

# Description of *Guyruita* gen. nov. and two new species (Ischnocolinae, Theraphosidae)

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**ABSTRACT.** The genus *Guyruita* gen. nov. and two new species from Brazil are described. *Holothele waikoshiemi* (Bertani & Araújo, 2005) from Venezuela is transferred here to the new genus. *Guyruita* gen. nov. differs from the remaining Ischnocolinae by the following features: labium densely occupied by a lot of cuspules (more than 100), intercheliceral intumescence absent, posterior sternal sigilla remote from margin, tarsal claws without teeth, tarsal scopula I-II undivided (tarsus II with a line of sparse setae, which does not divide the scopula), III-IV divided.

**KEY WORDS.** Neotropical; new genus; spider; taxonomy.

**RESUMO. Descrição de *Guyruita* gen. nov. e duas novas espécies (Ischnocolinae, Theraphosidae).** É descrito o gênero *Guyruita* gen. nov. e duas espécies novas do Brasil. *Holothele waikoshiemi* (Bertani & Araújo, 2005) da Venezuela é transferido para o novo gênero. *Guyruita* gen. nov. difere dos outros Ischnocolinae pelas seguintes características: lábio densamente ocupado por muitas císpides (mais de 100), tumescência interqueliceral ausente, sigilla esternal posterior distante da margem, unhas tarsais sem dentes, escópula tarsal I e II inteiras (tarso II com uma fileira de cerdas esparsas, as quais não dividem a escópula), III e IV divididas.

**PALAVRAS-CHAVE.** Aranha; neotropical; novo gênero; taxonomia.

The subfamily Ischnocolinae currently comprises 13 genera worldwide (RAVEN 1985, GALLON & GABRIEL 2006). It was established by SIMON (1892) based on the divided tarsal scopula, mainly on posterior tarsi. The condition 'divided tarsal scopula' has been considered the plesiomorphic state, contrasting with the entire scopula as the apomorphic state (RAVEN 1985, PÉREZ-MILES 1992, 1996, GUADANUCCI 2004). Because of the few revisionary studies on Ischnocolinae representatives, its taxonomy is very problematic and the limits of the group are uncertain. Seven ischnocoline genera are neotropical: *Oligoxystre* Vellard, 1924, *Sickius* Soares & Camargo, 1948, *Catumiri* Guadanucci, 2004, from central and southern South America; *Hemiercus* Simon, 1903 and *Schismatothele* Karsch, 1879 from northern South America; *Holothele* Karsch, 1879, from Central America, including the islands, and northern South America; *Acanthopelma* F. O. P.-Cambridge, 1897, known only from Central America.

Extensive material of the type species of the genus described here was collected during the Faunistic Rescue, carried out in the state of Tocantins, in Brazil, in 2001. An extra new species found in Instituto Butantan collection from the Atlantic forest of the Northeastern region of Brazil is also included in the genus.

## MATERIAL AND METHODS

Specimens from the following Brazilian institutions were examined. Abbreviations, cities and curator are as follows: (IBSP)

Instituto Butantan. São Paulo (A.D. Brescovit); (MZSP) Museu de Zoologia da Universidade de São Paulo, São Paulo (R. Pintoda-Rocha); (MPEG) Museu Paraense Emílio Goeldi, Pará (A.B. Bonaldo); (MUFAL) Museu da Universidade Federal de Alagoas, Alagoas (S. Torquato da Silva); (MCN) Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E.H. Buckup); (MCTP = Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (A.A. Lise); (UnB) Universidade de Brasília, Departamento de Zoologia. Brasília (P.C. Motta).

All measurements are in millimeters and were taken with a millimetric ocular lens. The length of legs segments was measured between the joints in dorsal view. The length and width of carapace, eye tubercle, labium and sternum are the maximum values obtained. The total body length includes the chelicera and opisthosoma but not the spinnerets.

The number and disposition of spines follows the terminology of PETRUNKEVITCH (1925) with modifications proposed by BERTANI (2001).

All drawings were made with a camera lucida. The spermathecae were cleared with clove oil and illustrated in dorsal view. Left palpal bulbs were removed from the cymbium and illustrated in dorsal, pro and retrolateral views. The setae of the male tibia I were removed in order to illustrate the tibial spur better.

