

Schismatothele benedettii, a new species of tarantula from amazonic Brazil (Araneae, Theraphosidae)

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Summary

We describe and figure a new species of the genus *Schismatothele* Karsch, 1879 from Brazil, Amazonas state, to the north of Manaus. This species comprises the first male known for the genus and the first report of the genus *Schismatothele* for Brazil. The new species differs from the only known species, *Schismatothele lineata* Karsch, 1879 in the morphology of the spermathecae in which the dorsal receptacles have internal tubular digitiform lobules.

Introduction

The Theraphosidae is the most speciose family within the Mygalomorphae, with 117 genera including 935 species described at the moment (Platnick, 2010). The family could be classified in 10 subfamilies (Gallon & Gabriel, 2006) and although suprageneric classification seems to be controversial, the systematic support of subfamilies and the position of genera has been discussed (Smith, 1991; Schmidt, 1993; Samm & Schmidt, 2008; West *et al.*, 2008). Three theraphosid subfamilies which include two-thirds of the theraphosid species are present in the New World: Aviculariinae, Ischnocolinae and Theraphosinae. The last has the most species richness of the family and together with Aviculariinae are endemic to the New World.

The genus *Schismatothele* Karsch, 1879 includes only one species collected in Venezuela, *Schismatothele lineata* Karsch 1879, the type species by monotypy, which is known only from a female. Females can be recognised by the spermathecae, with two, strongly sclerotised, double receptacles. In summary, this genus is poorly known and its classification in the Theraphosinae offers several doubts.

While studying a sample collected in Manaus, Brazil, we found individuals that present the generic characteristics of *Schismatothele* but did not fit with the described species, suggesting that this was a new species. The study confirms this hypothesis and here we describe *Schismatothele benedettii* new species. The male is the first described for the genus and this is the first report of the genus from Brazil.

Methods

Abbreviations: AME=anterior median eyes, ALE=anterior lateral eyes, PME=posterior median eyes, PLE=posterior lateral eyes, OQ=ocular quadrangle (including lateral eyes); d=dorsal, p=prolateral, r=retrolateral, v=ventral; INPA=Arachnological Collection

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of the Instituto Nacional de Pesquisas Amazônicas, Manaus, Brazil. All measurements are in millimetres. Coordinates in brackets are approximate (not taken by Global Positioning System).

Systematics

Schismatothele benedettii new species (Figs. 1–7)

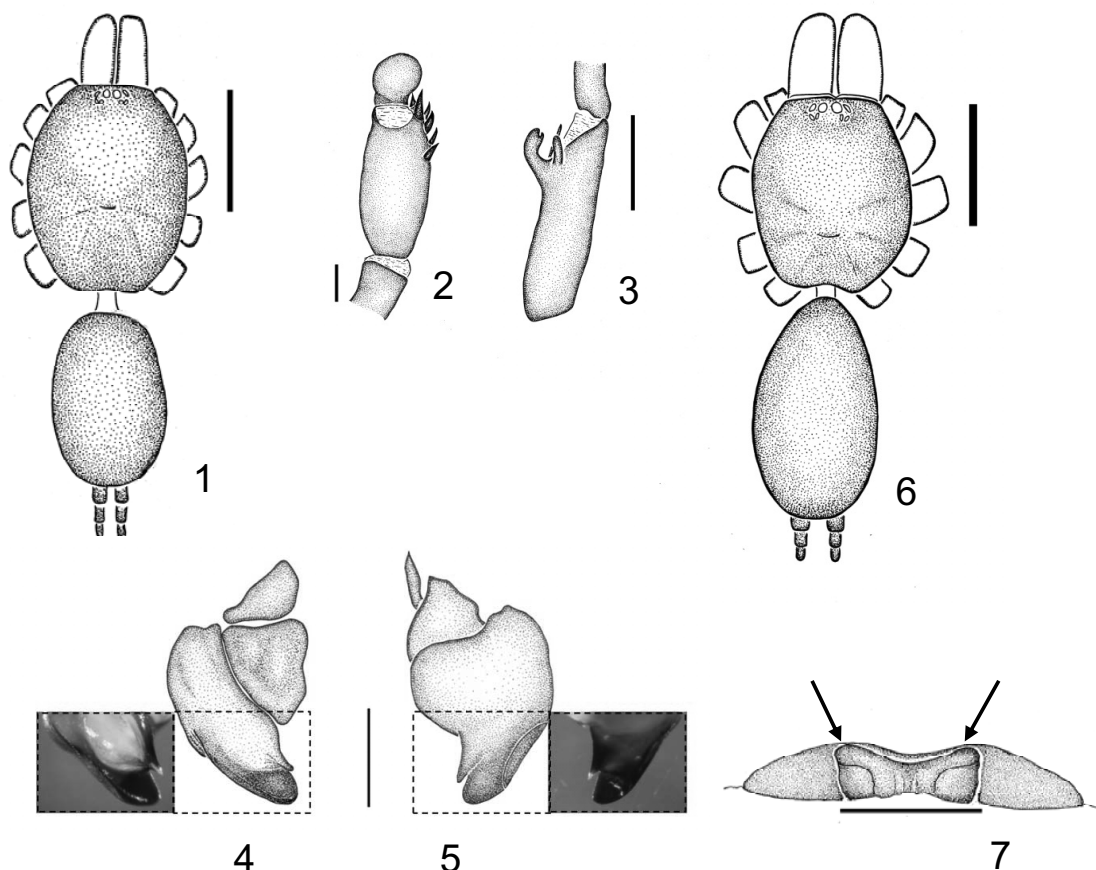
Types: Holotype ♂ from Manaus [2°30'S, 60°00'W], Fazenda Esteio, 60 km N of Manaus, Brazil, 20 November 1986, B. C. Klein; paratype ♀, same locality and collector, 13 March 1986. Both specimens deposited in INPA.

