

ARTÍCULO:

A new species of *Rualena* (Araneae, Agelenidae) from Chiapas, Mexico.

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ARTÍCULO:

**A new species of *Rualena*
(Araneae, Agelenidae) from Chiapas, Mexico**

Miguel A. García-Villafuerte

Abstract:

Rualena shlomitae sp. n. is described; this is the second record of the genus in Chiapas, Mexico. This species differs from known congeners by having 2-3 'denticles' between the two processes on the retrolateral tibial apophysis of the male palp and the apex of conductor pointing forward. The female epigynal atrium is partially subdivided, differing from those of *R. cockerelli* by having a central triangular depression, and from *R. pasquinii* by having posterolateral spurs.

Key words: *Rualena*, Chiapas, new specie.

Taxonomy: *Rualena shlomitae* sp. n.

Una nueva especie de *Rualena* (Araneae, Agelenidae) de Chiapas, México

Resumen:

Se describe a *Rualena shlomitae* sp. n., éste es el segundo registro del género para Chiapas, México. Esta especie difiere de todos sus congéneres por tener 2-3 denticulos entre los procesos de la apófisis retrolateral de la tibia del palpo del macho y el ápice del conductor dirigido hacia adelante. El atrio del epigino está parcialmente subdividido, difiere del de *R. cockerelli* por tener una depresión triangular central y de *R. pasquinii* por tener ganchos posterolaterales.

Palabras clave: *Rualena*, Chiapas, nueva especie

Taxonomía: *Rualena shlomitae* sp. n.

Introduction

Agelenid spiders have a world-wide distribution, however most of the species are concentrated primarily in the Holarctic, Neotropical, and Australian biogeographic regions (Bennett and Ubick, 2005). The taxonomy for most of the Nearctic agelenid genera is well studied (Chamberlin and Ivie, 1941, 1942; Roth, 1954, 1968; Roth and Brame, 1972). Nevertheless, knowledge of the agelenid species in the Neotropics is very poor. Within the Nearctic fauna, Chamberlin and Ivie (1942) revised *Hololena* Chamberlin and Gertsch, 1929, *Melpomene* O. P.-Cambridge, 1898, and described *Rualena* Chamberlin and Ivie, 1942 and *Novalena* Chamberlin and Ivie, 1942. *Rualena* differs from other agelenid genera by the position of the retrolateral tibial apophysis which is confined to the distal half of the palpal tibia; the epigynal atrium is undivided or only partially divided and has a posterior margin bordered by a thickened ridge (see Bennett and Ubick, 2005).

At present, *Rualena* has 12 described species, only three of them recorded outside the state of California in USA (see Platnick, 2008). Two of those spe-

cies have been reported from Mexico, *R. cavata* (Pickard-Cambridge, 1902) from Guerrero state, and *R. pasquinii* Brignoli, 1974 from Chiapas state, while one, *R. simplex* (Pickard-Cambridge, 1902), is known from Guatemala. Only four species are known from both sexes, the rest only by females except *R. simplex*, known from the male. A new species of *Rualenais* here described from males and females collected from the “Cerro Tres Picos” in Chiapas, Mexico.

Methods

The specimens were collected in pitfall traps with propylene glycol, located at different elevations (1500 – 2460 m) in the “Cerro Tres Picos”, Municipio de Villaflores, Reserva de la Biosfera “La Sepultura”, Chiapas, Mexico, from November 2007 to April 2008, in the project “Strengthen the Arachnid Collection of the Biology School from the University of Science and Arts of Chiapas”.

All specimens were preserved in alcohol (70%). The measurements are in mm following Brignoli’s (1973) measurements, taken with an ocular micrometer. Drawings were made with a camera lucida on a Zeiss-Stemi SV11 compound microscope. The photos were made with a Nikon Coolpix510 digital camera mounted on a Nikon SM2645 compound microscope. Palp and epigynum were dissected and digested using KOH.