### *Guyruita* gen. nov.

**Etymology:** from the brazilian Tupi indian language, which means "to go underneath rocks". The name comes from the biology of some Ischnocolinae, as well as specimens of *G. cerrado* from Goiás, which were found living underneath rocks. The gender is feminine.

Types-species: *Guyruita cerrado* sp. nov.

**Diagnosis:** males of *Guyruita* gen. nov. differ from those of the genera *Oligoxystre* and *Catumiri* by the labium quadrate, as wide as long and bearing more than 100 cuspules and by the sternal sigilla away from margin; from the genera *Holothele*, *Schismatothele*, *Hemiercus* and *Sickius* by the male metatarsus I which bends between the two branches of tibial apophysis. Females differ from all other Neotropical Ischnocolinae genera by spermathecae receptacles bearing small lobes (except from *Oligoxystre*). Females differ from *Oligoxystre* by the spermathecal lobes strongly sclerotized and by the shape of the labium, which bears more than 100 cuspules.

**Description:** chelicerae without rastellum. Cephalic region slightly raised. Eye tubercle weakly raised, wider than long. Anterior eye row procurved, posterior slightly recurved or straight. Fovea procurved or straight. Labium as wide as long, quadrate, bearing more than 100 cuspules. Maxilla with produced anterior lobe, more than 80 cuspules on the inner angle. Labium-sternal sigilla well marked, mounds weakly raised. Posterior sternal sigilla one or more than its diameter from margin. Males metatarsus I slightly curved at the base, bends between the two tibial apophysis branches. Tarsal scopula I entire, II entire with a line of sparse setae, III and IV divided by a band of thick setae. Retrolateral scopula on femur IV absent. Stridulatory setae absent. Superior tarsal claws without teeth, inferior tarsal claws absent, claw tufts well developed. Urticating hairs absent. Posterior lateral spinnerets three-segmented, long, apical segment digitiform. Cymbium longer than wide, bilobed. Palpal bulb with long embolus, without keels. Male tibial apophysis with two branches. Spermathecae formed by two multilobular receptacles, lobules strongly sclerotized.

**Distribution:** Species of *Guyruita* are found in the Atlantic Forest (states of Bahia, Espírito Santo, Alagoas, Paraíba and Sergipe, in Brazil), Cerrado (Distrito Federal, Goiás, Maranhão, Piauí and Tocantins, Brazil) and Amazon Forest (state of Pará, in Brazil and state of Amazonas, in southern Venezuela).

### *Guyruita cerrado* sp. nov.

Figs 1-7

**Etymology:** named after the type-locality, which is located in the Brazilian habitat called "cerrado", also known as brazilian savanna. Proposed as a noun in apposition.

