



The fourth species of *Sinamma* Lin & Li, 2014 (Araneae, Tetrablemmidae) from China

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Abstract

Background

Sinamma Lin & Li, 2014 is a small tetrablemmid genus distributed in China, with three currently known species: *Sinamma oxycera* Lin & Li, 2014 from Guangxi Zhuang Autonomous Region and *S. quadrata* Tong & Li, 2022 and *S. yingae* Tong & Li, 2022 from Guangdong Province.

New information

While examining spider specimens obtained by sifting leaf litter from Danxiashan National Nature Reserve in Guangdong Province of China, we discovered a new species of the genus *Sinamma*, *S. danxia* **sp. nov.**, which is described here.

Keywords

taxonomy, haplogyne spiders, new species, description

Introduction

Members of Tetrablemmidae O. Pickard-Cambridge, 1873, commonly known as tetrablemmid armoured spiders, are very small (< 2 mm length) haplogyne spiders, which can easily be recognised by their strap-like abdominal scuta arranged in parallel (Brescovit and Cizauskas 2019). The family currently comprises 151 species in 27 genera, distributed in southern Asia, Africa and Central and South America (WSC 2024), where they are found in leaf litter, soil and in caves (Burger et al. 2010). Lin and Li (2014) established the genus *Sinamma* Lin & Li, 2014 based on the type species *S. oxycera* Lin & Li, 2014 from Guangxi, China and transferred *Shearella sanya* Lin & Li, 2010 to it, based on some less diagnostic characteristics, such as the pointed eye tubercle, the moderately modified male leg I and the subjectively perceived narrow postgenital plate in the female. Subsequently, Sankaran and Sebastian (2016) transferred *Sinamma sanya* (Lin and Li 2010) back to *Shearella*. Later, Cheng et al. (2022) described two more *Sinamma* species (*S. quadrata* Tong & Li, 2022 and *S. yingae* Tong & Li, 2022) from Guangdong, China. To date, three species of this genus have been reported, all distributed in southern China.

In this paper, the fourth species of the genus, *Sinamma* from south China, is described as *S. danxia* sp. nov.

Materials and methods

All measurements are given in millimetres (mm). Leg measurements are shown as total length (femur, patella, tibia, metatarsus, tarsus). Vulva was cleared in pancreatin solution (Álvarez-Padilla and Hormiga 2007). All specimens are preserved in 75% alcohol. Photographs were taken using an Olympus BX53 microscope equipped with a Kuy Nice CCD camera and were imported into Helicon Focus v. 7 for stacking. Final figures were retouched by the Adobe Photoshop © 2020. The type specimens of the new species are deposited in the School of Biology and Agriculture, Shaoguan University, Shaoguan, China.

Terms and abbreviations used in the text and figures follow Cheng et al. (2022).

Taxon treatment

Sinamma danxia He, Zhu, Chen & Guo, sp. nov.

- ZooBank [7ADF9478-8322-46BB-A4BC-3B72039842DA](https://doi.org/10.3896/ABRF-7ADF9478-8322-46BB-A4BC-3B72039842DA)

Materials

Holotype:

- order: Araneae; family: Tetrablemmidae; genus: *Sinamma*; country: China; stateProvince: Guangdong; county: Renhua; verbatimLocality: Danxiashan National Nature Reserve

(namely Danxia Mountain); verbatimElevation: 201 m; verbatimLatitude: 25.365556°N; verbatimLongitude: 113.739997°E; samplingProtocol: Collected by hand picking and sieving leaf litter; year: 2022; month: 12; day: 8; individualCount: 1; sex: male; lifeStage: adult; recordedBy: Ailan He; Yingxiang Qiu; Jing Guo; Lijuan Gu; Xiaofei Zhong; institutionCode: SGU-Tet001; occurrenceID: 73DFDD29-0D7F-5D64-AD59-9D198D1970BC

Paratype:

- a. order: Araneae; family: Tetrablemmidae; genus: *Sinamma*; country: China; stateProvince: Guangdong; county: Renhua; verbatimLocality: Danxiashan National Nature Reserve (namely Danxia Mountain); verbatimElevation: 201 m; verbatimLatitude: 25.365556°N; verbatimLongitude: 113.739997°E; samplingProtocol: Collected by hand picking and sieving leaf litter; year: 2022; month: 12; day: 8; individualCount: 18; sex: 5 males, 13 females; lifeStage: adult; recordedBy: Ailan He; Yingxiang Qiu; Jing Guo; Lijuan Gu; Xiaofei Zhong; institutionCode: SGU-Tet002-019; occurrenceID: 107F52F4-C778-5F0C-A0BE-D8F319771CCC

