

## New faunistic and taxonomic data on oribatid mites of southern China (Guangdong and Macao)

(Acari, Oribatida)

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The present study is based on oribatid mite material (Acari, Oribatida) collected from southern China during 2018. A list of identified taxa, including 31 species from 25 genera and 13 families, is presented; of these, 11 species (*Neoamerioppia vietnamica*, *Dolicheremaeus variolobatus*, *Humerobates nudus*, *Mochlozetes ryukyuenis*, *Peloribates ratubakensis*, *Protoribates shaldybinae*, *Vilhenabates sinatus*, *Neoribates gracilis*, *Galumna khooi*, *Orthogalumna saeva*, *Pergalumna bimaculata*) are recorded for the first time in the fauna of this country; and one species (*Hammerabates minusculus*) is recorded for the first time in the Oriental region. Two species – *Hammerabates minusculus* (Aoki, 1987) (Scheloriobatidae) and *Orthogalumna saeva* Balogh, 1960 (Galumnidae) – are redescribed and illustrated in detail based on specimens from China; the main morphological traits for these species are summarized.

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### Introduction

This work is part of our continuing study of oribatid mites (Acari, Oribatida) of China (e.g., Ermilov & Leong 2018a,b, Niedbala & Ermilov 2018) and based on oribatid mite material collected in southern China during 2018. The primary goal of the paper is to present a list and new findings of identified oribatid taxa.

The secondary goal of the paper is to present a supplementary description of two species, *Hammerabates minusculus* (Aoki, 1987) (family Scheloriobatidae) and *Orthogalumna saeva* Balogh, 1960 (family Galumnidae), on the basis of specimens from China. The original descriptions (Balogh 1960, Aoki 1987) are brief and incomplete (lacking information on some measures of morphological structures, identification of leg setation and solenidia, morphology

of gnathosoma; also, figures are few). Redescription (Nakatamari 1986) of *O. saeva* did not add any useful information.

Additionally, we summarize the main morphological traits of *H. minusculus* and *O. saeva*, which will help with identification of these species in the future.

### Material and methods

#### Material

Material was collected from secondary forests in southern China by C.-M. Leong (Fig. 1). Localities of samples: Gua: Guangdong Science Center, Guangzhou, China, 23.042°N, 113.365°E, 0 m a.s.l., 21.VI.2018.

Gui: Guia Hill, Macao SAR, 22.198–199°N, 113.549–550°E, 24–41 m a.s.l., 2.IV.2018, 20.VI.2018, 25.VI.2018, 16.VIII.2018, 22.VIII.2018.

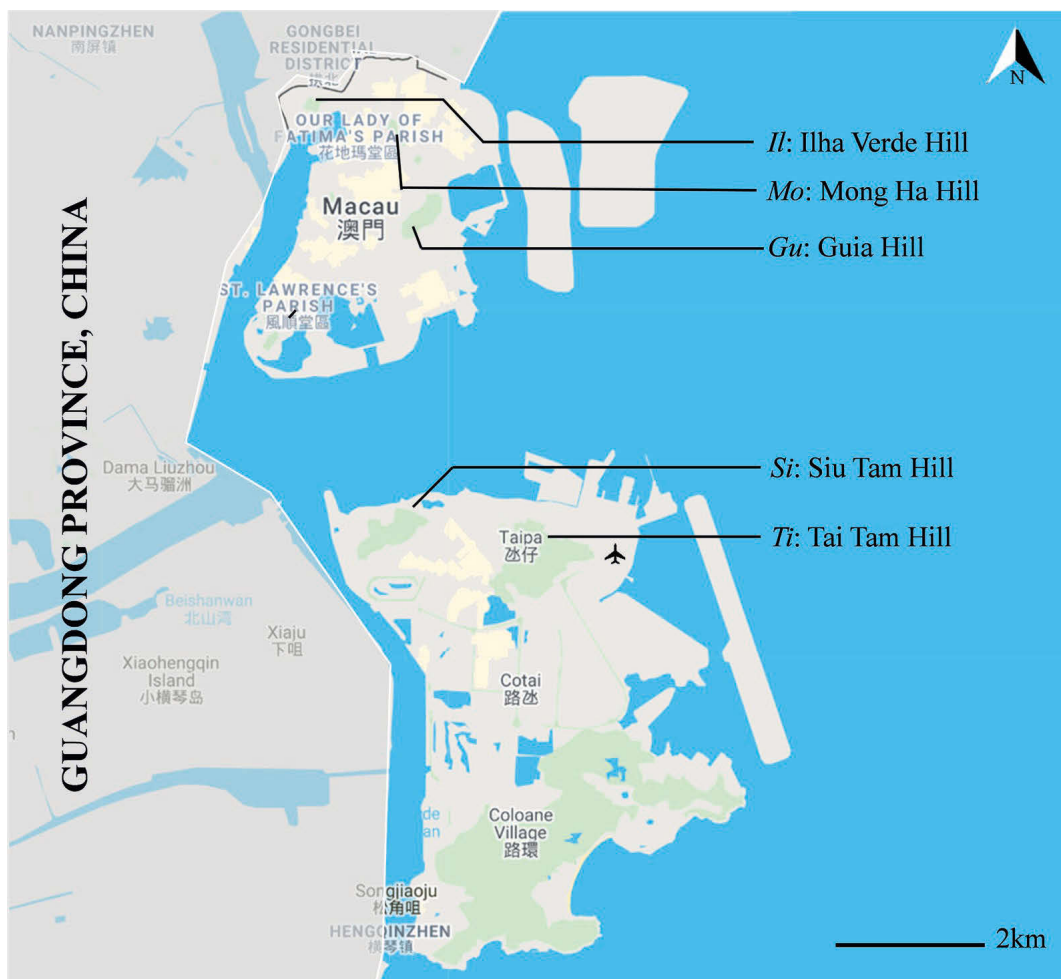


Fig. 1. Map of localities in China (modified after Google Map 2017).

Il: Ilha Verde Hill, Macao SAR, 22.211–212° N, 113.537–539° E, 11–44 m a.s.l., 1.IV.2018, 24.VI.2018, 24.VII.2018, 26.VIII.2018.

Mo: Mong Ha Hill, Macao SAR, 22.207° N, 113.547° E, 14 m a.s.l., 3.IV.2018.

