

ARTÍCULO:

**Two new species of
Symphytognatha Hickman
(Araneae, Symphytognathidae)
from Brazil**

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ARTÍCULO:

**TWO NEW SPECIES OF *SYMPHYTOGNATHA* HICKMAN
(ARANEAE, SYMPHYTOGNATHIDAE) FROM BRAZIL**

Antonio D. Brescovit, Eder S. S. Álvares
& Rodrigo Lopes Ferreira

Abstract:

Two new Brazilian species of the genus *Symphytognatha* Hickman are described: *S. carstica* sp. n., from the States of Minas Gerais and São Paulo, and *S. tacaca* sp. n., from Pará. Additionally, notes on natural history are given for *S. carstica*. **Key words:** Araneae, Symphytognathidae, taxonomy, new species, Brazil.

Taxonomy:

Symphytognatha carstica sp. n.
Symphytognatha tacaca sp. n.

Dos nuevas especies de *Symphytognatha* Hickman (Araneae, Symphytognathidae) de Brasil

Resumen:

Se describen dos nuevas especies de *Symphytognatha* Hickman del Brasil: *S. carstica*, de Minas Gerais y São Paulo, y *S. tacaca*, del estado de Pará. Se presentan igualmente algunas notas sobre la historia natural de *S. carstica*.

Palabras clave: Araneae, Symphytognathidae, taxonomía, nuevas especies, Brasil.

Taxonomía:

Symphytognatha carstica sp. n.
Symphytognatha tacaca sp. n.

Introduction

The genus *Symphytognatha* was proposed by Hickman (1931) to include *S. globosa* from Tasmania. The genus is diagnosed by the combined presence of chelicerae being fused for most of their length with a visible suture line between them, and by the presence of multidentate superior claws on legs I and II (Forster & Platnick, 1977). To date, the genus includes eleven species and presents a worldwide distribution. Among the zoogeographical regions, the best represented are the Australian and Neotropical, with five species each (Platnick, 2004). *Symphytognatha orghidani* was described from Cuba by Georgescu (1988), *S. brasiliensis* from Brazil by Balogh & Loksa (1968) and the remaining three, *S. gertschi*, *S. goodnightorum* and *S. chickeringi*, by Forster & Platnick (1977), from Mexico, Belize and Jamaica respectively. The genus was recently revised in the Neotropical region by Forster & Platnick (1977) however, the only Brazilian species known at the time was not examined by the authors and thus, the species was diagnosed based on the original description.

In this paper we present the description of two new species of *Symphytognatha* from Brazil, one from northern state of Pará and the other from southeastern Brazil, states of São Paulo and Minas Gerais.

Material and Methods

The material examined belongs to the following institutions: IBSP, Instituto Butantan, São Paulo (A.D. Brescovit); LAMG, Laboratório de Aracnologia, Universidade Federal de Minas Gerais, Belo Horizonte (M. de Maria); MPEG, Museu Paraense Emílio Goeldi, Belém (A.B. Bonaldo); MZSP, Museu de Zoologia da Universidade de São Paulo, São Paulo (R. Pinto da Rocha). Descriptions follow Forster & Platnick (1977). Female epigynum and body illustrations were made under stereomicroscope Leika MZ12. Epigynes were submerged in clove oil to study internal structures. Micrographs were obtained with a JEOL (JSM 840A) scanning electron microscope from the "Laboratório de Microscopia Eletrônica do Departamento de Física Geral" at the "Instituto de Física da Universidade de São Paulo (USP)". All measurements are given in millimeters.

Systematics

Symphytognatha carstica sp. n.

Figs. 1-6; 9-18

TYPES: Male holotype and female paratype from Gruta Paredão Descoberto, Iguatama, Minas Gerais, Brazil, 9/VII/2002, deposited in IBSP 44278 and 44279, respectively. Paratypes: 3 ♀, from Gruta do Ronco, Pains, Minas Gerais, Brazil, 26/XI/1989 (IBSP 44280; LAMG; MZSP 23581); ♂ from Gruta Marrote I, Sete Lagoas, Minas Gerais, Brazil, 05/XI/1999, all specimens collected by R.L. Ferreira; ♂ from Quilombo, Reserva Morro Grande, Cotia, São Paulo, Brazil, 24/III/2003, A. Nogueira col. (MZSP 23580).

