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A new species of the tracheline genus *Fuchibotulus* Haddad & Lyle, 2008 (Araneae: Corinnidae)

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ABSTRACT

A new species of the tracheline genus *Fuchibotulus* Haddad & Lyle, 2008 (Araneae: Corinnidae) is described. *Fuchibotulus haddadi* sp. n. is only known from the type locality in the Eastern Cape Province, South Africa. An updated diagnostic key to all known species of the genus is provided.

KEY WORDS: Arachnida, Corinnidae, Trachelinae, Afrotropical Region, endemic, identification key, sac spider, taxonomy.

INTRODUCTION

Fuchibotulus Haddad & Lyle, 2008 is one of several recently described tracheline sac spider genera (Araneae: Corinnidae) from the Afrotropical Region (Haddad 2006; Haddad & Lyle 2008; Lyle & Haddad 2009, 2010). The genus originally included only two species, *F. bicornis* Haddad & Lyle, 2008 (type species) and *F. kigelia* Haddad & Lyle, 2008. Both species were described on the basis of males and females. The new species described herein, *F. haddadi* sp. n., is known only from females. With the inclusion of the new species, the range of the genus is expanded to include the Eastern Cape Province of South Africa.

In the subfamily Trachelinae, *Fuchibotulus* is similar in appearance to *Fuchiba* Haddad & Lyle, 2008, sharing a number of morphological characters. Both are robust trachelines lacking any cusps and spines on the legs with (Haddad & Lyle 2008).

However, the two genera differ from each other in abdominal characteristics. Members of *Fuchiba* have dorsal scutum present in males and absent in females, while *Fuchibotulus* only has dorsal sigilla with several pairs of minute intermediate sclerites between them (Fig. 3) in both sexes. In *F. haddadi* sp. n., the sigilla are absent in some individuals in the type series. Members of *Fuchiba* have a finely granulated carapace surface texture, while in *Fuchibotulus* the surface texture is strongly tuberculated. The genitalia are also genus-specific. The palp of *Fuchiba* males have a short, coiled embolus situated distally on the tegulum with a simple single retrolateral tibial apophysis. In *Fuchibotulus*, the embolus is needle-like associated with a small membranous conductor and a retrolateral tibial apophysis that is either single or bifid with a small tooth-like apophysis. The *Fuchiba* females have copulatory openings laterally situated in a large circular depression with large circular spermathecae, while those of *Fuchibotulus* have smaller copulatory openings with sausage-like spermathecae and tightly twisted entrance ducts.

MATERIAL AND METHODS

Specimens were prepared following the method used by Haddad and Lyle (2008). Digital habitus photographs were taken using a high resolution microscopy camera AxioCam MRc5 mounted on a Zeiss Axio Zoom V16 microscope. Extended focal ranges were stacked using the ZEN module Z-stack software.

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Body measurements were taken of the largest and smallest specimens to determine a size range. Eye and leg measurements were taken from the second largest specimen. All measurements are given in millimetres (mm).

The following abbreviations are used: AER – anterior eye row, AL – abdomen length, ALE – anterior lateral eye, AME – anterior median eye, AW – abdomen width, CL – carapace length, CW – carapace width, FL – fovea length, PER – posterior eye row, PLE – posterior lateral eye, PME – posterior median eye, SL – sternum length, ST – spermatheca, SW – sternum width, TL – total length.

The type series is deposited in the Ditsong National Museum of Natural History (formerly Transvaal Museum), South Africa (TMSA).

TAXONOMY

Genus *Fuchibotulus* Haddad & Lyle, 2008

Fuchibotulus haddadi sp. n.

Figs 1–5

Etymology: The species is named after the collector of the type series, C. Haddad.

Diagnosis: Females can be easily recognised by the compact, inverted U-shaped ridges of the copulatory openings, unlike the two previously described species that have less strongly curved ridges. The shape and length of ST II of *F. haddadi* sp. n. is similar to *F. kigelia*, but does not extend past the copulatory openings. Male unknown.