Si: Siu Tam Hill, Macao SAR, 22.16° N, 113.545° E, 46–90 m a.s.l., 11.VII.2018, 21.VII.2018, 22.VII.2018, 26.VII.2018.

Ta: Tai Tam Hill, Macao SAR, 22.155° N, 113.565° E, 86 m a.s.l., 26.VII.2018.

“China” generally means “Mainland China” throughout the paper.

All specimens (in ethanol with drop of glycerol) were deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

## Methods

Samples were extracted by the two liters of shifted leaf litter and soil from each data point, using Winkler extractor into 75 % ethanol during seven days in the laboratory conditions.

Specimens were mounted in lactic acid on temporary cavity slides for identification of all taxa and for measurement and illustration of the new species. Body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the notogaster. Notogastral width refers to the maximum width of notogaster in dorsal view. Lengths of body setae were measured in lateral aspect. All body measurements are presented in micrometers. Formulas for leg setation are given in parentheses according to the sequence trochanter–femur–genu–tibia–tarsus (famulus included). Formulas for leg solenidia are given in square brackets according to the sequence genu–tibia–tarsus.

Drawings were made with a camera lucida using a Leica transmission light microscope "Leica DM 2500".

General morphological terminology used in this paper mostly follows that of F. Grandjean: see Travé & Vachon (1975) for references, Norton (1977) for leg setal nomenclature, and Norton & Behan-Pelletier (2009) for an overview.

The following abbreviations are used: *lam* – lamella; *tlam* – translamella; *slam* – sublamella; *plam* – prolamella; *kf* – lateral keel-shaped ridge; *L* – lamellar line; *S* – sublamellar line; *N* – prodorsal leg niche; *E, T* – lateral ridges of prodorsum; *ro, le, in, bs, ex* – rostral, lamellar, interlamellar, bothridial and exobothridial setae, respectively; *Ad* – dorsosejugal porose area; *D* – dorso-phragma; *P* – pleurophragma; *c, la, lm, lp, h, p* – notogastral setae; *Sa, S1, S2, S3* – notogastral sacculi; *Aa, A1, A2, A3* – notogastral porose areas; *mp* – median pore; *ia, im, ip, ih, ips* – notogastral lyrifissures; *gla* – opisth-notal gland opening; *a, m, h* – subcapitular setae; *or* – adoral seta; *d, l, v, cm, acm, ul, sul, vt, lt* – palp setae; *as* – axillary sacculi;  $\omega$  – palp and leg solenidion; *cha, chb* – cheliceral setae; *Tg* – Trägårdh's organ; *PdI, PdII* – pedotecta I, II, respectively; *1a, 1b, 1c, 2a, 3a, 3b, 4a, 4b, 4c* – epimeral setae; *vlr* – ventrolateral ridge; *cp* – circumpedal carina; *dis* – discidium; *g, ag, an, ad* – genital, aggenital, anal and adanal setae, respectively; *iad* – adanal lyrifissure; *po* – preanal organ; *mar* – marginal porose area; *Ap* – postanal porose area; *Tr, Fe, Ge, Ti, Ta* – leg trochanter, femur, genu, tibia and tarsus, respectively; *pa* – leg porose area;  $\sigma, \phi$  – leg solenidia;  $\varepsilon$  – tarsus I famulus; *ft, tc, it, p, u, a, s, pv, pl, d, l, v, ev, bv* – leg setae.

## Fauna

The list of identified oribatid mites collected from the localities referred above includes 31 species from 25 genera and 13 families. Of these, 11 species are recorded for the first time in the fauna of this country; and one species is recorded for the first time in the Oriental region. Distribution: mostly from Subías (2004, updated 2019).

### Trhypochthoniidae

*Afronthrus incisivus* Wallwork, 1961. Locality: Si (8 ex.). Distribution: Tropical and Subtropical regions.

*Archezogetes longisetosus* Aoki, 1965. Localities: Gui (1 ex.), Si (3 ex.), Ta (102 ex.). Distribution: Oriental and Neotropical regions.

### Hermanniellidae

*Hermanniella aristosa* Aoki, 1965. Locality: Il (9 ex.). Distribution: eastern Palaearctic, Oriental and Australasian regions.

### Oppiidae

*Arcoppia fenestralis sinensis* (Mahunka, 1976). Locality: Il (2 ex.). Distribution: Oriental region.

*Neoamerioppia vietnamica* (Mahunka, 1988). Locality: Si (3 ex.). Distribution: Oriental region. The species is recorded in China for the first time.

### Eremobelbidae

*Eremobelba japonica* Aoki, 1959. Locality: Si (2 ex.). Distribution: Palaearctic and Oriental regions.

### Otocepheidae

*Dolicheremaeus baloghi* Aoki, 1967. Localities: Gui (1 ex.), Si (1 ex.). Distribution: Palaearctic and Oriental regions.

*Dolicheremaeus variolobatus* Hammer, 1981. Localities: Gui (3 ex.), Il (12 ex.), Si (17 ex.), Ta (9 ex.). Distribution: Java. The species is recorded in China for the first time.

### Carabodidae

*Gibbicepheus frondosus* (Aoki, 1959). Localities: Si (1 ex.), Ta (1 ex.). Distribution: Tropical and eastern Palaearctic regions.

### Humerobatidae

*Humerobates nudus* (Hammer, 1967). Locality: Si (5 ex.). Distribution: New Zealand, Korea, Taiwan. The species is recorded in China for the first time.

### Punctoribatidae

*Lamellobates molecula* (Berlese, 1916). Localities: Gua (3 ex.), Gui (17 ex.), Si (9 ex.), Ta (3 ex.). Distribution: Tropical and Subtropical regions.

### Mochlozetidae

*Gephyrazetes fasciatus* Hirauchi, 1999. Localities: Gui (9 ex.), Il (4 ex.), Si (43 ex.), Ta (26 ex.). Distribution: Japan, Oriental region.

*Mochlozetes ryukyuensis* Aoki, 2006. Localities: Gui (6 ex.), Si (7 ex.). Distribution: Japan, Oriental region. The species is recorded in China for the first time.

*Unguizetes keralensis* (Balakrishnan, 1989). Localities: Gui (5 ex.), Si (7 ex.), Ta (11 ex.). Distribution: Oriental region.

### Haplozetidae

*Peloribates kaszabi* Mahunka, 1988. Locality: Gui (3 ex.). Distribution: Oriental region.

