

## Rediscovery of an Obscure Spider Genus *Zametopina* Simon, 1909 (Araneae, Thomisidae) from Yunnan, China

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**Abstract** The crab spider genus *Zametopina* Simon, 1909 (Araneae, Thomisidae) is revised and newly defined on the basis of examinations of the male holotype of the type species, *Zametopina calceata* Simon, 1909 from northern Vietnam and fresh specimens of the same species recently obtained from Yunnan, China. The female of the spider is described for the first time.

**Key words:** Taxonomy, Araneae, Thomisidae, *Zametopina*, Vietnam, China.

### Introduction

*Zametopina* Simon, 1909 was one of the obscure genera of crab spiders of the family Thomisidae. The only representative, *Zametopina calceata* Simon, 1909, has never been recognized since its original description based on a male specimen collected in the northern part of Vietnam more than a hundred years ago. The original description did not contain any figure of the habitus or the palpal organ. In the course of a revision of crab spiders, the third author of the present paper (Ono) examined the male holotype deposited in the Muséum National d'Histoire Naturelle (MNHN), Paris, in 1978. Although the latter authors (Blick and Ono) have studied crab spiders from Borneo, which may resemble the above spider (not published), they did not find any spider firmly identifiable to this genus.

On the other hand, the first author (Tang) has studied crab spiders of China and published six papers from results of the Sino-American Biodiversity Survey of the Gaoligong Mountains,

northwestern Yunnan, conducted by the Hunan Normal University (HNU) and the California Academy of Sciences (CAS) from 1998 to 2006 (Tang *et al.*, 2006–2009), and added them to the known Chinese thomisid fauna (Song *et al.*, 1999). In a spider material collected by Guo Zheng in Mengla County, Xishuangbanna, Yunnan, Tang discovered some male and female specimens of the spider in question. In fact, the type locality of the species in the northernmost part of Vietnam was close to the border with China and not far from Yunnan with biodiversity hotspots.

After careful examinations of the fresh specimens and the single type specimen preserved in the museum in Paris, the present authors recognized that the Chinese spider is identical with *Zametopina calceata*. It was especially invaluable that the hitherto unknown female was found. Thus, the present paper may clarify the nature of this interesting crab spider with descriptions of both the sexes and a re-definition of the genus.

Abbreviations: ALE, anterior lateral eye;

AME, anterior median eye; MOA, median ocular area; PLE, posterior lateral eye; PME, posterior median eye; RTA, retrolateral tibial apophysis of male palp. Measurements were carried out in millimeters.

## Taxonomy

Family Thomisidae

Subfamily Dietinae

Genus *Zametopina* Simon, 1909

*Zametopina* Simon, 1909, p. 122; Petrunkevitch, 1928, p. 166.

*Type species.* *Zametopina calceata* Simon, 1909, by monotypy.

*Diagnosis.* Small-sized thomisids with body length 2–3 mm. No sexual differences in the size and coloration. Body reddish or dark brown, opisthosoma with distinct marking dorsally. Prosoma longer than wide, relatively high, strongly sclerotized with many small dents, the posterior part with two rows of long, curved setae mounted on small tubercles (number and position as in the species description). Both the lateral eyes on tubercles close to each other, ALE>PLE>AME>PME, PME very small, AME-AME>AME-ALE, PME-PME≤PME-PLE, MOA wider than long, wider in front than behind, clypeus slightly shorter than AME-AME. Chelicerae toothless, short, labium longer than wide and sternum long and with dents. Male palp: RTA developed and long, with a small dorsal apophysis; tegulum simple without tegular apophysis, but a peculiar process furnished with small denticles present in the distal part, embolus short with truncated tip. Legs with long hairs but spines are not developed except femora, patellae and tibiae with long spines dorsally; leg formula 2, 1, 4, 3. Opisthosoma with remarkably strong hairs, almost as long as wide. Epigynum with a tongue-shaped hood situated posteriorly, genital opening situated in the posterior part, intromittent canal very short, spermathecae respectively separated in two parts.

*Remarks.* Simon (1909) originally established

this genus standing in the genus group of Apyreae of the subfamily Misumeninae including the group of Dietae. However, Petrunkevitch (1928) recognized the subfamily Dietinae independent, having regarded the presence of true claw-tuft as the diagnostic character, and put this genus in this subfamily. Although modern researchers followed this treatment (Ono, 1988, 2009), interrelationship of the genera of Dietinae has not been reviewed.