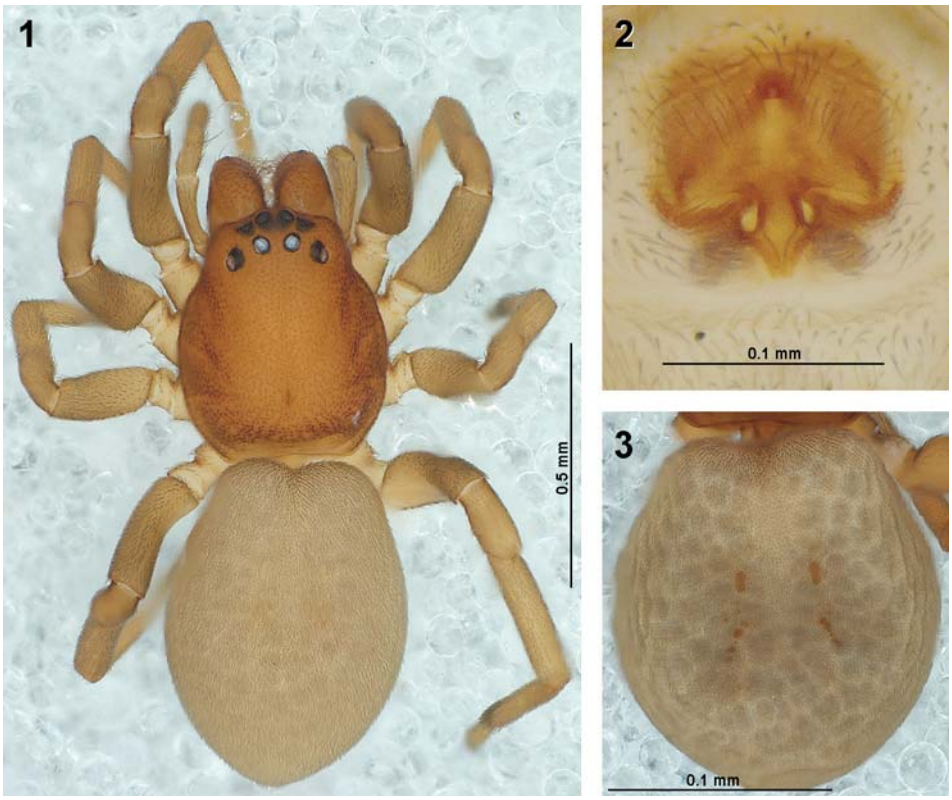
Description:

Female:

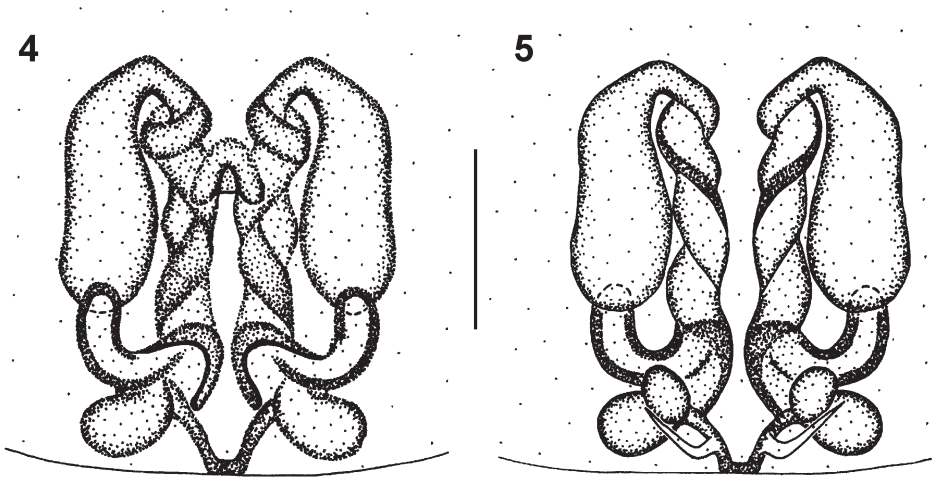
Measurements (n=4): CL 1.24–1.57, CW 1.01–1.22, AL 1.64–1.80, AW 1.22–1.39, TL 2.89–3.37, FL 0.06–0.10, SL 0.70–0.81, SW 0.70–0.81, AME–AME 0.07, AME–ALE 0.03, ALE–ALE 0.21, PME–PME 0.09, PME–PLE 0.12, PLE–PLE 0.42. Length of leg segments (from femur to tarsus, and total): I 0.81+0.44+0.61+0.51+0.38=2.75; II 0.76+0.40+0.56+0.47+0.36=2.55; III 0.68+0.34+0.43+0.49+0.25=2.19; IV 0.88+0.42+0.71+0.80+0.29=3.10.