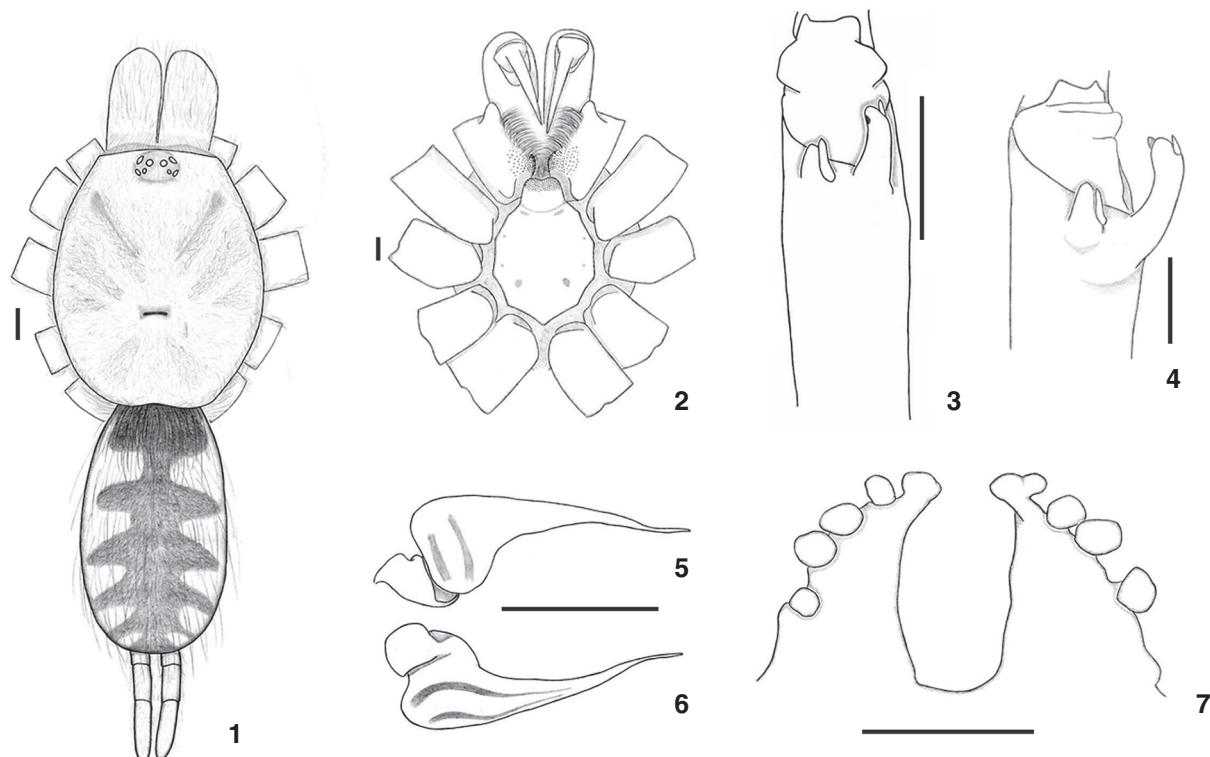
**Type-material:** male holotype from BRAZIL, Goiás: Colinas do Sul (Serra da Mesa, 14°01'S 48°12'W) 2-15.XII.1995, Silvestre et al. leg., deposited in MZSP 27098. Paratypes: BRAZIL, Tocantis: Miracema do Tocantins, male (IBSP 9346), male (IBSP 9609),

male (IBSP 9612), female (IBSP 10778), female (IBSP 10780), male (MPEG 5561), female (MPEG 5562), male (MCTP 19509), female (MCTP 19508), male (MCN 42616), female (MCN 42617); Tocantins: Porto Nacional, (10°15'27.1"S 48°26'22"W), male (FCE-My 0725), female (FCE-My 726); Goiás: Catalão (Fazenda Alvorada), 2-7.II.2004, J.P.L. Guadanucci & A.E.G. Monteiro leg. female (MZSP 22766); Goiás: Colinas do Sul (Serra da Mesa, 14°01'S 48°12'W) 2-15.XII.1995, Silvestre et al. leg., 3 males (MZSP 18992); Brasília, female (UnB 806).

**Diagnosis:** may be distinguished from the other species by the chevron pattern on dorsal opisthosoma (Fig. 1).

**Description:** male (holotype). Total length: 11.1 (variation: 11.1-23.8; n = 12). Carapace: length 6.0, width 4.5. Eye tubercle: length 0.8, width 1.1. Labium: length 0.9, width 1.3. Sternum: length 2.8, width 2.6. Cheliceral basal segment with nine teeth. Labium quadrate bearing around 200 cuspules (Fig. 2). Maxilla with more than 100 cuspules (Fig. 2). Sternum oval, posterior sigilla more than one diameter from margin (Fig. 2). Fovea straight. Measurements: Palp: femur 6.4/patella 3.8/tibia 4.9/cymbium 2.7/total 15.1. Legs I: femur 10.6/patella 6.8/tibia 9.7/metatarsus 7.6/tarsus 5.2/total 39.9; II: 8.7/5/6.6/6.1/4.5/30.9; III: 7.4/3.8/4.9/6.4/4.1/26.6; IV: 9.9/4.6/7.9/9.2/5.1/36.7. Spines: tarsi without spines. Palp: femur (d) 0-0-p1, tibia (p) 0-2-1. Legs I: femur (d) 0-0-p1, tibia (v) 0-0-1, metatarsus (v) 1-0-1; II: femur (d) 0-0-p1, tibia (v) 0-1-ap3, (p) 0-0-1, metatarsus (v) 1-0-ap1; III: femur (d) 0-0-r1, tibia (r) 1-1-0, (v) 0-2-ap3, (p) 0-1-0, metatarsus (d) 0-0-2, (r) 0-1-ap1, (v) 1-0-ap2, (p) 1-1-0; IV: tibia (r) 1-0-1, (v) 0-2-ap3, metatarsus (r) 1-0-1, (v) 2-1-ap3, (p) 1-1-1. Palpal bulb long and tapering, without keels (Figs 5 and 6). Tibial apophysis with two branches (Figs 3 and 4). Retrolateral, the largest, bearing two short apical spines. Prolateral short, adjacent spine of the same size. Metatarsus bends between the two branches of tibial apophysis. Scopula on metatarsus: I-II more than half occupied, III-IV half occupied. Scopula on tarsi: I entire, II entire with a line of sparse setae, III-IV divided. Superior tarsal claws without teeth, clavate trichobotria in two parallel rows. Eyes: anterior row procurved, posterior slightly recurved. Carapace dark red. Abdomen with dark chevrons. Legs dark.

