



Taxonomic contribution to knowledge of the oribatid mite genus *Trichogalumna* (Acari, Oribatida, Galumnidae)

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ABSTRACT

Trichogalumna (Oribatida, Galumnidae) currently comprises two subgenera and 34 species, collectively distributed in the pantropical and subtropical areas. A new subgenus—*Trichogalumna* (*Paratrachogalumna*) **subgen. nov.**, with *T. punctata* Engelbrecht, 1972 as type species—is proposed. It differs from the other subgenera of *Trichogalumna* by the location of the adanal lyrifissure (distinctly distanced from anal plate). One new species—*T. (T.) giaensis* **sp. nov.**—is described, based on adults collected from forest litter in central Vietnam. The new species is characterized mainly by small body size; sparsely striate pteromorphs; dense polygonate-foveolate ornamentation in dorsocentral region of the notogaster; dense polygonate-tuberculate sculpturing between genital and anal plates; long bothridial seta with lanceolate, barbed head, having distinct, acicular apex; and four pairs of small, circular porose areas. The following synonymy is suggested: *Trichogalumna* (*Trichogalumna*) *trawella* Nakamura, Nakamura & Fujikawa, 2013 (= *Trichogalumna gotoensis* Shirosaki, Nakamura & Fujikawa, 2017 **syn. nov.**). An identification key to the known species of *Trichogalumna* is provided.

KEYWORDS

Galumnid mites, identification key, morphology, Oriental region, taxonomy

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INTRODUCTION

The oribatid mite genus *Trichogalumna* (Acari, Oribatida, Galumnidae) was proposed by Balogh (1960), with *Pilogalumna lunai* Balogh, 1958 as type species. At present, the genus comprises 34 species, belonging to two subgenera (nominate subgenus, with 33 species, and *Trichogalumna* (*Tanzanycha*) Koçak & Kemal, 2008, with one species). Subías (2022, online version 2024) also included *Sarawakiella* Mahunka, 1996 (in 1996b) as subgenus within *Trichogalumna*, however, the former is characterized by the complex morphological character states that distinguish it from the latter at the generic level (Ermilov 2025). The generic diagnosis of *Trichogalumna* was revised by Ermilov and Klimov (2017). Identification keys to selective species of the genus have been presented by Ohkubo (1984), Villagomez and Palacios-Vargas (2013), and Hagino *et al.* (2017). Representatives of *Trichogalumna* collectively distributed in the pantropical and subtropical areas (Subías 2022, online version 2024) and prefer to live mainly in forest soil-litter and various microhabitats (e.g., Ohkubo 1984; Corpuz-Raros and Ermilov 2020).

The sampled oribatid mite materials from the Kon Chu Rang Nature Reserve (southern Vietnam) included the specimens of a new species of *Trichogalumna*. The main goal of the present paper is to propose a new subgenus, *Trichogalumna* (*Paratrachogalumna*) **subgen. nov.**, describe a new species, *Trichogalumna* (*Trichogalumna*) *giaensis* **sp. nov.**, and to present identification key to the 35 known species of the genus.

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METHODS

For measurement and illustration, specimens were mounted in lactic acid on temporary cavity slides. All body measurements are presented in micrometers (µm). Body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the notogaster. Body width refers to the maximum width of the notogaster in dorsal view. Body setae were measured in lateral aspect. Formulas for leg setation are given in parentheses according to the sequence trochanter-femur-genu-tibia-tarsus (famulus of tarsus I included). Formulas for leg solenidia are given in square brackets, according to the sequence genu-tibia-tarsus. Paired structures are described in the singular, unless otherwise noted. Drawings were made with a camera lucida using a Leica DM 2500 light microscope. Images were obtained with an AxioCam ICc3 camera using a Carl Zeiss transmission light microscope Axio Lab.A.

Morphological terminology used in this paper mostly follows that of Grandjean (1956, 1957), Ermilov and Klimov (2017), and Norton and Ermilov (2017).