*Peloribates ratubakensis* Hammer, 1979. Localities: Gui (10 ex.), Si (8 ex.), Ta (7 ex.). Distribution: Java. The species is recorded in China for the first time.

*Protoribates dentatus* (Berlese, 1883). Localities: Gui (3 ex.), Il (5 ex.). Distribution: Holarctic and Oriental regions, Fiji.

*Protoribates shaldybinae* Ermilov & Starý, 2017. Locality: Il (5 ex.). Distribution: Vietnam. The species is recorded in China for the first time.

*Rostrozetes ovulum* (Berlese, 1908). Localities: Il (1 ex.), Si (3 ex.). Distribution: Tropical and Subtropical regions.

*Vilhenabates sinatus* (Aoki, 1965). Locality: Si (3 ex.). Distribution: Oriental region. The species is recorded in China for the first time.

### Scheloribatidae

*Hammerabates minusculus* (Aoki, 1987). Localities: Gui (20 ex.), Si (51 ex.). Distribution: Japan. The species is recorded in the Oriental region for the first time.

*Scheloribates fimbriatus* Thor, 1930. Locality: Gui (4 ex.). Distribution: Tropical and Subtropical regions.

*Scheloribates praеincisus* (Berlese, 1910). Localities: Gua (9 ex.), Il (104 ex.), Si (10 ex.). Distribution: Tropical and southern Holarctic regions.

### Parakalummidae

*Neoribates gracilis* Travé, 1970. Locality: Il (7 ex.). Distribution: southern Europe, oriental region. The species is recorded in China for the first time.

### Galumnidae

*Dimidiogalumna ilhaverdeensis* Ermilov, 2018. Localities: Gui (4 ex.), Il (95 ex.), Si (37 ex.). Distribution: China.

*Flagellozetes (Cosmogalumna) imperfectus* (Aoki & Hu, 1993). Locality: Si (1 ex.). Distribution: China.

*Galumna acutirostrum* Ermilov & Anichkin, 2010. Localities: Gui (1 ex.), Il (15 ex.), Si (20 ex.), Ta (14 ex.). Distribution: Oriental region.

*Galumna khoii* Mahunka, 1989. Localities: Gui (1 ex.), Si (7 ex.). Distribution: Oriental region. The species is recorded in China for the first time.

*Orthogalumna saeva* Balogh, 1960. Locality: Il (10 ex.). Distribution: Ethiopian region, India, Japan, Antilles. The species is recorded in China for the first time.

*Pergalumna bimaculata* Hammer, 1973. Localities: Gui (11 ex.), Si (2 ex.). Distribution: Tonga, Oriental

region. The species is recorded in China for the first time.

*Pergalumna kunsti* Ermilov & Starý, 2017. Localities: Gui (12 ex.), Il (17 ex.), Mo (17 ex.), Si (21 ex.). Distribution: Oriental region.

## Taxonomy

### *Hammerabates minusculus* (Aoki, 1987)

Figs 2–4

### Supplementary description

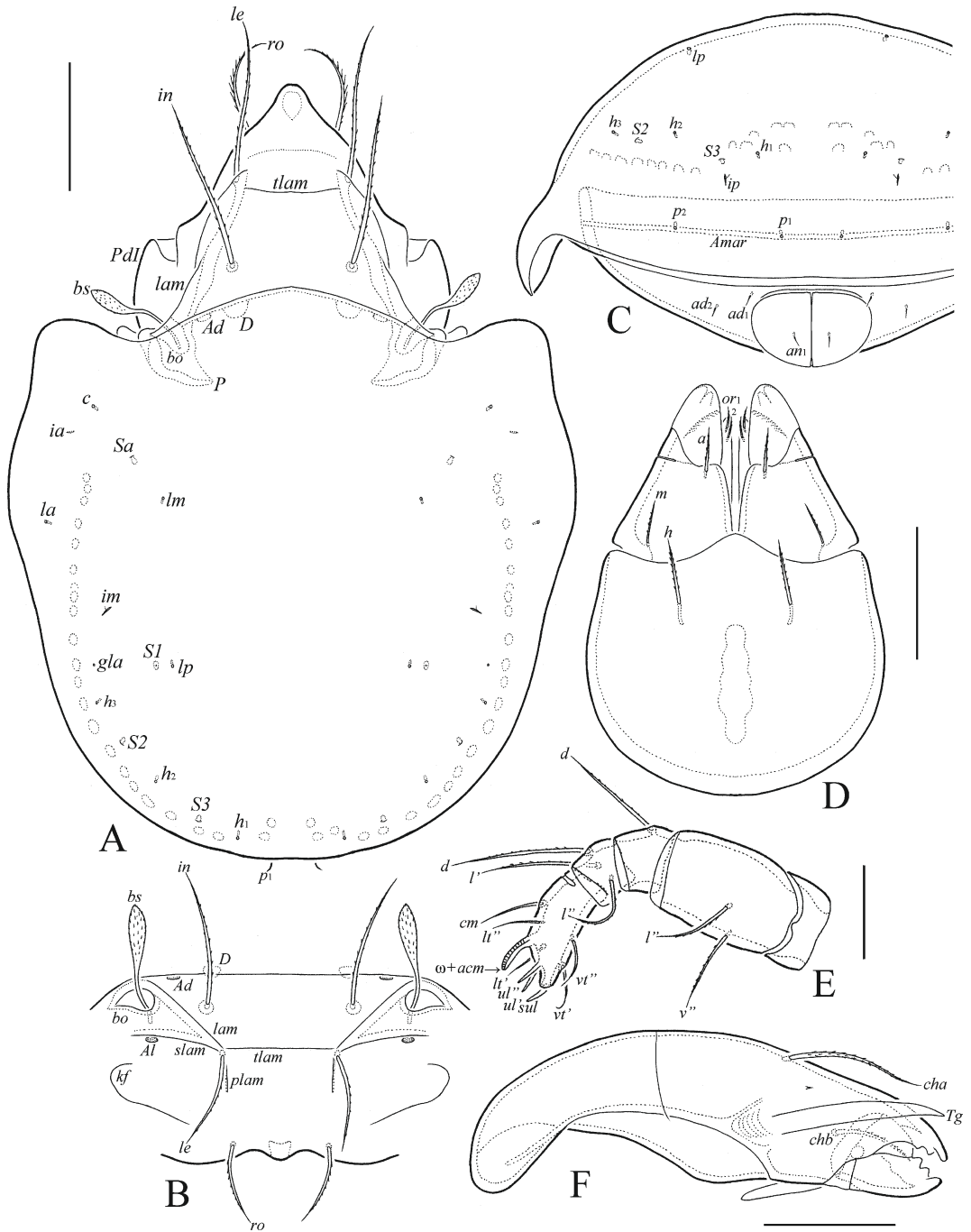
Measurements. Body length: 274–332 (71 specimens: 27 females and 44 males); notogaster width: 166–215 (71 specimens). Females larger than males: 298–332 × 182–215 versus 274–282 × 166–182.

