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# Taxonomic studies on five species of Selenocosmiinae from China (Araneae, Theraphosidae)

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## Keywords:

Theraphosidae; *lubricus*;  
Selenocosmiinae; *anubis*;  
*Selenocosmia*; *qiani*;  
*Chilobrachys*; *longiembola*;  
China; *hubei*.  
new species;

**Abstract.** – Four new species of Selenocosmiinae are described with both sexes: *Chilobrachys lubricus* sp. nov., *Selenocosmia anubis* sp. nov., *S. qiani* sp. nov. and *S. longiembola* sp. nov.; *Chilobrachys hubei* Song & Zhao, 1988 is redescribed and rediagnosed, the female of *C. hubei* is described for the first time.

Yu K., Zhang S., Zhang F., Li Z. & Yang Z., 2021. – Taxonomic studies on five species of Selenocosmiinae from China (Araneae, Theraphosidae). *Faunitaxys*, 9(33): 1 – 13.

ZooBank: <http://zoobank.org/2639A3C4-F749-49CB-94CF-B6A8FBC85203>

## Introduction

Selenocosmiinae Simon, 1889 is the second largest subfamily of Theraphosidae, including many well-known “bird-eaters” from Asia to Australian region (West & Nunn, 2010a; West & Nunn, 2010b; Lüddecke *et al.*, 2018). At present, 10 species within three genera (*Chilobrachys*, *Selenocosmia* and *Phlogiellus*) of Selenocosmiinae are recorded from China (WSC, 2021).

In our survey of Chinese theraphosid spiders (2015-2021), three new species of Selenocosmiinae were discovered from Yunnan Province, a biodiversity hotspot where the Indo-malayan region, the Eastern Himalayas and the central China meet: *Chilobrachys lubricus* sp. nov., *Selenocosmia anubis* sp. nov. and *S. longiembola* sp. nov.; another new species, *S. qiani* sp. nov., is reported from Guangdong Province, South China. Meanwhile, our survey rediscovered *Chilobrachys hubei* Song & Zhao, 1988, which the type specimens were lost, and no more materials had been collected (Zhu & Zhang, 2008).

## Methods

All specimens were preserved in 75%~95% ethanol, examined and measured under a Leica M205A stereomicroscope. The photographs of genitalia were taken by an Olympus BX51 microscope equipped with a Canon 7D SLR, the photographs

of habitus and living spiders were taken by a Canon 7D SLR camera with a Canon 100mm Macro Lens. The hand drawings were made under a plotting instrument of Leica M205A stereomicroscope. Photographs of specimens were stacked by the Helicon Focus 7 software and imported into the Adobe Photoshop CC 2019 software for retouching. Specimens were measured by the measuring tool of Leica LAS V. 4.3 software. All measurements are given in millimeters. The measurements of legs are shown as: total length (femur, patella, tibia, metatarsus, tarsus). Female vulvae were cleared with trypsinase or macerated in clove oil. All specimens studied are deposited in the Museum of Hebei University (MHBHU), Baoding, China and Dali University (DLU), Dali, China.

Abbreviations used are:

**ALE:** Anterior lateral eye

**AME:** Anterior median eye

**BL:** Basal lobe of RK

**MOA:** Median ocular area

**PLE:** Posterior lateral eye

**PLS:** Posterior lateral spinneret

**PME:** Posterior median eye

**PMS:** Posterior median spinneret

**RK:** Retrolateral embolic keel

**SL:** Stridulating lyra

**SS:** Stridulating setae

**TL:** Total length (not including chelicerae and spinnerets)

**Reviewer:** Michaël Dierkens (France).

**Correspondence:** Zizhong Yang (China) - [yangzzh69@163.com](mailto:yangzzh69@163.com)

## Taxonomy

Genus *Chilobrachys* Karsh, 1892

*Type.* – *Chilobrachys nitelinus* Karsch, 1892

*Diagnosis.* – See Raven, 1985 and Zhu & Zhang, 2008.

*Chilobrachys hubei* Song & Zhao, 1988

(Fig. 2F, 3A-E, 13F-G, 14H)

### Materials examined.

– 1♂ & 2♀ (**Topotypes**, MHB), CHINA: Hubei Province, Enshi City, Badong County, Yanduhe Town, Quankou Village, 110.31°E, 31.28°N, 441m elev., 30 October 2020, leg. Y. Mu, K. Yu & S. Zhang, male was raised and matured in July 2021;

– 1♂ & 3♀ (MHB), CHINA: Chongqing City, Fuling District, Wangzhou Park, 107.40°E, 29.70°N, 403m elev., 13 August 2019, leg. Z. Zeng, H. Chen, K. Yu & S. Zhang;

– 2♀ (MHB), CHINA: Chongqing City, Fengjie County, Longchigou, Tiankengdifeng scenic area, 109.57°E, 30.87°N, 259m elev., 31 October 2020, leg. Y. Mu, K. Yu & S. Zhang.

*Diagnosis.* – Differs from the closely related *C. lubricus* sp. nov. by the ridge of distal embolus slightly hooked in males (Fig. 14H); stalk broadening in width, form a ratio of 3:2~2:1 with distal spermatheca in females (Fig. 2F; vs. the edge of embolic ridge arched, not hooked; the ratio of width of stalk and spermatheca is around 1:1 in *C. lubricus* sp. nov.).

### Description.

**Male.** – TL 26.39; chelicerae length 5.61, carapace 12.76 long, 12.37 wide; carapace dark brown in ethanol, covered with numerous purplish grey setae. Fovea slightly procurved. Ocular tubercle cling to front edge of carapace, eyes in two rows, posterior row slightly retro-curved; eye group 1.12 long, 2.66 wide; ALE–AME 0.25, AME–AME 0.40, PLE–PME 0.04, PME–PME 1.10; MOA 0.98 long, front width 1.38, back width 1.76; ALE: AME: PLE: PME (0.55: 0.51: 0.53: 0.45). Chelicerae resemble carapace in color, inner margin with 12 teeth, fang furrow with numerous small teeth, strikers thorn-like. Labium 1.83 long, 2.78 wide; maxillae 6.20 long, 2.87 wide, SL composed of thorn-like, paddle-like and clavate SS. Sternum 6.11 long, 5.56 wide, with three pairs of sigilla. Opisthosoma 12.86 long, 8.03 wide. PMS 1.38 long, PLS 7.85 long. Legs covered with long white setae at least on tibia. Legs measurements: leg I 52.09 (14.63, 6.68, 13.01, 9.35, 8.42), leg II 45.76 (12.72, 6.35, 10.38, 8.99, 7.32), leg III 40.65 (10.80, 5.85, 8.24, 8.91, 6.85), leg IV 51.30 (13.60, 6.85, 11.05, 12.77, 7.03). Scopulae on tarsi IV cracked by a band of macrosetae, scopulae of tarsi I–III not cracked.

**Palpal organ.** Embolus long, distal half slightly arched; tip of embolus shovel-like, with a retrolateral ridge slightly hooked. The palpal bulb and embolus 3.57 long.

**Female.** – TL 46.75; chelicerae length 8.46, carapace 20.71 long, 20.15 wide; carapace dark brown in ethanol (light pink in alive), fovea slightly procurved; ocular tubercle cling to front edge of carapace, eyes in two rows, posterior row retro-curved; eye group 1.53 long, 3.62 wide; ALE–AME 0.59, AME–AME 0.56, PLE–PME 0.19, PME–PME 1.67; MOA 1.29 long, front width 1.61, back width 2.52; ALE: AME: PLE: PME (0.66: 0.56: 0.72: 0.63). Chelicerae dark, inner margin with 14 teeth, fang furrow with numerous small teeth; strikers thorn-like. Labium 3.34 long, 4.09 wide, maxillae 10.37 long, 5.04 wide, SL as in male. Sternum 9.29 long, 9.17 wide, with three pairs of sigilla. Opisthosoma oval and black, 26.98 long, 16.53 wide. PMS 3.46 long, PLS 12.57 long. Legs reddish brown in ethanol, covered with brown dense setae. Legs measurements: leg I 66.40 (18.59, 11.37, 14.43, 13.19, 8.82), leg II 57.28 (15.81, 9.75, 11.38, 11.36, 8.98), leg III 49.02 (12.92, 8.48, 9.33, 10.68, 7.61), leg IV 59.49 (16.41, 9.02,

13.00, 13.62, 7.44). Division of scopulae as in male.