The following morphological abbreviations are used: *Prodorsum*: *L* = lamellar line; *S* = sublamellar line; *N* = prodorsal leg niche; *E*, *T* = lateral ridges; *ro*, *le*, *in*, *bs* = rostral, lamellar, interlamellar, and bothridial setae, respectively; *Ad* = dorsosejugal porose area; *D* = dorsophragma; *P* = pleurophragma. *Notogaster*: *fo* = foveolate ornamentation; *Aa*, *A1*, *A2*, *A3* = porose areas; *c*, *la*, *lm*, *lp*, *b₁–b₃*, *p₁–p₃* = setae; *ia*, *im*, *ip*, *ih*, *ips* = lyrifissures; *gla* = opisthonotal gland opening. *Gnathosoma*: *a*, *m*, *b* = subcapitular setae; *or* = adoral seta; *sup*, *inf*, *d*, *l*, *cm*, *acm*, *ul*, *su*, *vt*, *lt* = palp setae; ω = palp solenidion; *as* = axillary sacculae; *cha*, *chb* = cheliceral setae; *Tg* = Trägårdh's organ. *Epimeral and lateral podosomal regions*: *1a*, *3a*, *3b*, *3c*, *4a*, *4c* = epimeral setae; *PdI*, *PdII* = pedotecta I, II, respectively; *dis* = discidium; *cir* = circumpedial carina. *Anogenital region*: *ts* = tuberculate sculpturing; *g*, *ag*, *an*, *ad* = genital, aggenital, anal, and adanal setae, respectively; *iad* = adanal lyrifissure; *Ap* = postanal porose area; *po* = preanal organ. *Legs*: ω , φ , σ = solenidia; *e* = famulus; *d*, *l*, *v*, *bv*, *ev*, *ft*, *tc*, *it*, *p*, *u*, *a*, *s*, *pv*, *pl* = setae; *pa* = porose area.

RESULTS

Taxonomy

Family Galumnidae

Genus *Trichogalumna* Balogh, 1960

Type species: *Pilogalumna lunai* Balogh, 1958

Trichogalumna (*Paratrachogalumna*) **subgen. nov.**

<http://zoobank.org/urn:lsid:zoobank.org:act:9C7BB7C9-050E-4F49-B6BE-DF03D212C212>

Type species: *Trichogalumna punctata* Engelbrecht, 1972

Remarks

Trichogalumna (*Paratrachogalumna*) **subgen. nov.** differs from the other subgenera of *Trichogalumna*—*T.* (*Trichogalumna*) and *T.* (*Tanzanycha*)—by the location of the adanal lyrifissure (distinctly distanced from anal plate versus close to anal plate). The location of the adanal lyrifissure is used as generic and subgeneric diagnostic character within Galumnidae (e.g., *Allogalumna* (*Globogalumna*) Balogh & Balogh, 1990; *Galumna* (*Neogalumna*) Hammer, 1973; *Heterogalumna* Balogh, 1960), therefore, I proposed a new subgenus.

Trichogalumna (Trichogalumna) giaensis sp. nov. (Figs 1–20)

<http://zoobank.org/urn:lsid:zoobank.org:act:02392EC8-9EA4-48DA-9578-0E6FC084F079>

Type material

Holotype (female) and five paratypes (four males and one female): central Vietnam, Gia Lai Province, K'Bang District, Son Lang Commune, Kon Chu Rang Nature Reserve, 14° 28' 06.43" N, 108° 33' 59.48" E, 1020 m a.s.l., forest litter, 13 March 2025, collected by V.M. Salavatulin and V.A. Khaustov.

Type deposition

The holotype is deposited in the collection of the Senckenberg Museum of Natural History, Görlitz, Germany; five paratypes are in the collection of the University of Tyumen, Museum of Zoology, Tyumen, Russia. All specimens are preserved in 70% solution of ethanol with a drop of glycerol.

Diagnosis

Small species, body length 240–270. Pteromorph with long, sparse, longitudinal furrows. Dorsocentral region of notogaster with dense, polygonate-foveolate ornamentation. Region between genital and anal plates with slightly developed, dense, polygonate-tuberculate sculpturing. Rostral and lamellar setae medium-sized, setiform, nearly smooth. Interlamellar, notogastral, and ventral setae short, acicular. Bothridial seta with long stalk, short, lanceolate, barbed head, and distinct, acicular apex. Dorsosejugal and postanal porose areas present. Dorsosejugal suture interrupted medially. Four pairs of porose areas small, circular. Epimeral setal formula 1-0-2-2. Circumpedal carina long.