Female (paratype IBSP 10778). Total length: 27.7 (variation: 19.9-27.7; n = 8). Carapace: length 10.9, width 8.7. Eye tubercle: length 1.3, width 1.8. Labium: length 2.3, width 1.5. Sternum: length 5.6, width 4.4. Cheliceral basal segment with 9-10 teeth. Labium quadrate bearing around 180 cuspules. Maxilla with more than 100 cuspules. Sternum oval, posterior sigilla more than one diameter from margin. Fovea straight. Measurements: Palp: femur 5.5/patella 3.5/tibia 3.3/tarsus 2.9/total 15.2. Legs I: femur 7.3/patella 5.4/tibia 4.9/metatarsus 4.5/tarsus 3.1/total 25.2; II: 6.6/4.2/4.2/4.2/2.8/22; III: 6.0/3.7/3.5/4.6/2.7/20.5; IV: 8.1/4.5/5.6/6.8/3.2/28. Spines: tarsi without spines. Palp: femur (d) 0-0-p1, tibia (v) 0-0-ap3. Legs I: femur (d) 0-0-p1, tibia (p) 0-0-ap2, metatarsus (v) 1-0-ap1; II: femur (d) 0-0-p1, tibia (p) 0-1-0, (v) 0-0-ap2, metatarsus (v) 1-0-ap1;



Figures 1-7. *Guyruita cerrado* sp. nov.: (1) habitus, dorsal view; (2) prosoma, ventral view; (3) male tibial apophysis, ventral view; (4) male tibial apophysis, ventral-prolateral view; (5) palpal bulb, retrolateral view; (6) palpal, bulb, prolateral view; (7) spermathecae, dorsal view. Scale = 1mm.

III: femur (d) 0-0-r1, tibia (v) 0-0-ap1, (p) 0-1-0, (r) 0-1-1, metatarsus (r) 0-1-0, (v) 1-1-ap2, (p) 1-1-1; IV: tibia (r) 0-0-1, (v) 0-0-ap2, metatarsus (r) 1-0-1, (v) 2-1-ap3, (p) 1-0-1. Spermathecae formed by two multilobular receptacles (Fig. 7). Scopula on metatarsus: I-II more than half occupied, III-IV half occupied. Scopula on tarsi: I entire, II entire with a sparse line of setae, III-IV divided by a band of thick setae. Superior tarsal claws without teeth, clavate trichobotria in two parallel rows. Eyes disposition and coloration as in male.