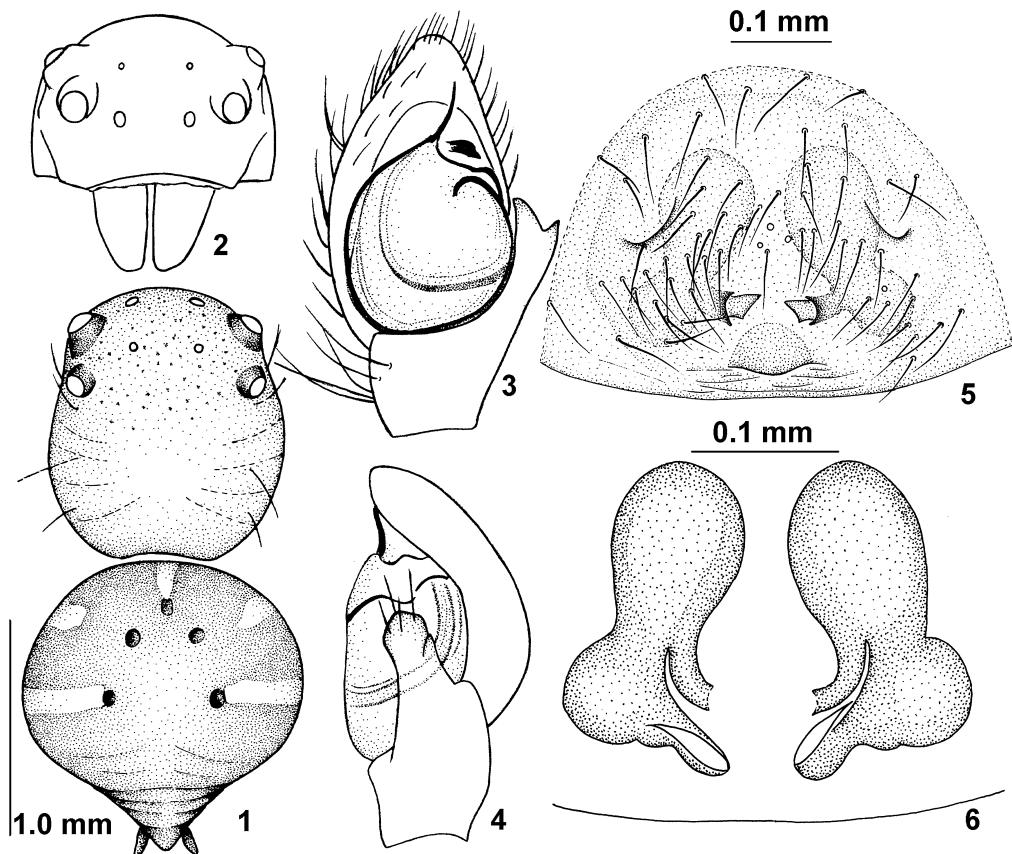
*Zametopina calceata* Simon, 1909

(Figs. 1–18)

*Zametopina calceata* Simon, 1909, p. 123.

*Material examined.* Holotype: male, from “Boa Luc, dans Haut-Tonkin, à l’Ouest de Cao-Bang et près la frontière du Yun-Nan et du Kuang-Si” leg. de Pelacot (Simon, 1909, pp. 69 and 123), presumably in 1906 or 1907. Northernmost part of Vietnam; we interpret the locality as “Bao Lac” (N22°56.857, E105°40.850, alt. 207 m, but the sampling locality could be higher in the environs; Fig. 19, A); deposited in MNHN (Paris), No. 22937. Other specimens: China: one male, primary tropical seasonal rain forest (N21°57.669, E101°11.893, alt. 790 m), 19–26 March 2007; one female, secondary tropical montane, evergreen broad-leaved forest (N21°54.767, E101°11.431, alt. 880 m), 19–26 April 2007; one male, pitfall trap, Menglun, *Paramichelia baillonii* (Magnoliaceae) plantation (N21°54.772, E101°16.043, alt. 556 m), 13–31 March 2007; one male, pitfall trap, same locality, 1–15 April 2007; one juvenile female, primary tropical seasonal rainforest (N21°57.445, E101°12.997, alt. 744 m), 19–25 January 2007; all from Menglun Town, Mengla County, Yunnan, China, Guo Zheng leg., preserved in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS).

