



First report of the spider genus *Desis* (Araneae, Desidae) from China, with description of a new species

YEJIE LIN¹, SHUQIANG LI^{2*} & HAIFENG CHEN^{1*}¹Hebei Key Laboratory of Animal Diversity, College of Life Science, Langfang Normal University, Langfang 065000, China²Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China*Corresponding authors. E-mail: Shuqiang Li (lisq@ioz.ac.cn), Haifeng Chen (chenhaifeng@lfnu.edu.cn)

The spider genus *Desis* Walckenaer, 1837 is the type genus of the spider family Desidae Pocock, 1895. *Desis* spiders hide in silk sacs between rocks or shells during high tide and forage during low tide (Baehr et al. 2017). Four *Desis* species have been recorded from Asia: *Desis gardineri* Pocock, 1904 (India), *Desis inermis* Gravely, 1927 (India), *Desis japonica* Yaginuma, 1956 (Japan) and *Desis martensi* L. Koch, 1872 (Malaysia) (World Spider Catalog 2020). Until now, only one species of the family Desidae, *Badumna tangae* Zhu, Zhang & Yang, 2006, has been reported from China (Zhu et al. 2006). Here, we describe a new species of *Desis* and report the genus from China for the first time.

All specimens were preserved in 75% ethanol. Epigynes were cleared in trypsin enzyme solution to dissolve non-chitinous tissue. Specimens were examined under a LEICA M205C stereomicroscope. Photomicroscope images were taken with an Olympus C7070 zoom digital camera (7.1 megapixels). Photos were stacked with Helicon Focus 6.7.1 and processed in Adobe Photoshop CC 2018. The terminology used in the text and figures follows Baehr et al. 2017. All measurements are in millimetres. Eye sizes are measured as the maximum diameter from either the dorsal or frontal view. Leg measurements are given as follows: total length (femur, patella+tibia, metatarsus, tarsus); Abbreviations: ALE anterior lateral eye; AME anterior median eye; AS atrial scape; C conductor; CD copulatory duct; CO copulatory opening; CP conductor plate; dRTA dorsal retrolateral tibial apophysis; DTA distal tegular apophysis; E embolus; ET Epigynal teeth; FD fertilization duct; MTA median tegular apophysis; PLE posterior lateral eye; PME posterior median eye; RTA retrolateral tibial apophysis; S spermatheca; SH spermathecal head, vRTA ventral retrolateral tibial apophysis. Type material of *Desis jiaxiangi* sp. nov. is deposited at the Institute of Zoology, Chinese Academy of Sciences in Beijing (IZCAS) and Senckenberg Research Institute, Frankfurt, Germany (SMF).

Desis jiaxiangi sp. nov. (Figs 1–4)