Integument. Body colour light brown to brown. Body surface densely microfoveolate (visible in dissected specimens under high magnification, × 1000). Lateral parts of body between sublamellae and acetabula I–IV slightly microgranulate.

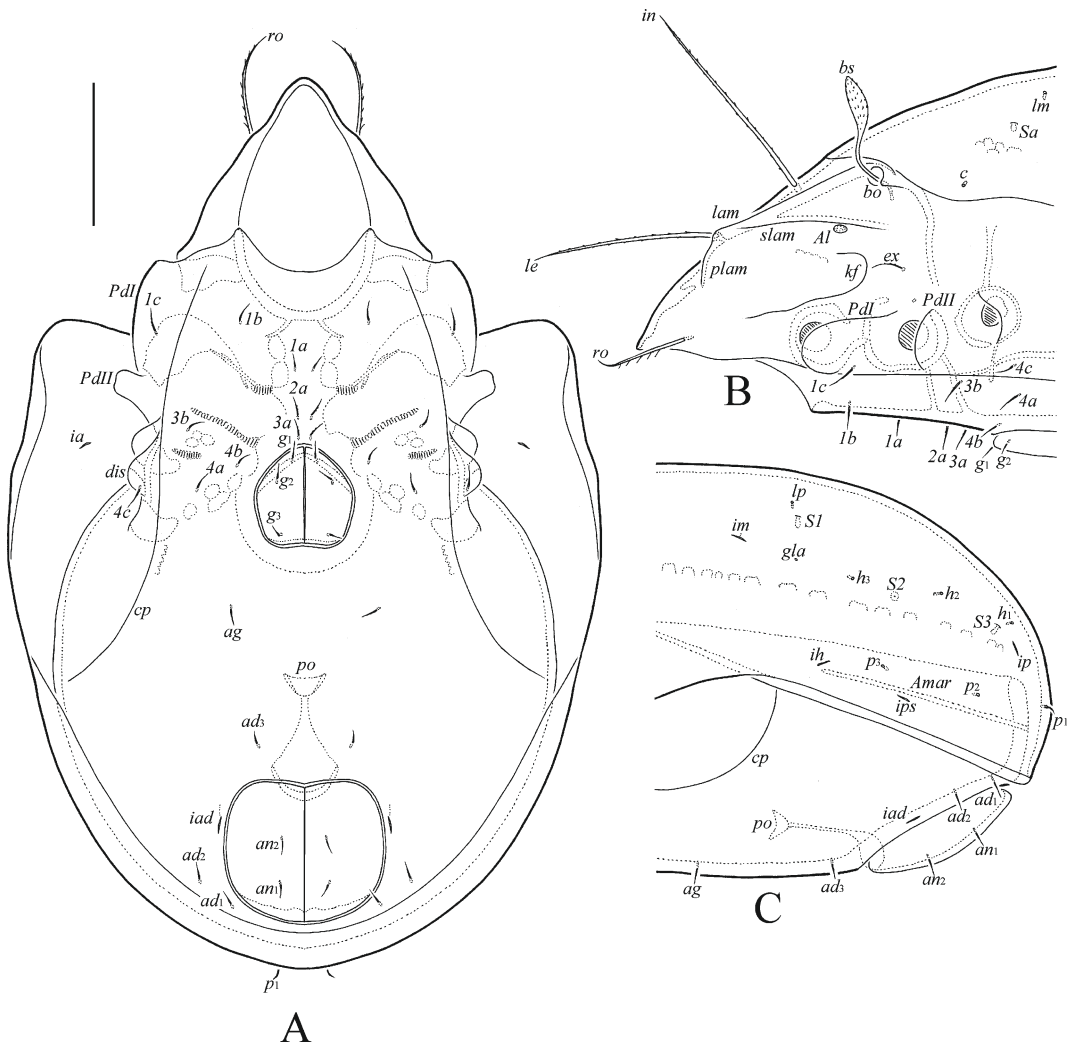
Prodorsum (Figs 2A, B, 3B). Rostrum indistinctly protruding and truncate. Lamellae slightly longer than half of prodorsum (measured in lateral view). Translamella thin, complete. Prolamellae present, their distal part not developed. Sublamellae thin, similar to lamellae in length. Sublamellar porose areas (6 × 4) oval. Lateral keel-shaped ridges distinct. Rostral setae (45–49) setiform, shortly ciliate unilaterally, directed anteromedially. Lamellar (65–69) and interlamellar (73–77) setae setiform, barbed, erect. Bothridial setae (36–41) clavate, barbed, usually with narrowed head apically. Dorsosejugal porose areas elongate oval (6–10 × 4), transversely orientated, located posterolateral to interlamellar setae. Exobothridial setae (12) setiform, slightly barbed. Dorsophragmata semi-oval.

Notogaster (Figs 2A, C, 3B, C). Anterior notogastral margin slightly convex medially. Ten pairs of notogastral setae present,  $p_1$  (8) setiform, thin, smooth, other setae represented by alveoli. Four pairs of sacculi with small opening and drop-like chamber. Distance  $S1-S1$  slightly shorter than  $S2-S2$ . Setae  $lm$  inserted posteromedial to  $Sa$ ,  $lp$  medial to  $S1$ . All lyrifissures and very small opisthonotal gland openings distinct. Circumgastric scissure and circumgastric sigillar band distinctly or poorly visible.