Specimens are deposited in the Colección Nacional de Arácnidos del Instituto de Biología, Universidad Nacional Autónoma de México (CNAN); American Museum of Natural History (AMNH) and Colección de Arácnidos de la Facultad de Biología, Universidad de Ciencias y Artes de Chiapas (CA-UNICACH).

Results

Taxonomy

Family: *Agelenidae* C. L. Koch, 1837

Genus: *Rualena* Chamberlin & Ivie, 1942

Type species: *Rualena surana* Chamberlin & Ivie, 1942

***Rualena shlomitae* sp. n.**

Figs. 1-7

TYPE MATERIAL. Male holotype taken in pitfall trap at elevation of 2300m, “Cerro Tres Picos”, Municipio de Villaflores. Reserva de la Biosfera “La Sepultura” 16°11’46.4” N, 93° 36’28.6” W. Chiapas, Mexico; between April 26th and June 8th 2008, Kaleb Zarate-Gálvez, César A. Pérez Bonifáz and Marcos G. Araujo, deposited in CNAN (T-0369). Paratype female taken in pitfall trap at elevation of 2100m, in the same locality, 16°11’53.11”N, 93°36’19.8” W. Chiapas, Mexico; between November 14th 2007 and December 13th, Kaleb Zarate-Gálvez, deposited in CNAN (T-0371).

ETYMOLOGY. The species epithet is a derivation from my wife’s name Sh’lomit S. S., for her patience, while I have been working in the laboratory hours and hours.

Sh’lomit (female name) in Hebrew language means Peace.

DIAGNOSIS. Males are easily distinguished from all known congeners by the shape of the retrolateral tibial apophysis on the male palpal tibia, with two processes including 2-3 denticles in between, and the apex of conductor directed forward (Figs. 3–5). Females differ from known congeners by having the atrium of the epigynum partially subdivided, from *R. cockerelli* by having a central triangular depression, and from *R. pasquinii* by having posterolateral spurs (Figs. 6–7).

DESCRIPTION. MALE HOLOTYPE (Figs. 1, 3–5): Legs and carapace with plumose hairs. Total length 10.93; carapace length 5.56, width 3.85, leg formula: 4,2,1,3 (Table 1).

Carapace yellowish brown with four narrow black seams, two from PME two from PLE; anterior median eyes distinctly smaller than the lateral eyes, posterior eyes equal and equidistant. Chelicerae reddish brown, with three retromarginal teeth and 3–4 promarginal teeth. Labium and endites brown, with white distally. Sternum and legs yellowish brown; sternum wider in front than behind, with a V-shaped mark. Coxae yellow, all femora annulated.

Abdomen grizzled, dorsum dark gray spotted, medially with grayish band. Venter yellowish-gray. PLS length 1.13.

Palpus with embolus evenly curved and the tip fitting in a conductor with the apex directed forward, cymbium with two distal and three retrolateral spines. RTA with two processes, including 3 denticles; palpal tibia with two prolateral spines, palpal patella with two dorsal spines.

FEMALE PARATYPE (Figs. 2, 6–7): Legs and carapace with plumose hairs. Total length 10.62; carapace length 4.96, width 3.87; leg formula: 4,1,2,3 (Table 2).

Color as in male, but sternum with narrow light median line extending full length. Anterior median eyes distinctly smaller than the lateral eyes, posterior eyes equal and equidistant. **Abdomen** dark gray, more or less spotted. Venter brownish-gray. PLS length 1.10.

Epigynum with atrium partially divided, posterior margin bordered by thickened ridge, large cavity (almost 1/3 of the epigynal width) with a further triangular depression at the center and postero-lateral spurs; spermathecae and copulatory ducts, simple, sclerotized.

VARIATIONS: Male (n = 95) length 7.95 – 11.86, PLS length 1.03 – 1.13. Female (n = 69) length 7.56 – 11.27, PLS length 0.87 – 1.48; the epigynal atrium in some specimens is less divided and the triangular depression is reduced.