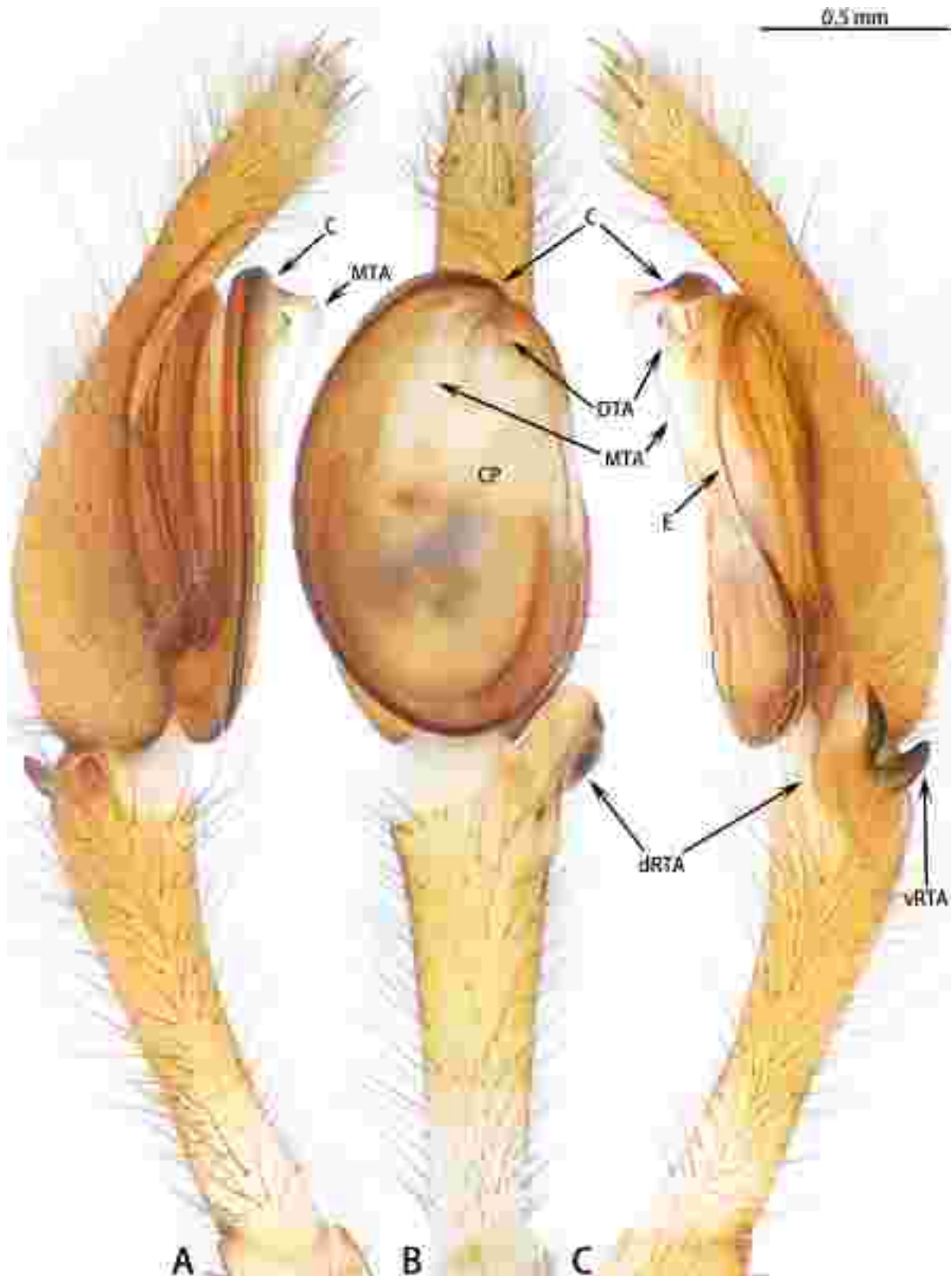
Type material. Holotype: ♂ (IZCAS-Ar39717), CHINA: Hainan: Sanya City, Jiyang District, Dadonghai, N18.2180°, E109.5151°, elev. -3 m, 22.IV.2018, Yejie Lin & Jiexiang Wu leg. **Paratypes:** 1♀ (IZCAS-Ar39718) and 1♂, 1♀ (SMF), with same data as holotype.

Etymology. The species is named after Mr Jiexiang Wu, the collector of the holotype; noun (name) in genitive case.

Diagnosis. Males of *Desis jiaxiangi* sp. nov. are similar to those of *D. bobmarleyi* and *D. japonica* in having a similarly shaped C and a DTA with hood, but can be distinguished by the leaf-shaped tip of MTA (spine-like in *D. bobmarleyi* and *D. japonica*) and the internal angle between the dRTA and vRTA wide (smaller in *D. bobmarleyi*). Females similar to those of *D. gardineri*, *D. bobmarleyi* and *D. japonica* in having globular SP, long convoluted CD arranged circularly and a tongue-shaped, apically obtuse AS, but can be distinguished by having CO situated between convoluted CD and SP in ventral view (on the level of posterior half of SP in *D. japonica*), chelicerae with six promarginal teeth and AS arising from half way between CO and posterior epigynal margin (three promarginal teeth and AS arising from posterior epigynal margin in *D. gardineri*), and spermathecal head pointing anteriorly (spermathecal head pointing posteriorly in *D. bobmarleyi*).