ETYMOLOGY: the specific name refers to karst (carste in portuguese), a terrain with special landforms and drainage of certain rocks in natural waters that are common in caves (see Jennings 1985).

DIAGNOSIS: The male of *Symphytognatha carstica* differs from the remaining Neotropical species by the enlarged, median conductor with distal U-shaped area (Figs. 5, 16-18). The female resembles *S. brasiliiana* (see Balogh & Loska 1968, fig. 5), but is distinguished by the oval spermathecae and lack of internal posterior median lobes (Fig. 6).

DESCRIPTION:

MALE (Holotype). Carapace orange with tiny spots scattered on cephalic area and black eye borders. Chelicerae brown. Sternum greenish gray. Labium and endites yellow. Legs pale yellow, with distal area of tarsus darker. Abdomen light brown with longitudinal dorsal, lateral and ventral gray stripes (Fig. 1). Total length, not including chelicerae 1.12. Carapace 0.32 long, 0.38 wide, 0.34 high, with one strong anterior spine and one between posterior median eyes. Anterior border without bristles (Fig. 1). Abdomen 0.78 long, 0.80 wide, 0.76 high, covered with long bristles, with dorsal pair of brown circular muscular impressions. Clypeus 0.10 high, with length almost equal to diameter of anterior lateral eyes, slightly projected next to base of chelicerae. Six eyes. Eye diameters, 0.08. Posterior median eyes separated from each other by half their diameter, from posterior laterals by their diameter. Anterior lateral eyes separated from posterior medians by twice their diameter, lateral eyes contiguous. Sternum slightly invaginated at base of each coxa. Chelicerae projected forward, more than half of carapace length, bearing deep groove at base of fang (Fig. 9). Chelicerae with two promarginal teeth, one short, other long, curved at tip, inserted on deep groove. (Figs. 9-10). Legs covered with spines and bristles, patellae I-IV with slender distal spine, tibiae I-IV with slender basal spine, metatarsus I with two long, strong retrolateral median spines. Leg formula 4123. Leg I - femur 0.26/ patella 0.14/ tibia 0.14/ metatarsus 0.14/ tarsus 0.22/ total 0.90. II - 0.24/ 0.12/ 0.12/ 0.12/ 0.20/ 0.80. III - 0.20/ 0.12/ 0.10/ 0.10/ 0.18/ 0.70. IV - 0.28/ 0.12/ 0.18/ 0.16/ 0.20/ 0.94. Palp: cymbium dorsally with ventral-basal, narrow, irregular grooves and three bristles (one distal, two prolateral), border

with row of long, regular bristles (Fig. 16), dorsal notch and triangular basal projections (Fig. 15); median lobe of conductor finger-like (Fig. 4-5); embolus in single incomplete coil (Fig. 5).

FEMALE (Paratype IBSP 44279). Coloration as in male, but darker. Total length, not including chelicerae 1.20. Carapace 0.32 long, 0.48 wide, 0.36 high, without spine in front of posterior median eyes, with row of six bristles along anterior border (Fig. 2). Abdomen 0.90 long, 0.96 wide, 0.84 high, as in male. Clypeus, eyes and sternum as in male. Chelicerae and teeth as in male (Fig. 9-10). Legs covered with setae and bristles, patellae I-IV and tibiae I-IV as in male, metatarsus I without retrolateral spines. Tarsal organ on leg I, elevated on one side, with circular opening (Fig. 13). Trichobothria with long trichoma, bothrium capsulated, not grooved, with semicircular ring (Fig. 12). Leg formula 4213. Leg I - femur 0.30/ patella 0.14/ tibia 0.14/ metatarsus 0.14/ tarsus 0.24/ total 0.96. II - 0.28/ 0.16/ 0.18/ 0.14/ 0.24/ 1.00. III - 0.24/ 0.14/ 0.16/ 0.14/ 0.22/ 0.90. IV - 0.36/ 0.20/ 0.22/ 0.18/ 0.26/ 1.22. Leg III with superior claw smooth (Fig. 14). Palp completely absent (Figs. 3, 11). Epigynum with spermathecae surrounded by coiling duct at distal third (Fig. 6).