Carapace: Bright to deep orange; slightly rounded with steep decline in last fifth of carapace, highest point at approx. 0.4 carapace length; surface finely granulate with short, fine setae; fovea small, distinct, at 0.8 carapace length; clypeus height equal to AME diameter. *Eyes*: Black rings around eyes; AER very slightly recurved; lateral eyes slightly larger than median eyes; AME separated by distance slightly larger than their diameter, AME separated from ALE by 0.25 AME diameter; PER strongly recurved; PME separated by their diameter, PME separated from PLE by nearly double PME diameter. *Chelicerae*: Pale to deep orange; surface granulated with scattered, short and long setae; cheliceral furrow with three promarginal teeth, largest tooth medially; three retromarginal teeth, largest tooth situated proximally to fang, smallest distally. *Sternum*: Shield-shaped; pale orange to orange, surface texture smooth, covered in short, fine setae; length 1.5× width. *Abdomen*: Pale to mottled grey with yellow undertones; heart-shaped with distinct notch anteriorly, tapering posteriorly; dorsal scutum absent; paired brown sigilla and intermediate sclerites present, varying between specimens, sometimes absent (Figs 1, 3); ventral sclerites on either side of epigyne; surface texture smooth, covered in short, fine setae. *Legs*: Light brown to orange; all segments covered with

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Figs 1–3. *Fuchibotulus haddadi* sp. n., female: (1) dorsal habitus; (2) epigyne, ventral view; (3) abdomen with paired sigilla with several pairs of minute intermediate sclerites between them, dorsal view.



Figs 4, 5. Epigyne of *Fuchibotulus haddadi* sp. n.: (4) ventral view, (5) dorsal view. Scale bar = 0.05 mm.

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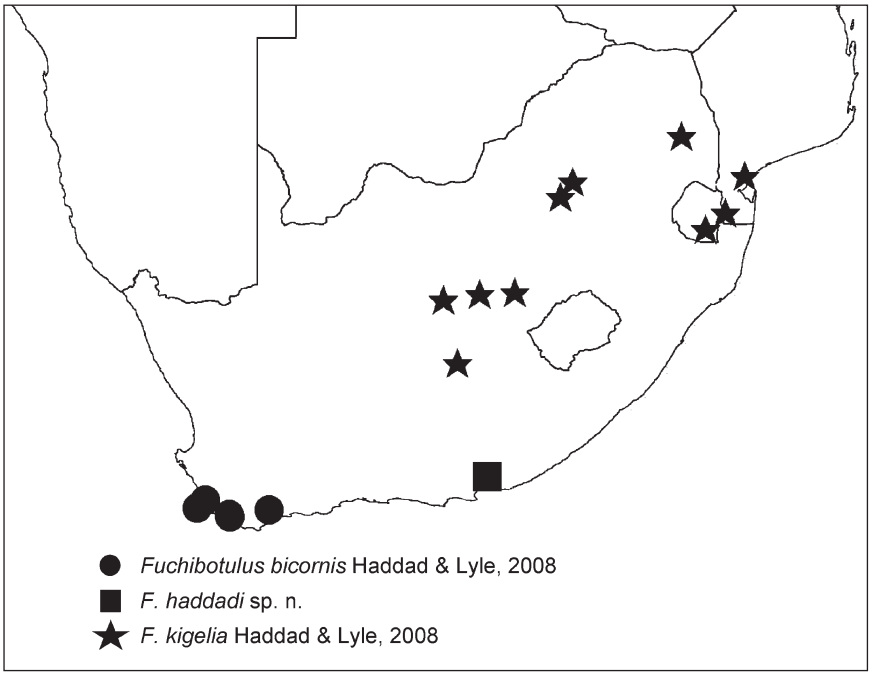