Gnathosoma (Figs 2D–F). Subcapitulum longer than wide (65–73 × 49–53). Subcapitular setae setiform, barbed,  $h$  (12–16) longer than  $a$  (10–12) and  $m$  (10–12),  $h$  thickest,  $m$  thinnest. Adoral setae (6–8) setiform, barbed. Palps (length 41–45) with typical setation 0–2–1–3–9 (+ $\omega$ ). Postpalpal setae (4) spiniform, smooth. Chelicerae (length 69–73) with



**Fig. 2.** *Hammerabates minusculus* (Aoki, 1987), adult: **A.** dorsal view; **B.** frontal view; **C.** posterior view; **D.** subcapitulum, ventral view; **E.** palp, left, antiaxial view; **F.** chelicera, left, paraxial view. Scale bar 50  $\mu\text{m}$  (A–C), 20  $\mu\text{m}$  (D, F), 10  $\mu\text{m}$  (E).



**Fig. 3.** *Hammerabates minusculus* (Aoki, 1987), adult: **A.** ventral view (gnathosoma and legs not shown); **B.** anterior part of body (pteromorph, gnathosoma and legs not shown), lateral view; **C.** posterior part of body, lateral view. Scale bar 50  $\mu$ m.

two setiform, barbed setae (*cha*, 24–20; *chb*, 12–16). Trägårdh's organ of chelicerae elongate triangular.

Epimeral and lateral podosomal regions (Figs 3A,B). Epimeral setal formula: 3–1–2–3. Epimeral setae setiform, slightly barbed; *1b*, *1c*, *2a*, *3a*, *3b* (10–14) longer than others (6–8). Pedotecta II quadrangular in ventral view. Discidia rounded. Circumpedal carinae long, directed to pedotecta II and fused to ventrolateral ridges.

Anogenital region (Figs 2C; 3A–C). Three pairs of genital ( $g_1$ , 8;  $g_2$ – $g_3$ , 6), one pair of aggenital (6–8), two pairs of anal (6–8) and three pairs of adanal (6–8) setae setiform, thin, roughened. Anterior half

of genital plates with two setae, posterior half with one seta. Adanal lyrifissures located close and parallel to anal plates. Marginal porose area complete, band-like.

Legs (Fig. 4A–C). Heterotridactylous. Median claw distinctly thicker than lateral ones, all slightly barbed on dorsal side. Lateral claws with indistinct tooth ventrodistally. Tibiae I with well-developed dorsoanterior apophysis bearing solenidia. Tibiae I and II with small triangular ventrobasal process. Trochanters III with strong lateral ridge antiaxially. Dorsoparaxial porose area on all femora and on trochanters III, IV distinct. Ventral porose area

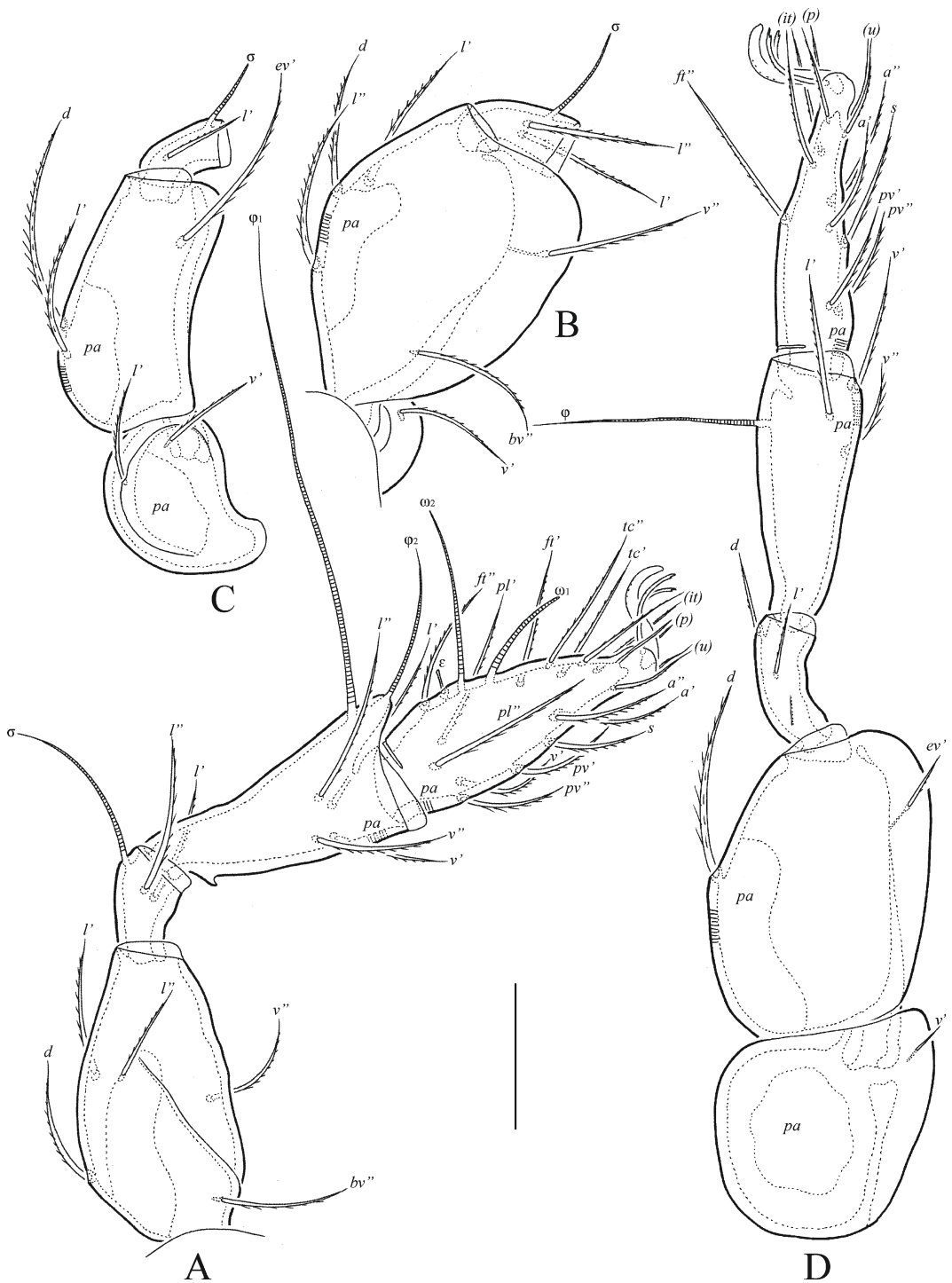


Fig. 4. *Hammerabates minusculus* (Aoki, 1987), adult: A. leg I, without trochanter, right, antiaxial view; B. trochanter, femur and genu of leg II, right, antiaxial view; C. trochanter, femur and genu of leg III, left, antiaxial view; D. leg IV, left, antiaxial view. Scale bar 20  $\mu$ m.