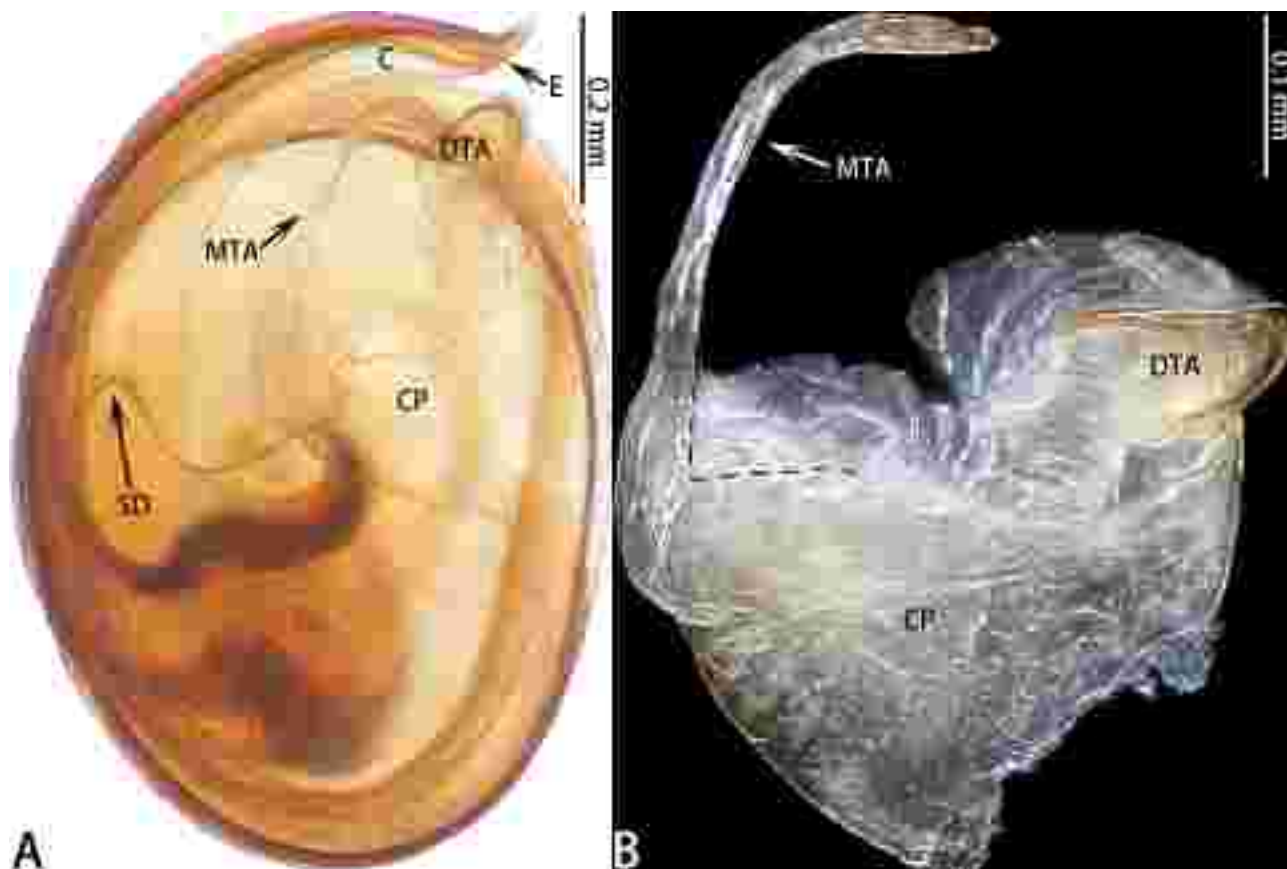
Description. Male (holotype, IZCAS-Ar39717). Total length 8.20, carapace 4.30 long, 2.81 wide, red brown, posterior lighter. Opisthosoma 4.30 long, 2.20 wide. Anterior eye row slightly recurved, posterior eye row straight. Eye sizes