**Vulva.** Spermathecae unilobed, with dense pores. Stalks broadening, outer margins almost perpendicular to genital furrow; distal spermathecae ligulate.

**Distribution.** – China (Hubei, Chongqing).

*Chilobrachys lubricus* sp. nov.

(Fig. 1A-E, 2A-E, 13D-E, 14I)

ZooBank: <http://zoobank.org/6D446A75-ASC4-448A-B652-8D04CBF782FB>

**Holotype**, ♂ (MHB), CHINA: Yunnan Province, Yuxi City, Yuanjiang County, Shidie, 102.09°E, 23.56°N, 700m elev., 16 January 2021, leg. Q. Wu, raised and matured on 3 July 2021.

### Paratypes.

– 1♀ (MHB), same data as holotype;

– 1♀ (MHB), same data as holotype but 12 June 2021, leg. S. Zhang.

*Diagnosis.* – See diagnosis of *C. hubei*.

### Description.

**Male** (holotype). – TL 25.03; chelicerae length 5.28, carapace 10.89 long, 10.67 wide; carapace covered with gold pink setae, fovea slightly procurved. Ocular tubercle cling to front edge of carapace, posterior eye row slightly retro-curved; eye group 0.87 long, 1.97 wide; ALE–AME 0.17, AME–AME 0.32, PLE–PME 0.09, PME–PME 0.94; MOA 0.32 long, front width 0.99, back width 1.41; ALE: AME: PLE: PME (0.51: 0.37: 0.37: 0.35). Chelicerae resemble carapace in color, inner margin with 11 teeth, fang furrow with numerous small teeth, strikers thorn-like. Labium 1.61 long, 2.25 wide; maxillae 5.44 long, 2.61 wide, SL composed of thorn-like and clavate SS. Sternum 5.41 long, 5.13 wide, with three pairs of sigilla. Opisthosoma 13.41 long, 7.78 wide. PMS 2.01 long, PLS 7.71 long. Legs covered with long white setae on patella to metatarsus. Legs measurements: leg I 41.79 (12.77, 5.81, 9.90, 6.85, 6.46), leg II 38.21 (11.07, 5.35, 8.44, 6.98, 6.37), leg III 32.43 (8.85, 4.13, 6.88, 6.81, 5.76), leg IV 41.41 (10.81, 4.87, 9.70, 9.62, 6.41). Scopulae on tarsi IV cracked by a band of macrosetae, scopulae of tarsi I–III not cracked.

**Palpal organ.** Embolus slender and long (Fig. 2A-C); tip of embolus with a retrolateral ridge, the edge of ridge arc-like, not hooked (Fig. 14I). the palpal bulb and embolus 3.22 long.

**Female** (one of paratypes). – TL 48.57; chelicerae length 7.76, carapace 18.33 long, 16.23 wide; carapace smooth, with dense short setae, dark brown in ethanol (copper-colored in alive), fovea slightly procurved; ocular tubercle cling to front edge of carapace, eye group 1.58 long, 3.05 wide; ALE–AME 0.42, AME–AME 0.49, PLE–PME 0.26, PME–PME 1.54; MOA 1.22 long, front width 1.53, back width 2.28; ALE: AME: PLE: PME (0.81: 0.65: 0.66: 0.59). Chelicerae dark, inner margin with 15 teeth, fang furrow with numerous small teeth; strikers thorn-like. Labium 3.41 long, 3.66 wide, maxillae 9.60 long, 4.98 wide, SL as in male but with more paddle-like SS. Sternum 9.03 long, 7.88 wide, with three pairs of sigilla. Opisthosoma 28.72 long, 17.81 wide. PMS 3.09 long, PLS 12.83 long. Legs dark brown in ethanol, covered with yellowish brown dense setae. Legs measurements: leg I 55.91 (17.05, 9.38, 12.62, 9.21, 7.65), leg II 46.04 (13.85, 7.25, 10.33, 8.39, 6.22), leg III 40.09 (11.05, 7.02, 7.99, 7.91, 6.12), leg IV 51.19 (14.76, 7.61, 11.02, 11.13, 6.67). Division of scopulae as in male.

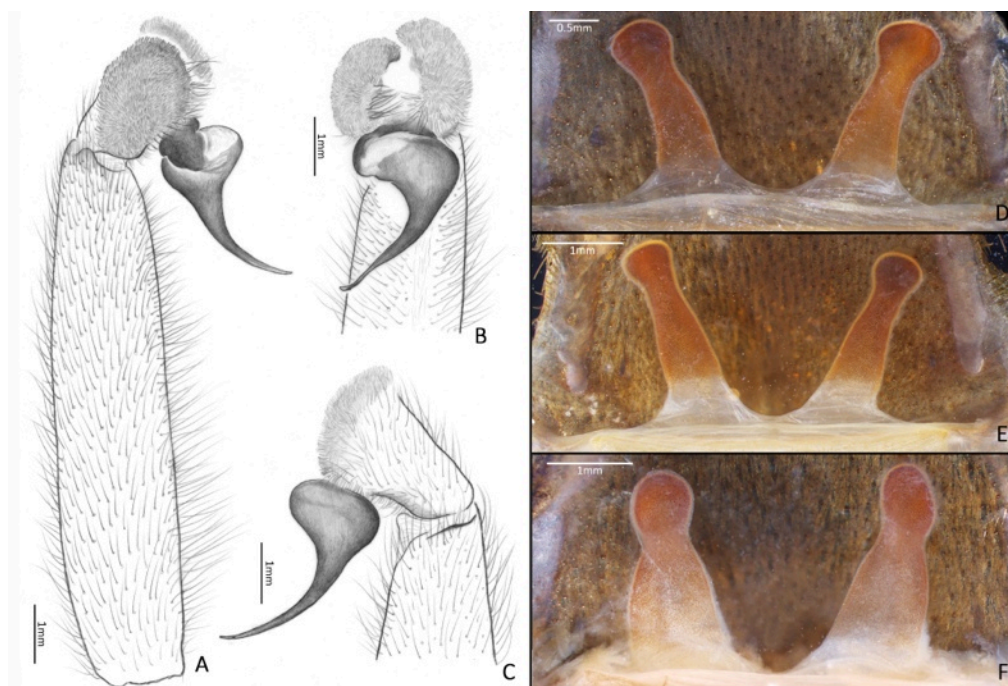
**Vulva.** Spermathecae unilobed. Stalks almost as wide as spermathecae, outer margins slant, almost form 75° angle with genital furrow (Fig. 2E).

**Etymology.** – The specific name is Latin, means smooth, referring to the texture of female carapace. Adjective.

**Distribution.** – Known only from the type locality.



**Fig. 1.** *Chilobrachys lubricus* sp. nov., living spiders and habitat. **A.** Male (holotype). **B.** Female (one of paratypes). **C.** Female on entrance of burrow. **D.** Mating behavior of non-type specimens. **E.** Habitat of type locality.



**Fig. 2.** Genitalia of *Chilobrachys* spp. **A-E.** *C. lubricus* sp. nov. **F.** Vulva of *C. hubei* Song & Zhao, 1988. **A-C.** Left palpal organ of holotype. **D-E.** Vulvae of paratypes. **A.** Prolateral view. **B.** Ventral view. **C.** Retrolateral view. **D-F.** Dorsal view.



**Fig. 3.** *Chilobrachys hubei* Song & Zhao, 1988, living spiders and habitat. **A.** Male, **B-C.** Females. **C.** With spiderlings. **D.** Entrance of burrow. **E.** Habitat of Quankou Village, Badong, type locality.

Genus *Selenocosmia* Ausserer, 1871

**Type.** – *Mygale javanensis* Walckenaer, 1837

**Diagnosis.** – *Selenocosmia* from southern China and nearby regions resembles *Phlogiellus* by the presence of a retrolateral keel on embolus (RK) in males (except for *S. xinhuaensis*, and the male of *S. kovariki* unknown), by the spermathecae unilobed, with distally rounded edges, and by the strikers needle-formed, but it can be distinguished from *Phlogiellus* by the RK reduced and shallow, by the BL reduced or absent, and by the SL and strikers well developed (vs. SS and strikers reduced, number of

strikers usually less than 50 in most *Phlogiellus* species). *Selenocosmia s. s.* (species from Java, Sumatra, Borneo, West Malaysia and Singapore) can be distinguished from other members of the tribe Selenocosmiini Simon, 1889 by the strikers scimitar-shaped (except for *Lyrognathus achilles*, *L. fuscus* and *L. lessunda*; West, Nunn & Hogg, 2012), it can be distinguished from *Lyrognathus* by the tibia IV not incrassate, the dense penicillate retrolateral setal brushes absent on tibia and metatarsus IV, by the absence of a singular prolateral keel on the embolus and by the clavate trichobothrial field extend to distal 3/4 of all tarsi (West & Nunn, 2010a).

