



# Research article

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## Three new species of the genus *Mimetus* Hentz, 1832 (Araneae: Mimetidae) from Yunnan-Guizhou Plateau of China

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<sup>4</sup>[urn:lsid:zoobank.org:author:61E0E8EE-1F50-447F-B75D-53B35F303236](https://zoobank.org/author:61E0E8EE-1F50-447F-B75D-53B35F303236)

<sup>5</sup>[urn:lsid:zoobank.org:author:27377B72-E667-44F0-A3AC-74D485330B94](https://zoobank.org/author:27377B72-E667-44F0-A3AC-74D485330B94)

<sup>6</sup>[urn:lsid:zoobank.org:author:A547A5D4-6AFF-4106-AB6E-D1933D3BAD0E](https://zoobank.org/author:A547A5D4-6AFF-4106-AB6E-D1933D3BAD0E)

**Abstract.** Three new species of the genus *Mimetus* Hentz, 1832 are described and named as *M. bucerus* sp. nov. (♂), *M. lingbaoshanensis* sp. nov. (♂♀) and *M. yinae* sp. nov. (♂♀). Detailed morphological descriptions, photos of the body and copulatory organs, line drawings of copulatory organs, as well as the distribution maps are provided.

**Keywords.** Arachnids, China, morphology, pirate spiders, taxonomy.

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## Introduction

*Mimetus* Hentz, 1832 is the most species-rich genus of the family Mimetidae Simon, 1881 and comprises about 55 species from all over the world except Australia and Antarctica (World Spider Catalog 2019). Up to now, there are 8 species recorded from China (Wang 1990; Liang & Wang 1991; Song & Zhu 1993; Zeng *et al.* 2016).

Most of the species of *Mimetus* documented in the 19<sup>th</sup> and 20<sup>th</sup> century were described in that genus on the base of the somatic characters only. The principal features were: clypeus shorter than eye region; legs I and II longer than legs III and IV; carapace with low profile in lateral view. Characters of the genital organs were not taken into account. As a consequence, the status of some species of *Mimetus* needs further study. For example, *M. sinicus* Song & Zhu, 1993 was described as a member of the genus *Mimetus* according to its somatic characters, while its genitalia closely resemble those of *Ero japonica* Bösenberg & Strand, 1906 and might therefore belong to that genus.

Harms & Dunlop (2009) redefined *Mimetus* on the base of the genitalia and this was confirmed in a phylogenetic analysis by Harms & Harvey (2009). Important synapomorphies are the male palpal cymbium with a retrolateral sclerotized extension or ‘shovel’, and a terminal extension or ‘vexillum’; the bulb with a number of sclerites which are specific for the genus. The female epigyne is subtriangular, strongly sclerotized, with inconspicuous posterior genital openings.

While examining the specimens of Mimetidae specimens collected from Yunnan-Guizhou Plateau of China, three new species of *Mimetus* were identified and are described here. The specimens are deposited in the Museum of Tongren University, Guizhou Province, China.

## Material and methods

Descriptions were made based on specimens fixed in 75% ethanol. The specimens were examined and measured using an Olympus SZ30 stereo microscope. The details were studied with an Olympus BX53 compound microscope. Male palp and female genitalia were drawn after they had been dissected from the spiders. Photos were taken with a Canon PowerShot G12 digital camera mounted on an Olympus BX53. Compound focus images were generated using Helicon Focus software. The map was created by ArcMap 10.2, and modified using Adobe Photoshop CS2 Extended.

All measurements are given in millimetres. Leg measurements are giving as total length (femur, patella + tibia, metatarsus, tarsus).

## The abbreviations

AER	=	anterior eye row
ALE	=	anterior lateral eye
AME	=	anterior median eye
BP	=	basal plate
CD	=	copulatory duct
CO	=	copulatory opening
E	=	embolus
FD	=	fertilization duct
M	=	membrane
MOA	=	median ocular area
PC	=	paracymbium
PER	=	posterior eye row
PLE	=	posterior lateral eye
PME	=	posterior median eye
S	=	spermatheca
SC	=	scape
SH	=	shovel
ST	=	subtegulum
VE	=	vexillum

## Results

Class Arachnida Cuvier, 1812  
Order Araneae Clerck, 1757  
Family Mimetidae Simon, 1881  
Genus *Mimetus* Hentz, 1832

*Mimetus bucerus* sp. nov.

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Figs 1–2, 7

### Differential diagnosis

The male of this new species resembles that of *M. lingbaoshanensis* sp. nov., but can be distinguished from the latter by: 1) vexillum of male palp ox-horned in retrolateral view (Figs 1C, 2B) versus handle-like in *M. lingbaoshanensis* sp. nov. (Figs 3C, 4B); 2) distal portion of paracymbium claviform in retrolateral view (Figs 1C, 2B) versus lamelliform in *M. lingbaoshanensis* sp. nov. (Figs 3C, 4B); 3) tibia about 2 times longer than cymbium (Figs 1C, 2B) versus as long as cymbium in *M. lingbaoshanensis* sp. nov. (Figs 3C, 4B).

### Etymology

The specific name comes from the Latin ‘*bucerus*’ (‘ox-horned’), refers to the shape of the vexillum of the cymbium.



**Fig. 1.** *Mimetus bucerus* sp. nov. A–C. Holotype, ♂ (GZ-MIM-2017-005). A. Habitus, dorsal view. B. Palp, prolateral view. C. Palp, retrolateral view. Scale bars: A = 1.0 mm; B–C = 0.1 mm.