Description

Male (holotype). Colouration: body reddish-brown; legs yellowish-brown. Measurements: total length 1.61; carapace 0.75 long, 0.63 wide, 0.49 high; abdomen 1.01 long, 0.76 wide, 0.72 high; clypeus 0.36 high; sternum 0.42 long, 0.44 wide. Length of legs: I 1.90 (0.65, 0.22, 0.41, 0.29, 0.33); II 1.72 (0.54, 0.20, 0.39, 0.27, 0.32); III 1.52 (0.46, 0.18, 0.33, 0.27, 0.28); IV 2.01 (0.60, 0.17, 0.53, 0.37, 0.34). Leg formula: 4123.

Carapace (Fig. 1A, C, Fig. 2A and B): reticulated, margin with small denticles; ocular area distinctly raised (Fig. 2A and B), with a pair of very small tubercles behind and almost same height as ocular area; clypeus very high, anterior margin rounded (Fig. 2A); cheliceral horns long, basally wide, distally crooked, with tips parallel and pointing antereodorsally (Fig. 2B); sternum with sparse setae, reticulate (Fig. 1B). Legs: femur I swollen (Fig. 3A); tibiae I–III with 3 trichobothria, respectively, tibia IV with 4 and metatarsi I–IV with one; tibia I with two large triangular subdistal tubercles, retrolateral one larger and prolateral one smaller (Fig. 3B); metatarsus I constricted subdistally and with two small tubercles (Fig. 3C).

Abdomen (Fig. 1A–C): booklung covers oval, reddish-brown; dorsal scutum oval, finely reticulated; ventral scutum reticulated; postgenital plate smooth, narrow, slightly shorter in width to pre-anal plate; pre-anal plate slightly curved.

Palp (Fig. 3D–F): femur smooth, slightly curved at mid-ventral side; patella approximately 1/2 of femur in length, connected to tibia sub-basally; bulb long, pyriform, with a distinct contraction in middle of ventral surface; embolus long, spiniform, strongly sclerotised and bending at a nearly right angle at base towards dorsally; sperm duct extending, visible through the bulbal integument.

Female (paratype). Colouration: same as in male. Measurements: total length 1.60; carapace 0.69 long, 0.57 wide, 0.37 high; abdomen 1.02 long, 0.81 wide, 0.76 high;

clypeus 0.22 high; sternum 0.40 long, 0.41 wide. Length of legs: I 1.72 (0.55, 0.18, 0.40, 0.26, 0.33); II 1.61 (0.49, 0.18, 0.36, 0.26, 0.32); III 1.47 (0.43, 0.18, 0.31, 0.27, 0.28); IV 1.92 (0.58, 0.16, 0.50, 0.36, 0.32). Leg formula: 4123.

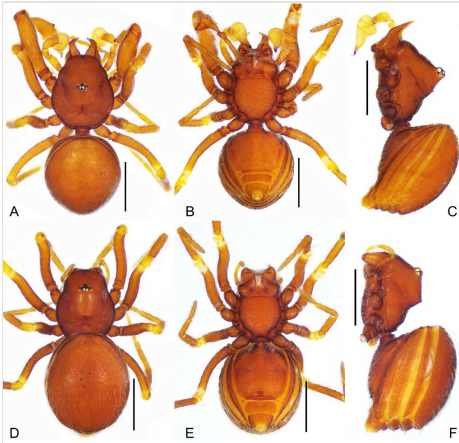


Figure 1. [doi](#)

Sinamma danxia sp. nov., holotype male (A–C), paratype female (D–F). **A, D** Habitus, dorsal view; **B, E** Habitus, ventral view; **C, F** Habitus, lateral view. Scale bars: 0.5 mm (A–F).

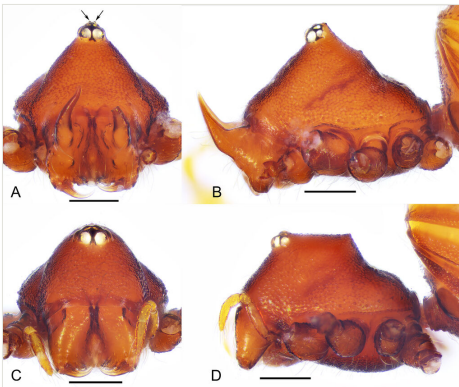


Figure 2. [doi](#)

Sinamma danxia sp. nov., holotype male (A–B), paratype female (C–D). **A, C**. Prosoma, anterior views; **B, D**. Prosoma, lateral view. Scale bars: 0.2 mm (A–D). The arrows indicate small tubercles in the ocular area.