***Selenocosmia anubis* sp. nov.**

(Fig. 4A-D, 5A-E, 6A-E, 12A-C, 14A &amp; G)

ZooBank: <http://zoobank.org/FF63DE17-B55F-421A-97F0-70529D649DA2>**Holotype**, ♂ (MHB), CHINA: Yunnan Province, Baoshan City, Longyang District, Mangkuan Town, Baihualing, 98.81°E, 25.30°N, 1450m elev., 20 July 2021, leg. K. Yu, L. Zhang & W. Wang.**Paratypes.**

– 2♂ &amp; 3♀ (MHB), same data as holotype;

– 1♂ &amp; 2♀ (MHB), same data as holotype but 11 January 2021, leg. S. Zhang &amp; J. Zhang.

**Diagnosis.** – Males resemble *Selenocosmia jiafu* Zhu & Zhang, 2008 by the shape of palpal organ, but it can be distinguished by the absence of long white setae on legs (Fig. 4A–C), by the distal edge of embolus obviously extended (Fig. 14A). Both sexes can be distinguished from *S. jiafu* by the absence of peg setae on inner surface of chelicerae, all SS small and spindle-shaped (Fig. 12A–C; vs. the peg setae well developed, lower SS are paddle-like in *S. jiafu*).**Description.****Male** (one of paratypes). – TL 19.04; chelicerae length 3.43, carapace 9.13 long, 7.61 wide; carapace reddish brown in ethanol, covered with purplish grey setae. Fovea shallow, slightly procurved. Ocular tubercle cling to front edge of carapace; eye group 0.71 long, 1.56 wide; ALE–AME 0.80, AME–AME 0.21, PLE–PME 0.02, PME–PME 0.67; MOA 0.63 long, front width 0.81, back width 1.15; ALE: AME: PLE: PME (0.46: 0.31: 0.34: 0.29). Chelicerae reddish black, inner margin with 8 teeth, fang furrow with numerous small teeth; without peg setae on internal surface; striker needle-like. Labium 0.73 long, 1.58 wide, with more than 250 cuspules. Maxillae 3.67 long, 1.80 wide, with 100–150 cuspules each side, SL composed of spindle-like SS. Sternum 4.11 long, 3.54 wide, with three pairs of sigilla. Opisthosoma 9.91 long, 5.74 wide, PMS 1.48 long, PLS 3.81 long. Legs covered with brown dense setae. Legs measurements: leg I 26.69 (8.32, 3.50, 6.41, 4.99, 3.47), leg II 23.88 (7.11, 3.31, 5.58, 4.45, 3.43), leg III 21.07 (6.30, 3.01, 4.07, 4.52, 3.17), leg IV 27.73 (7.87, 3.97, 6.53, 6.18, 3.18). 4–5 spines present on apical metatarsus IV (one in dorsal, 3–4 in ventral), scopulae on metatarsi and tarsi IV cracked by a band of numerous macrosetae. 5–6 spines on apical metatarsus III (one in dorsal, 4–5 in ventral), scopula on leg III cracked, but slighter than leg IV. 3 spines on apical metatarsus II (one in dorsal, 2 in ventral), one short spine on ventrally apical metatarsus I, scopulae on leg I–II not cracked.**Palpal organ.** Embolus slender, with RK slightly basal-lobed (Fig. 5A–C); distal edge of embolus arc-shaped.**Female** (one of paratypes). – TL 22.84; chelicerae length 5.44, carapace 9.97 long, 7.92 wide; carapace covered with short yellowish grey setae, fovea shallow and procurved. Ocular tubercle cling to front edge of carapace, eyes in two rows not curved; eye group 0.92 long, 1.73 wide; ALE–AME 0.18, AME–AME 0.24, PLE–PME 0.11, PME–PME 0.82; MOA 0.83 long, front width 0.90, back width 1.27; ALE: AME: PLE: PME (0.42: 0.45: 0.41: 0.34). Chelicerae reddish black; inner margin with 11 teeth, fang furrow with numerous small teeth; without peg setae on inner surface; strikers needle-like. Labium 1.63 long, 2.08 wide, with more than 300 cuspules. Maxillae 4.12 long, 2.68 wide, with 200–250 cuspules each side, SL and SS resemble male. Sternum 5.31 long, 4.47 wide, with three pairs of sigilla. Opisthosoma oval and black, 12.87 long, 8.93 wide. PMS 1.40 long, PLS 5.02 long. Legs reddish brown, covered with brown dense setae. Legs measurements: leg I 25.92 (7.51, 4.52, 6.30, 4.21, 3.38), leg II 23.21 (7.19, 4.28, 4.45, 4.03, 3.26), leg III 19.67 (5.67, 3.45, 3.76, 3.66, 3.13), leg IV 27.80 (7.87, 4.56, 6.03, 6.16, 3.18). 5 spines present on apical metatarsus IV (one in dorsal, 4 in ventral), scopulae on metatarsi and tarsi IV cracked by a band of numerous macrosetae. 5 spines on apical metatarsus III (one in dorsal, 2 in prolateral, 2 in ventral), scopula on leg III cracked, but slighter than leg IV. 1–2 spines on ventrally apical metatarsus II, one short spine onventrally apical metatarsus I, scopulae on legs I–II not cracked. **Vulva.** Spermathecae unilobed, terminal spermathecae ligulate (Fig. 5D–E).**Etymology.** – The specific name refers to Anubis, the god of death in ancient Egypt; noun in apposition.**Distribution.** – Known only from the type locality.***Selenocosmia qiani* sp. nov.**

(Fig. 7A–D, 8A–E, 11, 12G–I, 14D–E)

ZooBank: <http://zoobank.org/836A7BB3-BA26-4149-ABE6-4FE39608B5AE>**Holotype**, ♂ (MHB), CHINA: Guangdong Province, Zhaoqing City, Guangning County, Binheng Town, Fengshulang, 112.39°E, 23.83°N, 100m elev., 13 March 2016, leg. Y. Lu.**Paratypes.** – 2♀ (MHB), same data as holotype.**Diagnosis.** – Morphologically resembles *S. jiafu* Zhu & Zhang, 2008 by the presence of peg setae on inner surface of chelicerae and by the shape of female vulva, but the male can be distinguished by a small ventral lamina absent on distal embolus (Fig. 14E) and by the absence of long white setae on legs (Fig. 7A).**Description.****Male** (holotype). – TL 28.35; chelicerae length 4.63, carapace 14.10 long, 12.53 wide; carapace covered with silverish setae. Fovea shallow, slightly procurved. Ocular tubercle cling to front edge of carapace, eyes in two straight rows; eye group 0.91 long, 1.85 wide; ALE–AME 0.14, AME–AME 0.25, PLE–PME 0.08, PME–PME 1.05; MOA 0.79 long, front width 1.09, back width 1.16; ALE: AME: PLE: PME (0.55: 0.46: 0.43: 0.21). Chelicerae reddish brown; inner margin with 9 teeth, fang furrow with numerous small teeth; peg setae well developed on inner surface; strikers needle-like. Labium 2.24 long, 2.76 wide, with more than 200 cuspules. Maxillae 5.79 long, 3.43 wide, with more than 150 cuspules each side, SL composed of narrow paddle-shaped SS. Sternum 5.85 long, 5.52 wide, with three pairs of sigilla. Opisthosoma 14.25 long, 6.68 wide. PMS 1.37 long, PLS 7.18 long. Legs reddish brown, without long white setae. Legs measurements: leg I 44.75 (13.11, 6.58, 11.53, 8.02, 5.51), leg II 39.06 (11.82, 5.57, 9.34, 7.15, 5.18), leg III 33.37 (9.30, 4.71, 6.68, 7.91, 4.77), leg IV 46.08 (13.03, 5.67, 10.41, 11.80, 5.17). 4–5 spines present on apical metatarsus IV (one in dorsal or prolateral, 3–4 in ventral), scopulae on metatarsi and tarsi IV cracked by a narrow band of numerous macrosetae. 5 spines on apical metatarsus III (one in dorsal, one in prolateral, 3 in ventral), one spine on ventrally apical metatarsus II, metatarsus I without spine, scopulae on leg I–III not cracked.**Palpal organ.** Embolus slender, with one RK basally lobed, distal edge of embolus relatively flat.**Female** (one of paratypes). – TL 22.84; chelicerae length 6.43, carapace 18.72 long, 15.53 wide; carapace covered with numerous short pinkish grey setae. Fovea slightly procurved, ocular area without obvious tubercle, cling to front edge of carapace; eyes in two rows not curved; eye group 1.23 long, 2.56 wide; ALE–AME 0.27, AME–AME 0.31, PLE–PME 0.13, PME–PME 1.16; MOA 1.16 long, front width 1.15, back width 1.73; ALE: AME: PLE: PME (0.71: 0.51: 0.45: 0.47). Chelicerae covered with brown setae; inner margin with 14 teeth, fang furrow with numerous small teeth; peg setae well developed on internal surface; strikers needle-like. Labium 2.71 long, 3.73 wide, with more than 300 cuspules. Maxillae 7.72 long, 4.15 wide, with 200–250 cuspules each side, SL and SS resemble male. Sternum 8.51 long, 7.65 wide, with three pairs of sigilla. Opisthosoma oval and brown, 19.91 long, 10.82 wide. PMS 2.10 long, PLS 9.18 long. Legs covered with brown dense setae. Legs measurements: leg I 47.42 (13.54, 8.93, 10.55, 8.13, 6.27), leg II 41.07 (11.82, 7.23, 8.64, 7.61, 5.77), leg III 38.68 (10.53, 6.32, 7.03, 8.66, 6.14), leg IV 52.50 (14.46, 7.43, 11.15, 13.12, 6.34). 4 spines present on apical metatarsus IV (one in dorsal, one in

