial apophysis, ventral view. Scale bar = 1 mm.

***Catanduba piauiensis* sp. nov.**
Figs 8 A–D

Type-material. Holotype: male from Campus da Embrapa, Teresina, Piauí, Brazil, (5°09'S; 42°46'00"W), 15/IV–01/VI/2005, A. dos Santos Rocha col., deposited in IBSP 13747.

Etymology. Named after the state of type-locality, Piauí, Brazil.

Diagnosis. Males of *Catanduba piauiensis* **sp. nov.** differ from those of other species by the presence of an auxilliary keel under PIK with a pointed apical edge, also present in *C. araguaia* (Figs 8 A–C). They differ from males of *C. araguaia*, by the stronger auxiliary keel, weaker PSK and absence of tip curvature on the metatarsal I basal nodule (Fig. 8D).

Description. Male (Holotype). Color in alcohol: carapace and legs reddish brown. Abdomen dorsally dark gray with five strips extending to laterally and ventrally light brown. Urticating hairs of type III. Total length, without chelicera, 16.96. Carapace: length 8.88; width 7.12. Eye tubercle: length 1.18; width 1.36. Eyes size: AME 0.36, ALE 0.44, PME 0.21, PLE 0.30. Labium: length 1.13; width 1.50. Sternum: length 4.75; width 3.69. Basal segment of chelicera with row of 9 teeth on prolateral margin and group of 16 small teeth concentrated on basal third. Labium with 51 cuspules. Endites with *ca.* 129 cuspules. Palp: femur 4.88/ patella 3.12/ tibia 4.16/ cymbium 1.60/ total 13.76. Leg I: femur 7.76/ patella 4.16/ tibia 5.76/ metatarsus 5.60/ tarsus 3.92/ total 27.20. II: 7.28/ 4.24/ 4.88/ 5.04/ 4.08/ 25.52. III: 6.08/ 3.44/ 4.00/ 5.52/ 3.84/ 22.88. IV: 7.68/ 3.84/ 5.92/ 8.00/ 4.56/ 30.00. Spinnerets: basal segment 1.76; medium 0.92; apical 1.00. Spination: Palp: femur d0-0-1p, tibia v0-1p-1p; p 0-1-0; Leg I: femur d0-0-1p, tibia v2-2-0-1ap, p1-0-1; II: femur d0-0-1p, tibia v1-2-0-2ap, p1-0-1, metatarsus v2-1-0-1ap,