## Type material

### Holotype

CHINA • ♂; Guizhou, Tongren city, Leishan County, Leigongshan National Nature Reserve, Xiangshuiyan; 26°22'24" N, 108°12'20" E; 1642.1 m; 21 Jul. 2017, Cheng Wang, Feng-e Li, Gui-jie Tian and Hong Liu leg.; GZ-MIM-2017-005.

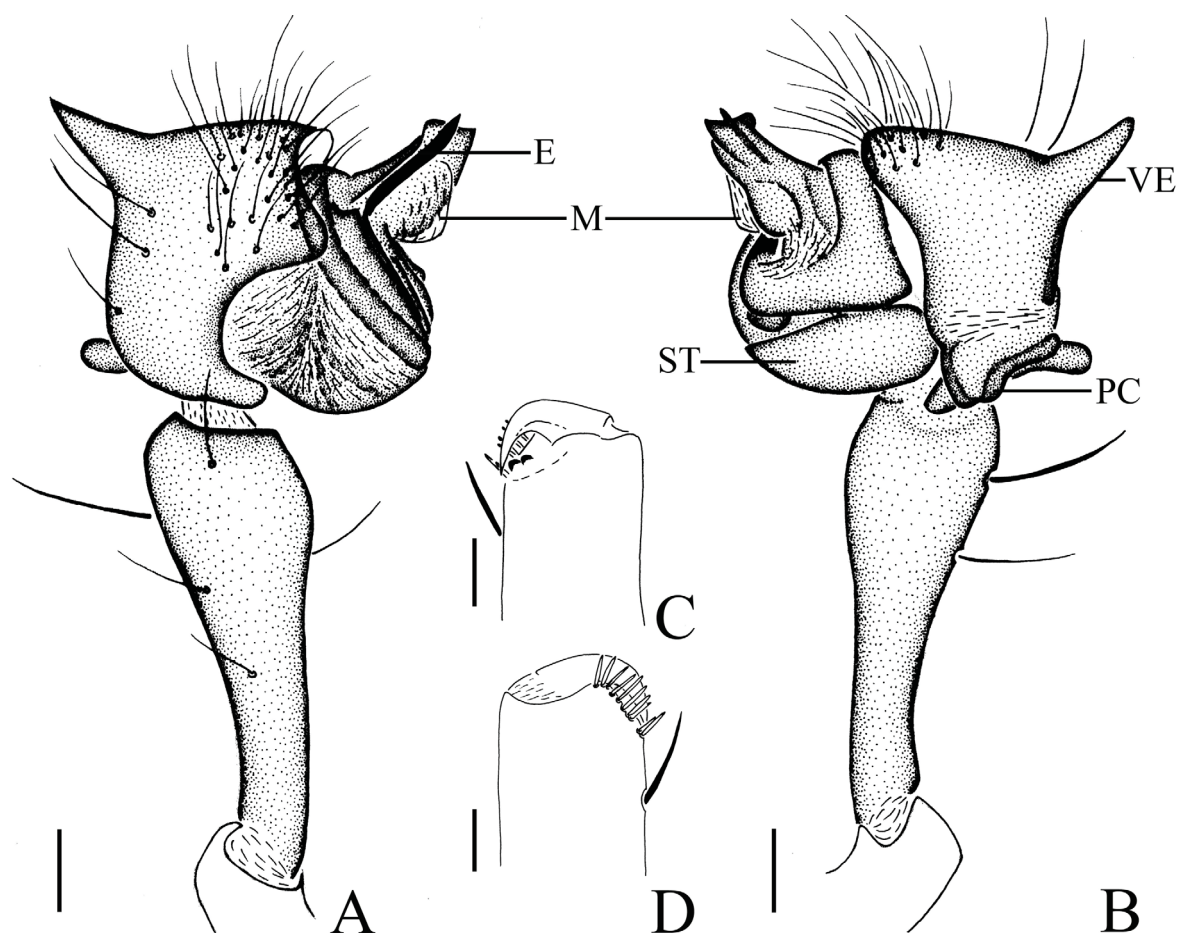
## Description

### Male (holotype)

MEASUREMENTS. Total length 2.92.

PROSOMA. 1.51 long, 1.32 wide, pear-like, yellow, with a longitudinal brown band, fovea oval, situated posteriorly (Fig. 1A),

CLYPEUS. 0.15 high.



**Fig. 2.** *Mimetus bucerus* sp. nov. A–D. Holotype, ♂ (GZ-MIM-2017-005). A. Palp, prolateral view. B. Palp, retrolateral view. C. Left chelicerae of male, ventral view. D. Left chelicerae, dorsal view. Scale bars: 0.1 mm.

EYE. Sizes and interdistances: AME 0.14, ALE 0.09, PME 0.11, PLE 0.10, AME–AME 0.13, ALE–AME 0.14, PME–PME 0.98, PME–PLE 0.17. MOA anterior width 0.49, posterior width 0.51, length 0.52.

CHELICERAE (Figs 2C–D). Red-brown, with 10 promarginal peg setae and 2 retromarginal teeth. Endites light yellow, longer than wide. Labium light yellow, longer than wide. Sternum pear-shaped, glabrous, colouration as labium except for margin with few macrosetae.

LEGS. Slim, spiniferous, with brown patches. Length of legs: I 9.25 (2.51, 3.22, 2.41, 1.11), II 6.70 (1.89, 2.22, 1.58, 1.01), III 4.12 (1.28, 1.23, 0.82, 0.79), IV 4.97 (1.70, 1.45, 1.01, 0.81). Leg formula: 1243.