Additional material examined. BRAZIL, Distrito Federal: Brasília, female (UnB 86), female (UnB 284), female (UnB 1121), female (UnB 1756), female (UnB 1012), male (IBSP 8010); Goiás: Colinas do Sul (Serra da Mesa) 3 males (MZSP 27598), 2 males (MZSP 18992); Campinaçu (Serra da Mesa): female (MZSP 18991), 3 females (MZSP 18993); Maranhão: São Domingos, female (IBSP 11149); Pará: female (IBSP 3672A); Santarém: female (IBSP 2508B); Vale do Caraipó: female (IBSP 12525); Piauí: Parnaíba, 2 females (IBSP 11150); Tocantins: Brejinho de Nazaré: male (IBSP 10139), 2 juveniles (IBSP 10455); Lajeado: male (IBSP 10056); 3 females (IBSP 10653), male (IBSP 10762); Miracema do Tocantins: male (IBSP 9520), male (IBSP 9428), male (IBSP 9619), male (IBSP 9618), male (IBSP 9430), 3 females (IBSP 10677), juveniles (IBSP 10670), female (IBSP 10676), female

(IBSP 10171), female (IBSP 10781), 1 juvenile (IBSP 10219), female (IBSP 10779), female (IBSP 10202), female (IBSP 10290), female (IBSP 10358), female (IBSP 10776), female (IBSP 10177), male (IBSP 9568), male (IBSP 9596), male (IBSP 9593), male (IBSP 9541), juvenile (IBSP 9550), male (IBSP 9595), male (IBSP 9597), male (IBSP 9675), female (IBSP 10747), female (IBSP 13045); Palmas: male (IBSP 10744), juvenile (IBSP 10656), female (IBSP 9868); Porto Nacional: male (IBSP 10723), male (IBSP 9628), male (IBSP 11148), male (IBSP 8585); male (IBSP 8628); male (IBSP 11146), male (IBSP 11147), female (IBSP 10777), female (IBSP 10703), juvenile (IBSP 10440), juvenile (IBSP 9710), female (IBSP 10542), male (IBSP 11147).

Distribution: known from Central and Northern of Brazil, states of Distrito Federal, Goiás, Maranhão, Pará, Piauí and Tocantins.

#### *Guyruita atlantica* sp. nov.

Figs 8-15

Etymology: named after the type-locality, which is located in the Atlantic forest. Proposed as a noun in apposition.

Type-material: male holotype from Estação Ecológica Murici ( $9^{\circ}15' S$   $35^{\circ}51' W$ ), Murici, Alagoas, Brazil, 13-22.IX.2003, N. F. Lo Man Hung et al. leg., deposited in IBSP 12636. Paratypes:

Estação Ecológica Murici ( $9^{\circ}15'S$   $35^{\circ}51'W$ ), Murici, Alagoas, Brazil, female, 13-22.IX.2003, N. F. Lo Man Hung et al. leg., (IBSP 12629); male (IBSP 12716); male (IBSP 12630); Serra da Saudinha, Ipióca, Maceió, Alagoas, female, G. Q. C. Correia et al., XI.2004, G.Q.C. Correia leg. (IBSP 12614); female (MZSP 27677); male (MZSP 27679); male (MUFAL 343); female (MUFAL 1470).

**Diagnosis:** can be distinguished from the other species by the aspect of dorsal opisthosoma, which is darker than the ventral surface and lacks any kind of ornamentation (Fig. 8).

**Description:** male (holotype). Total length: 13.7 (variation: 8.6-18.6; n = 18). Carapace: length 5.6, width 4.7. Eye tubercle: length 0.8, width 1.1. Labium: length 0.6, width 1.1. Sternum: length 2.7, width 2.5. Cheliceral basal segment with 8-9 teeth. Labium quadrate, bearing approximately 130 cuspules (Fig. 9). Maxilla with more than 80 cuspules (Fig. 9). Sternum rounded, posterior sigilla one diameter from margin (Fig. 9). Fovea short and straight. Measurements: Palp: femur 3.2/patella 1.9/tibia 2.8/cymbium 1.4/total 9.3. Legs I: femur 5.2/patella 3.1/tibia 4.6/metatarsus 3.8/tarsus 3/total 19.7; II: 4.5/2.6/3.3/3/2.4/15.8; III: 3.9/1.9/2.4/3.2/2.3/13.7; IV: 5.1/2.3/4.2/4.9/2.7/19.2. Spines: tarsi without spines. Palp: femur (d) 0-0-p6, tibia (p) 0-0-1. Legs I: femur (d) 0-0-p1, tibia (r) 0-0-ap1, metatarsus (v) 0-1-ap1; II: femur (d) 0-0-p1, tibia (v) 0-1-ap3, (p) 0-0-1, metatarsus (v) 0-1-ap1; III: femur (d) 0-0-3, patella (p) 1, tibia (r) 0-1-1, (v) 0-1-ap3, (p) 0-2-0, metatarsus (r) 0-1-1, (v) 0-2-ap3, (p) 1-1-1; IV: femur (d) 0-0-r1, tibia (r) 1-1-1, (v) 1-2-ap3, metatarsus (r) 0-1-1, (v) 2-2-ap3, (p) 1-1-1. Spermathecae formed by two multilobular receptacles (Fig. 15). Scopula on metatarsi: I-II more than half occupied, III half occupied, IV less than half occupied. Scopula on tarsi: I entire, II entire with a line of sparse setae, III-IV divided by a longitudinal band of thick setae. Superior tarsal claws without teeth, clavate trichobotria in two parallel rows. Eyes: anterior row procurved, posterior slightly recurved. Coloration as in male.