DISTRIBUTION: Known only from the type locality.

NATURAL HISTORY: The known elevation range of *R. shlomitae* sp. n. is 1900 – 2460 m, and represents different habitats: mesophyllous mountain forest (1900 –

2100 m) and evergreen low rainforest (2300 – 2460 m) (Zarate-Gálvez, *pers. com.*).

OTHER MATERIAL EXAMINED. Total number of specimens: 233 (135♂, 74♀, 24 immature) (Kaleb Zarate Gálvez, César A. Pérez Bonifáz, Marcos G. Araujo, Gilberto Salinas Pérez, Mauricio Ameth Lorena A., Marco A. Rabasa D., Jorge Martínez M., Nicolas de Jesús Méndez G., Javier A. López V., Marco G. Araujo G., UNICACH). From those, 64 specimens (48♂, 16♀) are deposited in CNAN (T-0370), 28 specimens (21♂, 7♀) are deposited in AMNH, and 141 specimens (66♂, 51♀, 24 immature) are deposited in CA-UNICACH.

Discussion

So far there is no phylogenetic hypothesis for the species of *Rualena*. Considering this, it is important to discuss Brignoli's (1974) hesitation about the placement of *R. pasquinii* in the genus *Rualena*, as this may help explain why *R. shlomitae* sp. n. has been placed in this genus. Brignoli (1974) mentions that throughout the United States and Central America there is a wide range of agelenid genera. Many of those species have been illustrated by Chamberlin and Ivie (1941, 1942), but, there is a gap in illustrations of the vulva, which nowadays is considered diagnostic (e.g. Sierwald, 1989). Externally the epigynum can appear very similar and sometimes very simple. However, internally the vulvae may be complex.

R. shlomitae sp. n. is clearly excluded from other agelenid genera. It is excluded from *Agelenopsis*, by having an embolus that is not a conspicuous large open circle, and the vulvae no complex. From *Melpomene* and *Calilena* because males and females do not have the distal segments of PLS twice the length of basal segment, a simple RTA and by lacking the slender, elongate 'scape' projecting posteriorly from anterior median margin of epigynum. This species also differs from

Barranopsis and *Tortolena* because it lacks the diagnostic characters of those genera, namely an embolus in tight spiral coil basally or in form of transverse 8, epigynal atrium with deeply notched anterior margin, or marked by paired ridges spiraling inwards to small copulatory openings.

There remain the genera *Novalena*, *Hololena* and *Rualena*; the palpus of *R. shlomitae* sp. n. differs from the palpus of *Novalena* and *Hololena* because the RTA is not bipartite (*Hololena*), and does not occupy most of the retrolateral face of palpal tibia (*Novalena*). The epigynum of *R. shlomitae* sp. n. is excluded from *Novalena* because the cavity is longer, not very narrow in the transversal direction, and from *Hololena*, even when *R. shlomitae* have the two characteristic spurs at the sides of the cavity, the atrium is not divided longitudinally by a more or less complete ridge. For these reasons, the new species here described is placed in *Rualena*.