VARIATION: Four males: total length 0.84-1.12; carapace length 0.34-0.26; femur I length 0.24-0.28. Four females: total length 0.92-1.54, carapace length 0.26-0.42, femur I length 0.20-0.30.

NATURAL HISTORY: Except for the specimen collected in an open forest in Caucaia, in the state of São Paulo, all the specimens were found in caves. In the caves where individuals occurred, they were almost always located close to the cave entrances, though some were observed in deeper zones. The spiders were found always on the walls or ceiling of the cave conduits, walking directly on the limestone. Apparently, they do not produce a residential web, since no spider was seen in or near a web. They do not aggregate, and individuals were always found relatively far from one another.

It is difficult to determine the category of cave organisms in which the species should be included. The individuals' distribution (near the cave entrances) and the apparent lack of residential webs would corroborate the hypothesis that the species is a trogloden. This hypothesis could be corroborated by the specimen found in open forest in the state of São Paulo. However, the small body size (which would make difficult a daily migration between epigeal and hypogean environments) and the occurrence of some individuals in deeper zones of some caves indicate that the species could be a troglophile. It is also reasonable to assume that the species could be a trogloden in some caves and a troglophile in others, depending on the prey availability inside each cave (Trajano & Moreira, 1991). However, this hypothesis must be confirmed by studies on the population ecology of the species.

DISTRIBUTION: States of Minas Gerais and São Paulo, southeastern Brazil.