Etymology: The specific name is a patronym in honour of Mario Benedetti, the Uruguayan writer and poet recognised as one of the most important in the Spanish language, who passed away in 2009.

Diagnosis: The female differs from *Schismatothele lineata* in the morphology of the dorsal pair of spermathecal receptacles which have dorsal internal curved tubular digitiform lobules (arrowed) and the ventral pair of receptacles wide, flattened and fused (Fig. 7). In *S. lineata* the dorsal receptacles are globular and the ventral receptacles subconical. The male has six megaspines on the retrolateral face of the palpal tibia (Fig. 2) and the palpal organ with a bifid apex consisting of a parietal concave–convex lobe and an embolic tip (Figs. 4–5).

Male (Figs. 1–5): Total length, excluding chelicerae and spinnerets: 15.0. Carapace length 7.86, width 6.3. Anterior eye row slightly procurved, posterior row straight. Eyes sizes and interspaces: AME 0.36, ALE 0.28, PME 0.14, PLE 0.14; AME-AME 0.07, AME-ALE 0.04, PME-PME 0.7, PME-PLE 0.03, ALE-PLE 0.03; OQ length 0.7, width 1.42. Clypeus 0.14. Fovea slightly procurved, width 0.64. Labium length 0.71, width 1.14; with 320 cuspules. Maxillae with 172 cuspules. Sternum length 3.4. Chelicerae with 10 teeth on promargin distributed in two groups: 5 large teeth apically and 5 small teeth more basally. Tarsi I–IV densely scopulate, scopula of tarsi I–II undivided, III–IV divided by narrow line of setae. Metatarsal scopulae: I: apical 1/3; II: apical 2/3; III apical 1/3; IV: apical 1/3. Palpal tibia with retrolateral cluster of six megaspines (Fig. 2). Tibia I with two distal proventral apophyses (Fig. 3). Metatarsus I flexed retrolateral to tibial apophysis. Palpal organ piriform with parietal portion wide, concave–convex, and ventral portion subtriangular bearing embolus tip; five small keels on prolateral face (Figs. 4–5). Length of leg and palpal segments in Table 1. Spination: tibiae: I 2p 2v 0d 3r; II 2p 5v 0d 0r; III 4p 3v 0d 3r; IV 2p 4v 0d 4r; palp 0d 5r 2p 0v; metatarsi: I 2p 4v 0d 0r; II 3p 3v 0d 1r; III 4p 3v 0d 4r; IV 4p 5v 0d 4r; tarsi I–IV and palp 0; femora: I–II 2d; III 4d; IV 3d; palp 2d; patellae: I 0; II 1p; III 0; IV 1p; palp 0. Coloration: carapace, palps and legs reddish brown, abdomen and spinnerets light brown.