Acknowledgments

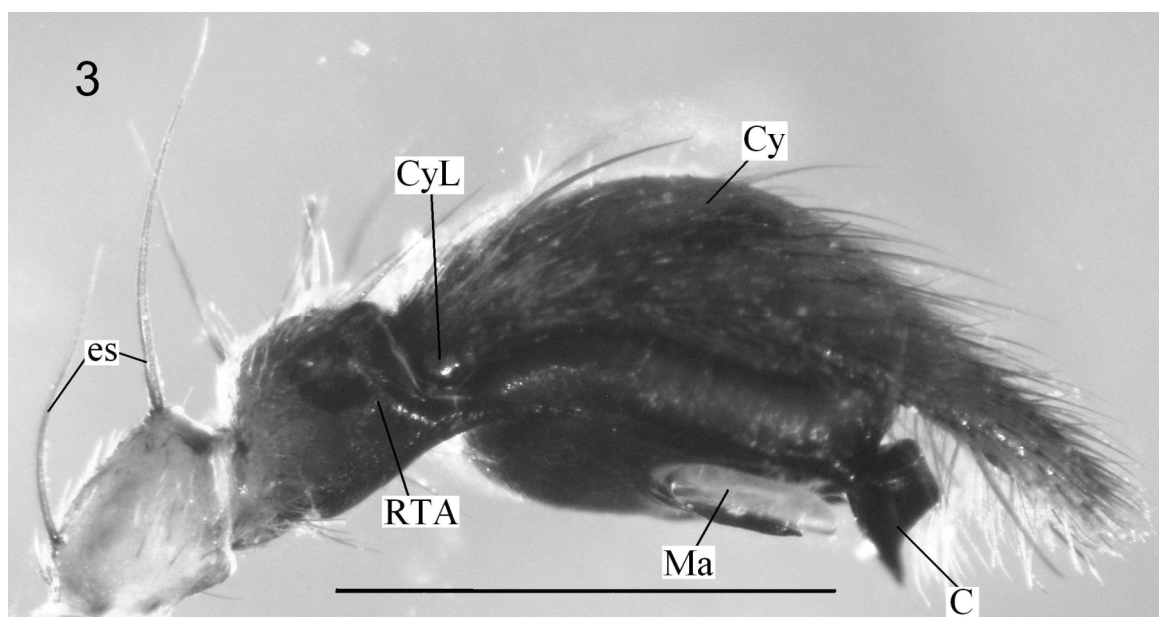
I am very grateful to Kaleb Zarate Gálvez, César A. Pérez Bonifáz, Marcos G. Araujo, Gilberto Salinas Pérez, Mauricio Ameth Lorena A., Marco A. Rabasa D., Jorge Martínez M., Nicolas de Jesús Méndez G., Javier A. López V., Marco G. Araujo G (UNICACH) for the important work in the field. Don Laureano and his family (Colonia Nueva Independencia, Villaflores) for their support and hospitality. To Carlos Manuel Galán Páez, Joaquín Murguía González and Ivonne Landerero Torres (Facultad de Ciencias Biológicas y Agropecuarias, Córdoba-Orizaba), that allowed me the access to the University lab. I wish to thank to Norman Platnick (AMNH) for his advice, Oscar Francke (CNAN), Fernando Álvarez-Padilla, Darell Ubick and Martín Ramírez for their helpful comments. Louis Sorkin (AMNH) and Godelieve Hofkens (African-Museum, Tervuren, Belgium) for providing literature, Alejandro Váldez-Mondragón (CNAN) for help in the dissection and clearing the epigynum, Griselda Montiel Parra and also to researchers in the Colección Nacional de Arácnidos (CNAN) who allowed the access to the lab. This work was supported by FOMIX-Chiapas (CHIS-2006-C06-45752).