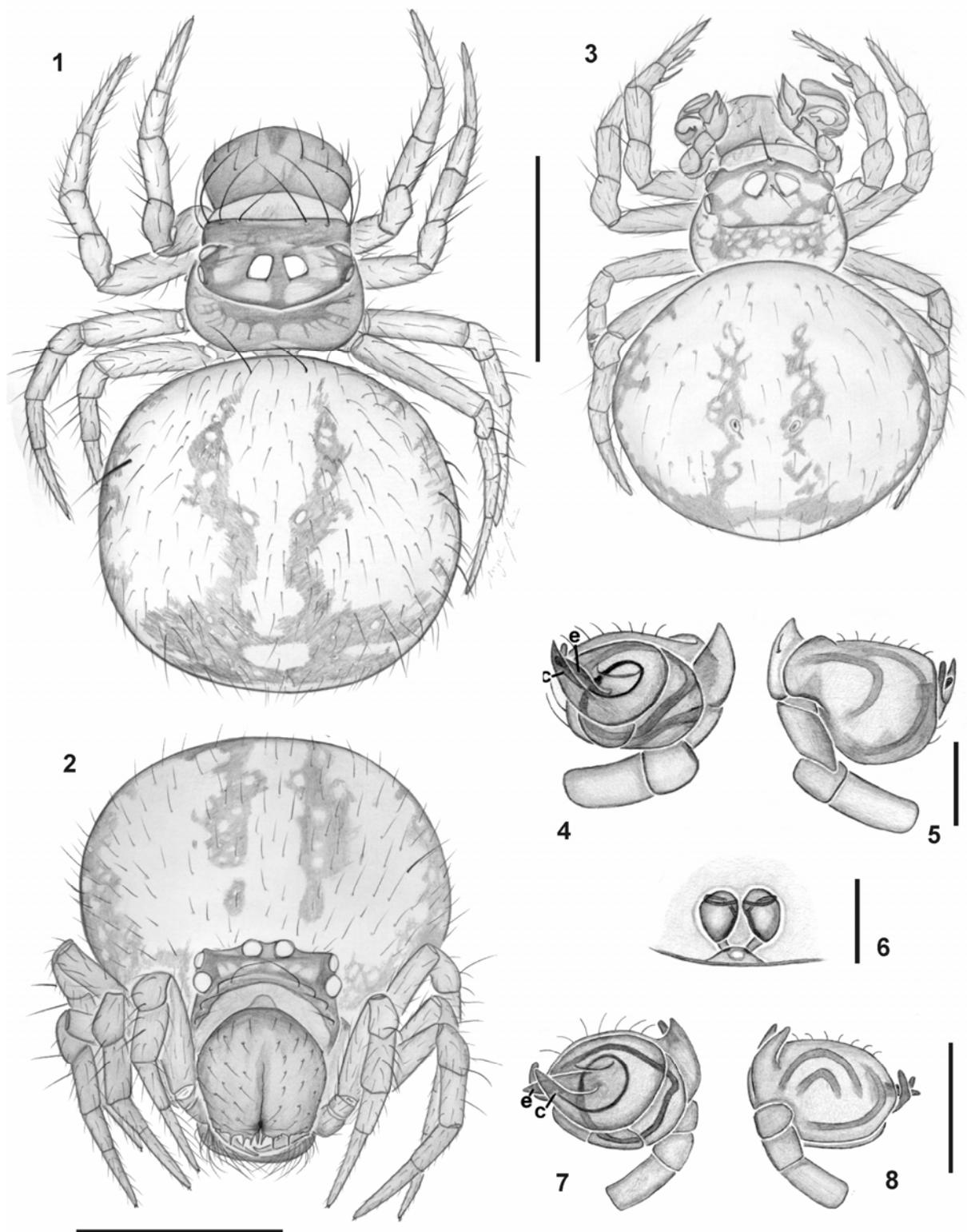


Fig. 1-8. 1-6: *Symphytognatha carstica* sp. n.: 1. female, body, dorsal view; 2. anterior view; 3. male, body, dorsal view; 4. male palp, ventral view; 5. dorsal view; 6. female vulva, dorsal view; 7-8: *S. tacaca* sp. n.: 7. male palp, ventral view; 8. dorsal view. Scale bars: 0.5 mm.

