

## ORIGINAL ARTICLE

### *Ochyrocera ibitipoca* (Araneae: Ochyroceratidae), a new spider species from Brazilian caves

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A new spider species, *Ochyrocera ibitipoca* sp. n., is described from caves in the state of Minas Gerais, Brazil. A close relationship to *Ochyrocera viridissima* Brignoli, 1974 is indicated by male genital characteristics. A discussion on the delimitation and composition of *Ochyrocera* Simon, 1891 is included, with hints on the heterogeneous nature of the genus.

**Keywords:** Brazil; *Ochyrocera*; systematics; taxonomy

#### 1. Introduction

The genus *Ochyrocera* is composed of 16 nominal species from Central and South America (Platnick, 2007). In Brazil, there are four described species of *Ochyrocera*: *O. hamadryas* Brignoli, 1978, from Manaus, Amazonas; *O. cornuta* Mello-Leitão, 1944, from Barra do Tapirapé (currently Santa Terezinha), Mato Grosso; *O. coerulea* (Keyserling, 1891), from Blumenau, and *O. viridissima* Brignoli, 1974, from Nova Teutonia, both in Santa Catarina. To date, the only Ochyroceratidae known from South American caves is a troglomorph species of *Speocera* Berland, 1914, from Mato Grosso do Sul state, Brazil (Baptista, 2003).

The goal of the present paper is to describe a new species found in four caves from Ibitipoca State Park, southern Minas Gerais state. The Ibitipoca cave region is a pseudo-karstic area, composed of quartzite rocks. Most caves are small, with only a few hundred meters of extension. The only exception is the Bromélias cave, one the longest quartzite caves in the world, reaching over 2700 m. The vegetation in the area is composed of montane savannas (“campos rupestres”) with small patches of Atlantic forest covering slopes and river valleys.

#### 2. Materials and methods

Specimens were deposited in the collections of the Museu Nacional, Universidade do Brasil (MNRJ, A. B. Kury) and the Museu de Zoologia, Universidade de São Paulo (MZSP, R. Pinto-da-Rocha). The abbreviations used throughout the text are: ALE,

anterior lateral eyes; AME, anterior median eyes; PLE, posterior lateral eyes. All measurements are in mm. The first value given in a measurement range is the median value and the minimum and maximum values of the range are represented between parentheses, e.g. 5 (4.5–6).

#### 3. Results

*Ochyrocera ibitipoca* sp. n. (Figures 1–7)

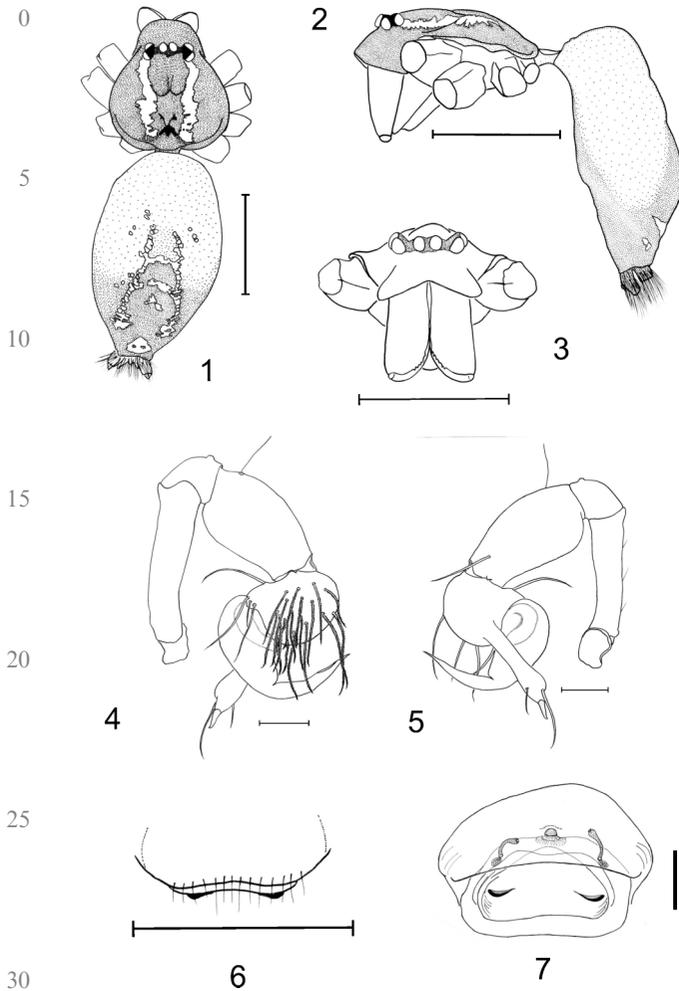
##### Etymology

“Ibitipoca” is an noun in apposition, referring to the state park where the specimens were collected. The word means “roaring highlands” in Tupi language, a reference to the high frequency of thunderstorms in the area.