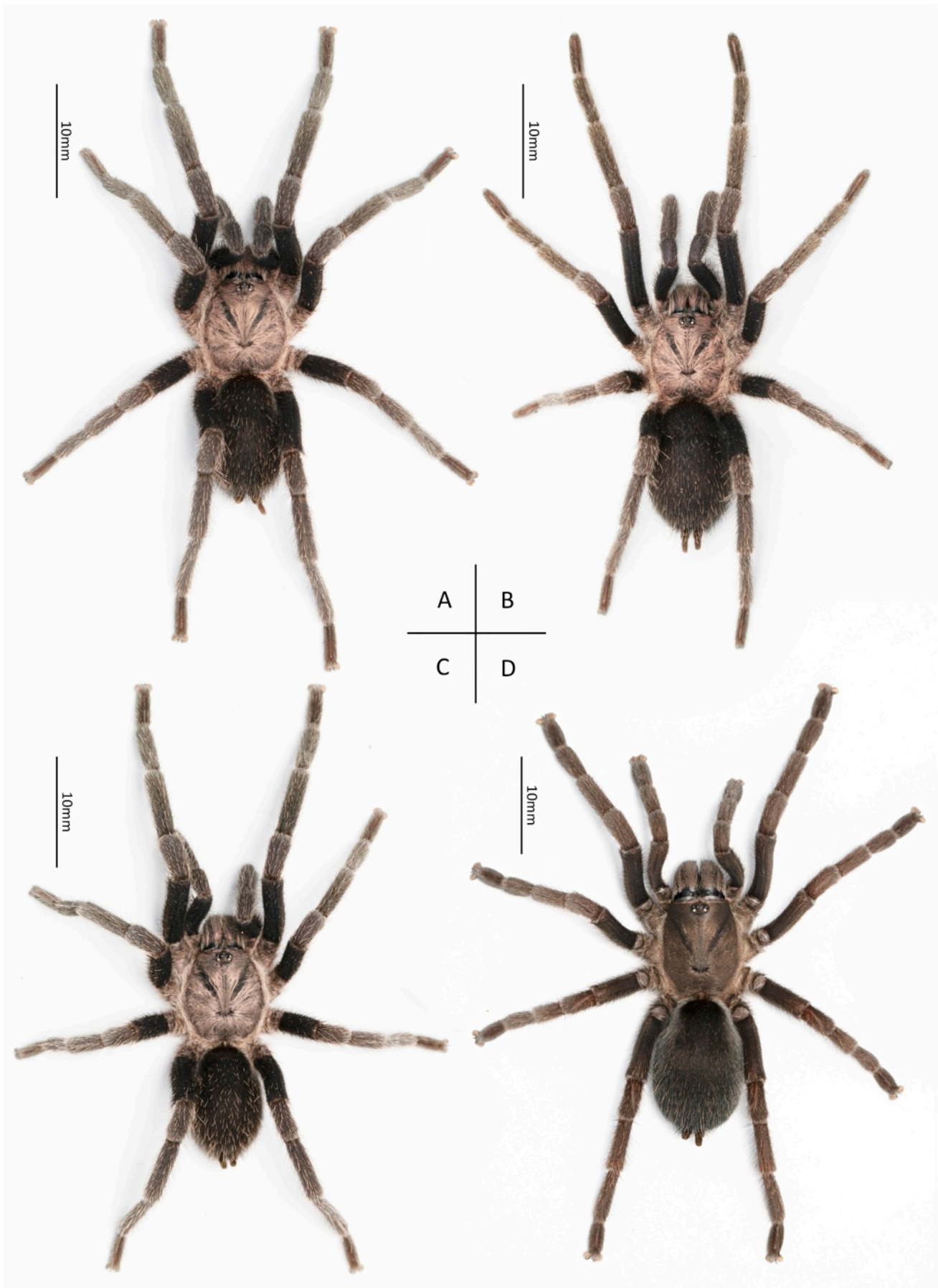
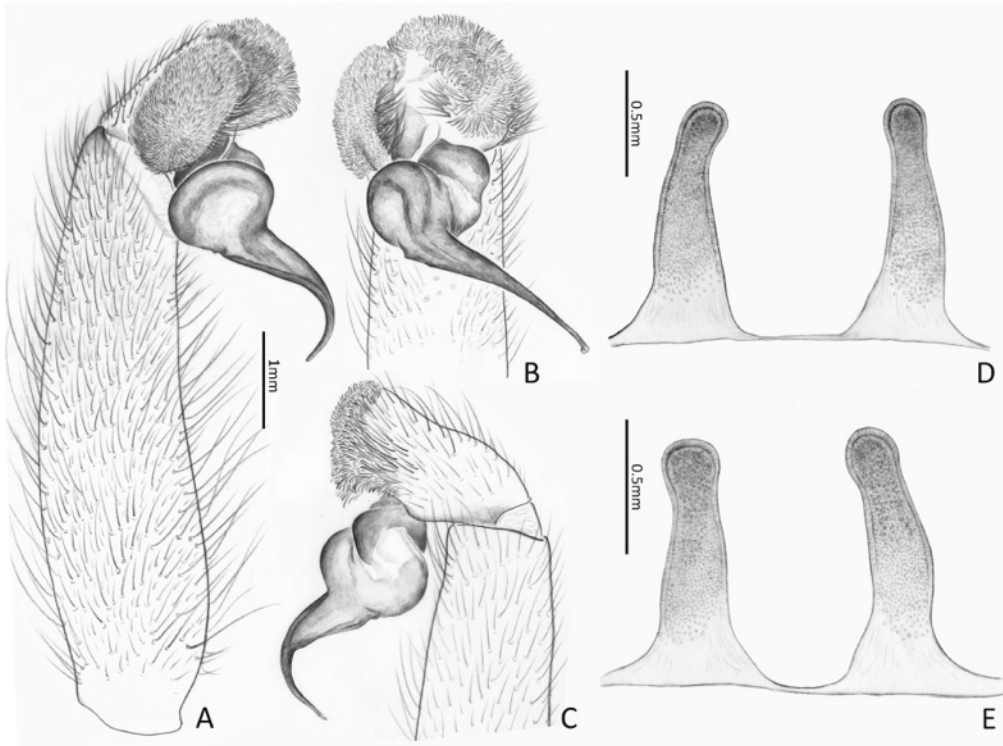


Fig. 4. *Selenocosmia anubis* sp. nov., living spiders. A-C. Males, holotype (A) and paratypes (B-C). D. Female, one of paratypes.



**Fig. 5.** Genitalia of *Selenocosmia anubis* sp. nov. A-C. Right palpal organ of paratype, horizontally mirrored. D-E. Vulvae of paratypes. A. Prolateral view. B. Ventral view. C. Retrolateral view. D-E. Dorsal view.