**Additional material examined:** BRAZIL, Bahia: Ilhéus, male, Ceplac, 22.IV.1998 (IBSP 11085); Porto Seguro: male, 21.IV.1998, R. Bertani leg. (IBSP 11084); Espírito Santo: Linhares, male VII.1997, A. Brescovit et al. leg. (IBSP 7987); male (IBSP 8654) VII.1998, G. Machado & A.J. Santos leg.; Alagoas: Maceió (Serra da Saudinha, Ipióca), male (IBSP 12599), male (MUFAL 845), male (MUFAL 1440), male (MUFAL 877), female (MUFAL 652); Murici: male, (Estação Ecológica Murici,  $9^{\circ}15'S$   $35^{\circ}51'W$ ), 13-22.IX.2003 (IBSP 12637), male (IBSP 12631), 2 males (IBSP 12633), male and juvenile (IBSP 12634), male (IBSP 12635), male (MZSP 27678). Paraíba: João Pessoa: Mata do Buraquinho, X.2003-V.2004, S.C. Dias leg. (IBSP 12692). Sergipe: Itabaiana: female and 1 juvenile (MZSP 27680), 2 males, female Estação Ecológica Serra de Itabaiana, 14-20.IX.1999, A.D. Brescovit et al. leg. (IBSP 11877; 13044).

**Distribution:** known from Southeastern and Northern of Brazil, states of Bahia, Espírito Santo, Alagoas, Paraíba and Sergipe.

### *Guyruita waikoshiemi* (Bertani & Araújo, 2005) comb. nov.

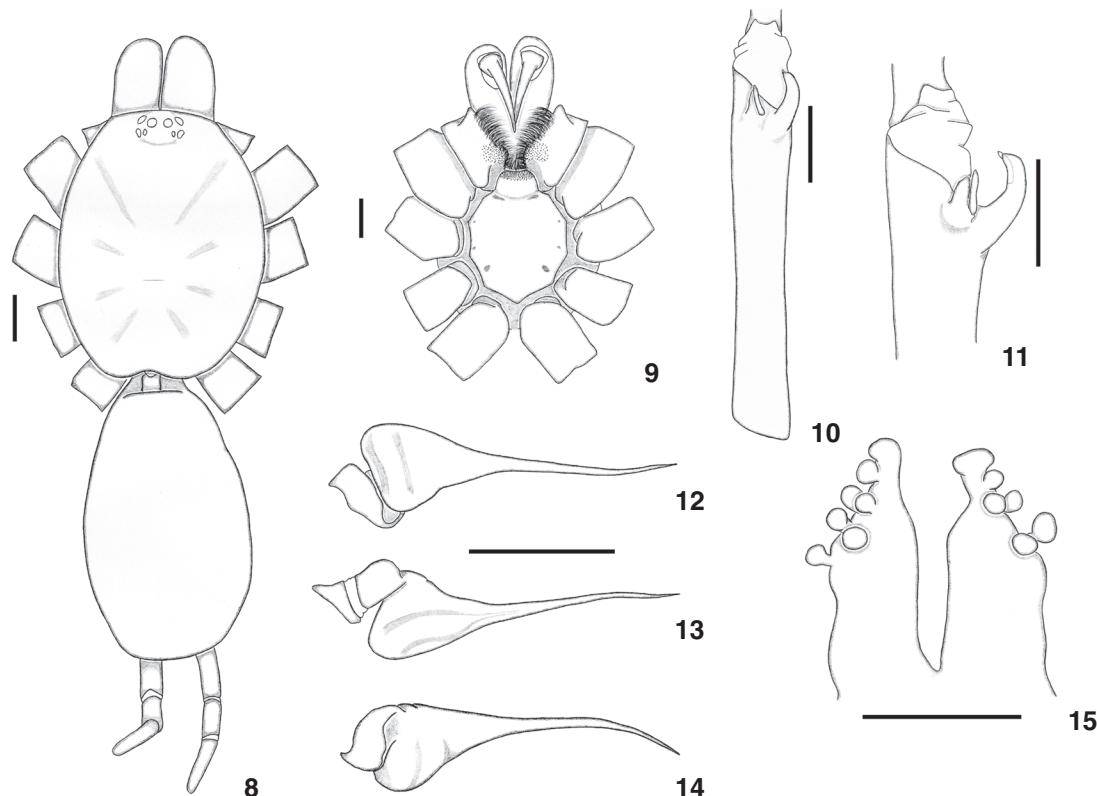
*Holothele waikoshiemi* Bertani & Araújo, 2005: 14, f.1-5. (D female); PLATNICK 2007.