##### Types

Male holotype: Brazil: Minas Gerais: Lima Duarte: Parque Estadual de Ibitipoca, Gruta de Moreiras, 28 August 1995, R.L.C. Baptista, near the female sheet web in crack at cave wall (1♂, MNRJ 3915). Paratypes: Brazil: Minas Gerais: Lima Duarte: Parque Estadual de Ibitipoca, Gruta das Dobras, 7 November 1993, R.L.C. Baptista, in sheet webs in cracks at cave wall (1♂, 1♀, MNRJ 1798; 1♂, 1♀, MZSP); *idem*, Gruta das Dobras, 22 October 1994, R.L.C. Baptista (2♂♂, MNRJ 1716); *idem*, Gruta das Dobras, 20 May 1995, R.L.C. Baptista, in sheet webs in cracks at cave wall (1♂, 2♀♀, MNRJ 3914); *idem*, Gruta de Moreiras, 28 August 1995, R.L.C. Baptista,

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Figures 1–7. *Ochyrocera ibitipoca* sp. n. Male paratype: (1) body, dorsal view; (2) body, lateral view; (3) cephalothorax and chelicera, frontal view; (4) pedipalp, retrolateral view; (5) pedipalp, prolateral view. Female paratype: (6) epigyne, ventral view; (7) epigyne, dorsal view. Scale bars: 0.5 mm (1–3); 0.1 mm (4–7).

dark and intermediate zones, in sheet webs in cracks at cave wall (2♀♀, MNRJ 3916); *idem*, Gruta dos Coelhos (MG-091), 15 September 1993, R.L.C. Baptista, dark and intermediate zones, in sheet webs in cracks at cave wall (1♂, 1♀, one juvenile, MNRJ 1715); *idem*, Gruta dos Viajantes, 6 November 1993, R.L.C. Baptista, in sheet webs in cracks at cave wall (2♂♂, 2♀♀, MNRJ 2661); *idem*, Gruta dos Viajantes, 21 May 1995, R.L.C. Baptista, dark zone, sheet web between branches and soil at blind conduct (1♀, MNRJ 3917).

#### Diagnosis

This species is clearly separated from all described *Ochyrocera* by the very long retrolateral projection and by the tuft of feathery hairs at the prolateral face

of the palpal tarsus (Figures 4, 5). The only described species with a retrolateral projection on palpal tarsus is *Ochyrocera viridissima*, but the latter species has a smaller projection, with a curve near the apex, and a longer embolus. *Ochyrocera viridissima* may also bear a tuft of feathery hairs at the palpal tarsus, but the original drawings are not detailed enough (Brignoli 1974, Figures 1, 6).

#### Description

##### Male (Figures 1–3)

Holotype: total length 2.0; carapace 0.8 long, 0.6 wide; abdomen 1.2 long; leg I: femur 2.5, patella + tibia 2.9, metatarsus 1.8, tarsus 0.9. Measurement range ( $n=5$ , including holotype): total length 2.0 (1.5–2.1); carapace 0.8 (0.6–0.8) long, 0.6 (0.5–0.7) wide; abdomen 1.2 (0.9–1.3) long; leg I: femur 2.6 (2.4–2.8).

Carapace flattened, longer than wide, widest at median region, shortest at frontal region (Figure 1, 2). Clypeus long, more than three times AME diameter. ALE and PLE touching each other, on tubercles. AME less than one diameter from ALE. All eyes of similar size (Figure 3). Chelicerae of males enlarged, with one tooth at about the middle region of the claw and the lamina basalis forming one large tooth. A pair of sclerotized plates at each side of pedicel, probably forming a stridulating organ. Sometimes the plates are unnoticeable, less sclerotized, and smaller. Abdomen almost three times longer than wide.

*Color pattern* (Figures 1, 2). Carapace dark blue (sometimes lighter) with two white median lines bordering a central blue stripe, running from the PLE to the posterior margin. Sternum blue, sometimes brownish. Abdomen dark blue with three dorsal, transversal, white stripes, like chevrons (Figure 1). One white spot above and at each side of spinnerets (Figure 1). One white spot on anal tubercle and nearby region. Venter blue like dorsum, with a white (sometimes pale yellow) field of variable size, located after epigastric furrow. Booklungs white. Spinnerets blue with white apical segment. Chelicerae usually blue, lighter than carapace, but sometimes brownish blue (or pale brown). Palps blue to pale yellow, with apex of embolus usually blue. Legs with variable hues of blue, sometimes pale yellow, with some white rings at distal segments.