OPISTHOSOMA. 1.43 long, 1.31 wide, oval, with irregular red-brown patches and white spots, covered with sparse long hairs (Fig. 1A); ventral side with three brown patches, median area glabrous and grey, both sides with white spots.

PALP (Figs 1B–C, 2A–B). Cymbium slightly domed, with a ox-horned vexillum and several long hairs at the apex (Figs 1B–C, 2A–B).

PARACYMBIUM. Elongated, sclerotized, with irregular margin, a beak-like basal outgrowth and a claviform distal outgrowth in retrolateral view (Figs 1C, 2B).

BULB. With a semicircular subtegulum and a sheet-like membrane, the distal division sulciform, rolls up to protect the embolus (Figs 1B–C, 2A–B).

EMBOLUS. Slender, band-shaped, with a pointed end (Figs 1B, 2A).

### Female

Unknown.

### Distribution

China (Guizhou, Fig. 7).

### *Mimetus lingbaoshanensis* sp. nov.

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Figs 3–4, 7

### Differential diagnosis

The male of this new species resembles that of *M. echinatus* Wang, 1990 (Wang 1990: figs 3B–C, 4A–B; Zeng *et al.* 2016: figs 1B–C, 2A–B), but can be distinguished from the latter by: 1) vexillum of cymbium handle-like in retrolateral view (Figs 3D, 4B) versus sheet-like in *M. echinatus* (Zeng *et al.* 2016: figs 1B–C, 2A–B); 2) apex of cymbium without macrosetae (Figs 3C–D, 4A–B) versus present in *M. echinatus* (Zeng *et al.* 2016: figs 1B–C, 2A–B). The female of the new species resembles that of *M. labiatus* Wang, 1990 (Yin *et al.* 2012, figs 53C–D), but can be distinguished from the latter by: 1) scape of epigyne subtriangular in ventral view (Figs 3F, 4C) versus almost trapezoid in *M. labiatus* (Yin *et al.* 2012: figs 53c–d); 2) spermathecae round in dorsal view (Figs 3G, 4D) versus oval in *M. labiatus* (Yin *et al.* 2012: figs 53c–d).

### Etymology

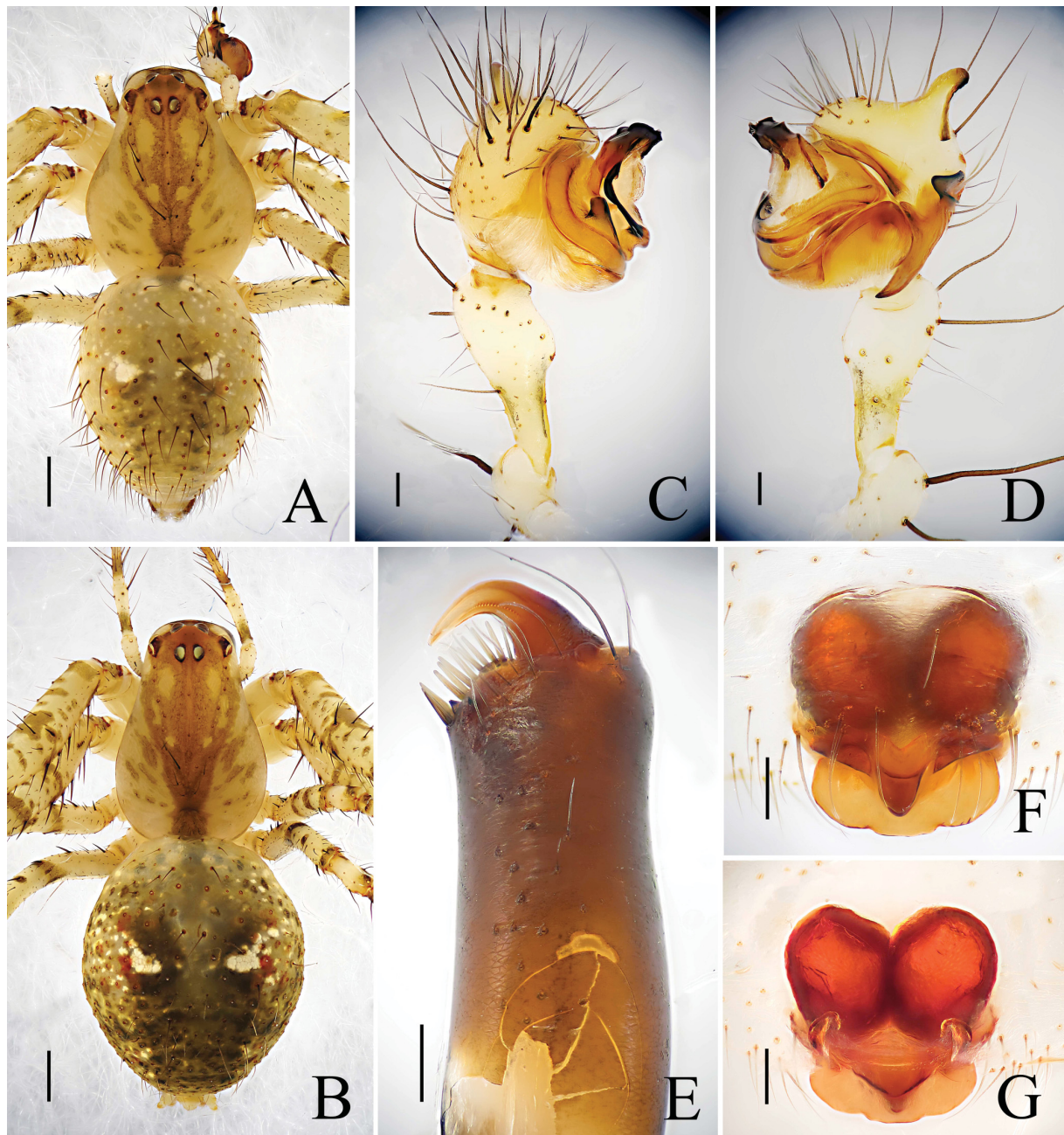
The specific name refers to the type locality: the Lingbaoshan National Forest Park.



