

**RE-DESCRIPTION OF *TRICHOPELMA CUBANUM*  
(THERAPHOSIDAE: ISCHNOCOLINAE) AND COMMENTS  
ABOUT THE FAMILIAL PLACEMENT OF *TRICHOPELMA***

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**ABSTRACT:** A detailed re-description of the type specimen of *Trichopelma cubanum* (Simon, 1903) is presented. Comments and observations are made regarding morphological characters, such as the absence of teeth on the paired claws and the presence of small teeth on the anterior edge of the booklung opening. These characters, found in other species of *Trichopelma* Simon, 1888 (represented in the Neotropical region by 16 species), suggest that the recent transfer of the genus to Theraphosidae may be unjustified, and that *Trichopelma* may indeed be more closely related to the Barychelidae.

**KEY WORDS:** Barychelidae, Cuba, Neotropical region, Trichopelmatinae

The genus *Trichopelma* Simon, 1888, has seventeen species and presents a Neotropical distribution (World Spider Catalog, 2015). Only one species (*Trichopelma astutum* (Simon, 1889)) is known for both sexes; four by their males only *Trichopelma astutum* (Simon, 1889), *Trichopelma nitidum* Simon, 1888, *Trichopelma scopulatum* (Fschel, 1927) and *Trichopelma cubanum* (Simon, 1903) while the remaining are known only for their females. The genus is characterized by a transverse pallid weakness on tarsi IV of males and females, and scopula present on all legs but divided on tarsi IV of females (Raven, 1985).

*Hapalopinus* was proposed by Simon (1903) to host the new species *H. cubanum*, placing it in the family Theraphosidae. In 1973, Gerschman & Schiapelli (1973) placed *Hapalopinus* in the subfamily Ischnocolinae (Theraphosidae). *Hapalopinus* was later placed in the synonymy of *Trichopelma* by Raven (1985), in the family Barychelidae Simon, 1889. Raven (1985) also was created the subfamily Trichopelmatinae to include the genera *Trichopelma* and *Psalistops* Simon, 1889. Subsequently, Raven (1994) proposed the inclusion of the subfamily Trichopelmatinae in the family Theraphosidae but without any comments; therefore this proposal was not taken into account in catalogs. In 2014, Guadanucci formally transferred *Trichopelma* to the subfamily Ischnocolinae (Theraphosidae) as had been suggested by Raven (1994).

The original description of *Hapalopinus cubanum* was published by Simon (1903), but (as it was standard at the time) the description is very brief and has few characters that allow a clear differentiation of this species with the others. In modern times, such description is outdated, needing an updated and improved one, in order to allow an unambiguous identification of the species. The typical specimen of the species has poor information on the label, with the only data about his collection "Cuba", making the search for new material belonging to this species difficult.

In this paper, an updated and detailed description of *T. cubanum* is carried out, from his type specimen. Photos of various structures studied are given and comments are made about some morphological characters that are relevant to the

familial placement of the genus.

## MATERIAL AND METHODS

All measurements are given in millimeters and were taken on the left side of the specimen. As standard in Araneae, total lengths were taken with chelicerae, and carapace lengths without chelicerae. Reference points for measurements were taken according to Coyle (1974). All measurements were taken with a micrometric ocular on an Olympus SZ4045 stereoscope. The notation for leg spines follows Goloboff and Platnick (1987); when describing variation in chaetotaxy, only surfaces with different numbers of spines were listed. *Abbreviations:* The following abbreviations are used in the text: AME = anterior median eyes, ALE = anterior lateral eyes, PME = posterior median eyes, PLE = posterior lateral eyes, D = dorsal, P = prolateral, R = retrolateral, V = ventral, P SUP ANT= prolateral superior anterior, P SUP = prolateral superior, R SUP= retrolateral superior, 1:2 A, 3:4 B = indicate that the spines or scopula referred to are in the apical half or basal third-fourths.

## RESULTS

### Genus *Trichopelma* Simon, 1888, p. 215

Type species: *T. nitidum* Simon, 1888.

#### *Trichopelma cubanum* (Simon, 1903)

*Hapalopinus cubanus* Simon, 1903a: 930, f. 1085-1086 (Dm).

*Hapalopinus cubanus* Gerschman & Schiapelli, 1973b: 70, f. 58-62 (m).

*Hapalopinus cubanus* Schmidt, 1986: 42, f. 15-16 (m).