References

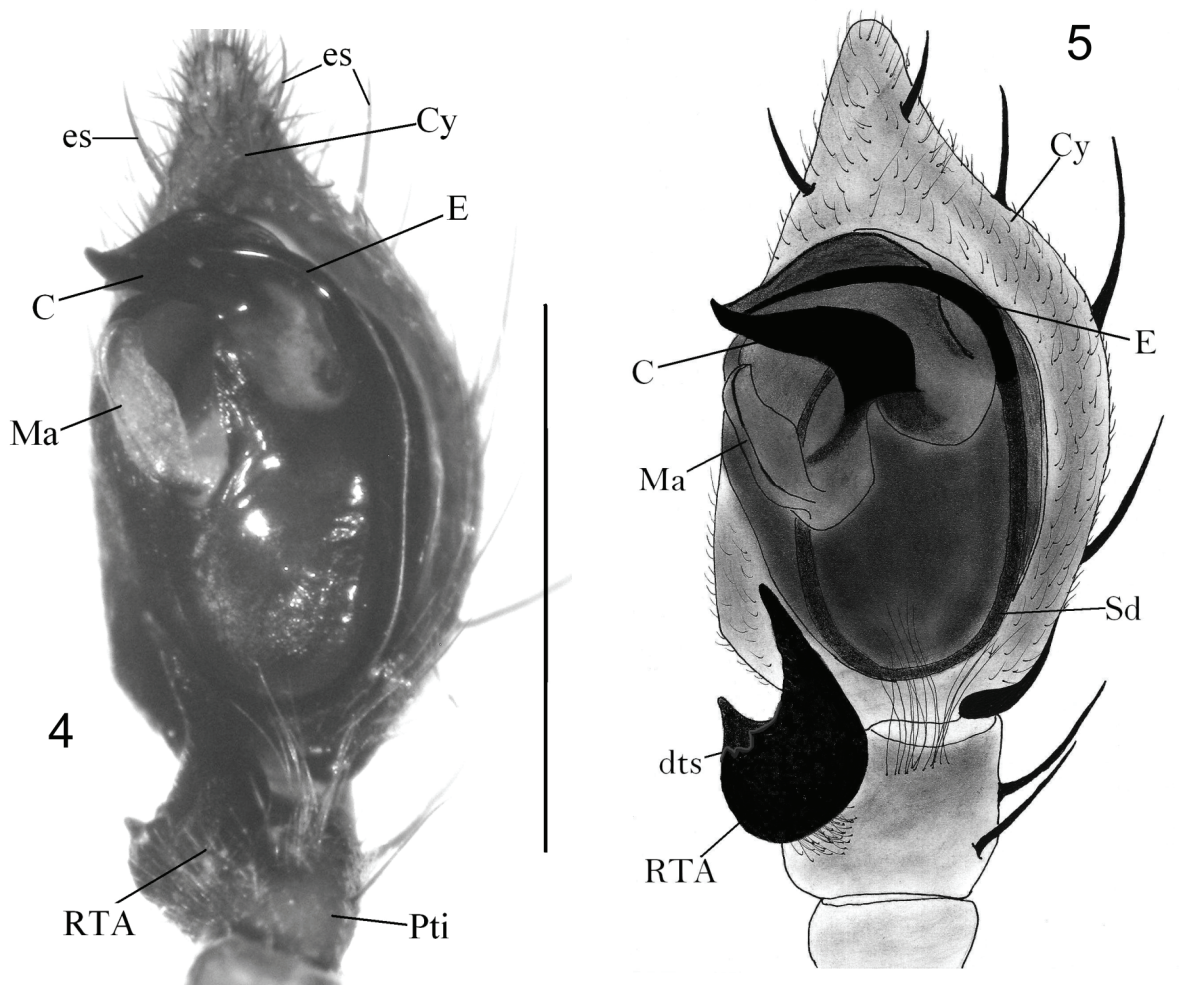
- BENNET, R. G., AND D. UBICK. 2005. Agelenidae. p. 56
In: D. Ubick, P. Paquin, P. E. Cushing, and V. Roth (eds). Spider of North America: an identification manual. American Arachnological Society. 377 pages.
- BRIGNOLI, P. M. 1973. Notes on spiders, mainly cave-dwelling, of southern Mexico and Guatemala (Araneae). *Quad. Accad. Naz. Lincei* 171(2): 195-238.
- CHAMBERLIN, R. V. AND W. IVIE. 1941. North America Agelenidae of the genera *Agelenopsis*, *Calilena*, *Ritalena* and *Tortolena*. *Annals of the Entomological Society of America*, 34:585-628.
- CHAMBERLIN, R. V. AND W. IVIE. 1942. Agelenidae of the genera *Hololena*, *Novalena*, *Rualena* and *Melpomene*. *Annals of the Entomological Society of America*. 35: 203-241.
- PLATNICK, N. I. 2008. The world spider catalog, version 9.0. American Museum of Natural History. <http://research.amnh.org/entomology/spiders/catalog/index.html> (Date of access: March 24, 2008).
- ROTH, V. D. 1954. Review of the spider subgenus *Barranopsis* (Arachnidae, Agelenidae). *American Museum Novitates*. 2323: 1-33.
- ROTH, V. D. 1968. The spider genus *Tegenaria* in the Western Hemisphere (Agelenidae). *American Museum Novitates*. 2323: 1-33.
- ROTH, V. D. AND P. L. BRAME. 1972. Nearctic Genera of the spider family Agelenidae (Arachnida, Araneida). *American Museum Novitates*. 2505: 1-52.
- SIERWALD, P. 1989. Morphology and Ontogeny of female copulatory organs in American Pisaurid, with special reference to homologous features (Arachnida: Araneae). *Smithsonian Contribution to Zoology*. 484: 1-24.