in basal part of tarsi and in distal part of tibiae indistinctly visible. Formulas of leg setation and solenidia: I (1-5-2-4-19) [1-2-2], II (1-5-2-4-15) [1-1-2], III (2-3-1-3-15) [1-1-0], IV (1-2-2-3-12) [0-1-0]; homology of setae and solenidia indicated in Table 2. Famulus of tarsi I short, blunt-ended, erect, inserted between solenidion  $\omega_2$  and seta  $ft''$ . Solenidia  $\omega_1$  on tarsi I,  $\omega_1$  and  $\omega_2$  on tarsi II and  $\sigma$  on genua III bacilliform, other solenidia setiform.

**Material collected.** 71 specimens: Gui (20 ex.), Si (51 ex.).

**Remarks.** Specimens of *Hammerabates minusculus* from China are morphologically similar to specimens from Japan (Aoki 1987). Only one difference is present: prolamellae without developed distal part versus prolamellae complete in Japanese specimens. As we note earlier (Ermilov et al. 2013), presence and absence of prolamellae or their partial development can vary in specimens of one species. Hence, we assume this difference to represent intraspecific variability in the case of *H. minusculus*. Based on the supplementary description (our data above) and known literature data (Aoki 1987), we propose the following diagnostic morphological traits for this species: body size 274–332 × 166–215; rostrum truncate; translamella complete; prolamellae present, complete or partially developed; rostral setae long, setiform, shortly ciliate unilaterally; lamellar and interlamellar setae long, setiform, barbed. Bothridial setae of medium size, clavate, barbed; notogastral setae  $p_1$  short, setiform, smooth, other nine pairs of setae represented by alveoli; sacculi with drop-like chamber. Epimeral setal formula: 3-1-2-3. Epimeral setae short, slightly barbed. Discidia rounded.

Circumpedal carinae long. Anogenital setae short, roughened. Leg genua I, II with two setae ( $l', l''$ ).

### *Orthogalumna saeva* Balogh, 1960

Figs 5-7

#### Supplementary description

**Measurements.** Body length: 531–614 (10 specimens: 5 females and 5 males); notogaster width: 365–431 (10 specimens). Females larger than males: 581–614 × 398–431 versus 531–581 × 365–398.

**Integument.** Body colour brown. Body surface microfoveolate (visible in dissected specimens under high magnification, ×1000). Laterobasal parts of prodorsum, with longitudinal stria. Pteromorphs with short indistinct stria. Region between anterior part of lamellar lines and distal part of sublamellar lines. All leg femora and trochanters III, IV with elongate tubercles and stria antiaxially.

**Prodorsum** (Figs 5A,B, 6B). Rostrum strongly protruding, elongate quadrangular (visible in frontal view; Fig. 5B). Lamellar lines straight, directed to insertions of rostral setae. Sublamellar lines directed backwards at ventral end. Prodorsal leg niches and lateral ridges of prodorsum well-developed. Rostral (32–41), lamellar (53–61) and interlamellar (53–61) setae setiform, barbed, erect; *in* thinner than *ro* and *le*. Bothridial setae (49–57) clavate, barbed, with elongate head. Exobothridial setae and their alveoli absent. Dorsosejugal porose areas (28–32 × 8–10) elongate oval, transversely orientated, posterior to interlamellar setae. Dorsophragmata long, elongated.

**Table 1.** Leg setation and solenidia of adult *Hammerabates minusculus* (Aoki, 1987). Roman letters refer to normal setae, Greek letters to solenidia (except  $\varepsilon$  = famulus). Single prime (') marks setae on anterior and double prime (") setae on the posterior side of the given leg segment. Parentheses refer to a pair of setae.

Leg	Tr	Fe	Ge	Ti	Ta
I	$v'$	$d, (l), bv'', v''$	$(l), \sigma$	$(l), (v), \phi_1, \phi_2$	$(ft), (tc), (it), (p), (u), (a), s, (pv), (pl), v', \varepsilon, \omega_1, \omega_2$
II	$v'$	$d, (l), bv'', v''$	$(l), \sigma$	$(l), (v), \phi$	$(ft), (tc), (it), (p), (u), (a), s, (pv), \omega_1, \omega_2$
III	$l', v'$	$d, l', ev'$	$l', \sigma$	$l', (v), \phi$	$(ft), (tc), (it), (p), (u), (a), s, (pv)$
IV	$v'$	$d, ev'$	$d, l'$	$l', (v), \phi$	$ft'', (tc), (p), (u), (a), s, (pv)$

**Table 2.** Leg setation and solenidia of adult *Orthogalumna saeva* Balogh, 1960. See Table 1 for explanations.

Leg	Tr	Fe	Ge	Ti	Ta
I	$v'$	$d, (l), bv''$	$(l), v', \sigma$	$(l), (v), \phi_1, \phi_2$	$(ft), (tc), (it), (p), (u), (a), s, (pv), v', (pl), l'', \varepsilon, \omega_1, \omega_2$
II	$v'$	$d, (l), bv''$	$(l), v', \sigma$	$(l), (v), \phi$	$(ft), (tc), (it), (p), (u), (a), s, (pv), \omega_1, \omega_2$
III	$v'$	$d, ev'$	$l', \sigma$	$l', (v), \phi$	$(ft), (tc), (it), (p), (u), (a), s, (pv)$
IV	$v'$	$d, ev'$	$d, l'$	$l', (v), \phi$	$ft'', (tc), (p), (u), (a), s, (pv)$