and interdistances: AME 0.10, ALE 0.16, PME 0.12, PLE 0.14, AME–AME 0.10, AME–ALE 0.20, PME–PME 0.29, PME–PLE 0.24, AME–PME 0.15, ALE–PLE 0.13. Clypeus height 0.08. Chelicerae large, red brown with six promarginal and two retromarginal teeth. Paturon 3.84 long. Endites, labium and sternum red brown. Legs grey covered with a great number of grey setae. Leg measurements: leg I: 14.89 (3.20 + 5.26 + 4.20 + 2.23), leg II: 10.46 (2.63 + 3.44 + 2.84 + 1.55), leg III: 8.96 (2.55 + 2.69 + 2.48 + 1.24), leg IV: 12.61 (3.44 + 4.35 + 3.32 + 1.5). Leg formula: 1423. Opisthosoma grey, covered with a dense layer of grey setae.



FIGURES 1A–C. *Desis jiaxiangi* sp. nov., holotype male, left palp. A Prolateral view; B Ventral view; C Retrolateral view.

Male palp (Figs 1–2) as in diagnosis. RTA longer than wide, slightly C-shaped. C large, running around oval tegulum, its apex situated in a 1.30-o’clock-position, with broadly triangular CP. MTA originating medially from apex of CP, thin, translucent, tip apically expanded and leaf-shaped. DTA with hood. E thin, arising from tegulum in 9-o’clock-position, running 1.25 windings around the tegulum, embedded in C.



FIGURES 2A–B. *Desis jiaxiangi* sp. nov., holotype male, left palp. A Bulb, ventral view; B CP, DTA and MTA, ventral view.

Female (IZCAS-Ar39718, paratype). Total length 11.15, carapace 4.40 long, 2.81 wide, opisthosoma 6.15 long, 3.56 wide. Colour as in male. Eye sizes and interdistances: AME 0.16, ALE 0.16, PME 0.15, PLE 0.15, AME–AME 0.13, AME–ALE 0.20, PME–PME 0.30, PME–PLE 0.29, AME–PME 0.13, ALE–PLE 0.11. Clypeus height 0.06. Chelicerae with four promarginal and three retromarginal teeth. Leg measurements: Leg I: 13.94 (3.24 + 5.06 + 3.88 + 1.76), leg II: 10.71 (2.66 + 3.72 + 2.88 + 1.45), leg III: 8.33 (2.28 + 2.44 + 2.47 + 1.14), leg IV: 11.92 (3.00 + 4.45 + 2.97 + 1.50). Leg formula: 1423.