Description

Measurements – Body length 255 (holotype), 240–255 (male paratypes), 270 (female paratype). Notogaster width 195 (holotype), 180–195 (male paratypes), 195 (female paratype).

Integument (Figs 15–19) – Body color brown to dark brown. Cuticle slightly densely microgranulate. Pteromorph with striate pattern (long, sparse, longitudinal furrows). Dorsocentral region of notogaster with dense, polygonate-foveolate ornamentation. Region between genital and anal plates with slightly developed, dense, polygonate-tuberculate sculpturing. Antiaxial side of leg femur IV and trochanter IV partially with small, dense tubercles. Paraxial side of leg femur IV with several transverse ridges.

Prodorsum (Figs 1, 3, 4, 13, 14) – Rostrum broadly rounded. Lamellar and sublamellar lines thin, parallel, curving backwards at ventral end. Rostral (26–30) and lamellar (19–22) setae setiform, nearly smooth. Interlamellar seta (2–4) acicular. Bothridial seta (79–91) with long stalk (49–56), short, lanceolate, barbed head (19–22), and distinct, acicular apex (11–13). Dorsosejugal porose area circular (2–4), located posterolateral to insertion of interlamellar seta. Dorsophragma comparatively short, elongate.

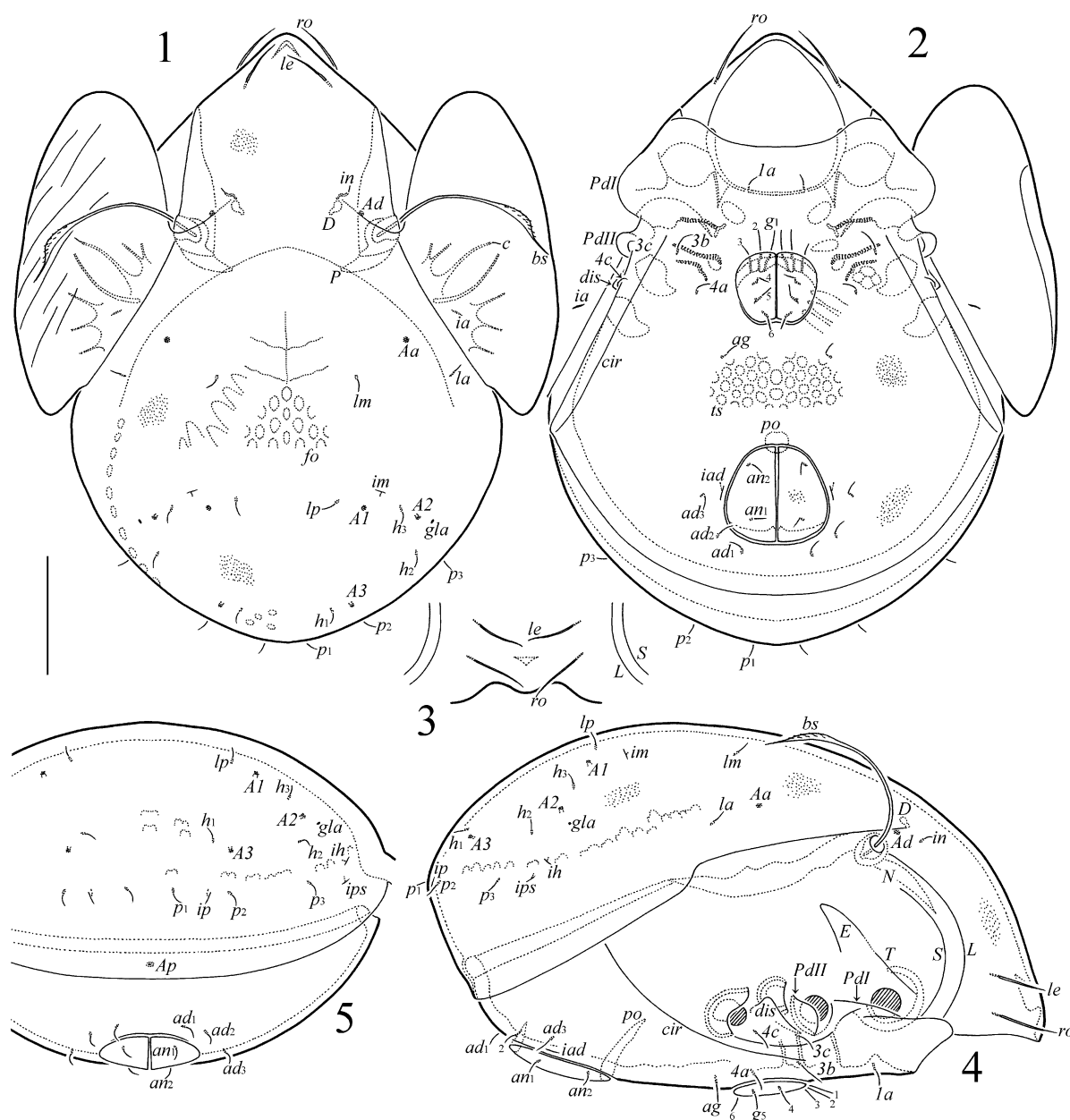
Notogaster (Figs 1, 4, 5) – Dorsosejugal suture interrupted medially. Ten pairs of notogastral setae (5–7) nearly acicular. Four pairs of porose areas circular (*Aa* 4; *A1*, *A2*, *A3* 1–4). Porose area *Aa* distanced from pteromorph hinge, located anteromedial to *la* and anterolateral to *lm*. Median pore absent in both genders. Opisthonotal gland opening located lateral to *A2*. Lyrifissure *im* close and anterior to *A1*, *ip* between *p1* and *p2*, *ih* and *ips* close to each other and anterior to *p3*.