Description (based on one male and one female in the above material from Yunnan, China). Male (Figs. 7–8, 12): Total length 2.50. Prosoma 1.30 long, 1.20 wide; opisthosoma 1.20 long,



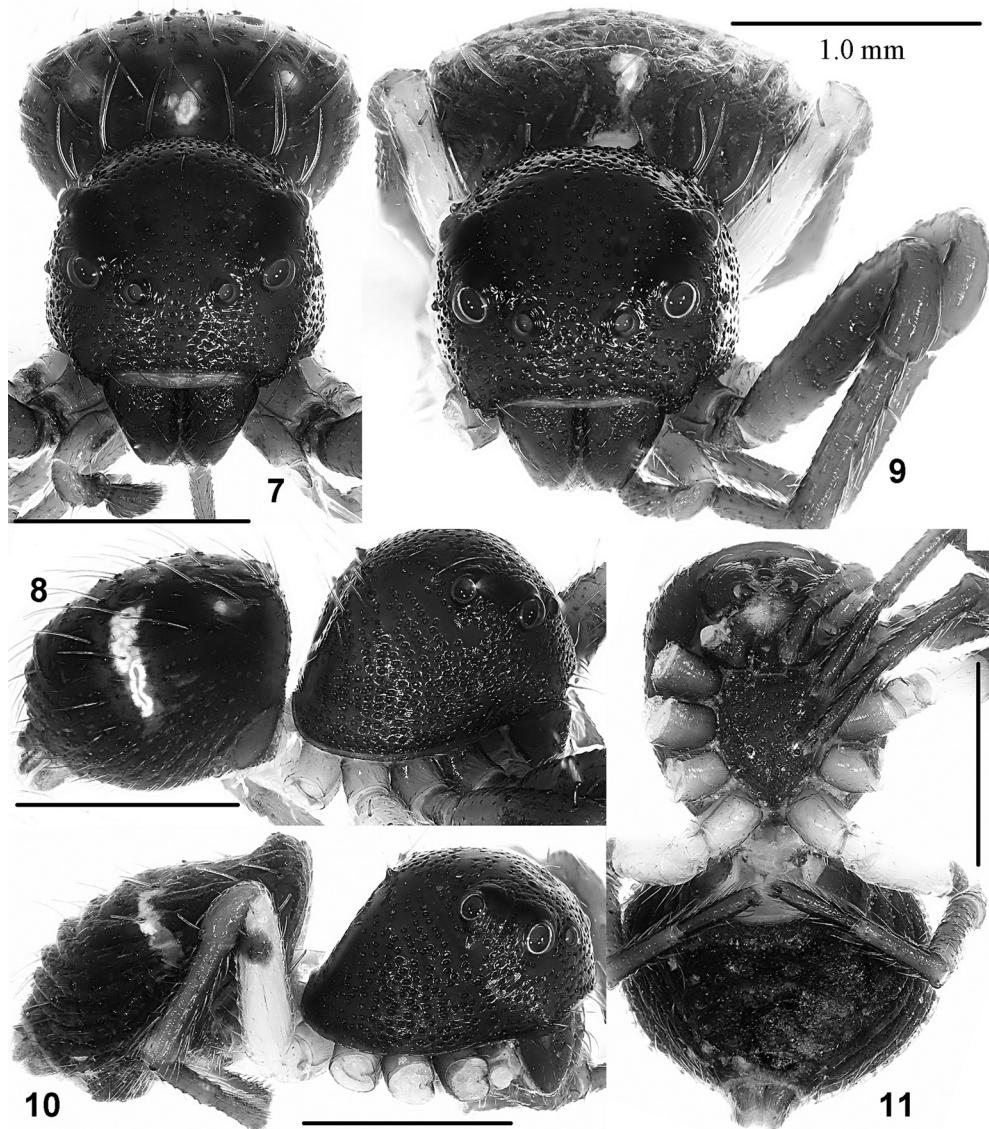
Figs. 1–6. *Zametopina calceata* Simon, 1909, holotype, male [MNHN] (1–4) and female from China [IZCAS] (5–6).—1, Pro- and opisthosomata (appendages omitted), dorsal view; 2, prosoma, frontal view; 3, male palp, ventral view; 4, male palp, retrolateral view; 5, epigynum, ventral view; 6, female internal genitalia, dorsal view.