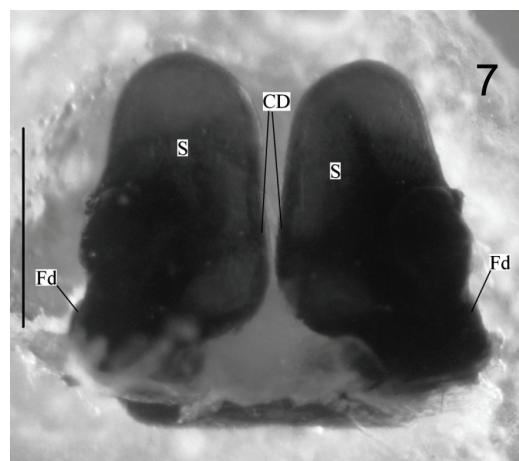
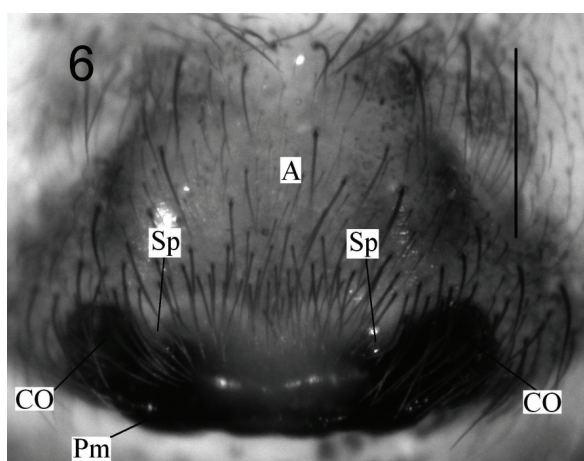
Figures 1–2. *Rualena shlomitae* sp. n., habitus dorsal. 1, male; 2, female. Scale bars: 2 mm



Figures 3. *Rualena shlomitae* sp. n., male right palp retrolateral view. Abbreviations: C = conductor, Cy = cymbium, CyL = cymbial lobe, es = spines, Ma = median apophysis, RTA = retrolateral tibial apophysis. Scale bar: 1 mm.



Figures 4–5. *Rualena shlomitae* sp. n., male right palp. 4, ventral view; 5, same, camera lucida. Abbreviations: C = conductor, Cy = cymbium, dts = ‘denticles’, E = embolus, es = spines, Ma = median apophysis, Pti = palpal tibia, RTA = retrolateral tibial apophysis, Sd = sperm duct. Scale bars: 1 mm.



Figures 6–7. Female genitalia of *Rualena shlomitae* sp. n. 6, epigynum, ventral view. 7, vulva dorsal view. Abbreviations: A = atrium, Pm = posterior margin, Sp = spurs, CO = copulatory opening, CD = copulatory duct, Fd = fertilization duct, S = spermathecae. Scale bars: 0.5 mm.