*Psalistops cubanus* Wunderlich, 1988: 52, f. 33 (m).

**Type material:** Holotype: ♂, Cuba. (without more data), MNHN-17702.

**Diagnosis:** *T. cubanum* can be distinguished by the AME-LPE separated from each other. It can be distinguished from *T. nitidum* Simon, 1888 by the presence of a more rounded bulb with a highly stylized embolus (Fig. 2), slender palpal tibia, and apical apophysis on tibia I with a curved elongate megaspine at the apex (Fig. 1C). Differs from *T. scopulatum* (Fischel, 1927) by the presence of 12 promarginal teeth on the chelicerae furrow and from *T. astutum* (Simon, 1889) by having more thorns on the palp tibiae.

**Description:** Total length: 14.88. Carapace (Fig. 1A): length 6.60, width 5.40. Cephalic region 4.20 length, 2.64 width, with dorsal silvery pilosity and well defined dorsal striae. Fovea recurved; 7 dark bristles in the line to the fovea and 2 thick bristles ahead of the fovea. Black hairs and bristles on lateral margins of the carapace margin. Ocular region (Fig. 1D) on a slight prominence, length 0.60, width 1.12, with 9 anterior bristles and 11 posterior ones. Anterior ocular line procurved; posterior slightly procurved, almost straight. Eyes: Diameters and interdistances: AME:ALE:PME:PLE, 0.16: 0.32: 0.16: 0.20. AME-AME: ALE-PLE: AME-ALE: AME-PME: PME-PLE 0.16:0.16:0.16:0:0.08. Chelicerae: elongate and slender, many dorsal short black bristles with an abundant pilosity. Furrow promargin with 12 teeth and 7 denticles near the apex. Intercheliceral tumescence with 11 small bristles. Labium (Fig. 1B), 0.60 length; 1.08 width; with 37 rounded cuspules and abundant apical bristles. Labiosternal suture a narrow groove with two lateral sigilla well defined. Maxillae with ~97 cuspules in inner angle, developed angular heel. Sternum (Fig. 1B), 3.12 long, 2.58 wide; with fine

hair; all sigilla small and marginal, oval. Abdomen: 6.84 length, anterior edge of the booklung opening with series of small teeth (Fig. 1G). Posterior median spinnerets: length 0.50, posterior lateral spinnerets with basal: medial: apical articles of lengths 0.59:0.35:0.24. Lengths of legs and palp (femora, patellae, tibiae, metatarsi, tarsi, total): I: 5.40, 3.00, 4.08, 3.80, 2.10, 18.38. II: 5.10, 3.00, 3.96, 4.02, 2.10, 18.18. III: 4.50, 2.40, 3.30, 4.50, 2.10, 16.80. IV: 5.88, 2.82, 5.16, 6.72, 2.58, 23.16. palp: 3.30, 2.10, 2.58, —, 1.26, 9.24.

**Chaetotaxy:** Femora: All with 4 thick dorsal bristles. I, 1 P SUP ANT; II, 1-1/1 P SUP ANT; III, 1-1-1 P SUP, 1-1-2 R SUP; IV, 1-1 R SUP, 1-1 P SUP (1:2 A); Palp, 1 P SUP ANT. Patellae: I, 2 V; II, 1 V A; III, 1-2 P; IV, 1 P, 1/0 V; Palp, 0. Tibiae: I, 1-1 P, 2-3-1/3-1-1 V, 1-1 P + large and conical, apical apophysis with curved elongate apical megaspine; a prolateral birramose process (the largest internal branch) (Fig. 1C); II, 1-1 P SUP, 2-2-3/2-1-3 V; III; 1-1-1/1-1 R, 2-2-3 V, 1-2/2-2 P; IV, 1-1-1-1 R, 1-1 P (1:2 B), 3-4-3 V, 1-2-1 R; Palp, 2-1-2 P. Metatarsi: I, 1-1/1 V; II, 1-1 V; III, 2-2-3 V, 1-1-1-1 P, 1-1-1 R; IV, 1-1-1-1 R, 3-1-2-3 V, 1-1-1 P. Tarsi: I-IV, 0; Palp, 0. Paired tarsal claws without teeth (Fig. 1E). Tarsi IV with a transverse pallid weakness (Fig. 1E).