**Fig. 6.** *Selenocosmia anubis* sp. nov. Living spiders and habitat. A. Female (paratype), pre-molt. B. Spiderling. C. Mating behavior, arrow shows legs I of the male. D. Female on entrance of burrow. E. Habitat.

retrolateral, 2 in ventral), scopulae on metatarsi and tarsi IV cracked by a narrow band of numerous macrosetae. 5 spines on apical metatarsus III (one in dorsal, one in prolateral, 3 in ventral). Metatarsi I and II respectively with one spine on ventrally apical part, or without spine; scopulae on leg I–III not cracked.

**Vulva.** Spermathecae unilobed, slightly curved to axis, with dense pores. Distal spermathecae slightly widen and domed (Fig. 8D–E).

**Etymology.** – This species is named after Mr. Qi'an Wu, who helps us greatly with collecting mygalomorph spiders.

**Distribution.** – Known only from the type locality.

***Selenocosmia longiembola* sp. nov.**

(Fig. 7E–H, 9A–D, 10A–E, 12D–F, 14B)

ZooBank: <http://zoobank.org/7279C18D-20FA-4645-B962-D6B1585B3A6E>

**Holotype**, ♂ (MHB), CHINA: Yunnan Province, Lincang City, Cangyuan County, Nangunhe National Nature Reserve, 99.26°E, 23.19°N, 1491m elev., 10 May 2021, leg. Z. Yang, Z. Li, J. Wei & Y. Wu.

**Paratypes.** – 1♂ & 2♀ (1♀ MHB, 1♂ & 1♀ DLU), same data as holotype.

**Diagnosis.** – Males can be distinguished from congeners by the long embolus basally curved (Fig. 9A–C). Females can be distinguished by the long spermathecae well-defined with stalks (Fig. 9D).

**Description.**

**Male** (holotype). – TL 24.13; chelicerae length 5.49, carapace 10.91 long, 10.34 wide; carapace reddish brown in ethanol. Fovea slightly procurved. Ocular tubercle cling to front edge of carapace; eye group 1.47 long, 2.51 wide; ALE–AME 0.27, AME–AME 0.31, PLE–PME 0.22, PME–PME 1.26; MOA 1.08 long, front width 1.33, back width 1.87; ALE: AME: PLE: PME (0.73: 0.69: 0.63: 0.45). Chelicerae covered yellowish grey setae; inner margin with 9 teeth, fang furrow with numerous small teeth; without peg setae on internal surface; strikers needle-like. Labium 1.93 long, 1.82 wide, with more than 250 cuspules. Maxillae 5.27 long, 2.07 wide, with more than 150 cuspules each side; SL composed of paddle-shaped SS. Sternum 4.83 long, 3.65 wide, with three pairs of sigilla. Opisthosoma 13.22 long, 8.27 wide, PMS 1.48 long, PLS 4.62 long. Legs measurements: leg I 38.21 (11.10, 6.32, 9.36, 7.22, 4.21), leg II 31.68 (8.85, 5.07, 6.79, 6.62, 4.35), leg III 26.55 (7.23, 4.21, 4.78, 6.51, 3.82), leg IV 39.05 (10.40, 5.33, 8.21, 10.29, 4.82). Pseudo-bottle brushed setae well developed on patella–metatarsus IV. 4 spines present on apical metatarsus IV (one in dorsal, 3 in ventral), scopula on metatarsi and tarsi IV cracked by a narrow band of numerous macrosetae. 5 spines on apical metatarsus III (one in dorsal, one in retrolateral, 3 in ventral); one spine on ventrally apical metatarsus II, metatarsus I without spine, scopula on leg I–III not cracked.

**Palpal organ.** Embolus long and slender, with RK reduced and not lobed; basal embolus curved, subterminal embolus slightly curved; distal edge of embolus relatively flat (Fig. 14B).

**Female** (one of paratypes). – TL 28.55; chelicerae length 5.97, carapace 14.70 long, 12.34 wide; carapace covered with short yellowish brown setae. Fovea slightly procurved. Ocular tubercle cling to front edge of carapace; eyes in two rows, posterior row slightly retro-curved; eye group 1.17 long, 2.33 wide; ALE–AME 0.29, AME–AME 0.32, PLE–PME 0.08, PME–PME 1.03; MOA 1.05 long, front width 1.12, back width 1.58; ALE: AME: PLE: PME (0.45: 0.51: 0.39: 0.33). Chelicerae covered with numerous brown setae; inner margin with 13 teeth, fang furrow with numerous small teeth; peg setae absent on internal surface; strikers needle-like. Labium 2.33 long, 3.71 wide, with more than 300 cuspules. Maxillae 6.32 long, 3.34 wide, with more than 200 cuspules each side, SL and SS resemble male. Sternum 7.13 long, 6.54 wide. Opisthosoma black, 13.85 long, 10.44 wide. PMS 1.72 long, PLS 3.68 long. Legs measurements: leg I 39.18 (11.82, 7.09, 8.54, 6.45, 5.28), leg II

33.12 (9.48, 6.37, 6.71, 6.15, 4.41), leg III 30.22 (8.62, 5.52, 5.78, 6.13, 4.17), leg IV 43.13 (11.57, 6.16, 9.05, 10.98, 5.37). 4 spines present on apical metatarsus IV (one in dorsal, 3 in ventral), scopula on metatarsi and tarsi IV cracked by a narrow band of numerous macrosetae. 5 spines on apical metatarsus III (one in dorsal, one in prolateral, 3 in ventral). Metatarsus I and II respectively with one spine on ventrally apical part, or without spine; scopula on leg I–III not cracked.

**Vulva.** Spermathecae unilobed and long; spermathecae well-defined with stalks.

**Etymology.** – The specific name is a combination of the Latin "longus" and the word "embolus", referring to the morphology of male genitalia; noun in apposition.

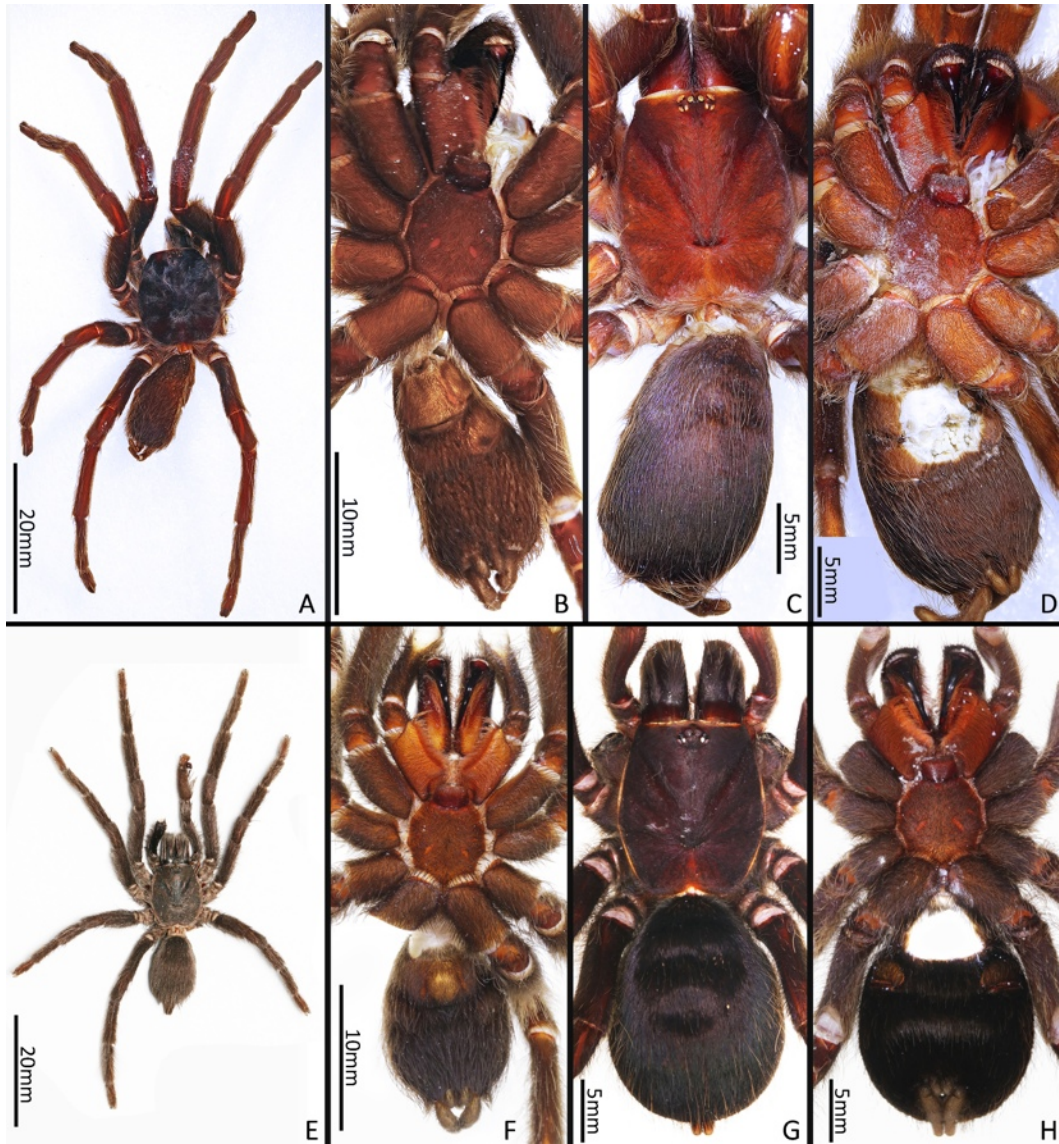
**Distribution.** – China (Yunnan).