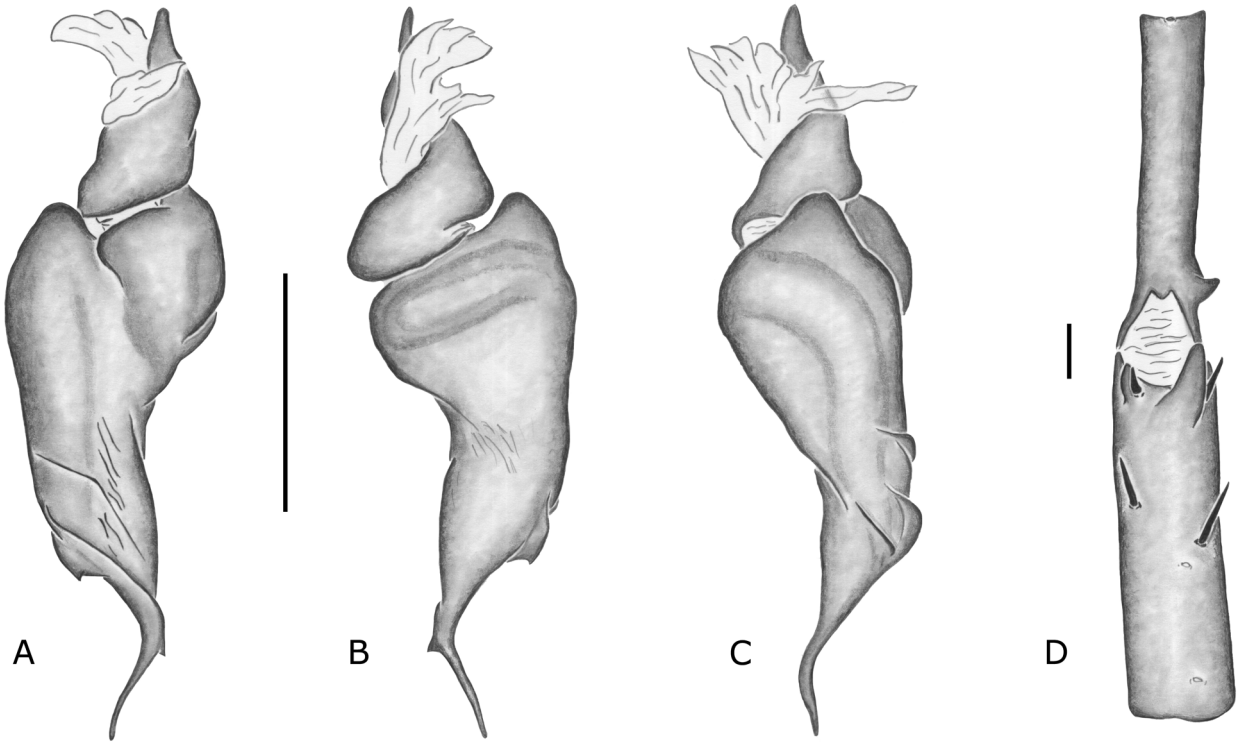

FIGURE 8. *Catanduba piauiensis* **sp. nov.**: (A–C) Left palpal bulb: (A) prolateral view; (B) retrolateral view; (C) dorsal view. (D) Male left leg I, tibial apophysis, ventral view. Scale bar = 1 mm.

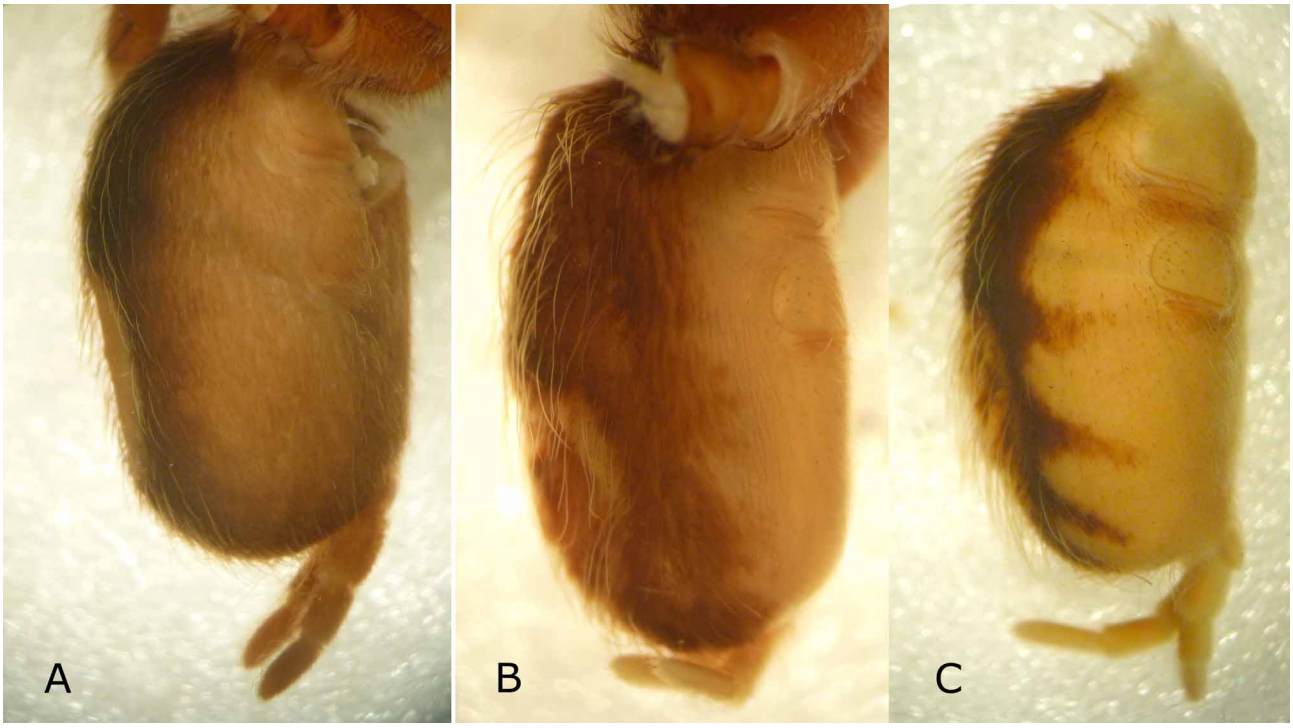

FIGURE 9. Color pattern of abdomen: (A) *C. tuskae* **sp. nov.** (B) *C. flavohirta* comb. nov. and (C) *Catanduba simoni* comb. nov.