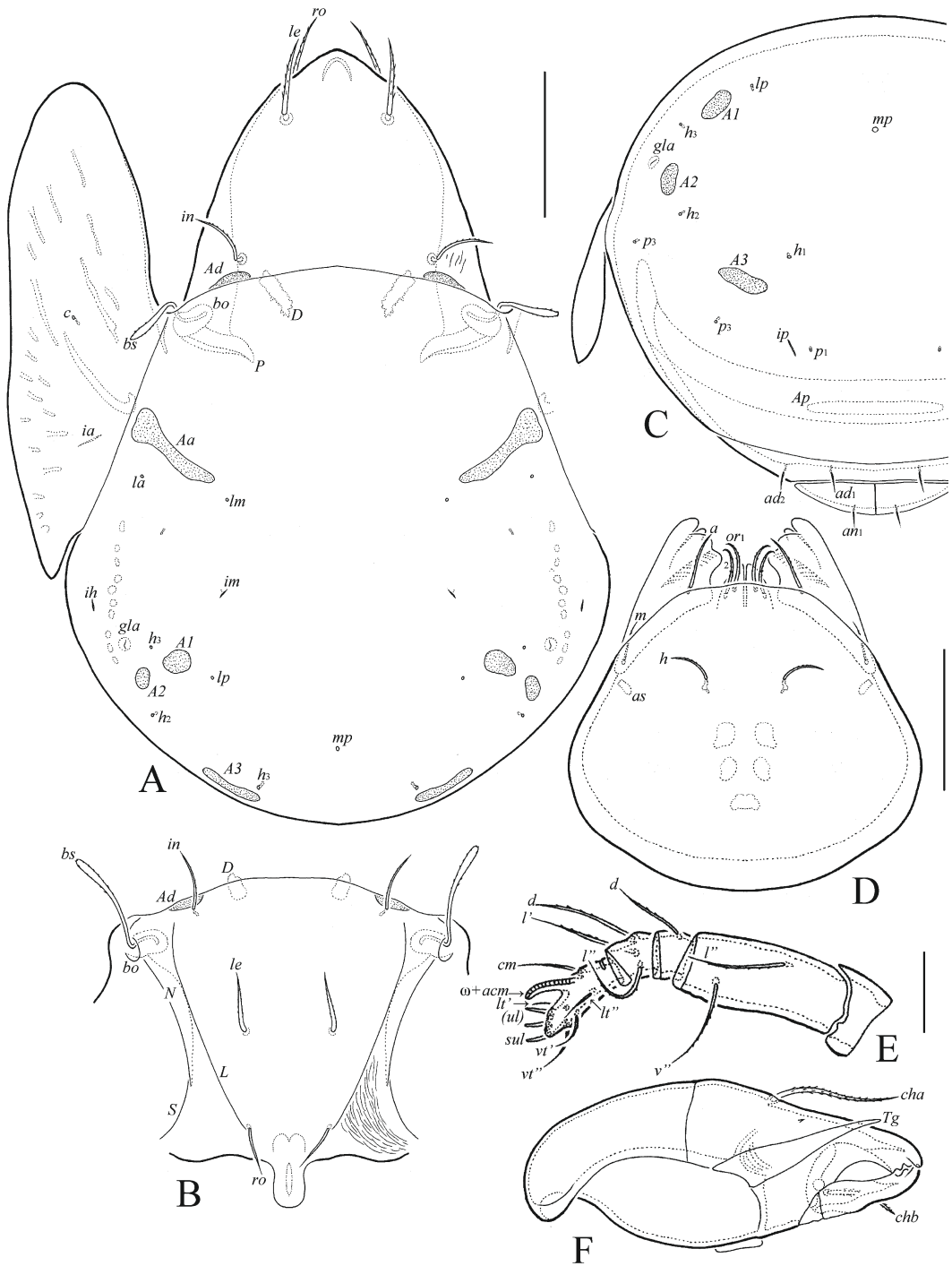
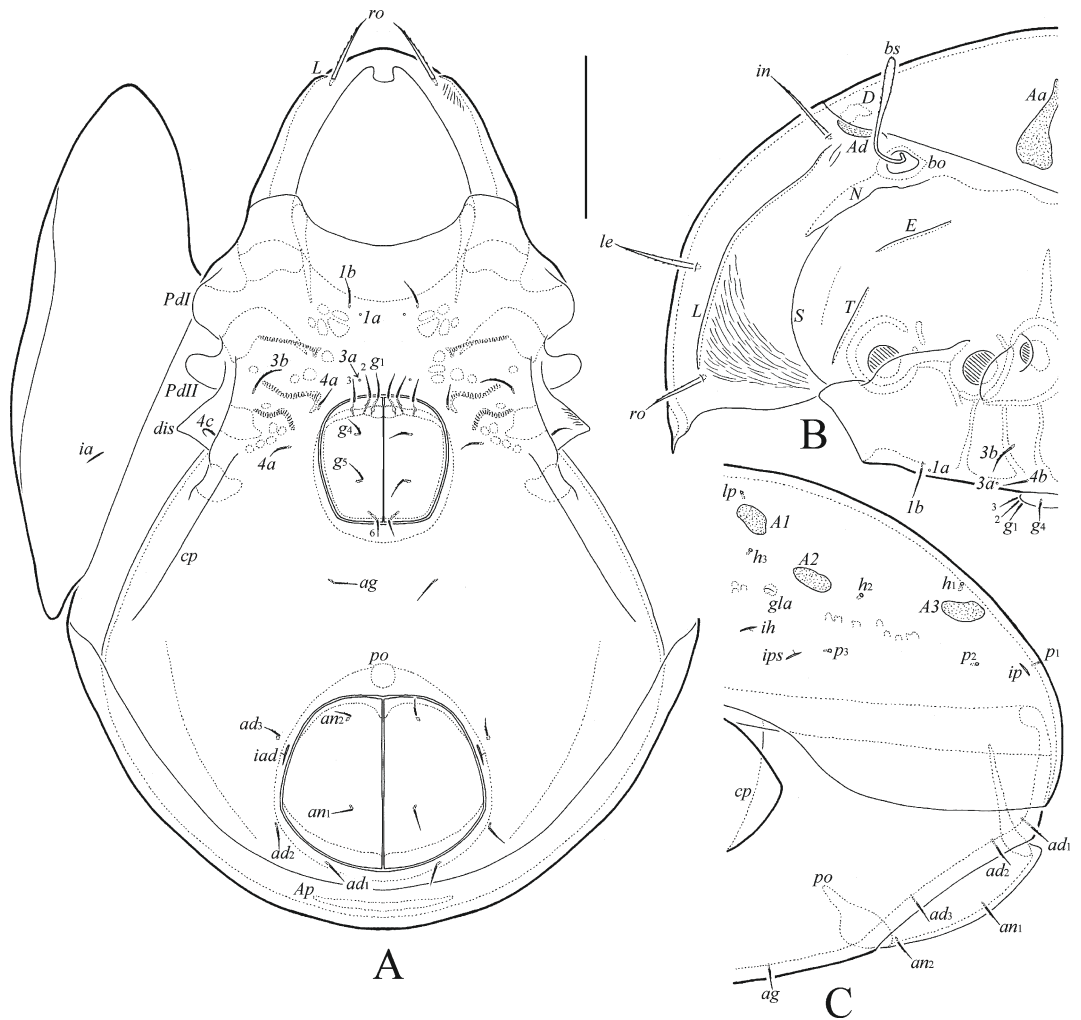