Gnathosoma (Figs 6–8) – Subcapitulum size 64–67 × 52–56. Three pairs of subcapitular setae (*a* 11–13; *m*, *b* 7) acicular, *a* thicker than *m* and *b*. Two pairs of adoral setae (9) setiform, curved distally, roughened. Palp length 52–56. Palp setal formula 0-2-1-3-9(+ω). Postpalpal seta (4) spiniform. Chelicera length 64–67. Setae (*cha* 19–22; *chb* 13–15) setiform, barbed.

Epimeral and lateral podosomal regions (Figs 2, 4) – Epimeral setal formula 1-0-2-2. Setae (*3b* 11; *1a*, *3c*, *4a*, *4c* 5–7) acicular. Circumpedal carina long, directed into epimere II, medial to seta *3b*.

Anogenital region (Figs 2, 4, 5) – Anogenital formula 6-1-2-3. Genital (*g1*, *g2* 11; *g3–g6* 5–7),

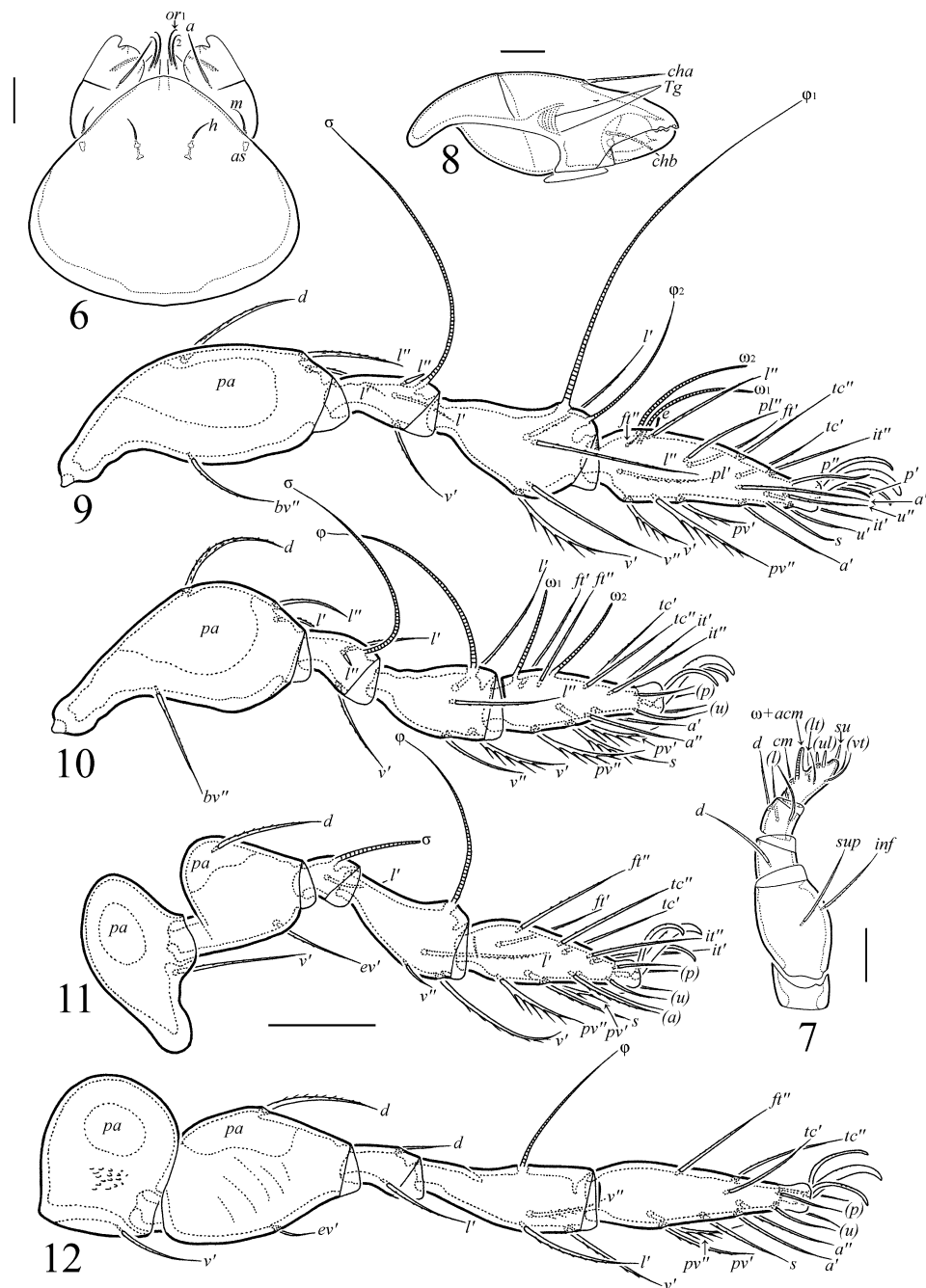
aggenital (5–7), anal (5–7), and adanal (5–7) setae acicular. Aggenital setae located closer to genital aperture and distanced from anal aperture. Adanal seta ad_1 posterior, ad_2 posterolateral, ad_3 lateral to anal plate. Distance ad_1 – ad_2 slightly shorter than ad_2 – ad_3 . Adanal lyrifissure located close and parallel to anal plate. Postanal porose area circular (5–7) or oval (5–7 × 4).



Figures 1–5. *Trichogalumna* (*Trichogalumna*) *gjaensis* sp. nov. (adult) – 1. Dorsal view; 2. Ventral view (gnathosoma, legs and right pteromorph omitted); 3. Anterior part of prodorsum, anterior view; 4. Right lateral view (gnathosoma, legs and right pteromorph omitted); 5. Posterior view (right pteromorph and part of left half omitted). Scale bar 50 μ m.

Legs (Figs 9–12, 20) – Median claw distinctly thicker than lateral claws. All claws slightly barbed on dorsal side. Porose area on femora I–IV and on trochanters III, IV slightly visible. Proximoventral porose area on all tarsi and distoventral porose area on all 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 1. Famulus straight, inserted anterior to solenidia ω_1 and ω_2 . Seta s of tarsus I eupathidial. Solenidion of tibia IV inserted in anterior part of dorsal side of

segment.



