



RESEARCH ARTICLE

The first Symphytognathidae (Arachnida: Araneae) from Argentina, with the description of a new species of *Anapistula* from the Yungas mountain rainforest

La primera Symphytognathidae (Arachnida: Araneae) para Argentina, con la descripción de una nueva especie de *Anapistula* para la selva de montaña Yungas

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ABSTRACT

The spider family Symphytognathidae is reported from Argentina for the first time. *Anapistula yungas*, a new species of this family is described and illustrated. The specimen was collected during an ecological study of biodiversity in different sites from northwestern Argentina. Dichotomous key to Neotropical female species of genus *Anapistula* is provided.

Key words: *Anapistula yungas*, new record, Salta, taxonomy, Yungas eco-region.

RESUMEN

La familia de arañas Symphytognathidae es registrada por primera vez en Argentina. *Anapistula yungas*, una nueva especie de esta familia, es descrita e ilustrada. Los especímenes fueron colectados durante un estudio ecológico de biodiversidad en diferentes sitios del noroeste de Argentina. Se proporciona una clave dicotómica para hembras de las especies neotropicales del género *Anapistula*.

Palabras clave: *Anapistula yungas*, ecorregión Yungas, nuevo registro, Salta, taxonomía.

INTRODUCTION

The family Symphytognathidae was established by Hickman (1931) for the Australian species *Symphytognatha globosa* Hickman, extraordinary for its tiny size (Forster & Platnick 1977). This spider family is diagnosed by the following combination of characters: the female pedipalp is either reduced to a unisegmented lobe or absent, the chelicerae are more or less fused, the labium is much wider than long, and the sternum is broadly truncate posteriorly (Forster & Platnick 1977). At present Symphytognathidae includes seven genera (*Anapistula* Gertsch, *Anapogonia* Simon, *Crassinatha* Wunderlich, *Curimagua* Forster & Platnick, *Globignatha* Balogh & Loksa, *Patu* Marples, and *Symphytognatha* Hickman) and 62 species have been described worldwide (Cardoso & Scharff 2009, Lin & Li 2009, Platnick 2009).

The genus *Anapistula* can be separated from all other symphytognathid genera by the presence of an only slightly elevated pars cephalica and four eyes in two diads (the only exception is *Anapistula boneti* Forster with six eyes) (Forster & Platnick 1977, Harvey 1998). It currently comprises 20 species (Cardoso & Scharff 2009) of which seven are Neotropical, and only one of them (*Anapistula secreta* Gertsch) with a wide distribution from southern USA to Colombia and Brazil (Rheims & Brescovit 2003, Platnick 2009). These spiders are rarely collected in large numbers owing to their minute size and occurrence in leaf litter habitats (Miller et al. 2009), and are usually captured only when specifically searched for or when Berlese funnels, Winkler extractors or pitfall traps are used (Rheims & Brescovit 2003).

This is the first record of a spider of the family Symphytognathidae from Argentina

and, according to the morphology of the female genitalia, the specimen is here postulated to represent a new species of the genus *Anapistula*. For comparative purposes, a dichotomous key to Neotropical female species of the genus is also given here.

METHODS

The material was collected during an ecological study of biodiversity in different sites in northwestern Argentina, using a G-Vac method to collect spiders from vegetation. This method consist of a vacuum cleaner Sthil® with tube of 110 cm of longitude and 12 cm of diameter (flow 710 m³ h⁻¹), and each sample is the suction of the vegetation in an area of a square meter during one minute. The vegetation in this place is rainforest, and corresponds to the Yungas eco-region (Brown et al. 2002).

The description and terminology follow mainly Tong & Li (2006). Female genitalia was observed and illustrated without dissect the epigynum from the specimen and after cleared in clove oil. The photos and illustrations were prepared from digital photographs captured using a Sony DSC-W290 camera attached to a Leica MS5 stereomicroscope. All measurements were taken with a micrometer ocular and are in millimeters.

The specimen examined is deposited in the Museo de La Plata, Argentina (MLP, curator L. Pereira).

RESULTS

Symphytognathidae Hickman, 1931

Anapistula Gertsch, 1941

Anapistula yungas sp. nov. (Figs. 1A-D)

Type material

Holotype (MLP 17 927): female from ARGENTINA: Salta Province, road to El Carmen (Camino de Cornisa) (24°31' S, 65°21' W), 27 April 2006, G. Rubio coll.

Etymology

The specific name, *yungas*, is a noun in apposition after the eco-region to which the type locality belongs.