Fig. 5. *Orthogalumna saevis* Balogh, 1960, adult: A. dorsal view (right pteromorph not shown); B. frontal view; C. posterior view; D. subcapitulum, ventral view; E. palp, left, antiaxial view; F. chelicera, left, paraxial view. Scale bar 100  $\mu$ m (A-C), 50  $\mu$ m (D,F), 20  $\mu$ m (E).



**Fig. 6.** *Orthogalumna saeva* Balogh, 1960, adult: **A.** ventral view (gnathosoma, legs and left pteromorph not shown); **B.** anterior part of body (pteromorph, gnathosoma and legs not shown), lateral view; **C.** posterior part of body, lateral view. Scale bar 100  $\mu$ m.

Notogaster (Figs 5A,C, 6B,C). Dorsosejugal suture complete, slightly convex medially. Ten pairs of setal alveoli and four pairs of porose areas present; *Aa* elongate triangular, transversely elongate (length 73–82), *A1* (30–36  $\times$  16–20), *A2* (22–32  $\times$  12–20) oval, rarely slightly elongate oval, *A3* (36–45  $\times$  12–20) elongate oval, rarely slightly oval. Setal alveoli *la* located close to the pteromorphal hinges, posterior to *Aa*. Median pore present in females and males, represented by one part, located posterior to virtual line connected *A2*. All lyrifissures and opisthonotal gland openings distinct, *im* located between *lm* and *lp*. Circumgastric sigillar band indistinct.

Gnathosoma (Fig. 5D–F). Subcapitulum longer than wide (139–147  $\times$  123–127). Subcapitular setae setiform, barbed, *a* (20) longer than *m* (14–16) and *h* (14–16), *a* thickest, *m* thinnest. Adoral setae (14–16) setiform, barbed. Palps (length 94–102) with typical setation 0–2–1–3–9 (+0). Postpalpal setae (4) spiniform, smooth. Axillary sacculi distinct. Chelicerae (length 135–143) with two setiform, barbed setae (*cha*, 45–49; *chb*, 28–32). Trägårdh's organ of chelicerae elongate triangular.

Epimeral and lateral podosomal regions (Fig. 6A,B). Anterior tectum of epimere I smooth. Epimeral setal formula: 2–0–2–3. Epimeral setae *1a*



Fig. 7. *Orthogalumna saeva* Balogh, 1960, adult: A. leg I, right, antiaxial view; B. trochanter, femur and genu of leg II, right, antiaxial view; C. trochanter, femur and genu of leg III, left, antiaxial view; D. leg IV, left, antiaxial view. Scale bar 50  $\mu$ m.

and 3*a* vestigial, other setae setiform, slightly barbed; 1*b*, 3*b* (16–20) longer than others (10–12). Pedotecta II rounded in ventral view. Discidia triangular. Circumpedal carinae of medium size, directed to setae 3*b*, but distinctly not reaching them.

Anogenital region (Figs 5C, 6A–C). Six pairs of genital ( $g_1$ – $g_3$ , 16;  $g_4$ – $g_6$ , 10–12), one pair of aggenital (10–12), two pairs of anal (10–12) and three pairs of adanal (10–12) setae setiform, thin, slightly barbed. Anterior edge of genital plates with one three setae. Aggenital setae located nearer to genital plates than to anal plates. Adanal lyrifissures located close and parallel to anal plates. Adanal setae  $ad_1$  and  $ad_2$  postanal,  $ad_3$  paraanal and lateral to adanal lyrifissures. Distance  $ad_1$ – $ad_2$  shorter than  $ad_2$ – $ad_3$ . Unpaired postanal porose area elongate oval (82–94 × 10–16).

Legs (Fig. 7A–D). Heterotridactylous. Median claw slightly thicker than lateral ones, all slightly barbed on dorsal side. Dorsoantiaxial porose area on all femora and dorsoparaxial porose area on trochanters III, IV distinct. Ventral porose area in basal part of tarsi and in distal part of tibiae absent. Formulas of leg setation and solenidia: I (1–4–3–4–20) [1–2–2], II (1–4–3–4–15) [1–1–2], III (1–2–1–3–15) [1–1–0], IV (1–2–2–3–12) [0–1–0]; homology of setae and solenidia indicated in Table 2. Famulus of tarsi I short, blunt-ended, erect, inserted between seta  $ft''$  and solenidion  $\omega_2$ . Solenidia  $\omega_1$  and  $\omega_2$  on tarsi II and  $\sigma$  on genua III bacilliform, other solenidia setiform, pointed or slightly blunt-ended apically. Solenidion of tibiae IV located in anterior part of the segments.

**Material collected.** 10 specimens (5 females and 5 males): II (10 ex.).

**Remarks.** Specimens of *Orthogalumna saeva* from China are morphologically similar to specimens from Madagascar (Balogh 1960) and Japan (Nakatamari 1986). Based on the supplementary description (our data above) and known literature data (Balogh 1960, Nakatamari 1986), we propose the following diagnostic morphological traits for this species: 531–614 × 365–431; region between anterior part of lamellar lines and distal part of sublamellar lines striate; rostrum protruding, elongate quadrangular; lamellar and sublamellar lines divergent distally, *L* long, straight; rostral, lamellar, and interlamellar setae of medium size, setiform, barbed, erect; bothridial setae of medium size, clavate, barbed; four pairs of porose areas, *Aa* elongate triangular, transversely elongate, *A1* and *A2* oval, *A3* elongate oval; median pore present; epimeral setal formula 2–0–2–3, 1*a* and 3*a* vestigial, other epimeral setae as well as anogenital setae short, setiform, slightly barbed; circumpedal carinae of medium size; postanal porose area elongate oval; solenidion of tibiae IV located in anterior part of the segments.

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