**Discussion**

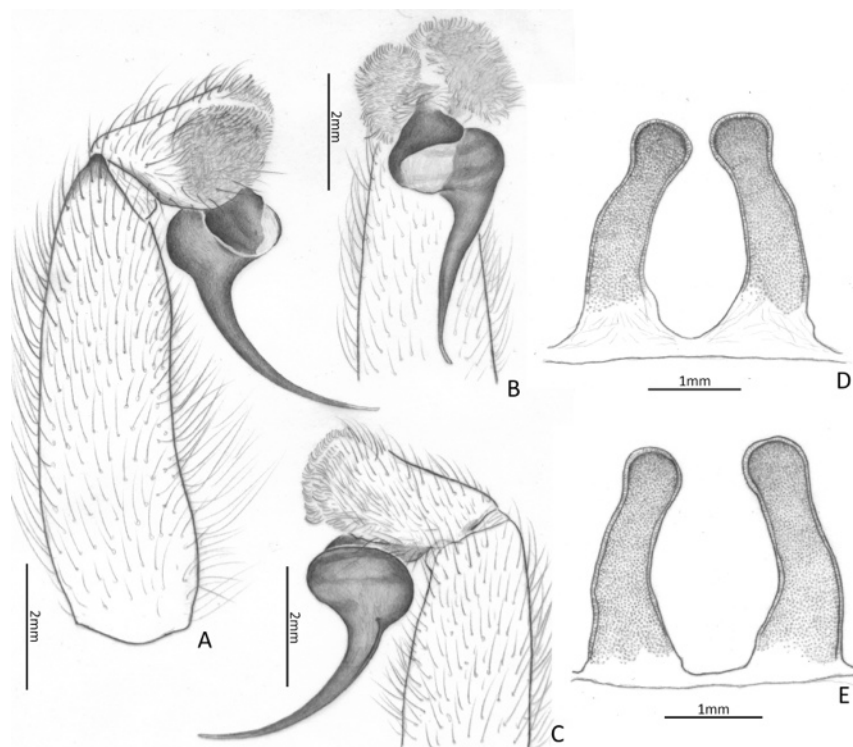
*Selenocosmia* Ausserer, 1871 presently contains more than 30 species, and widely distributed in the south Asia, the southeast Asia and the Australasian region (WSC, 2021). The taxonomy of *Selenocosmia* is still unrevised, the generic delimitation and relationships between *Selenocosmia*, *Phlogius*, *Chilocosmia* and *Selenopelma* are long in dispute (Schmidt, 1995; Schmidt & von Wirth, 1992; Schmidt & Krause, 1995; Raven, 2000; Schmidt, 2015). However, the widely variable morphotypes of genitalia and stridulating organs suggest that the *Selenocosmia sensu lato* probably be polyphyletic (Gabriel & Sherwood, 2019). Perhaps to this reason, West *et al.* (2012) only contained those species west of Wallace's Line and south of West Malaysia (*Selenocosmia sensu stricto*) in their cladistic analyses of Selenocosmiinae.

Raven proposed to combine most genera and he also placed *Selenopelma* Schmidt & Krause, which established based on the northern-Vietnamese species *S. kovariki*, as a junior synonym of *Selenocosmia* (Raven, 1985; Raven, 2000). Zhu & Zhang's placement of Chinese *Selenocosmia* was also based on Raven's work (Zhu & Zhang, 2008). By examining the topotypes of *S. kovariki*, we consider that most *Selenocosmia* species from China are closely related to this species; but *Selenopelma*-like species show some characters obviously different from the type species *S. javanensis* (1♂ & 1♀, Tasikmalaja, Java, July 1925, examined): Known males having a reduced RK on embolus (except for *S. xinhuaensis*), the female vulva unilobed, the distal spermathecae longitudinally flat, with rounded edges, strikers needle-formed, a sharp process presents on the tip of SS (vs. the embolus terete, RK absent, the spermathecae bilobed and distally bulbous, the stickers scimitar-shaped and the sharp process absent in the tip of SS in *S. javanensis*). The *Selenocosmia s. s.* is placed in Selenocosmiini Simon 1889 together with *Coremiocnemis*, *Lyrognathus* and *Pseudocnemis* (West, Nunn & Hogg, 2012), but the genitalic morphology and details of SS of *Selenopelma*-like species seems close to *Phlogiellus*, which be placed in the tribe Yamiini (Nunn, West & von Wirth, 2016). In addition, mating behavior (observed in *S. jiafu* & *S. anubis*) also provide some clues: males always overlap their legs I to hold females up during mating (Fig. 6C), this is not observed in *S. javanensis*.

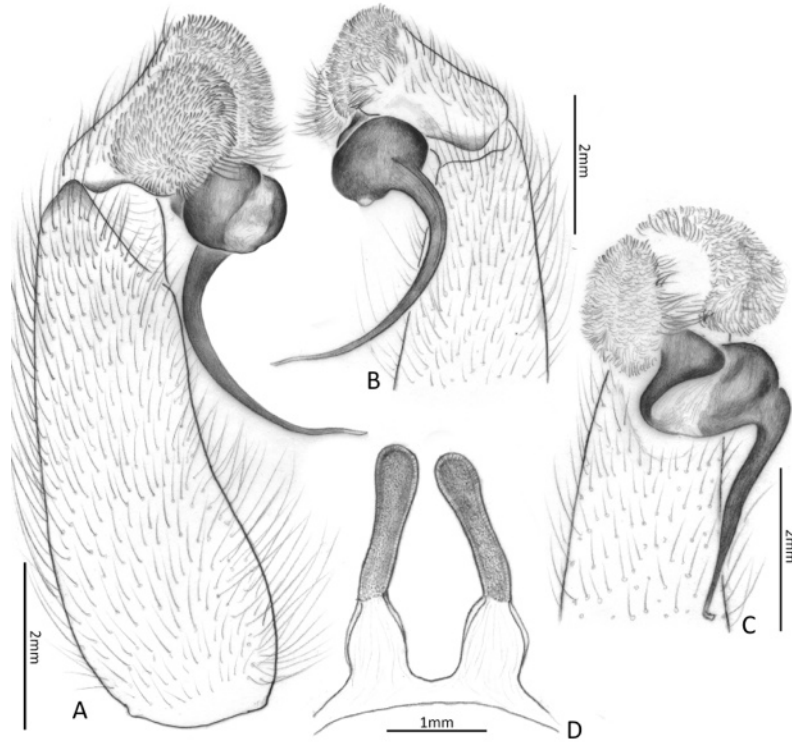
However, morphological evidence is obviously not enough to ravel out the generic relationships of Selenocosmiinae, we can only follow the current standard of *Selenocosmia* and assign new species herein, only the molecular phylogeny with comprehensive samples in future can help them to find their true belongingness.



**Fig. 7.** Habitus of *Selenocosmia* spp. **A-D.** *S. qiani* sp. nov. **A-B.** Male holotype. **C-D.** Female, one of paratypes. **E-H.** *S. longimbola* sp. nov. **E-F.** Male holotype. **G-H.** Female, one of paratypes. **A, C, E, G.** Dorsal view. **B, D, F, H.** Ventral view.