**Scopula:** Metatarsi: I-II, not divided and symmetrical, more abundant towards the apex; III, light, more abundant on 3:4 A; IV, light, on 1:3 A. Tarsi: dense; I-II divided by a barely visible band of setae, III-IV divided by a clear very visible band delimited by line of bristles on each side (on tarsi III less visible and narrow). *Trichobothria:* not visible on tibiae and metatarsi, due to preservation. Tarsi with clavate trichobothria, (filiform: clavate): I, 14:12; II, 20:16; III, 14:14; IV, 18:20.

**Colour in alcohol:** cephalothorax yellow brown, abdomen light brown, dorsally with four light interrupted bands and a bigger anterior one (Fig. 1F).

## DISCUSSION

The subfamily Trichopelmatinae shares several common characters with Theraphosidae such as: the abundant amount of cuspules on labium and maxillae and the short apical segment of the posterior lateral spinnerets (having a triangular state intermediate between the long and digitiform of theraphosid and the short and domed of barychelid), which is considered a modification of the condition present in the Theraphosidae (Raven, 1985). In comparison with other Barychelidae, it shares some characters that define the family such as: the biserially dentate paired claws of males (with the exception of Sasoninae; this character is also present in *Ischnocolus*: Theraphosidae); the well-developed tarsal scopulae; the numerous cuspules on the labium (is considered the plesiomorphic condition in barychelids). The maxillary heel present on the subfamily Trichopelmatinae is considered the autapomorphy of the group (Raven, 1985). Goloboff (1993) agrees with the monophyly of the family Barychelidae and proposes a new synapomorphy for the group: a series of teeth on the anterior rim of the booklung opening. This character, although it has never been used in a quantitative phylogenetic analysis, seems to be strong and unusual enough to support the monophyly of the family and is present on trichopelmatines (Goloboff, 1993).

Within the Barychelidae, clavate trichobothria may be absent, very reduced in size and limited to a few ones on the tarsus mid-length, or present in a small apical group or in a line throughout the tarsus (Guadanucci, 2012). On Trichopelmatinae, there is a pattern with two parallel rows of clavate trichobothria interspersed with filiform, separated by a row of long, thin setae.

Such pattern is also found in Harpactirinae, Theraphosinae, Eumenophorinae, and Ischnocolinae (except for the genera *Ischnocolus* Ausserer, 1871, *Heterothele* Karsch, 1879 and *Catumiri* Guadanucci, 2004) (Guadanucci, 2012). The morphology and disposition of the trichobothria was a useful character which supported the transfer of the Trichopelmatinae to the subfamily Ischnocolinae made by Guadanucci (2014).

The monophyly of the subfamily Trichopelmatinae has not been tested. The presence of ocular group rectangular in the margin of the carapace, and the unusual shape of the maxilla with a heel, are considered diagnostic characters (this last character is considered an autapomorphy by Raven, 1985). In the same work, Raven (1985, pag. 159) questioned the use of the division of tarsus IV in *Trichopelma* (as opposed to *Psalistops*) as a solid character to maintain their generic status. This problematic between *Trichopelma* and *Psalistops* remains unsolved.

The males of *Trichopelma* presented biserially dentate paired claws, according to Raven (1985). However, our analysis of *T. cubanum* revealed the absence of this character in all tarsi (Fig 5). We analyzed this character in other specimens of *Trichopelma* and found a great variability between individuals and between sexes (even within the same exemplary); confirming that the character is variable within the genus. No clear pattern of distribution in the specimens studied was observed. This same variability was found by David Ortiz (com. pess. 2014) in another batch of specimens of the same genus.

## CONCLUSIONS

The observations reported here suggest the urgent need for a taxonomic and phylogenetic study of the subfamily Trichopelmatinae, with a consequent collect of the sexes that are unknown for different species. The absence of teeth in the paired tarsal claws of *T. cubanum*; the presence of teeth on the margin of the pulmonary openings and the division of the tarsi IV are characters that need to be analyzed much more carefully. These characters represent an important starting point to consider in future studies and they could play an important role in the phylogenetic relationships of the genus, being able to put into question, its current status and phylogenetic placement.