p1-0-0; III: femur d0-1p-2, patella p0-0-1, r0-0-1, tibia v2-3-0-3ap, p1-0-1, r1-0-1, metatarsus v2-2-1p-1ap, p1-1-1, r1-0-1. IV: femur d0-0-2r, tibia v1-2-1p-1ap, p1-0-1, r2-2-1, metatarsus v1-2-2-3ap, p0-1-1, r1-1-1. Scopula: Meta-

tarsus: I with 0.42 of total length scopulated, II with 0.46, III with 0.31 and IV with 0.27. Tarsus: I undivided, II divided by 1–2 rows of stronger setae, III divided by 2 rows of stronger setae and IV by 4. Palpal bulb with PIK and PSK well developed. PSK curved for half of its length. Thin embolus with tooth emerging from PIK. Additional keel under PIK with pointed end. Small weak grooves between PIK and PSK and above last one. Digitiform apophysis present (Figs 8 A–C). Tibial apophysis formed by two branches with distinct bases: prolateral smaller, with retrolateral spine; retrolateral larger. Metatarsus I with strong basal triangular nodule and flexes between tibial apophysis branches, touching their median portion (Fig 8 D).

Female. Unknown.

Distribution. Known only from the type locality (Fig 10).

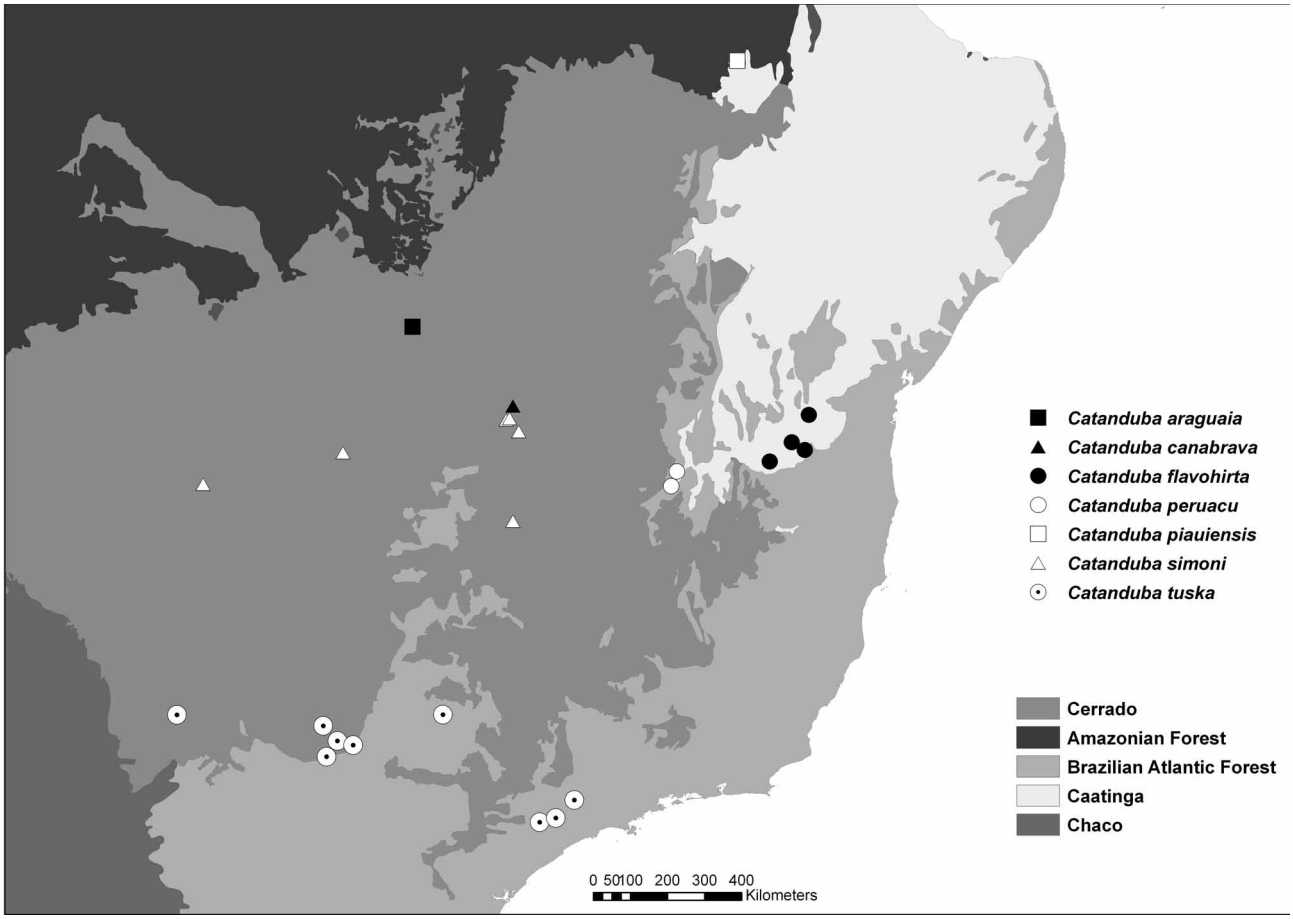

FIGURE 10. Distribution map of *Catanduba* **gen. nov.** species.

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FIGURE 11. Live animals: (A) Male of *Catanduba tuskae* **sp. nov.**; (B) Female, *C. simoni* comb. nov.; (C) Male and (D) female, *C. peruacu* **sp. nov.**

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APPENDIX 1. Exemplar taxa and their voucher specimens scored for the cladistic analysis.

Homoeomma stradlingi O. P.-Cambridge 1881, male, Rio de Janeiro, Rio de Janeiro, Brazil, 30/VII/1974, J.U. Circe col., (IBSP 4147D); female, Teresópolis, Rio de Janeiro, Brazil, 21/X/1976, R.W. Waltermath col.(IBSP 4242).

Homoeomma elegans, (Gerschman & Schiapelli 1958), male, Sarapuí, São Paulo, Brazil, 16/XI/1982, A. Gerard col., (IBSP 11175); Usina Hidrelétrica de Salto Segredo, Candói/Mangueirinha, Paraná, Brazil, 08/IX/1996, R. Bertani col. (IBSP 8965).