## Type material

### Holotype

CHINA • ♂; Yunnan, Nanjian County, Wuliangshan Township, Lingbaoshan National Forest Park; 24°45'47" N, 100°30'10" E; 2285.1 m; 12 Aug. 2015; Cheng Wang, Zhao-lin Liao, Gao-tao Liu and Peng Luo leg.; YN-MIM-2015-010.



**Fig. 3.** *Mimetus lingbaoshanensis* sp. nov. **A, C–E.** Holotype, ♂ (YN-MIM-2015-010). **B, F–G.** One of the paratypes, ♀ (YN-MIM-2015-011). **A–B.** Habitus, dorsal view. **C.** Palp, prolateral view. **D.** Palp, retrolateral view. **E.** Left chelicerae, ventral view. **F.** Epigyne, ventral view. **G.** Vulva, dorsal view. Scale bars: A–B = 0.5 mm; C–G = 0.1 mm

### Paratypes

CHINA • 1 ♂, 3 ♀♀; same data as for holotype male; YN-MIM-2015-011, YN-MIM-2015-014.

### Description

#### Male (holotype)

MEASUREMENTS. Total length 4.27.

PROSOMA. 2.18 long, 1.64 wide, oval, pale yellow, dorsally with a longitudinal brown patch and three rows of spines medially, and three pairs of greenish patches posteriorly, fovea oval, situated posteriorly (Fig. 3A).

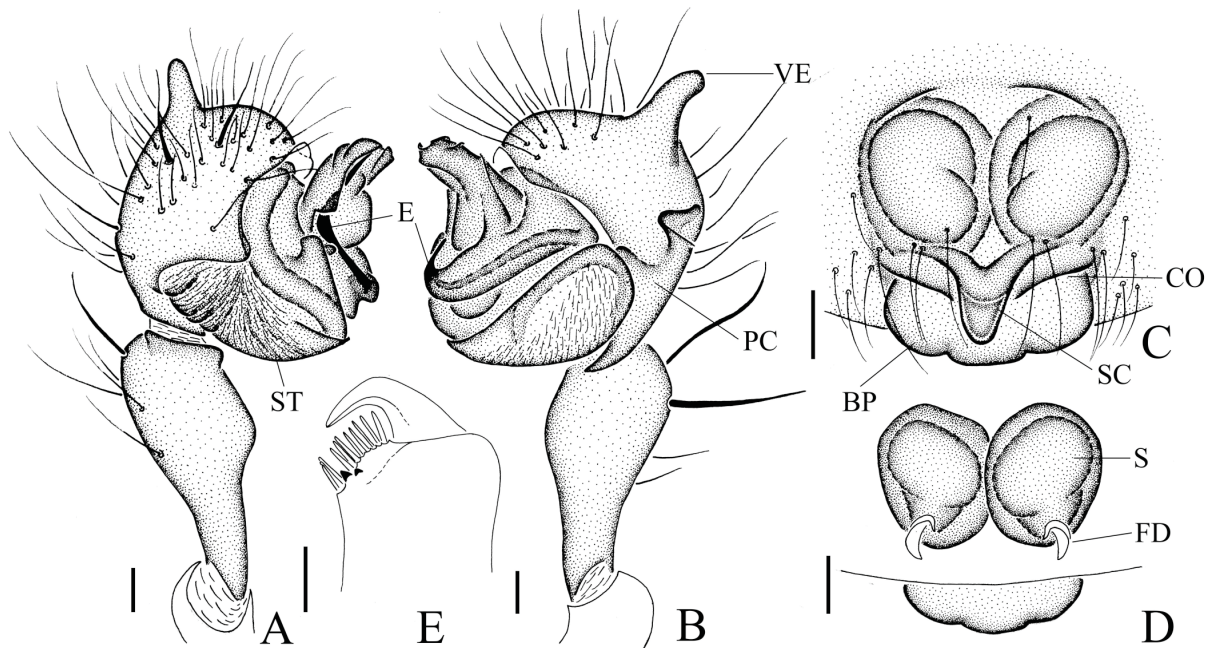
CLYPEUS. 0.22 high.

EYE. Sizes and interdistances: AME 0.15, ALE 0.21, PME 0.22, PLE 0.21, AME–AME 0.06, ALE–AME 0.07, PME–PME 0.04, PME–PLE 0.20. MOA anterior width 0.9, posterior width 0.95, length 0.38.

CHELICERAE (Figs 3E, 4E). Red-brown, with 10 promarginal peg setae and 2 retromarginal teeth. Endites and labium light yellow, longer than wide.

STERNUM. Pear-shaped, glabrous, colouration as labium except for the margin with few macrosetae.