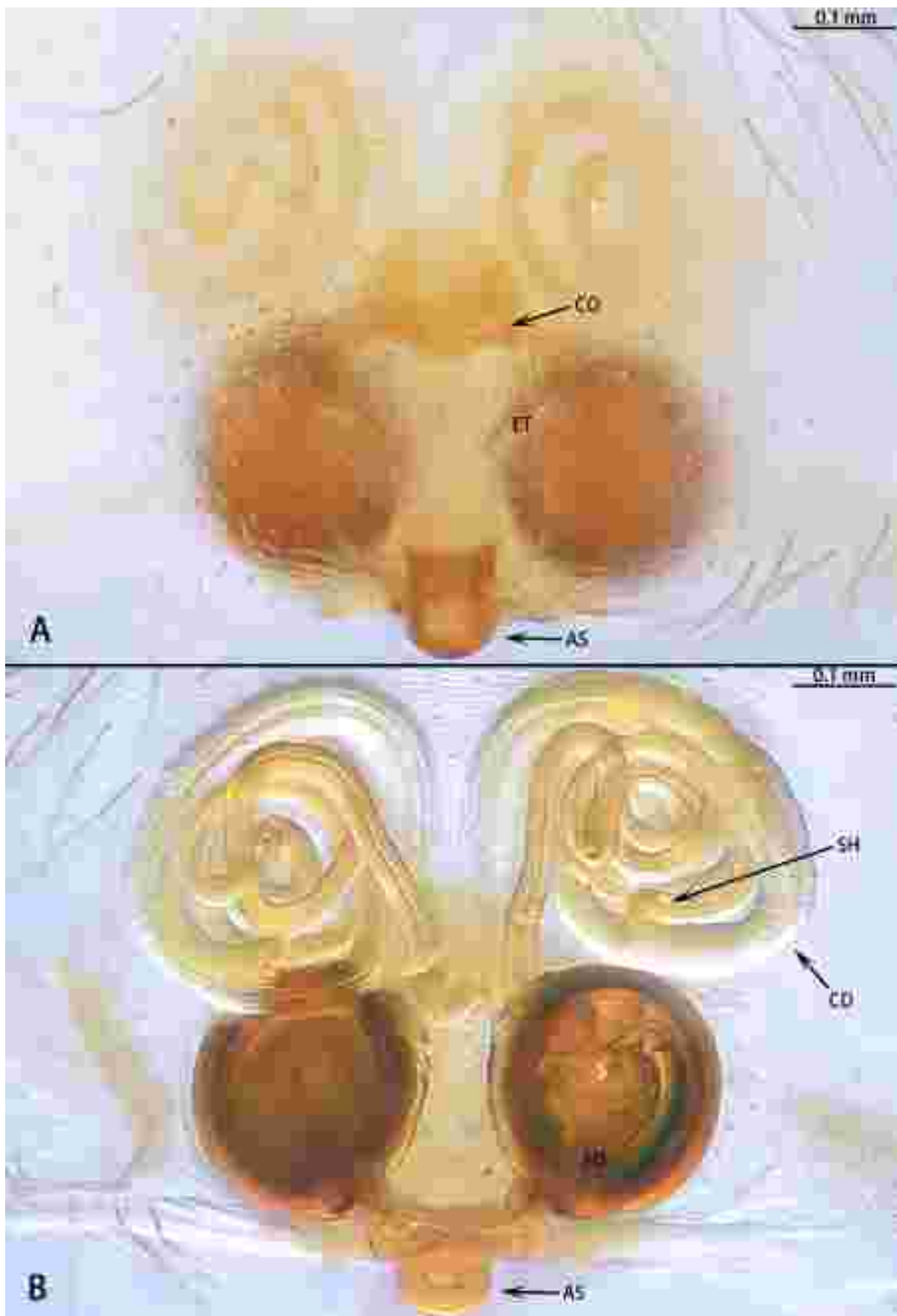
Epigyne and vulva (Figs 3A–B) as in diagnosis. CO covered anteriorly by M-shaped rim. ET broad, about three times longer than wide. AS tongue-shaped, posterior end obtuse. CD long, convoluted, arranged circularly. SH distinct. SP globular, separated from each other by about a third of their diameter.

Distribution. Known only from the type locality.

Life history. Individuals of the new species were collected from reef intertidal zones and show up during low tide to hunt small marine aquatic animals and flies. Their habitat is completely flooded during high tide.

Acknowledgements

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FIGURES 3A–B. *Desis jiaxiangi* sp. nov., female paratype. A Epigyne, ventral view; B Vulva, dorsal view.



FIGURE 4. *Desis jiaxiangi*, live holotype male. Photograph by Zixuan Lin.

References

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