Diagnosis

The female genitalia closely resembles that of *A. secreta* Gertsch by having the median epigynal duct reaching to the anterior tip of spermathecae (see Gertsch 1941, figs. 14-17), but it differs from that species because their

length is the same as that of the spermathecae diameter, and it lacks the small vesicular projections on the spermathecae (Fig. 1E and 1F). Other important characters include the proportionally bigger globular spermathecae than the rest members of genus *Anapistula*.

Description female (Holotype)

Total length, not including chelicerae, 0.57. Carapace 0.25 long, 0.25 wide, 0.10 high. Opisthosoma 0.35 long, 0.35 wide, 0.17 high. Body without markings, color entirely pale yellow except for a black ring surrounding the eyes, and sclerotised internal genitalia. Carapace relatively low, with a setae at level of eyes, at middle (Figs. 1A and 1B). Anterior margin of clypeus with a row of setae. Cephalic part only slightly lower than thoracic part; part cephalic only slightly lower than part thoracic; lateral margins evenly rounded. Four eyes present in two diads, surrounded by darker rings, distance between diads 0.07 wide; anterior eyes larger than posteriors (Figs. 1A and 1B). Clypeus wide. Chelicerae slightly fused near their base, each with two sharp teeth near the base of the fang (Figs. 1H and 1I). Labium wider than long distinctly. Sternum posteriorly truncate, slightly longer than wide (Fig. 1C). Palp completely absent. Legs pale yellow, clothed with setae and bristles, each patella with a long distally-dorsal spine; joint inflexible between tarsus and metatarsus (Fig. 1D). Three tarsal claws, all of which appear smooth (Fig. 1G). Femur I 0.25 long, tibia I 0.15 long, metatarsus + tarsus I 0.32 long; femur II 0.22 long, tibia II 0.17 long, metatarsus + tarsus II 0.25 long; femur III 0.20 long, tibia III 0.13 long, metatarsus + tarsus III 0.28 long; femur IV 0.21 long, tibia IV 0.16 long, metatarsus + tarsus IV 0.30 long. Leg formula: I-IV-II-III. Opisthosoma without scute, covered with long smooth setae, globular, as long as wide (Figs. 1A-D). Book lungs not visible. Anterior spinnerets slightly larger than posteriors; median spinnerets not visible; colulus absent (Fig. 1C). Epigynum not sclerotized, two large globular spermathecae sclerotized, of which connected by relatively short lateral branches to median duct; bases of copulatory duct with a small anterior swelling (Fig. 1E). Distance between spermathecae 0.04 long.

Male. Unknown.