Fig. 6. The known distribution of the genus *Fuchibotulus* Haddad & Lyle, 2008 in Southern Africa.

short, fine setae; dense scopulae on tarsi and distal part of metatarsi III and IV. *Epigyne*: Small median hood present, triangular; copulatory openings situated medially in short, inverted U-shaped ridges that are as long as broad (Figs 2, 4); entrance ducts twisted anteriorly before entering sausage-like ST II, extending posteriorly to approx. ⅔ of epigynal length (Fig. 4); ST I comprises two lateral bilobed receptacles linked to narrow fertilisation ducts (Fig. 5).

Holotype: ♀ SOUTH AFRICA: *Eastern Cape*: 3 km N of Paterson, 33°24.878'S 25°57.531'E, 23.iv.2010, C. Haddad, base of grass tussocks, roadside (TMSA 23763-A). *Note*: Holotype is the smallest specimen in the series; it is stored in a separate vial from the paratypes.

Paratypes: 3♀ 2 juveniles, same data as holotype (TMSA 23763-B).

Distribution: Known only from type locality (Fig. 6).

Key to species of *Fuchibotulus* (modified from Haddad & Lyle 2008)

1 Males 2
– Females 3

2 Embolus tip at ⅔ of cymbium width; retrolateral tibial apophysis distinctly bifid (Haddad & Lyle 2008: fig. 62) ..... **bicornis**
– Embolus tip at retrolateral margin of cymbium; distal retrolateral tibial apophysis triangular (Haddad & Lyle 2008: fig. 68)..... **kigelia**

3 ST II elongate, extending posteriorly beyond anterior margin of copulatory openings (Haddad & Lyle 2008: fig. 69) ..... **kigelia**
– ST II oval-elongate, not extending to anterior margin of copulatory openings 4

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4 ST II teardrop-shaped; copulatory openings situated medially in short, slightly curved slanted ridges, nearly twice as broad as long (Haddad & Lyle 2008: fig. 65)..... ..... **bicornis**

– ST II only slightly narrower anteriorly; copulatory openings situated medially in short, very strongly curved U-shaped ridges, nearly as long as broad (Fig. 4)..... ..... **haddadi** sp. n.

CONCLUSIONS

The genus *Fuchibotulus* is widely distributed, with *F. bicornis* from the Western Cape and *F. kigelia* from central and north-eastern South Africa and southern Mozambique being separated by approximately 1500 km (Haddad & Lyle 2008) (Fig. 6). The record of the new species in the Eastern Cape Province highlights insufficient knowledge on this genus, as well as the need for more intensive sampling for elusive genera like *Fuchibotulus*.

The recent advance of knowledge on tracheline spiders in the Afrotropical fauna has exposed the largely undescribed diversity of the subfamily (Haddad 2006; Lyle & Haddad 2006, 2009, 2010; Haddad & Lyle 2008; Lyle 2008, 2011; Haddad *et al.* 2011). A large degree of variation in important morphological traits among various genera has strengthened the need to resolve the taxonomy of the subfamily. Once the taxonomy is resolved and all taxa are clearly defined, a phylogenetic study can be undertaken to determine relationships between the genera.

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