*Genitalia* (Figures 4, 5). Palps elongated, tibia incrasate, about two times longer than wide. Tarsus with rounded cymbium bearing a prolateral tuft of

0 feathery hairs and a retrolateral elongated projection  
 (similar to a pholcid procurus), approximately four  
 times longer than wide, tapering anteriorly with two  
 sub-apical setae, ending in a small, acute spine.  
 Bulbus elongated, tapering forward, terminal portion  
 5 (embolus) bending at an acute angle against the  
 bulbus.

*Female*

10 Measurements ( $n=5$ ): total length: 1.7 (1.6–1.8;  
 carapace 0.7 (0.7) long, 0.6 (0.6–0.7) wide; abdomen  
 1.0 (0.9–1.1) long; leg I: femur 1.9 (1.7–2.1). Same  
 color pattern as male but without white spot on the  
 anal tubercle and nearby region.

15 Chelicerae normal. Genital area (Figures 6, 7)  
 with a rounded, convex, lobe, with posterior margin  
 covered by a row of long setae. A membranose lobe  
 of variable size comes from behind the setose lobe  
 cited above. In most females it bears at its extremities  
 20 a pair of elongated, chitinized structures. Perhaps this  
 is an internal structure that is everted after copula-  
 tion, as is common in many Pholcidae (personal  
 observation). Vulva with two separate, medium-sized  
 spermathecae. One sclerotized structure of unknown  
 25 function between spermathecae.

*Habitat*

30 Specimens were found on small, delicate sheet-webs  
 in crevices and fissures on the wall, near the soil, or  
 between fallen rocks inside caves. The webs are  
 usually found in protected places without air  
 currents, such as blind tunnels or large wall cavities.  
 Males were collected near or on female webs. Found  
 35 in all parts of the cave, but more common in aphotic  
 and intermediate zones. The caves are relatively small  
 and present high amounts of organic matter, with  
 plenty of potential prey.

**4. Discussion**

40 The Ochyroceratidae are still in great need of  
 revision. The only revisionary study of the entire  
 family was made by Fage (1912). Recently,  
 Deeleman-Reinhold (1995) revised the Indo-Pacific  
 45 species. Several genera are not well defined, posing  
 problems for the correct placement of species, for  
 example, in the genera *Ochyrocera* × *Fageicera*  
 Dumitrescu and Georgescu, 1992 and in *Theotima*

Simon, 1892 × *Speocera* Berland, 1914. Many species  
 55 currently placed in *Ochyrocera* seem to belong to  
 different phyletic lineages.

Characters that may indicate a close relationship  
 of *O. viridissima* with *O. ibitipoca* sp. n. are: a  
 rounded cymbium; an elongated retrolateral projec-  
 60 tion of the palpal tarsus, with two sub-apical setae; an  
 embolus strongly curved against the bulbus, forming  
 an acute angle; and, probably, a tuft of feathery hairs  
 at the prolateral region of the cymbium. Those  
 characters are neither cited nor illustrated for any  
 65 other species of *Ochyrocera*. Another species that  
 may be related to the two above-cited one is *O.*  
*coerulea*. Unfortunately, the poor quality of the  
 drawing of the type made by Keyserling (1891)  
 suggests that it is an immature male, since the bulbus  
 70 seems to be not fully developed. Only an examination  
 of the type or additional material from the type  
 locality will clarify this subject.

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**References**

Baptista RLC. 2003. *Speocera eleonorae* sp. n., the first troglo-  
 morphic spider from Brazilian caves (Araneae:  
 Ochyroceratidae). *Rev Ibérica Aracnol.* 7:221–224. 90  
 Brignoli PM. 1974. Ragni del Brasile. I. *Ochyrocera viridissima* n.  
 sp. (Araneae, Ochyroceratidae). *Rev Suisse Zool.* 81:77–81.  
 Deeleman-Reinhold CL. 1995. The Ochyroceratidae of the Indo-  
 Pacific region (Araneae). *Bull Raffles Mus Singapore.*  
 2(Suppl.):1–103.  
 Dumitrescu M, Georgescu M. 1992. Ochyroceratides de Cuba  
 (Araneae). *Mém Biospéol.* 19:143–153. 95  
 Fage L. 1912. Études sur les araignées cavernicoles. I. Révision des  
 Ochyroceratidae (n. fam.) (Biospélogica, XXV). *Arch Zool Exp*  
*Gén.* 10:97–162.  
 Keyserling E. 1891. Die Spinnen Amerikas. Brasilianische Spinnen.  
 Vol. 3. Nürnberg: Ed. von Bauer & Raspe. 278 p. 100  
 Platnick NI. 2007. The world spider catalog, version 8.0 [Internet].  
 New York: American Museum of Natural History, [cited 2007  
 August 10]. Available from: [http://research.amnh.org/entomology/  
 spiders/catalog81-87/index.html](http://research.amnh.org/entomology/spiders/catalog81-87/index.html).