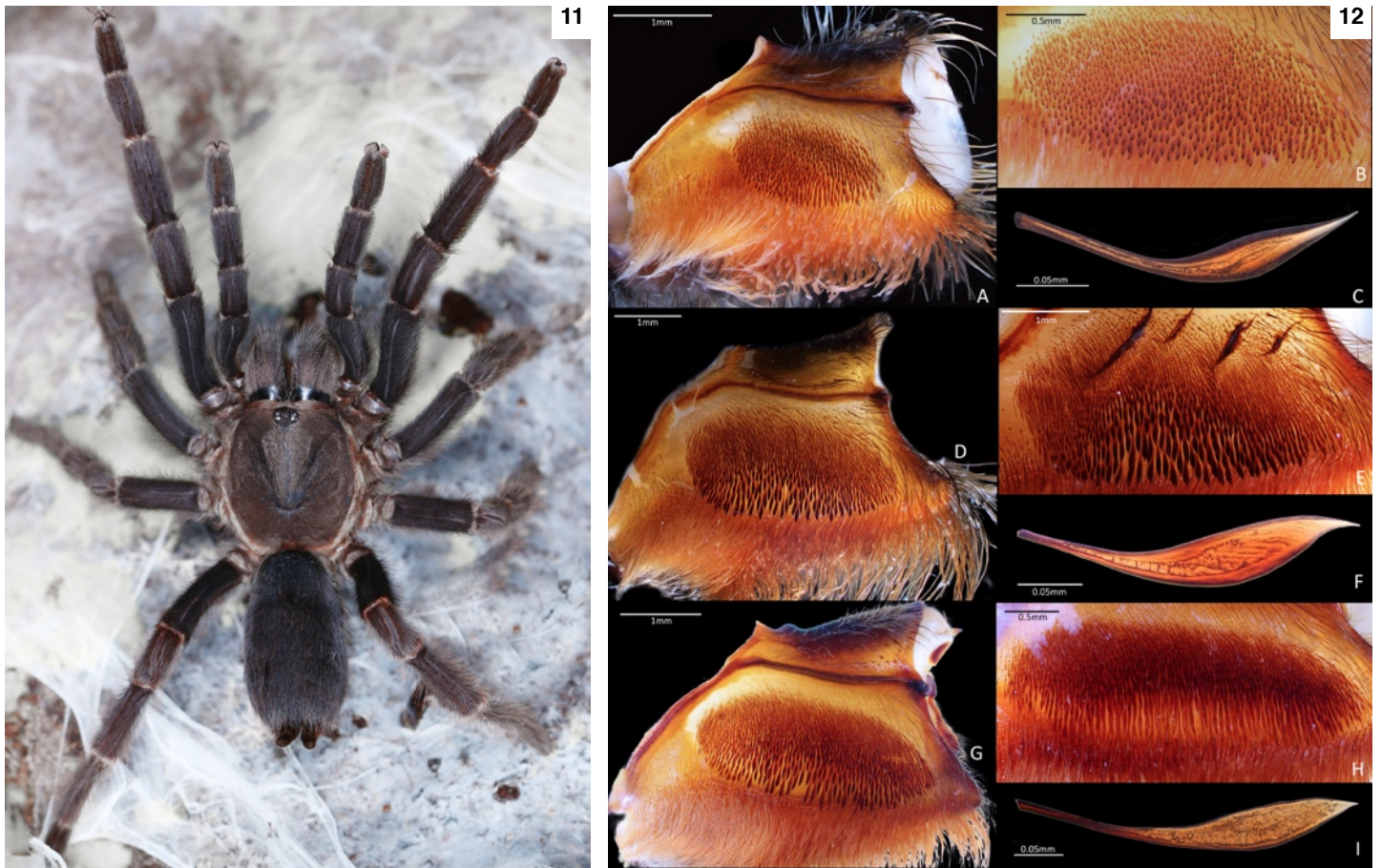
**Fig. 8.** Genitalia of *Selenocosmia qiani* sp. nov. **A-C.** Right palpal organ of holotype, horizontally mirrored. **D-E.** Vulvae of paratypes. **A.** Prolateral view. **B.** Ventral view. **C.** Retrolateral view. **D-E.** Dorsal view.



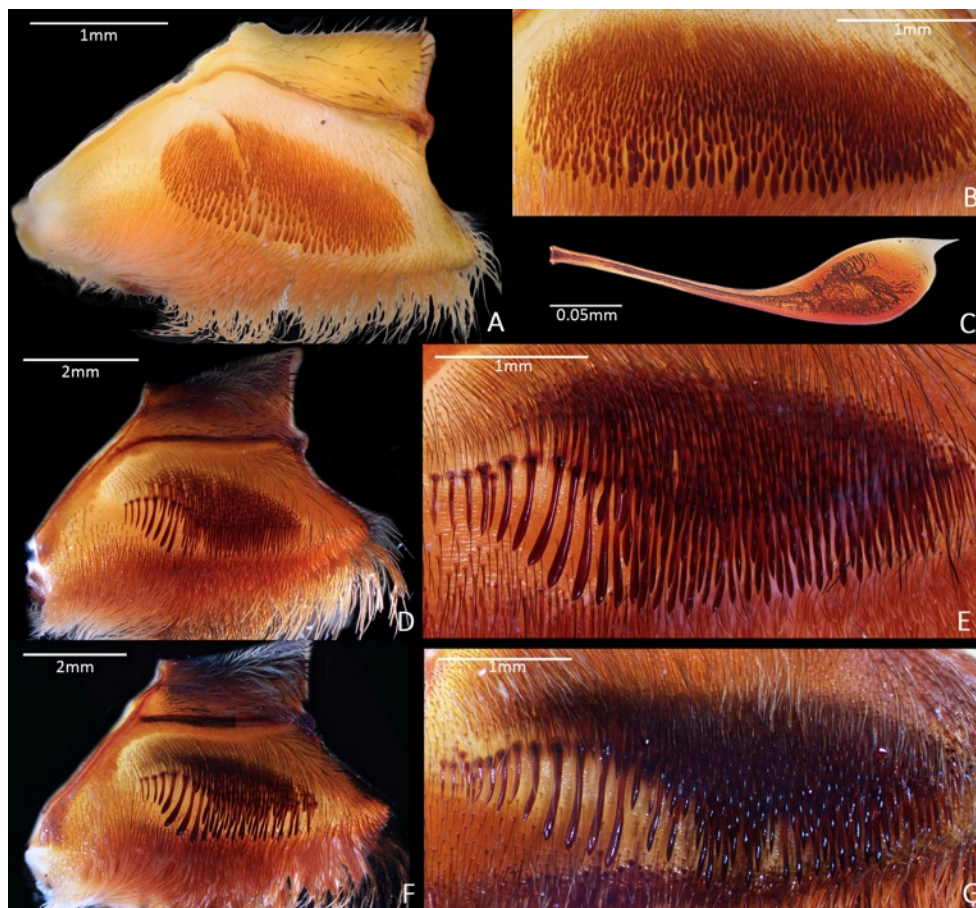
**Fig. 9.** Genitalia of *Selenocosmia longiembola* sp. nov. **A-C.** Left palpal organ of holotype. **D.** Vulva, one of paratypes. **A.** Prolateral view. **B.** Retrolateral view. **C.** Ventral view. **D.** Dorsal view.