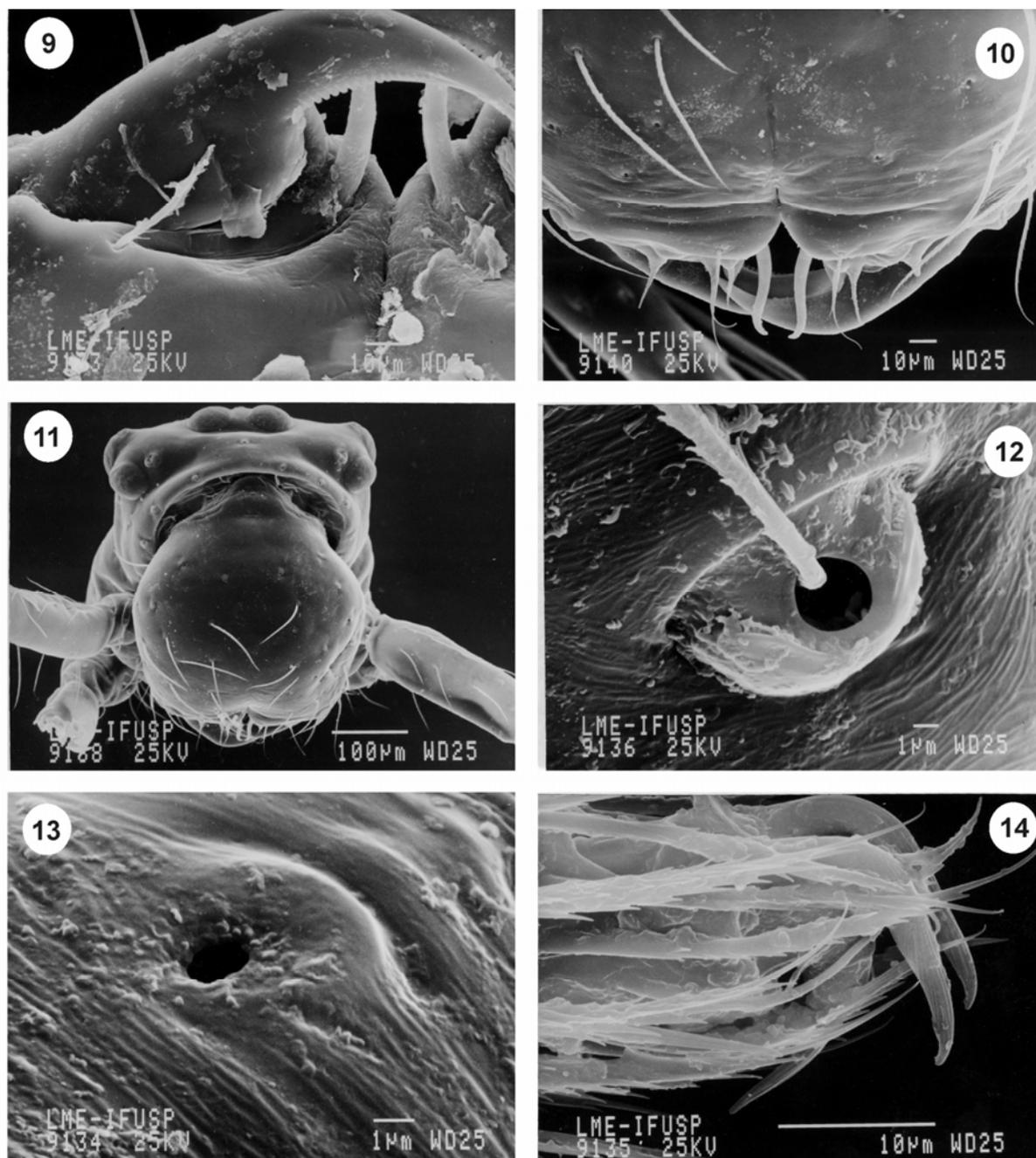


Fig. 9-14. *S. carstica* sp. n.: 9. male chelicerae, dorsal view; 10. anterior view; 11. female carapace, anterior view; 12. leg II, trichobothria, dorsal view; 13. tarsus I, tarsal organ; 14. leg IV, claws, lateral view.

OTHER MATERIAL EXAMINED: Brazil. Minas Gerais, Matozinhos, Gruta Pequenas III, 1 ♀, 05/VII/2001, R.L. Ferreira col. (IBSP 44281); Prudente de Moraes, Gruta da Clarabóia Lateral, ponto 7, 1 ♂ 1 imm., 22/I/2003, M. S. Silva col. (IBSP 44282).

***Symphytognatha tacaca* sp. n.**

Figs. 7-8

TYPES: Holotype ♂ from Estação Científica Ferreira Penna, Flona Caxiuanã, Melgaço, Pará, Brazil, 05/IV/2002, I. Furtado col., deposited in MPEG 722.

ETYMOLOGY: The specific name tacacá is a noun in

apposition taken from Brazilian Portuguese that refers to a typical dish from Pará cuisine.

DIAGNOSIS: The male of *Symphytognatha tacaca* differs from the remaining Brazilian species by the bifid basal projection of cymbium (Figs. 7-8) and sword-like median lobe of conductor in the palp (Fig. 8).

DESCRIPTION: MALE (Holotype). Carapace orange with posterior and median gray stripes. Chelicerae, sternum, labium and endites orange. Legs orange with yellow patella. Abdomen dark gray with lateral and posterior brown stripes. Total length, not including chelicerae 0.84. Carapace 0.24 long, 0.30 wide, 0.24 high, with