Type-species: female holotype from Río Mavaca, ( $02^{\circ}30,450'N$   $65^{\circ}09,666'W$ ); Paratypes: females and juvenile from Río Mavaca, Reserva de Biosfera Alto Orinoco-Casiquiare, 411 km from Puerto Ayacucho, Estado Amazonas, Venezuela, deposited in Universidad Central de Venezuela, Facultad de Agronomía, Instituto de Zoología, not examined.

**Diagnosis:** females can be distinguished from congeners by the incrassate tibia I and by the spermathecae being multilobed at the apical portion. Males unknown.

**Distribution:** known from South of Venezuela, Estado Amazonas.

Note: *Holothele waikoshiemi* Bertani & Araújo, 2005 is transferred here to the genus *Guyruita* due to the following features mentioned in the original description: multilobed spermathecae receptacles, which are strongly sclerotized; tarsal scopula I entire, II entire with a band of sparse setae and III-IV divided; posterior sternal sigilla more than its diameter from margin; labium quadrate bearing more than 200 cuspules. All these characters are found in the other species of the genus and warrant the transfer of *Holothele waikoshiemi* to the genus *Guyruita*.



Figures 8-15. *Guyruita atlantica* sp. nov.: (8) habitus; (9) prosoma, ventral view; (10) male tibial apophysis, ventral view; (11) male tibial apophysis, ventro-lateral view; (12) palpal bulb, prolateral; (13) palpal bulb, retrolateral; (14) palpal bulb, dorsal view; (15) spermathecae, dorsal view. Scale = 1mm.

## DISCUSSION

According to BERTANI & ARAÚJO (2005), none of the features, proposed by RUDLOFF (1997) as characteristic of *Holothelidae*, could be considered synapomorphic. The examination of the type-specimen *Holothela recta* Karsch, 1879, deposited in the Naturhistorisches Museum, in Vienna, and the type-specimens of *Stichoplastus ravidus* Simon, 1889, considered junior synonym of *H. recta* by RUDLOFF (1997), deposited in Muséum National d'Histoire Naturelle, in Paris, made it possible to diagnose *Holothelidae* and led us to establish this new genus. *Guyruita* gen. nov. differs from *Holothelidae* by presenting the following features: tarsal scopula I-II entire; intercheliceral intumescence absent; male metatarsus I bends between the two branches of tibial apophysis; tarsus IV not cracked; superior tarsal claws without teeth; spermathecae with multilobed receptacles. This last feature, multilobed spermathecae, had a different interpretation by BERTANI & ARAÚJO (2005) in some species of *Holothelidae*. According to them, *H. rondoni* (Lucas & Bücherl, 1972) and *H. sanguiniceps* (F. O. P.-Cambridge, 1898) have multilobed spermathecae, character shared with their new species *H. waikoshomi*. In fact, the spermathecae of those *Holothelidae* species bears small lobes, but they are very distinct from the pat-

tern found in *Guyruita* gen. nov. The *Holothelidae* species present a long and narrow spermathecae receptacle bearing very small lobes on the inner edge. These lobes are as weakly sclerotized as the rest of the receptacle. In *Guyruita* gen. nov., the lobes lay along the receptacula, and are heavily sclerotized. Therefore, they should not be considered to share this character.