LEGS. Slim, spiniferous, with brown patches. Length of legs: I 19.43 (4.81, 6.92, 5.60, 2.10), II 14.64 (4.01, 4.91, 3.90, 1.82), III 9.42 (2.93, 3.05, 2.00, 1.44), IV 10.36 (3.02, 3.20, 2.71, 1.43). Leg formula: 1243.



**Fig. 4.** *Mimetus lingbaoshanensis* sp. nov. **A–B, E.** Holotype, ♂ (YN-MIM-2015-010). **C–D.** Paratype, ♀ (YN-MIM-2015-011). **A.** Palp, prolateral view. **B.** Palp, retrolateral view. **C.** Epigyne, ventral view. **D.** Vulva, dorsal view. **E.** Left chelicerae, ventral view. Scale bars = 0.1 mm.



OPISTHOSOMA. 2.27 long, 1.82 wide, oval, dorsally with a pair of white patches and four pairs of brown patches posteriorly, covered with irregular white spots and sparse hairs (Fig. 3A); ventral side with three brown patches, median area grey, with white spots on lateral sides.

PALP. Tibia longer than wide, swollen at the distal end, with several trichobothria (Figs 3C–D, 4A–B).

CYMBIUM. Slightly domed, with a handle-like vexillum distally (Figs 3C–D, 4A–B).

PARACYMBIUM. Elongate, distal part with a subtriangular outgrowth (Figs 3D, 4B).

SUBTEGULUM. Semilunate. the distal division of bulb rolls up as sulciform to protect embolus (Figs 3C–D, 4A–B).

EMBOLUS. Slender, broaden, band-shaped with a pointed end (Figs 3C, 4A).

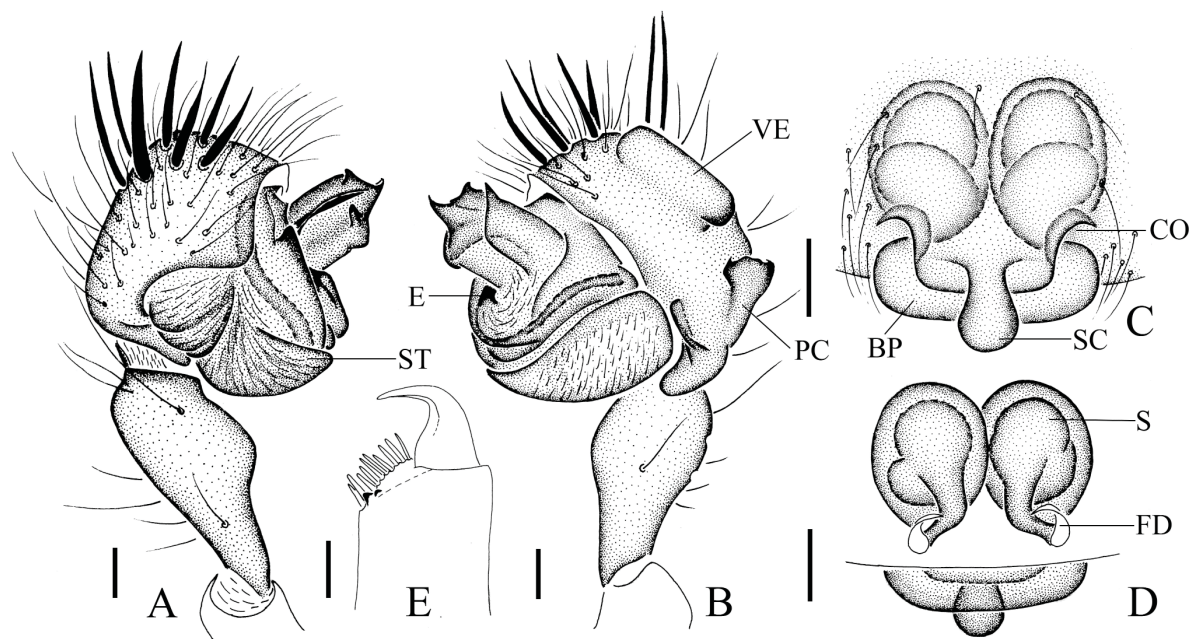
**Female (paratype YN-MIM-2015-011)**

MEASUREMENTS. Total length 4.59. Prosoma 2.19 long, 1.48 wide. Clypeus 0.21 high.

PROSOMA (Fig. 3B). Yellowish brown, markings similar to those in the male.

EYE. Sizes and interdistances: AER 0.15, ALE 0.12, PME 0.15, PLE 0.15, AME–AME 0.14, AME–ALE 0.15, PME–PME 0.10, PME–PLE 0.19. MOA anterior width 0.85, posterior width 0.82, length 0.36.

CHELICERAE. Endites and labium colourations as in the male. Chelicerae with 8 promarginal peg setae and 2 retromarginal teeth. Leg patches and spines are similar to those in the male. Length of legs: I 13.31 (3.61, 4.63, 3.42, 1.65), II 10.64 (3.07, 3.51, 2.68, 1.38), III 7.60 (2.42, 2.21, 1.74, 1.23), IV 9.11 (2.90, 2.96, 2.25, 1.00).



**Fig. 5.** *Mimetus yinae* sp. nov. A–B, E. Holotype, ♂ (GZ-MIM-2015-005). C–D. Paratype, ♀ (GZ-MIM-2017-001). A. Palp, prolateral view. B. Palp, retrolateral view. C. Epigyne, ventral view. D. Vulva, dorsal view. E. Left chelicerae, ventral view. Scale bars = 0.1 mm.