Homoeomma montanum (Mello-Leitão 1923), male e female, Itatiaia, Rio de Janeiro, Brazil, XII/1964, H.N. da Cunha col. (MNRJ 13797).

Cyriocosmus ritae Pérez-Miles 1998, male e female, Senador Guiomard, Acre, Brazil, 2002, E. F. Morato col. (IBSP 14705, 14704).

Grammostola mollicoma (Ausserer 1875), male, São Marcos, Rio Grande do Sul, Brazil, 1990, Prefeitura Municipal de São Marcos col. (IBSP 13876); female, Maquiné, Rio Grande do Sul, Brazil, 18–27/I/2002, Equipe Biota col. (IBSP 12729).

Magulla obesa Simon 1892, male, São Pedro da Aldeia, Rio de Janeiro, Brazil, 22°51'S, 42°6'W, 03.VII.1968, S. Machado col. (IBSP 4685); female, Teresópolis, Rio de Janeiro, Brazil, 18–22.VIII.2001, Equipe Biota col. (IBSP 12713).

Maraca cabocla (Pérez-Miles 2000), male e female, Estação Ecológica de Maracá, Ilha de Maracá, Alto Alegre, Roraima, Brazil, 20/VII/1987, A.A. Lise col. (MCN 17610, 17611).

Oligoxystre caatinga, male e female, Toca dos Pilões, Central, Bahia, Brazil, 11º 01' – 11º 19' S41º 47' – 42º 10' W, 16.VII.2002, Equipe Biota col. (IBSP 12852).

Plesiopelma longisternale (Schiapelli & Gerschman 1942), male, Sierra de Animas, Maldonado, Uruguay, 34º42'S 55º19'W, 17–19/V/1992, F. Costa & F. Pérez-Miles col. (FCE-MY 0466); female, Sierra de Animas, Maldonado, Uruguay, 34º44'S 55º21'W, 18/IV/1989, Caposale, F. Costa & F. Pérez-Miles col. (FCE-MY 0444).

Plesiopelma insulare (Mello-Leitão 1923), female, Ilha de Alcatrazes, São Paulo, Brazil, O. A. V. Marques col. 21/IX/1994 (IBSP 8953); male, Ilha Bela, São Paulo, Brazil, VIII.1998, E. Boehringer col. (IBSP 11100).

Plesiopelma sp., male and female, Espírito Santo, Brazil, I/1998, A . D. Brescovit *et al.* col. (IBSP 8936–8937).

Hapalopus sp., male,Usina Hidrelétrica Luís Eduardo Magalhães, Lajeado, Tocantins, Brazil, 08/I/2002, M. Costa & D. M. Candido (IBSP 11582), female, Porto Nacional, Tocantins, Brazil, 22/VIII/2003, Equipe Resgate de Fauna col. (IBSP 115451).