A cladistic analysis focused on Ischnocolinae genera was carried out by the first author and presented in the 17<sup>th</sup> International Congress of Arachnology, in August 2007. The results of this analysis suggested the establishment of a new genus. It showed close relationships between the genera *Guyruita*, *Schismatothele*, *Hemiercus*, and the species *Holothela incei*, due to a slight elevation on the sternum, near the labium and the labium densely occupied by cuspules (more than 100). In this analysis, the genus *Guyruita* is monophyletic supported by the following characters: small, strongly sclerotized lobes on spermathecae and tarsal scopula II entire with a band of setae.

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port during all times. We also thank Irene Knysak for specimens collected during the Faunistic Rescue in the state of Tocantins, Brazil and Selma T. da Silva and Gabriela Q.C. Correia (MUFAL) for donating part of material from Alagoas, Brazil. Financial support was provided by CNPq, proc. 142035/2003-3, JPLG and 141062/2007-0, RPI), FAPESP, 99/5446-8 and 06/53070-2, FUY, and CAPES, RPI. This paper was developed in the Programa de pós-graduação em Zoologia da Universidade de São Paulo and Programa de Pós-Graduação em Biologia Animal da Universidade Federal Rural do Rio de Janeiro. This work is part of BIOTA/FAPESP – The Biodiversity Virtual Institute Program ([www.biota.org.br](http://www.biota.org.br)).

## REFERENCES

- BERTANI, R. 2001. Revision, Cladistic Analysis, and Zoogeography of *Vitalius*, *Nhandu*, and *Proshapalopus*; with notes on other theraphosinae genera (Araneae, Theraphosidae). *Arquivos de Zoologia* 36 (3): 265-356.
- BERTANI, R. & Y. ARAÚJO. 2005. A new species of *Holothele* Karsch, 1879 (Theraphosidae, Ischnocolinae) from Venezuela. *Revista Ibérica de Aracnología* 12: 13-16.
- GALLON, R.C. & R. GABRIEL. 2006. Theraphosidae Egg-sac Types. *Newsletter of the British arachnological Society* 106: 5-10.
- GUADANUCCI, J.P.L. 2004. Description of *Catumiri* n. gen. and three new species (Theraphosidae, Ischnocolinae). *Zootaxa* 671: 1-14.
- PÉREZ-MILES, F. 1992. Análisis Cladístico preliminar de la subfamilia theraphosinae (Araneae; Theraphosidae). *Boletín de la Sociedad Zoológica Uruguay* 7: 11-12.
- PÉREZ-MILES, F.; S. M. LUCAS; P. I. DA SILVA JR & R. BERTANI. 1996. Systematic revision and cladistic analysis of Theraphosinae (Araneae: Theraphosidae). *Mygalomorph* 1: 33-68.
- PETRUNKEVITCH, A. 1925. Arachnida from Panamá. *Transactions of the Connecticut Academy of Arts and Sciences* 27: 51-248.
- PLATNICK, N.I. 2007. The world spider catalog, version 7.5. *American Museum of Natural History*. Available on line at: <http://research.amnh.org/entomology/spiders/catalog/index.html> [Accessed in 1.X.2007]
- RAVEN, R.J. 1985. The spider infraorder Mygalomorphae (Araneae): cladistics and systematica. *Bulletin of the American Musuem of Natural Histtory* 182: 1-180.
- RUDLOFF, J.P. 1997. Revision der Gattung *Holothele* Karsch, 1879 nebst Aufstellung einer neuen Gattung *Stichoplastoris* gen. nov. (Araneae, Theraphosidae) und Wiedereinsetzung einiger weiterer Gattungen der Mygalomorphae. *Arachnologische Magazin* 5 (2): 1-19.
- SIMON, E. 1892. *Histoire naturelle des araignées*. Paris, vol. 1, p. 1-256.

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