OPISTHOSOMA. 2.50 long, 2.14 wide, morphologic characteristics similar to those in male except with the darker colour (Fig. 3B); ventral side is similar to that in male except with three dark patches.

EPIGYNE (Figs 3F–G, 4C–D). Slightly longer than wide, with a labiate basal plate about 2 times longer than wide (Figs 3F, 4C). Scape subtriangular, situated between the copulatory openings (Figs 3F, 4C).

COPULATORY. Openings wide, round, separated by the distance of  $\frac{1}{3}$  the basal plate width (Figs 3F, 4C). Spermathecae globular, touch each other medially (Figs 3G, 4D).

### Distribution

China (Yunnan, Fig. 7).

*Mimetus yinae* sp. nov.

[urn:lsid:zoobank.org:act:07968710-4B81-4D8C-8DFC-24217A695889](https://zoobank.org/act:07968710-4B81-4D8C-8DFC-24217A695889)

Figs 5–7

### Differential diagnosis

The new species resembles *M. echinatus* Wang, 1990, especially in the cymbial apex of male palp with several macrosetae and distal part of paracymbium with a subtriangular outgrowth (Wang 1990: figs 5A–B, 6C–D; Zeng *et al.* 2016: figs 1B–C, 2A–B), but can be distinguished from the latter by 1) vexillum of male palp columnar in retrolateral view (Figs 5B, 6D) versus sheet-like in *M. echinatus* (Zeng *et al.* 2016: figs 1B–C, 2A–B); 2) the structure of the distal division of bulb different; 3) scape of epigyne bell-shaped in ventral view (Figs 5C, 6F) versus trapezoid in *M. echinatus* (Zeng *et al.* 2016: figs 1B–C, 2A–B); 4) length of basal plate about 2.5 times of its width in ventral view (Figs 5C, 6F) versus about 4 times in *M. echinatus* (Zeng *et al.* 2016: figs 1B–C, 2A–B).

### Etymology

The specific name is patronym in honour of prof. Changming Yin, one of the most famous Chinese arachnologists.

### Type material

#### Holotype

CHINA • ♂; Guizhou, Jiangkou County, Dewang Township, Nanmuping Village, Fanjingshan National Nature Reserve, Nanmuping; 27°51'41" N, 108°36'52" E; 897 m; 17 Jul. 2015; Cheng Wang, Ming-yong Liao, Tian-jun Liu, Gao-tao Liu, Xing Kuang and Peng Luo leg.; GZ-MIM-2015-005.

#### Paratypes

CHINA • 2 ♀♀; same data as for holotype; GZ-MIM-2015-006, GZ-MIM-2015-007 • 1 ♀, Shibing County, Maxi Township, Bajiaoping Village; 27°18'8" N, 108°5'55" E; 990 m; 13 Jul. 2017; Xiao-qi Mi, Cheng Wang, Feng-e Li, Gui-jie Tian and Hong Liu leg.; GZ-MIM-2017-001 • 2 ♀♀; Shiqian County, Ganxi Township, Fuyan Village; 27°21'39" N, 108°1'59" E; 708.9 m; 16 Jul. 2017; Xiao-qi Mi, Cheng Wang, Feng-e Li, Gui-jie Tian and Hong Liu leg.; GZ-MIM-2017-002, GZ-MIM-2017-003.

### Description

#### Male (holotype)

MEASUREMENTS. Total length. 4.68.