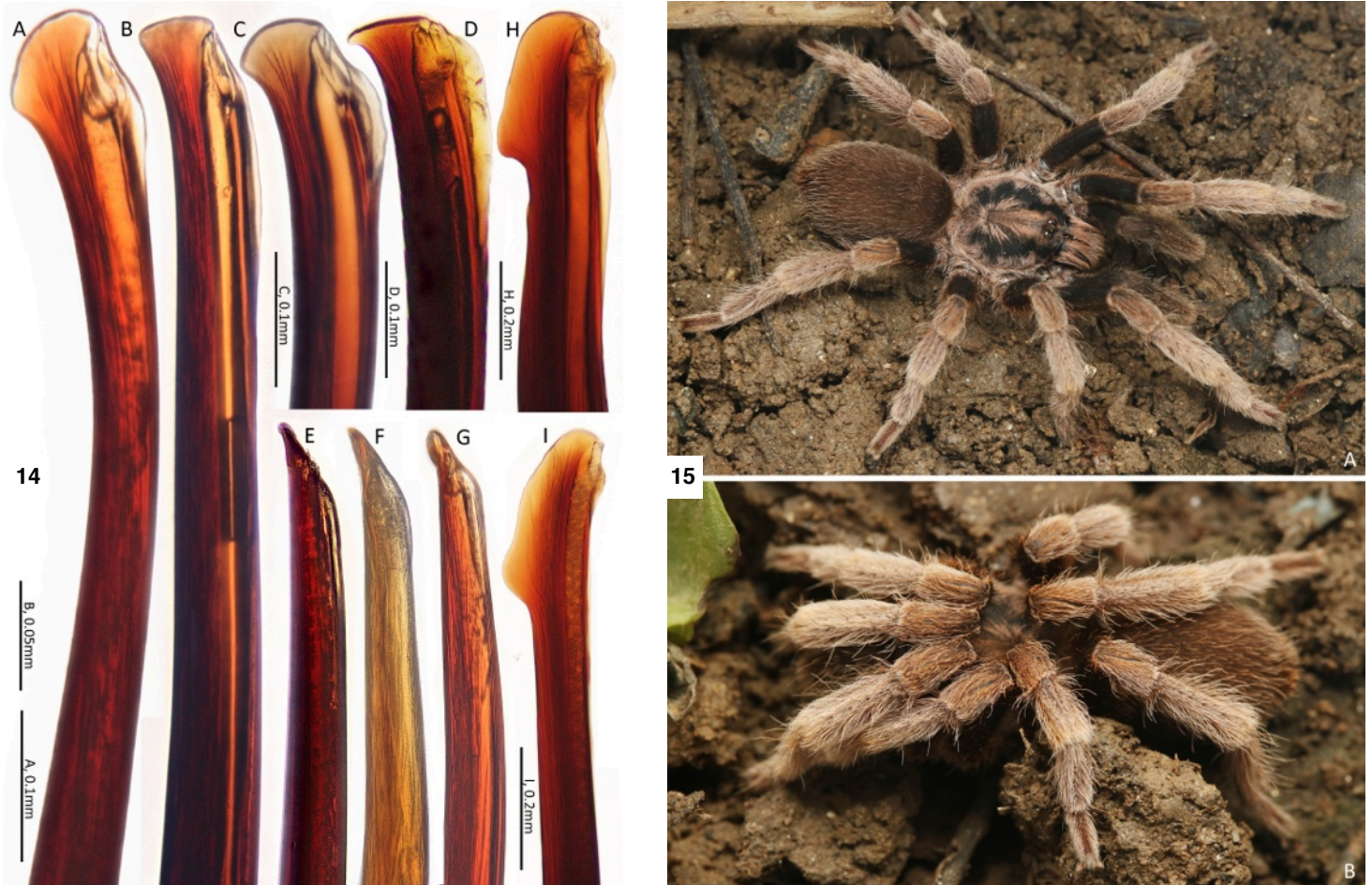
**Fig. 10.** *Selenocosmia longiembola* sp. nov. **A.** Living male (holotype). **B.** Living female (one of paratypes). **C-E.** Entrances of different burrows.



**Fig. 11.** Living female of *S. qiani* sp. nov., one of paratypes. **Fig. 12.** Stridulating organs of *Selenocosmia* spp. **A-C.** *S. anubis* sp. nov. **D-F.** *S. longimbola* sp. nov. **G-I.** *S. qiani* sp. nov. **A, D, G.** Males, paratype (A) and holotypes (D, G). **B, E, H.** Females, paratypes. **A-B, D-E, G-H.** Maxillae and lyras, prolateral view. **C, F, I.** SS on the lyra.

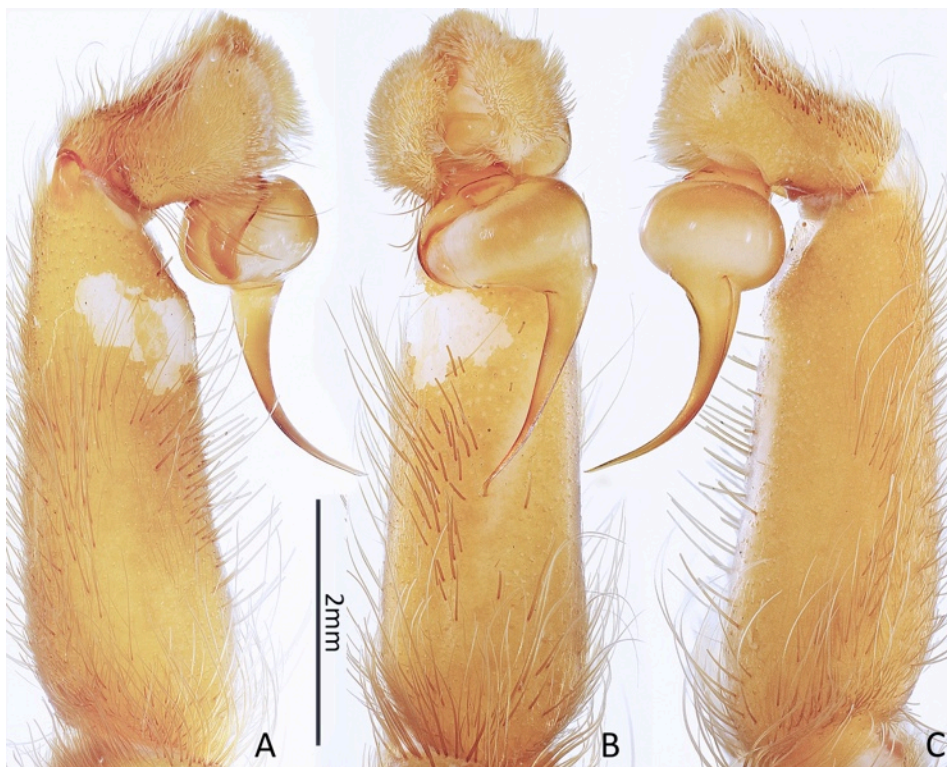


**Fig. 13.** Stridulating organs. **A-C.** *Selenocosmia jiafu* Zhu & Zhang, 2008. **D-E.** *Chilobrachys lubricus* sp. nov. **F-G.** *C. hubei* Song & Zhao, 1988. **A, D.** Males, holotypes. **F.** Male topotype. **B, C, G.** Female topotypes. **E.** Female paratype. **A-B, D-G.** Maxillae and lyras, prolateral view. **C.** SS on the lyra.



**Fig. 14.** Details of embolus. **A, G.** *Selenocosmia anubis* **sp. nov.**, paratype. **B.** *S. longiembola* **sp. nov.**, holotype. **C, F.** *S. jiafu* Zhu & Zhang, 2008, topotype (C) and holotype (F). **D, E.** *S. qiani* **sp. nov.**, holotype. **H.** *Chilobrachys hubei* Song & Zhao, 1988, topotype. **I.** *C. lubricus* **sp. nov.**, holotype. **A-D, H-I.** Dorsal view. **E-G.** Prolateral view.

**Fig. 15.** *Selenocosmia jiafu* Zhu & Zhang, 2008, living male from type locality (Xishuangbanna, Yunnan, China).



**Fig. 16.** *Selenocosmia jiafu* Zhu & Zhang, 2008, left palp of holotype. **A.** Prolateral view. **B.** Ventral view. **C.** Retrolateral view.

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## Résumé

Yu K., Zhang S., Zhang F., Li Z. & Yang Z., 2021. – Etude taxonomique de cinq espèces de Selenocosmiinae de Chine (Araneae, Theraphosidae). *Faunitaxys*, 9(33): 1 – 13.

Quatre nouvelles espèces de Selenocosmiinae sont décrites dans les deux sexes : *Chilobrachys lubricus* sp. nov., *Selenocosmia anubis* sp. nov., *S. qiani* sp. nov. et *S. longiembola* sp. nov.; *Chilobrachys hubei* Song & Zhao, 1988 est redécrite et une nouvelle diagnose est proposée; la femelle de *C. hubei* est décrite pour la première fois.

Mots clés. – Theraphosidae, Selenocosmiinae, *Selenocosmia*, *Chilobrachys*, Chine, nouvelle espèce, *lubricus*, *anubis*, *qiani*, *longiembola*, *hubei*.

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## SOMMAIRE

Etude taxonomique de cinq espèces de Selenocosmiinae de Chine (Araneae, Theraphosidae).  
*Kun Yu, Shuyuan Zhang, Feng Zhang, Zhimin Li & Zizhong Yang* ..... 1 – 13

## CONTENTS

Taxonomic studies on five species of Selenocosmiinae from China (Araneae, Theraphosidae).  
*Kun Yu, Shuyuan Zhang, Feng Zhang, Zhimin Li & Zizhong Yang* ..... 1 – 13

**Illustration de la couverture** : *S. anubis* sp. nov. in self-defense, Baoshan City, Yunnan, China.

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