1.35 wide. Prosoma blackish brown, with many small dents; dorsally with setae immediately posterior to ALE and PLE; posteriorly with two rows of long, curved setae mounted on small tubercles: anterior row: left 1-1-1, right 1-1-1; posterior row: left 1-1, right 1-1; the rim also with setae mounted on small tubercles next to ALE and PLE. Eye measurements: AME 0.10, ALE 0.15, PME 0.06, PLE 0.12, AME-AME 0.26, AME-ALE 0.12, PME-PME 0.30, PME-PLE 0.32. MOA 0.36 long, front width 0.44, back width 0.39. Chelicerae, gnathocoxae, labium and sternum blackish brown, sternum also with some small dents. Legs I–IV grayish brown except femora III, IV yellow; femora and tibiae I–IV with two long spines, patellae I–IV with one dis-

tal long spine, respectively. Leg measurements: I: 3.68 (1.20, 1.40, 0.60, 0.48); II: 3.70 (1.22, 1.40, 0.60, 0.48); III: 2.16 (0.68, 0.70, 0.44, 0.34); IV: 2.54 (0.80, 0.90, 0.50, 0.34), leg formula 2,1,4,3. Opisthosoma dorsally grayish black with many long setae, dorsally also with three conspicuous white markings. Venter grayish black.

Palp (Figs. 3–4, 13–15). RTA large, distally bifurcated, with a dorsal tooth. Tegulum with a peculiar process with some small, black denticles near the base of embolus, embolus short.

Female (Figs. 9–11, 16): Total length 2.80. Prosoma 1.40 long, 1.20 wide; opisthosoma 1.50 long, 1.50 wide. Eye measurements: AME 0.08, ALE 0.13, PME 0.06, PLE 0.12, AME-AME 0.32, AME-ALE 0.10, PME-PME 0.30, PME-



Figs. 7–11. *Zametopina calceata* Simon, 1909, male (7–8) and female (9–11) [IZCAS]. — 7, 9, Body, frontal view (legs partly omitted); 8, 10, body, lateral view; 11, body, ventral view.

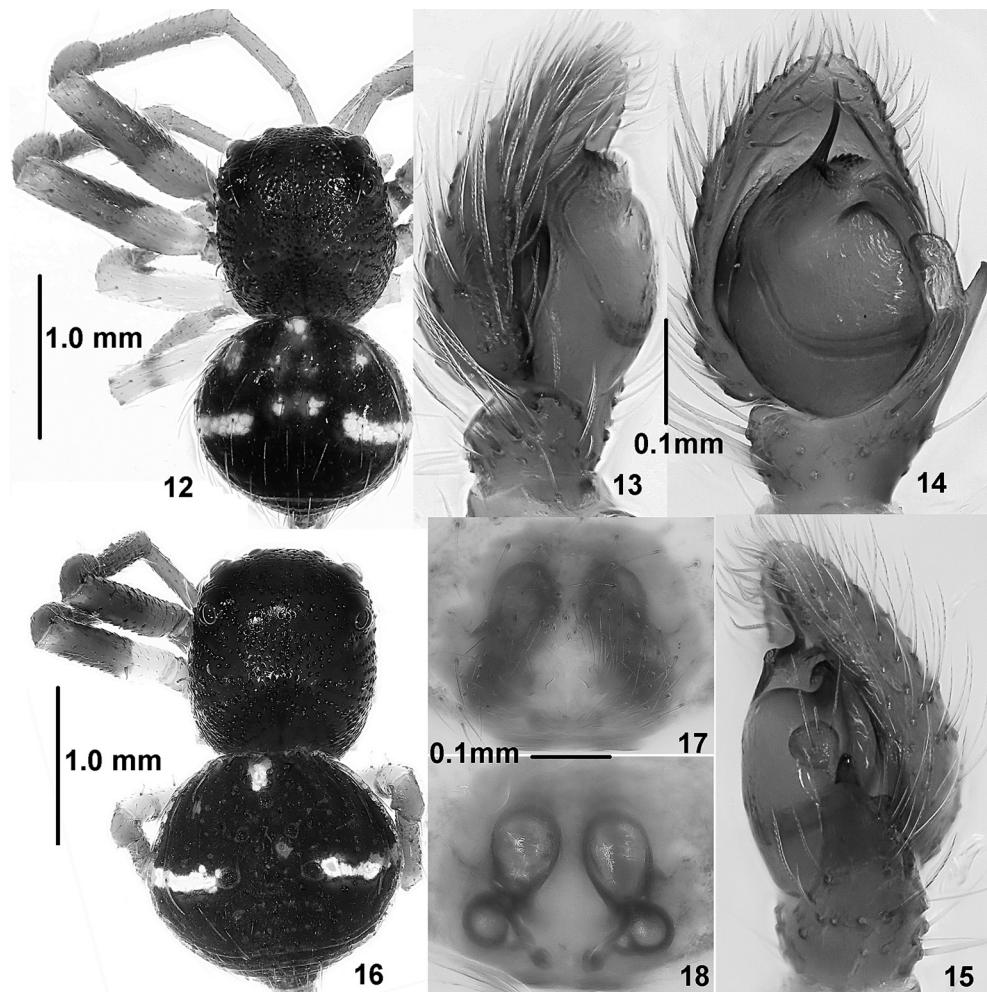
PLE 0.30. MOA 0.36 long, front width 0.46, back width 0.40. Leg measurements: I: 3.20 (1.00, 1.20, 0.50, 0.50); II: 3.40 (1.10, 1.20, 0.60, 0.50); leg III lost; IV: 2.90 (1.00, 1.00, 0.50, 0.40), formula 2,1,4 (leg formula of the juvenile female: 2,1,4,3).