Figures 6–12. *Trichogalumna* (*Trichogalumna*) *giaensis* **sp. nov.** (dissected adult) – 6. Subcapitulum, ventral view; 7. Palp, right, antiaxial view; 8. Chelicera, left, paraxial view; 9. Leg I (trochanter omitted), right, antiaxial view; 10. Leg II (trochanter omitted), right, antiaxial view; 11. Leg III, right, paraxial view; 12. Leg IV, left, antiaxial view. Scale bars 10 μm (6–8), 20 μm (9–12).

Remarks

Trichogalumna (*Trichogalumna*) *giaensis* **sp. nov.** differs from all species of the genus in the presence (versus absence) of dense polygonate-foveolate ornamentation in dorsocentral region of the notogaster. Distinctive characters of the new species compared with other members of *Trichogalumna* can be found in the identification key given below.

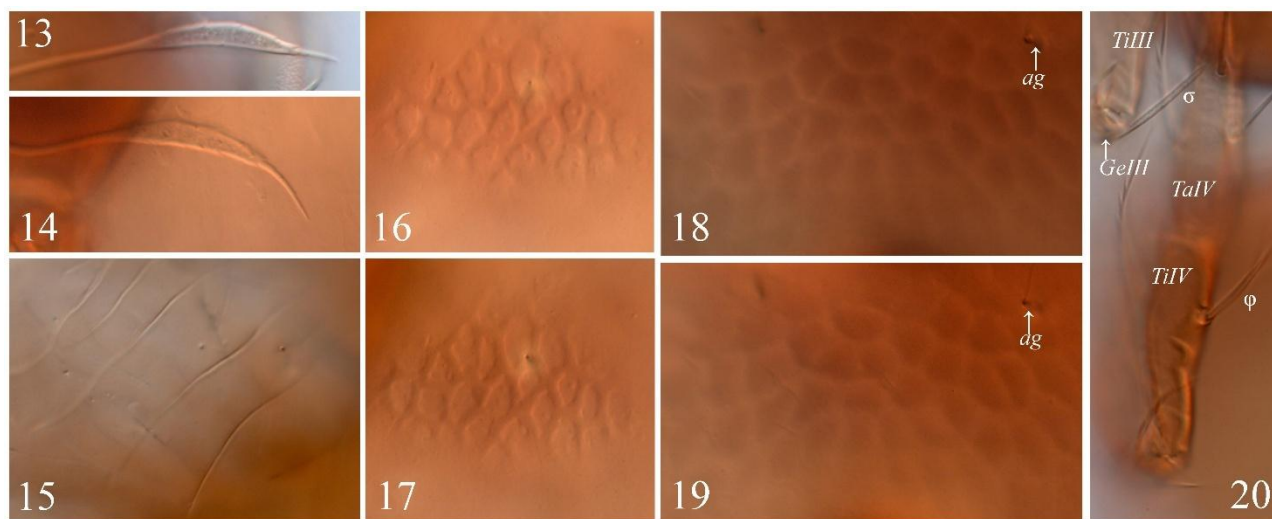
Etymology

The species name *giaensis* refers to the place of origin, Gia Lai Province.

Table 1. Leg setation and solenidia of adult *Trichogalumna (Trichogalumna) giaensis* sp. nov.