Female (Figs. 6–7): Total length, excluding chelicerae and spinnerets: 17.86. Carapace length 9.0, width 6.71. Anterior eye row slightly procurved, posterior row



Figs. 1–7: *Schismatothele benedettii* sp. n., from Amazonia, Brazil. 1–5 Holotype ♂. 1 Dorsal view; 2 Cluster of six megaspines on retrolateral face of palpal tibia; 3 Right tibial apophysis of leg I, prolateral view; 4 Palpal organ, prolateral view with close-up of apical portion; 5 Palpal organ, retrolateral view with close-up of apical portion. 6–7 Paratype ♀. 6 Dorsal view; 7 Spermathecae, dorsal view (arrows point to digitiform tubules). Scale lines=5 mm (1, 3, 6), 1 mm (2, 4, 5, 7).

straight. Eyes sizes and interspaces: AME 0.43, ALE 0.57, PME 0.14, PLE 0.43; AME-AME 0.11, AME-ALE 0.07, PME-PME 0.86, PME-PLE 0.036, ALE-PLE 0.11; OQ length 0.78, width 1.82. Clypeus 0.29. Fovea procurved, width 0.28. Labium length 1.14, width 1.86; with 300 cuspules. Maxillae with 150 cuspules. Sternum length 3.18. Chelicerae with 10 teeth on promargin, distributed in 2 groups: 5 large teeth apically and 5 smaller teeth more basally. Tarsi I–IV densely scopulate, scopula on tarsi I entire, II–IV divided by narrow line of setae (thicker on IV). Metatarsal scopulae: I: apical 2/3; II: apical 1/2; III–IV: apical 1/3. Length of leg and palpal segments in Table 2. Spination: tibiae: I 0v 0p 0r 0d; II 0v 0p 0d 0r; III 2v 1p 2r 0d; IV 2v 1p 2r 0d; palp 3v 0p 0r 0d; metatarsi: I 2v 0p 2r 0d; II 2v 0p 2r 0d; III 2v 2p 1r 5d; IV 3v 3p 1r 4d; tarsi I–IV, palp, patellae and femora 0. Spermathecal receptacles arranged in two pairs, dorsal and ventral; ventral wide, flattened and fused, and dorsal subtriangular fused, including internal

tubular digitiform divergent structures (Fig. 7). Coloration: carapace, palps and legs reddish brown, abdomen and spinnerets light brown.

Distribution: Known only from the type locality. This is the first report of the genus for Brazil.

Discussion

The first male here described for the genus and its characters give us some elements to reconsider the systematic position of *Schismatothele*. The genus *Schismatothele* was synonymised with the theraphosine genus *Holothele* Karsch, 1879 by Raven (1985), considered as Ischnocolinae *incertae sedis* by Pérez-Miles *et al.* (1996), and transferred to Theraphosinae by Rudloff (1997). The extended subtegulum on the palpal organ, present in *S. benedettii*, was considered an apomorphy of the Theraphosinae. Also keels on the palpal bulb were considered a synapomorphy of the subfamily (Raven,

	Fe	Pa	Ti	Mt	Ta
I	6.5	3.8	5.2	5.0	4.0
II	5.5	3.0	4.0	4.2	3.5
III	5.0	2.8	3.3	4.8	4.0
IV	7.0	3.3	5.5	7.0	4.4
Palp	4.3	2.5	3.5	–	2.3

Table 1: *Schismatothele benedettii* sp. n. Male holotype, length of leg and palpal segments.

	Fe	Pa	Ti	Mt	Ta
I	5.4	3.2	4.2	3.1	2.3
II	5.0	3.5	3.3	3.2	2.4
III	4.6	2.9	2.8	4.1	2.4
IV	6.4	3.5	4.6	6.3	2.3
Palp	4.5	2.7	2.6	–	2.4

Table 2: *Schismatothele benedettii* sp. n. Female paratype, length of leg and palpal segments.

1985; Pérez-Miles *et al.*, 1996; Pérez-Miles, 2000), but these keels found in *S. benedettii* are clearly not homologous to those of other Theraphosinae (Bertani, 2000). Furthermore *Schismatothele* spp. lacks the urticating hairs present on almost all theraphosine species (Pérez-Miles *et al.*, 1996; Pérez-Miles, 2002), questioning its retention in this subfamily. However, the spermathecal morphology of *S. lineata* and *S. benedettii* clearly differs from the long tubuliform spermathecae present in several Ischnocolinae genera. Another group of Ischnocolinae genera have two saccular wide spermathecal receptacles (Guadanucci, 2007), but only *Schismatothele* females have four spermathecal receptacles, arranged in one pair dorsal and the other ventral. The spermathecal morphology of *Schismatothele* somewhat resembles that of the theraphosine genus *Ami* Pérez-Miles *et al.*, 2008 in the arrangement of receptacles in two planes, but in those of *Schismatothele* the dorsal receptacles are more flattened and the tubules are shorter. Additionally *Ami* has type I urticating hairs, which are absent in *Schismatothele* and all Ischnocolinae. In conclusion, the systematic position of *Schismatothele* is at this point controversial, but we prefer to use a conservative criterion maintaining it in the Theraphosinae.

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