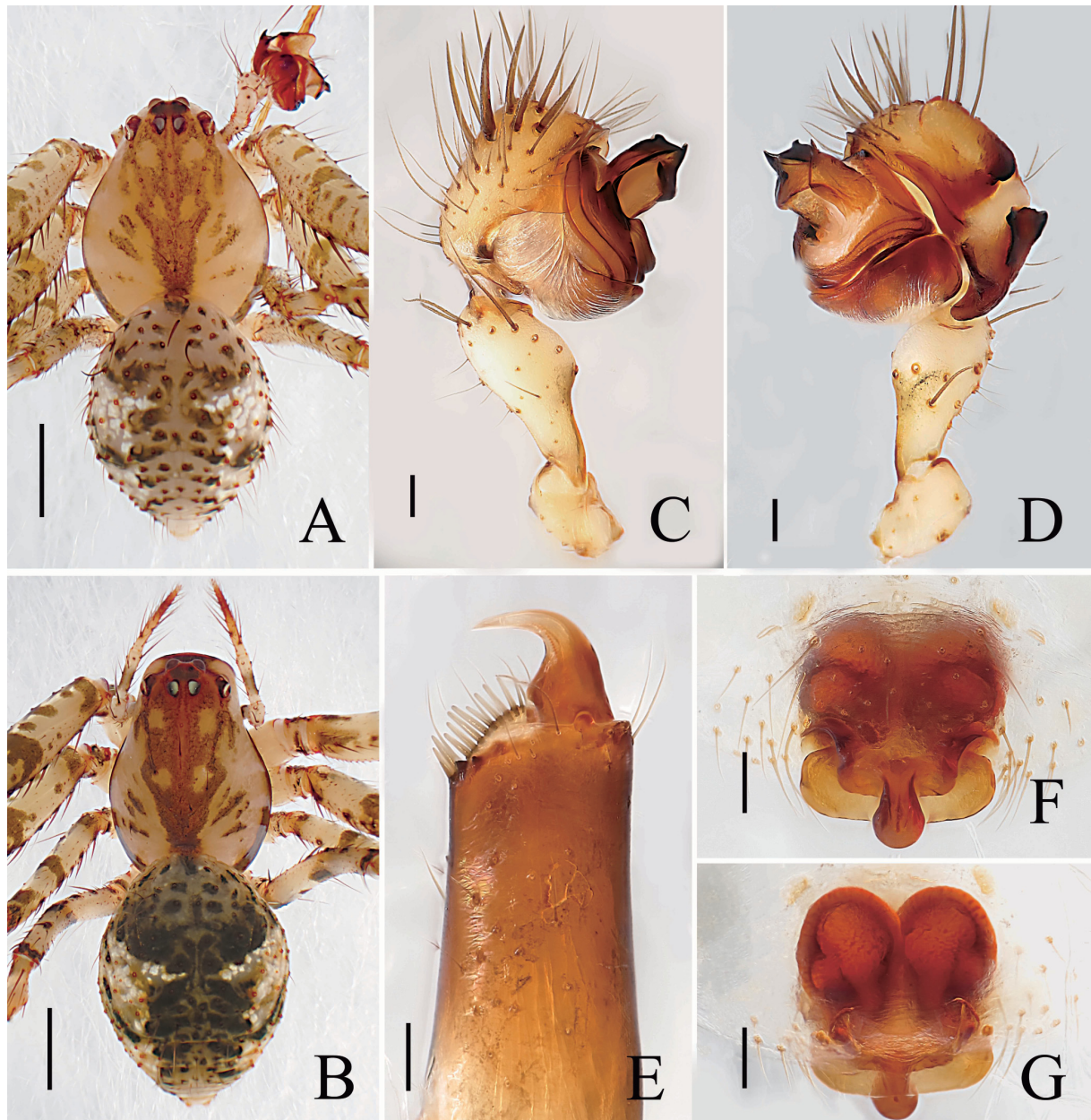
PROSOMA. 2.37 long, 2.01 wide, pear-shaped, yellow-brown, with a triangular brown patch, two pairs of yellow spots, and three pairs of white patches posteriorly, fovea oval, situated posteriorly (Fig. 6A).

CLYPEUS. 0.25 high.

EYE. Sizes and interdistances: AME 0.21, ALE 0.15, PME 0.13, PLE 0.12, AME–AME 0.05, ALE–AME 0.07, PME–PME 0.11, PME–PLE 0.22. MOA anterior width 1.08, posterior width 1.05, length 0.38.

CHELICERAE (Figs 5E, 6E). red-brown, with 10 promarginal peg setae and 2 retromarginal teeth.

ENDITES. Light yellow, longer than wide.



**Fig. 6.** *Mimetus yinae* sp. nov. **A, C–E.** Holotype, ♂ (GZ-MIM-2015-005). **B, F–G.** Paratype, ♀ (GZ-MIM-2017-001). **A–B.** Habitus, dorsal view. **C.** Palp, prolateral view. **D.** Palp, retrolateral view. **E.** Left chelicerae, ventral view. **F.** Epigyne, ventral view. **G.** Vulva, dorsal view. Scale bars: A–B = 1.0 mm; C–G = 0.1 mm

LABIUM. Light yellow, longer than wide.

STERNUM. Pear-shaped, glabrous, yellow, with few macrosetae on margin.

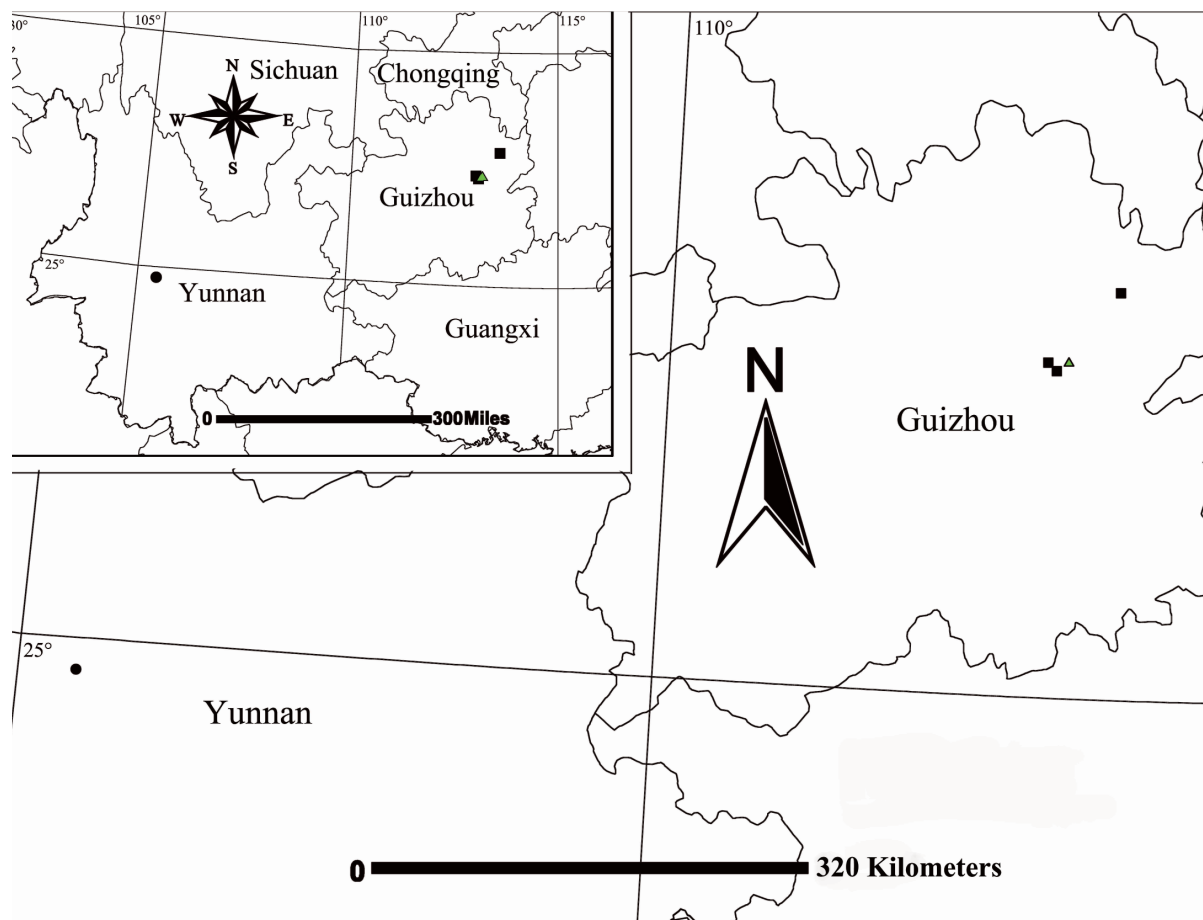
LEGS. Slim, spiniferous, with brown patches. Length of legs: I 13.19 (3.51, 4.32, 3.76, 1.60), II 9.76 (2.48, 3.42, 2.35, 1.51), III 6.26 (1.97, 1.93, 1.21, 1.15), IV 7.62 (2.50, 2.45, 1.53, 1.14). Leg formula: 1243.