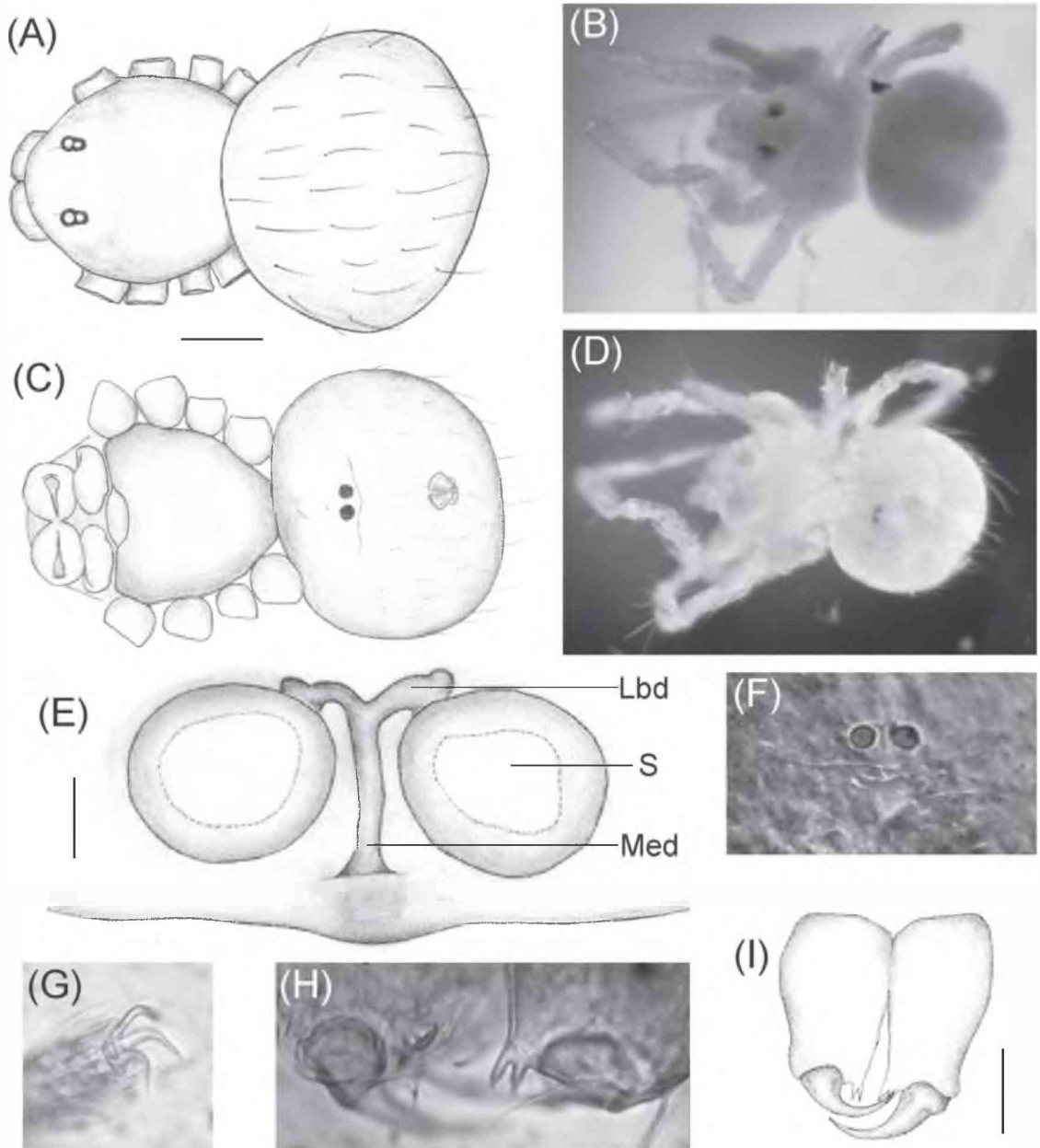


Fig. 1: Anapistula yungas sp. nov. holotype female (MLP 17927): (A-D), body view (A-B, dorsal; C-D, ventral); (E-F), cleared epigynum (ventral view); (G), tarsal claws; (H-I), chelicerae (frontal view). Lbd = lateral branch of epigynal duct; Med = median epigynal duct; S = spermathecae. Scale bars = 0.10 mm (A, C); 0.05 mm (E, I).

Anapistula yungas sp. nov. hembra holotipo (MLP 17927): (A-D), vista del cuerpo (A-B, dorsal; C-D, ventral); (E-F), epiginio aclarado (vista ventral); (G), uñas tarsales; (H-I), queliceros (vista frontal). Lbd = rama lateral del ducto del epiginio; Med = ducto medio del epiginio; S = espermateca. Escala de barras = 0.10 mm (A, C); 0.05 mm (E, I).

Remarks

This species is currently represented only by the holotype which was captured with more than 3,300 spiders obtained in winter and autumn expeditions.

Natural history

The specimen was collected by a G-Vac method from low vegetation less than one meter from the forest floor, in rainforest at 1,700 m altitude.

Distribution

The new species *Anapistula yungas* is known only from Salta Province, Argentina.

Key to Neotropical female species of *Anapistula*

1. Ventral atrium in the posterior region of the epigynum present (Rheims & Brescovit 2003, figs. 16, 18, 21) [2]
 - Ventral atrium in the posterior region of the epigynum absent (Fig. 1E) [4]
2. Large atrium, much larger than the spermathecae (Rheims & Brescovit 2003, figs. 16, 18) [3]
 - Small atrium, same size or smaller than the spermathecae (Rheims & Brescovit 2003, fig. 21) (Brazil: Rio Grande do Sul) *A. ybyquyra* Rheims & Brescovit 2003
3. Lateral branches of epigynal duct larger than the radius of spermathecae (Rheims & Brescovit 2003, fig. 16) (Brazil: Mato Grosso do Sul, Rio de Janeiro) *A. aquytabuera* Rheims & Brescovit 2003
 - Lateral branches of epigynal duct shorter than the radius of spermathecae (Rheims & Brescovit 2003, fig. 18) (Brazil: São Paulo) *A. pocarugnara* Rheims & Brescovit 2003
4. Spermathecae with small lateral vesicular projections (Forster & Platnick 1977, fig. 19; Rheims & Brescovit 2003, fig. 14) [5]
 - Spermathecae without small lateral vesicular projections (Fig. 1E) (Argentina: Salta Province) *A. yungas* sp. nov.
5. Median epigynal duct longer than the spermathecae (Forster & Platnick 1977, fig. 19) (USA to Colombia, Bahamas Is., Jamaica, Brazil) *A. secreta* Gertsch 1941
 - Median epigynal duct shorter than the spermathecae (Rheims & Brescovit 2003, fig. 14) (Brazil: Amazonas) ..*A. ayri* Rheims & Brescovit 2003