Carapace (Fig. 1D, F, C and D): cephalic part raised, dorsal edge straight in lateral view (Fig. 2D), ocular area not raised, clypeus lower than in male; cheliceral horn absent. Legs as in male, except for leg I not swollen.

Abdomen (Fig. 1D–F): ventral epigastric scutum reticulated; postgenital plate straight, slightly shorter in width to pre-anal plate; pre-anal plate rectangular-shape; perigenital plate small, oval.

Genitalia (Fig. 4A–C): epigynal fold wide, arched (Fig. 4A and B); vulval stem wide, inverted triangular, strongly sclerotised; lateral horns slightly sclerotised, supporting the base of membranous vulval ducts that connect spermathecae; inner vulval plate triangle-shaped, rugose, slightly sclerotised; spermathecae translucent, oval, membranous (Fig. 4C).

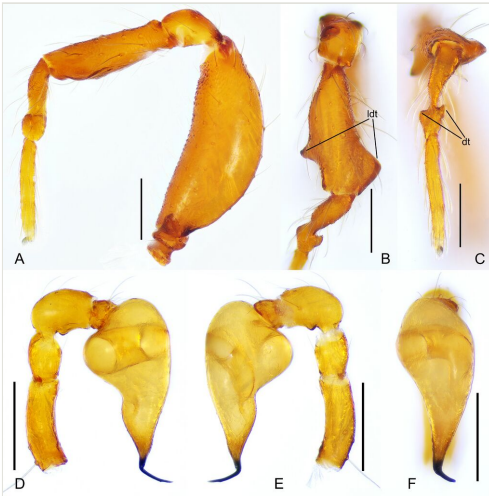


Figure 3. [doi](#)

Sinamma danxia sp. nov., holotype male. **A** Left leg I, retrolateral view; **B** Left tibia I, dorsal view; **C** Left metatarsus I and tarsus I, dorsal view; **D** Left palp, prolateral view; **E** Same, retrolateral view; **F** Same, dorsal view. Abbreviations: dt = distal tubercles; ldt = large distal tubercles. Scale bars: 0.2 mm (A–F).

Diagnosis

Amongst the congeners, the new species can be easily distinguished from *S. oxycera* and *S. quadrata* by the presence of pointed cephalic tubercles in the latter two species (both sexes in *S. oxycera* and males in *S. quadrata*). The new species is similar to *S. yingae* Tong & Li, 2022 in that both males and females lack pointed cephalic tubercles and in the pattern of leg tubercles on tibia and metatarsus I, but can be recognised by: Cheng et al. (2022); 1) dorsal surface of the cephalic part in females straight in lateral view (D) (vs. cephalic part slightly sloping (Cheng et al. (2022): fig. 5F)); 2) metatarsus I without proximal tubercle (Fig. 3B and C) (vs. metatarsus I with one proximal tubercle (Cheng et al. (2022): fig. 3D)); 3) the length of the male palpal patella about 1/2 of the femur in length (Fig. 3D and E) (vs. the patella about 2/3 femur in length (Cheng et al. (2022): figs. 6A and B)); 4) embolus bending at a nearly right angle at base (Fig. 3D and E) (vs. the embolus slightly curved (Cheng et al. (2022): figs. 6A and B)); 5) vulval stem inverted triangular and inner vulval plate triangular with rugose surface (Fig. 4C) (vs. vulval stem inverted trapezoidal and inner vulval plate finger-like with smooth surface (Cheng et al. (2022): fig. 7C)).

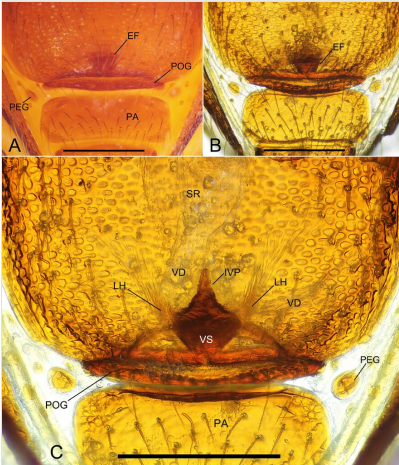


Figure 4. [doi](#)

Sinamma danxia sp. nov., paratype female. **A** Genital area, ventral view; **B** Genital area, ventral view (cleared in pancreatin solution); **C** Endogyne, dorsal view. Abbreviations: EF = epigynal fold; IVP = inner vulval plate; LH = lateral horn; PA= pre-anal plate; PEG = perigenital plate; POG = postgenital plate; SR = seminal receptaculum; VD = vulval duct; VS = vulval stem. Scale bars: 0.2 mm (A–C).