OPISTHOSOMA. 2.47 long, 1.98 wide, oval, with a pair of triangular white patches medially, and covered with brown dots and sparse hairs (Fig. 6A); ventral side with three brown patches, median area grey, glabrous, with white spots on both sides.

PALP (Figs 5A–B, 6C–D).

CYMBIUM. Slightly domed, with a columnar vexillum, about 4 times longer than wide, and several macrosetae at the apex (Figs 5B, 6D).

PARACYBIUM. Elongate, strongly sclerotized, slightly curved towards the bulb, with a subtriangular outgrowth distally (Figs 5B, 6D).



**Fig. 7.** Distribution records of *Mimetus bucerus* sp. nov. (▲), *M. lingbaoshanensis* sp. nov. (●) and *M. yinae* sp. nov. (■).

SUBTEGULUM. Semicircular; the distal division of bulb rolls up as sulciform to protect embolus (Figs 5A–B, 6C–D).

EMBOLUS. Slender, and terminal part covered by the distal division of bulb in prolateral view (Figs 5A, 6C).

#### **Female (paratype)**

MEASUREMENTS. Total length 5.33.

PROSOMA. 2.72 long, 1.90 wide, yellowish brown, long oval, markings are similar to male (Fig. 6B).

CLYPEUS. 0.21 high.

EYE. Sizes and interdistances: AER 0.20, ALE 0.23, PME 0.13, PLE 0.15, AME–AME 0.04, AME–ALE 0.11, PME–PME 0.10, PME–PLE 0.20. MOA anterior width 1.08, posterior width 1.12, length 0.47.

CHELICERAE. Endites and labium colouration as in male. Chelicerae with 8 promarginal peg setae and 2 retromarginal teeth.

LEG. Patches and spines on legs are similar to those in male. Length of legs: I 12.61 (3.01, 4.35, 3.53, 1.72), II 10.47 (2.87, 3.31, 2.65, 1.64), III 6.48 (2.02, 1.71, 1.43, 1.32), IV 8.01 (2.60, 2.54, 1.75, 1.12).

OPISTHOSOMA. 2.92 long, 2.31 wide, (Fig. 6B). Markings as those in male except for the darker colour; ventral side is similar to male except for three dark patches.

EPIGYNE (Figs 5C–D, 6F–G). Slightly longer than wide, basal plate big, concave and about 3 times longer than its width (Figs 5C, 6F). Scape bell-shaped, the terminal overlap the posterior margin of basal plate (Figs 5C, 6F). Copulatory openings cambered, posterior-bilaterally (Figs 5C, 6F). Spermathecae oval, touches each other medially (Figs 5D, 6G).

#### **Distribution**

China (Guizhou, Fig. 7).

#### **Discussion**

The three new species resemble the members of *Australomimetes*, *Mimetus* and *Phobetinus* in the shape and spine patterns of prosoma: cephalic elongated and mediolateral rows of spines oblique and reaching the fovea (a typical patterns of species of *Australomimetes*, *Mimetus* and *Phobetinus*) (Harms & Dunlop 2009). However, the male palpal cymbium of members of *Australomimetes* and *Phobetinus* is without a ‘vexillum’ (members of *Australomimetes* without extensions, species of *Phobetinus* only with a distinct ‘shovel’, but without ‘vexillum’) while that of *Mimetus* members with a ‘vexillum’ (the ‘vexillum’ maybe autapomorphic for *Mimetus* only see Harms & Dunlop 2009). The male palpal cymbium of the three new species described in this paper has a distinct ‘vexillum’. Moreover, the three new species also resemble the other species of *Mimetus* in the body shape and the structures of the genital organs. Based on the above mentioned characters, the three new species were identified as members of the genus *Mimetus*.

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