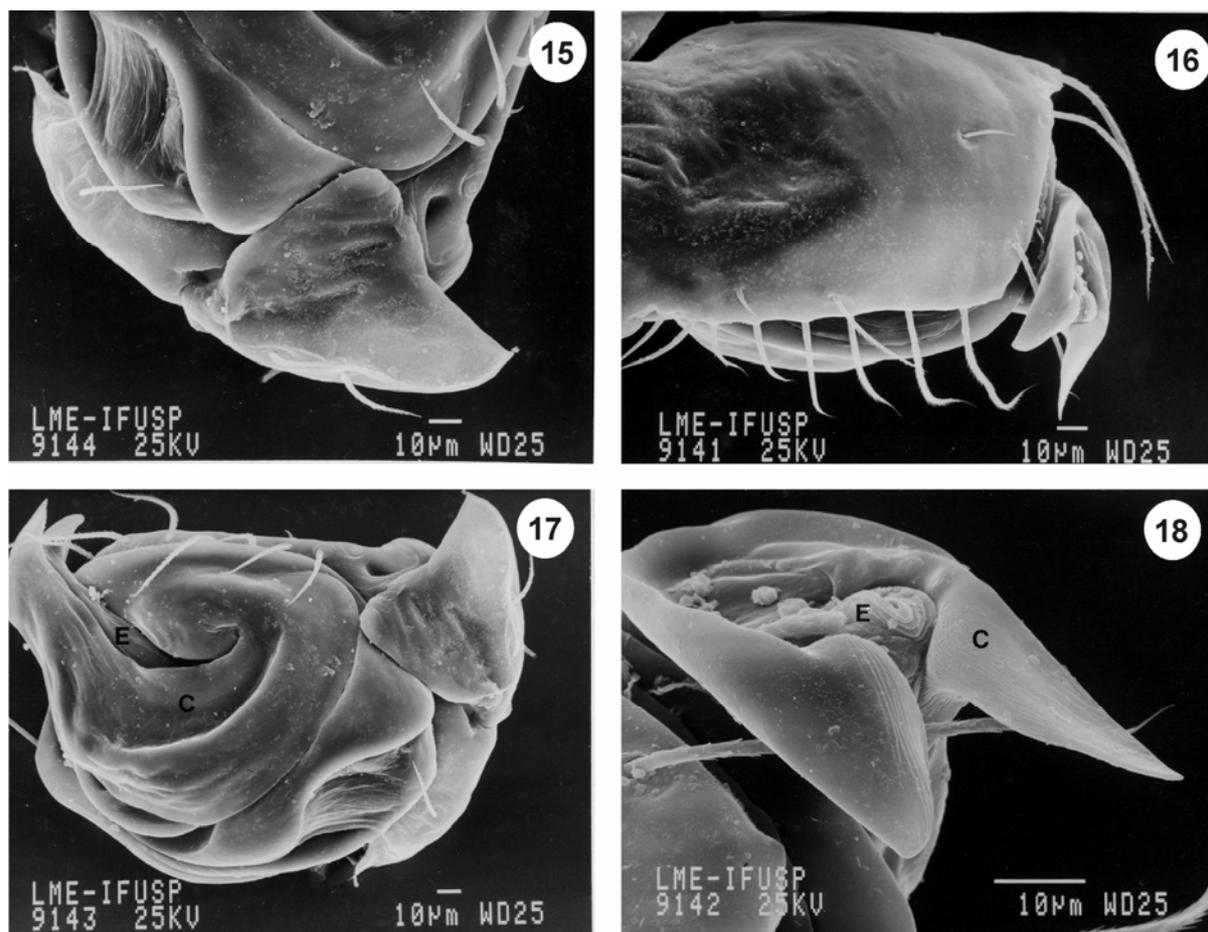


Fig. 15-18. *S. carstica* sp. n.: 15. male, left palp, cymbium, basal area; 16. dorsal view; 17. retrolateral view; 18. conductor, distal area, dorsal view.