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## LITERATURE CITED

- Coyle, F. A. 1974. Systematics of the trapdoor spider genus *Aliatypus* (Araneae: Antrodiaetidae). Psyche, Cambridge, 81: 431-500.
- Gerschman De Pikelin, B. & Schiapelli, R. 1973. La subfamilia "Ischnocolinae" (Araneae: Theraphosidae). Revista del Museo Argentino de Ciencias Naturales. Entomología, 4: 43-77.
- Goloboff, P. A. 1993. A reanalysis of mygalomorph spider families (Araneae). American Museum Novitates, 3056: 1-32.
- Goloboff, P. A. & Platnick, N. I. 1987. A review of the Chilean spiders of the superfamily Migoidea (Araneae, Mygalomorphae). American Museum Novitates, 2888: 1-15.
- Guadanucci, J. P. L. 2012. Trichobothrial morphology of Theraphosidae and Barychelidae spiders (Araneae, Mygalomorphae). Zootaxa, 3439: 1-42.
- Guadanucci, J. P. L. 2014. Theraphosidae phylogeny: relationships of the 'Ischnocolinae' genera (Araneae, Mygalomorphae). Zoologica Scripta, 43 (5): 508-518.

Simon, E. 1903: Histoire naturelle des araignées. Paris, 2: 669-1080.

Raven, R. J. 1994. Mygalomorph spiders of the Barychelidae in Australia and the Western Pacific. Memoirs of the Queensland Museum, 35: 291-706.

Raven, R. J. 1985. The spider infraorder Mygalomorphae (Araneae): Cladistics and Systematics. Bulletin of the American Museum of Natural History, 182: 1-180.

World Spider Catalog. 2016. World spider catalog. Bern, Natural History Museum Bern, version 15.5, available online at: <http://wsc.nmbe.ch> [Accessed: 28/1/2016]

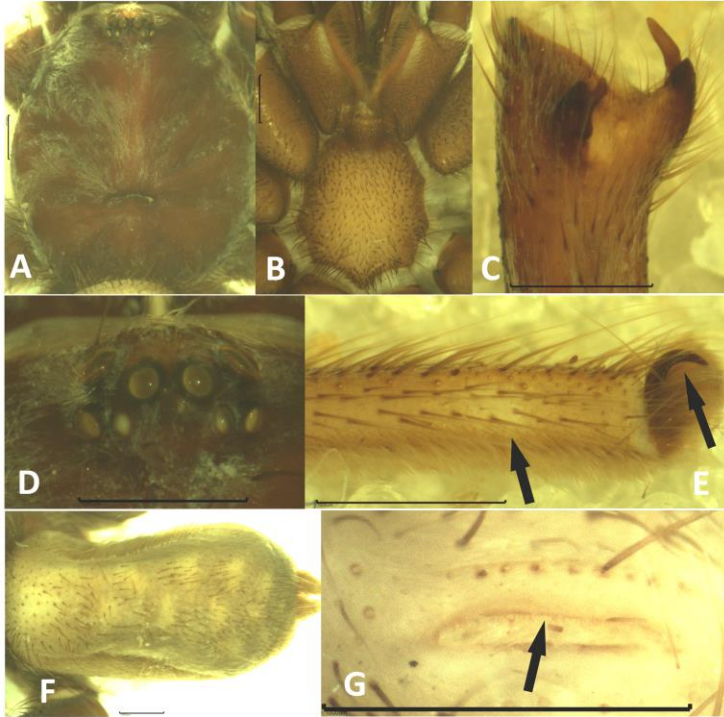


Figure 1. *Trichopelma cubanum*. A- cephalothorax. B- sternum. C- tibia I, apophysis. D- ocular region. E- tarsus IV, showing clear the transverse mark and the paired claws without teeth. F- abdomen, dorsal view. G- opening booklung showing the series of teeth. Scales= 1 mm.

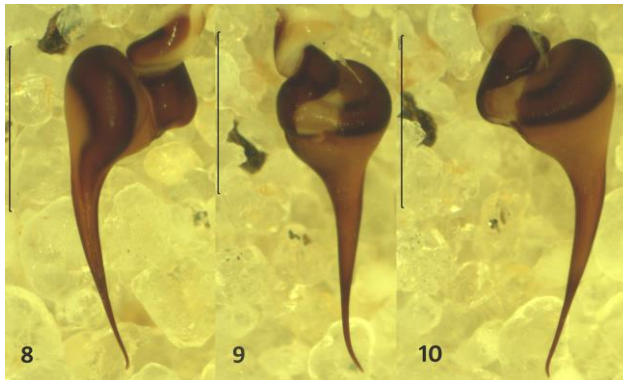


Figure 2. *Trichopelma cubanum*. Copulatory bulb, three different views. Scales= 1 mm.