Female genitalia (Figs. 5–6, 17–18): Epigynum with a tongue-shaped hood situated posteriorly a pair of genital openings visible. Intromit-

tent canal short. Spermatheca with a large oval part anteriorly and a small globular part posteriorly.

*Variation.* Total length of males: 2.50–3.00 mm (n=3; from China); holotype male (from Vietnam) 2.63 mm. Coloration: The only adult female is darker than males, but the juvenile female is lighter than males.

*Distribution.* Vietnam and China (Yunnan).



Figs. 12–18. *Zametopina calceata* Simon, 1909, male (12–15) and female (16–18) [IZCAS]. — 12, 16, Body, dorsal view; 13, male palp, retrolateral view; 14, male palp, prolateral view; 15, male palp, ventral view; 17, epigynum, ventral view; 18, female internal genitalia, dorsal view.

*Remark.* The body and the male palp of the holotype were illustrated in Figs. 1–4.

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Fig. 19. Map showing records of *Zametopina calceata* Simon, 1909: A, type locality estimated (Boa Lac, northernmost part of Vietnam); B, new records (Menglun, Yunnan, China).

## References

- Ono, H. 1988. A revisional study of the spider family Thomisidae (Arachnida, Araneae) of Japan. National Science Museum Monographs, Tokyo, 5: i–ii, 1–252, 1 col. pl.
- Ono, H. 2009. Thomisidae. In Ono, H. (ed.): The Spiders of Japan, with keys to the families and genera and illustrations of the species, pp. 501–531. Tokai University Press, Kanagawa.
- Petrunkewitch, A. 1928. Systema aranearium. Transactions of the Connecticut Academy of Arts and Sciences, 29: 1–270.
- Simon, E. 1909. Étude sur les Arachnides du Tonkin (1<sup>re</sup> partie). Bulletin scientifique de la France et de la Belgique, 42: 69–147.
- Song, D., M. Zhu and J. Chen 1999. The Spiders of China. 640 pp., pls. 1–4. Hebei Science and Technology Publishing House, Shijiazhuang.
- Tang, G., X.-J. Peng, D. Ubick, C. Griswold and C.-M. Yin 2008. Four crab spiders of the family Thomisidae (Arachnida: Araneae) from Yunnan, China. *Acta zootaxonomica sinica*, 33: 241–247.
- Tang, G., C.-M. Yin, C. Griswold and X.-J. Peng 2006. Description of *Sinothomisus* gen. nov., with a new species from Yunnan Province, China (Araneae, Thomisidae). *Zootaxa*, 1366: 61–68.
- Tang, G., C.-M. Yin, X.-J. Peng and C. Griswold 2009. Six crab spiders of the subfamily Stephanopinae from Southeast Asia (Araneae: Thomisidae). *The Raffles Bulletin of Zoology*, 57: 39–50.
- Tang, G., C.-M. Yin, X.-J. Peng, D. Ubick and C. Griswold 2007. Five crab spiders of the genus *Lysiteles* from Yunnan Province, China (Araneae: Thomisidae). *Zootaxa*, 1480: 57–68.
- Tang, G., C.-M. Yin, X.-J. Peng, D. Ubick and C. Griswold 2008. The crab spiders of the genus *Lysiteles* from Yunnan Province, China (Araneae: Thomisidae). *Zootaxa*, 1742: 1–41.
- Tang, G., C.-M. Yin, D. Ubick and X.-J. Peng 2008. Two new species of the crab spider genus *Talaus* (Araneae: Thomisidae) from Yunnan Province, China. *Zootaxa*, 1815: 62–68.