strong anterior spine in front, one between and two behind posterior median eyes, one very long, slender spine on side of each anterior median eye, without bristles on anterior border. Abdomen 0.60 long, 0.52 wide, 0.44 high, covered with slender bristles. Clypeus 0.12 high, almost vertical, with length equal to half diameter of anterior lateral eyes. Six eyes. Diameter of eyes, anterior lateral 0.08; posterior lateral 0.06; posterior median 0.06. Posterior median eyes separated from each other by 2/3 of their diameter, from posterior laterals by their diameter. Anterior lateral eyes separated from posterior medians by their diameter, lateral eyes of each side contiguous. Sternum not invaginated in front of each coxa. Chelicerae projected with distance equal to carapace longitude, with one short tooth and two long teeth (as in *S. chickeringi*, see in Forster & Platnick, 1977, fig. 3). Legs covered with setae and bristles, patellae I-IV with long distal spine, metatarsus I with long, strong retrolateral median spine. Leg formula 1243. Leg I - femur 0.28/ patella 0.12/ tibia 0.14/ metatarsus 0.12/ tarsus 0.20/ total 0.86. II - 0.24/ 0.10/ 0.14/ 0.10/ 0.16/ 0.74. III - 0.18/ 0.08/ 0.08/ 0.06/ 0.12/ 0.52. IV - 0.24/ 0.10/ 0.12/ 0.10/ 0.16/ 0.72. Palp: cymbium with inconspicuous dorsal notch. Conductor with bifid distal area, posterior branch longest and curved. Embolus making simple incomplete coil (Fig. 8).

FEMALE: Unknown.

NATURAL HISTORY: The singleton was collected in a one, hour sample by sweep net in an one hectare plot of primary "Terra Firme" Forest, indicating that the species may be epiphytic, occupying plantulas and small bushes in the forest's lower stratum. For a description of the area see Lisboa et al (1997).

DISTRIBUTION: Known only from the state of Pará, northern Brazil.

OTHER MATERIAL EXAMINED: None.

NOTES: Left palp absent. This specimen was collected in Pará, but we do not believe that it is the male of the *S. brasiliiana*, due to the relative large distance between the type localities (Melgaço and Marabá, near 550 km). This problem will only be solved with more sampling in the state of Pará and especially in Marabá.

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We thank Prof. Pedro Kiyohara and Miss Simone Perche de Toledo (USP) for the scanning electron micrographs. Alexandre B. Bonaldo and Cristina A. Rheims provided helpful comments on the manuscript. This work was supported by CNPq (ADB) and "Fundação de Amparo à Pesquisa do Estado de São Paulo" (Fapesp nº 99/05446-8; 02/11275-6).

References

- BALOGH, J. & I. LOKSA 1968. The scientific results of the Hungarian soil zoological expeditions to South America. 7. Arachnoidea. Description of Brazilian spiders of the family Symphytognathidae. *Acta Zool. Hung.*, **14**: 287-294.
- FORSTER, R. R. & N. I. PLATNICK 1977. A review of the spider family Symphytognathidae (Arachnida, Araneae). *Am. Mus. Novit.*, **2619**: 1-29.
- GEORGESCU, M. 1988. Description d'une nouvelle espèce, *Symphytognatha orghidani* n. sp. (fam. Symphytognathidae-Araneae) de Cuba. *Trav. Inst. Spéol. Emile Racovitza*, **27**: 17-19.
- HICKMAN, V. V. 1931. A new family of spiders. *Proc. zool. Soc. Lond.*, **1931**: 1321-1328.
- JENNINGS J. N. 1985. Cave and Karst Terminology. Pages 1-13. In : Matthews P. G. (Ed.) *Australian Karst Index 1985*. Australian Speleological Federation.
- LISBOA, P.L.B. 1997. A Estação Científica Ferreira Penna/ECFPn. Pages 23-49. In: Lisboa, P.L.B. (Org.). *Caxiunã*, Museu Paraense Emílio Goeldi, Belém.
- PLATNICK, N. I. 1979. A new *Symphytognatha* from New Guinea (Araneae, Symphytognathidae). *Bull. Br. arachnol. Soc.*, **4**: 337-338.
- TRAJANO, E. & J.R. DE A. MOREIRA 1991. Estudo da fauna de cavernas da província espeleológica arenítica Altamira-Itaituba, Pará. *Rev. Brasil. Biol.*, **51**: 13-29.