Etymology

The specific epithet refers to the type locality; noun in apposition.

Distribution

Known only from the type locality (Guangdong, China) (Fig. 5)



Figure 5. [doi](#)

Map showing the currently known localities of *Sinamma* spp.

Identification keys

Key to known species of <i>Sinamma</i>		
1	Males	2
–	Females	5
2	With pointed eye tubercles (Lin and Li (2014): figs. 1E and G; Cheng et al. (2022): figs. 1G and H)	3
–	Without pointed eye tubercles (Cheng et al. (2022): figs. 5G and H; Figs. 2Fig. 2 A and B)	4
3	Palpal bulb quadrangular, embolus belt-shaped (Cheng et al. (2022): figs. 2A and B)	<i>S. quadrata</i>
–	Palpal bulb pyriform, embolus thread-like (Lin and Li (2014): figs. 2A and B)	<i>S. oxycera</i>
4	Cheliceral horn short, with the tips pointing towards each other (Cheng et al. (2022): figs. 5G and H)	<i>S. yingae</i>
–	Cheliceral horn long, with their tips parallel and pointing towards dorsum	<i>S. danxia</i> sp. nov.
5	Carapace with a pair of cephalic tubercles (Lin and Li (2014): figs. 1F and H)	<i>S. oxycera</i>
–	Carapace without cephalic tubercles (Cheng et al. (2022): figs. 1I, 5I; C and D)	6
6	Cephalic part slightly elevated, the highest point of carapace at posterior 2/3 (Cheng et al. (2022): fig. 1F); posterior part of sternum strongly bulged (Cheng et al. (2022): fig. 1F)	<i>S. quadrata</i>
–	Cephalic part not elevated, the highest point of carapace at ocular area (Cheng et al. (2022): figs. 5F and D); posterior part of sternum flat (Cheng et al. (2022): figs. 5F and D)	7
7	Cephalic part slightly sloping (Cheng et al. (2022): fig. 5F); vulval stem inverted trapezoidal (Cheng et al. (2022): fig. 7C)	<i>S. yingae</i>
–	Cephalic part extremely flat (D); vulval stem inverted triangular (Fig. 4C)	<i>S. danxia</i> sp. nov.

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References

- Álvarez-Padilla F, Hormiga G (2007) A protocol for digesting internal soft tissues and mounting spiders for scanning electron microscopy. *The Journal of Arachnology* 35 (3): 538-542. <https://doi.org/10.1636/Sh06-55.1>
- Brescovit AD, Cizauskas I (2019) Seven new species of the spider genus *Matta* Crosby from caves in the State of Minas Gerais, Brazil (Araneae, Tetrablemmidae). *Zootaxa* 4559 (3): 401-444. <https://doi.org/10.11646/zootaxa.4559.3.1>
- Burger M, Harvey MS, Stevens N (2010) A new species of blind subterranean *Tetrablemma* (Araneae: Tetrablemmidae) from Australia. *Journal of Arachnology* 38 (1): 146-149. <https://doi.org/10.1636/A09-73.1>
- Cheng WH, Ren LS, Tong YF, Bian DJ, Li SQ (2022) Two new species of the spider genus *Sinamma* Lin & Li, 2014 (Araneae, Tetrablemmidae) from Guangdong Province, China. *Zootaxa* 5091 (3): 443-454. <https://doi.org/10.11646/zootaxa.5091.3.4>
- Lin YC, Li SQ (2010) New armored spiders of the family Tetrablemmidae from China. *Zootaxa* 2440 (1): 18-32. <https://doi.org/10.11646/zootaxa.2440.1.2>
- Lin YC, Li SQ (2014) New cave-dwelling armored spiders (Araneae, Tetrablemmidae) from Southwest China. *ZooKeys* 388: 35-67. <https://doi.org/10.3897/zookeys.388.5735>
- Sankaran PM, Sebastian PA (2016) A checklist of Indian armored spiders (Araneae, Tetrablemmidae) with the description of a new species from the Western Ghats. *Zootaxa* 4084 (3): 443-450. <https://doi.org/10.11646/zootaxa.4084.3.9>
- WSC (2024) World Spider Catalog. Version 25.5. <http://doi.org/10.24436/2>. Accessed on: 2024-8-06.