DISCUSSION

Spider fauna in subtropical rainforests of the Neotropical region is not yet well known, especially in the Argentinean where systematic fieldwork were not undertaken until recently (Rubio et al. 2008). However, in Argentinean Yungas rainforest, other arthropod fauna has only received attention during the last decade (Cuezzo et al. 2007), but undoubtedly many

species remain to be found and new taxa discovered. This mountain rainforests are usually isolated from similar ecosystems by steep terrain and intervening lowlands with contrasting climates (Brown et al. 2002), and are very important areas since to have high species endemism (Cuezzo et al. 2007).

In the main, the Neotropical species of *Anapistula* are from Brazil (see key above and Rheims & Brescovit 2003, fig. 23). The new species *A. yungas* is the first symphytognathid to be recorded and described from Argentina, and their importance is increased by the relict size of the rainforests environment from Argentina and for the scarce knowledge that one has of the genus.

ACKNOWLEDGMENTS

The manuscript was benefitted from comments from two anonymous reviewers and the RChHN editor. Moreover, we want to thank to Mark S. Harvey (Western Australian Museum, Australia), Shu-Qiang Li (Institute of Zoology, Chinese Academy of Sciences, China) and Antonio Brescovit (Instituto Butantan, São Paulo, Brazil) for make helpful comments and corrections on the manuscript; to José A. Corronca (IEBI-Universidad Nacional de Salta, Argentina) for his assistance and the possibility of carrying out the samplings, and Diana Lopez Lezama (CEPAVE, Argentina) for assistance in the microscopy observations. This work was supported by the scholarship research given to G.D.R. by CONICET.

LITERATURE CITED

- BROWN AD, A GRAU, T LOMÁSCOLO & NI GASPARRI (2002) Una estrategia de conservación para las selvas subtropicales de montaña (Yungas) de Argentina. *Ecotropicos* 15: 147-159.
- CARDOSO P & N SCHARFF (2009) First record of the spider family Symphytognathidae in Europe and description of *Anapistula ataecina* sp. n. (Araneae). *Zootaxa* 2246: 45-57.
- CUEZZO F, M LIZARRALDE DE GROSSO, F NAVARRO & C SZUMIK (2007) Endemic insects from the Yungas of Argentina. *Zootaxa* 1576: 63-67.
- FORSTER RR & NI PLATNICK (1977) A review of the spider family Symphytognathidae (Arachnida, Araneae). *American Museum Novitates* 2619: 1-29.
- GERTSCH WJ (1941) Report on some arachnids from Barro Colorado Island, Canal Zone. *American Museum Novitates* 1146: 1-14.
- HARVEY MS (1998) A review of the Australasian species of *Anapistula* Gertsch (Araneae: Symphytognathidae). *Records of the Western Australian Museum* 19: 111-120.

- HICKMAN VV (1931) A new family of spiders. Proceedings of Zoological Society of London 1931: 1321-1328.
- LIN Y & SQ LI (2009) First described *Patu* spiders (Araneae, Symphytognathidae) from Asia. Zootaxa 2154: 47-68.
- MILLER JA, CE GRISWOLD & C MIN YIN (2009) The symphytognathoid spiders of the Gaoligongshan, Yunnan, China (Araneae, Araneoidea): Systematics and diversity of micro-orbweavers. ZooKeys 11: 9-195.
- PLATNICK NI (2009) The World Spider Catalog, Version 9.5. American Museum of Natural History, New York. URL: <http://research.amnh.org/entomology/spiders/catalog/INTRO1.html> (accessed May 01, 2009).
- RHEIMS CA & AD BRESCOVIT (2003) Description of six new species of *Anapistula* Gertsch (Araneae, Symphytognathidae) from Brazil. Bulletin of the British Arachnological Society 12: 324-330.
- RUBIO GD, JA CORRONCA & MP DAMBORSKY (2008) Do spider diversity and assemblages change in different contiguous habitats? A case study in the protected habitats of the Humid Chaco ecoregion, north-east Argentina. Environmental Entomology 37: 419-430.
- TONG YF & SQ LI (2006) Symphytognathidae (Araneae), a spider family newly recorded from China. Zootaxa 1259: 33-38.

Associate Editor: Mario George-Nascimento

Recived May 19, 2009; accepted November 11, 2009