Leg	<i>Tr</i>	<i>Fe</i>	<i>Ge</i>	<i>Ti</i>	<i>Ta</i>
I	<i>v'</i>	<i>d</i> , (<i>l</i>), <i>bv''</i>	(<i>l</i>), <i>v'</i> , σ	(<i>l</i>), (<i>v</i>), φ_1 , φ_2	(<i>ft</i>), (<i>tc</i>), (<i>it</i>), (<i>p</i>), (<i>u</i>), (<i>a</i>), <i>s</i> , (<i>pv</i>), <i>v'</i> , (<i>pl</i>), <i>l''</i> , <i>e</i> , ω_1 , ω_2
II	<i>v'</i>	<i>d</i> , (<i>l</i>), <i>bv''</i>	(<i>l</i>), <i>v'</i> , σ	(<i>l</i>), (<i>v</i>), φ	(<i>ft</i>), (<i>tc</i>), (<i>it</i>), (<i>p</i>), (<i>u</i>), (<i>a</i>), <i>s</i> , (<i>pv</i>), ω_1 , ω_2
III	<i>v'</i>	<i>d</i> , <i>ev'</i>	<i>l'</i> , σ	<i>l'</i> , (<i>v</i>), φ	(<i>ft</i>), (<i>tc</i>), (<i>it</i>), (<i>p</i>), (<i>u</i>), (<i>a</i>), <i>s</i> , (<i>pv</i>)
IV	<i>v'</i>	<i>d</i> , <i>ev'</i>	<i>d</i> , <i>l'</i>	<i>l'</i> , (<i>v</i>), φ	<i>ft''</i> , (<i>tc</i>), (<i>p</i>), (<i>u</i>), (<i>a</i>), <i>s</i> , (<i>pv</i>)

Note: *Tr*, *Fe*, *Ge*, *Ti*, *Ta* = trochanter, femur, genu, tibia, and tarsus, respectively. Roman letters refer to normal setae, Greek letters to solenidia. Single prime (') marks setae on the anterior and double prime (") setae on the posterior side of a given leg segment. Parentheses refer to a pair of setae.



Figures 13–20. *Trichogalumna (Trichogalumna) giaensis* sp. nov. (microscope images, dissected adult) – 13, 14. Distal part of bothridial seta, lateral view; 15. Some furrows on pteromorph; 16. Polygonate-foveolate ornamentation in dorsocentral part of notogaster; 17. Same as 16, but in deep focus; 18. Polygonate-tuberculate sculpturing in aggenital region; 19. Same as 18, but in deep focus; 20. Legs III and IV partially. Magnification 400.

SYNONYMY

Nakamura *et al.* (2013) described *Trichogalumna trowella* from Japan. Later, Shirosaki *et al.* (2017) described *T. gotoensis* from Japan. Both species are morphologically very similar. According to Shirosaki *et al.* (2017), *T. gotoensis* differs from *T. trowella* by the absence of the rostral trowel and the absence of undulation of the inner genital margin. Firstly, the presence of the rostrophragma (see Norton and Ermilov 2017), or the “trowel” as understood by Nakamura *et al.* (2013) and Shirosaki *et al.* (2017), is a typical structure of the rostrum in representatives of the family Galumnidae, so it cannot be used as a differential character between species. The rostrophragma is an internal structure, therefore, it is often not depicted in drawings in papers on galumnid mites, however, this does not mean that the rostrophragma is lacking. Secondly, the presence or absence of the undulation of the inner part of the genital plates is not a differential character between species. Most likely, there was a defect due to the compression of the holotype (description based only on it) in the permanent slide. Thus, according to the original descriptions (Nakamura *et al.* 2013; Shirosaki *et al.* 2017), there is no significant morphological differences between *T. (T.) trowella* and *T. (T.) gotoensis*, therefore, I propose the following subjective synonymy: *Trichogalumna (Trichogalumna) trowella* Nakamura, Nakamura & Fujikawa, 2013 (= *Trichogalumna gotoensis* Shirosaki, Nakamura & Fujikawa, 2017 **syn. nov.**).

- Notogastral porose area *Aa* distanced from pteromorph hinge 10
- 10. Notogastral porose area *Aa* distinctly elongate oval, transversely oriented. Body length 448
Trichogalumna (Trichogalumna) microseta Wallwork, 1965
Distribution: Chad.
- Notogastral porose area *Aa* circular or oval 11
- 11. Only anogenital region (between genital and anal plates) with one transverse granulate band, notogaster and anogenital region without transverse granulate band. Large species, body length 697–720 *Trichogalumna (Trichogalumna) vietnamica* Mahunka, 1987
Distribution: Vietnam
- Both notogaster (centrodorsal part) and anogenital region (between genital and anal plates) with or without one transverse granulate band. Small species, body length less than 450 12
- 12. Both notogaster (centrodorsal part) and anogenital region (between genital and anal plates) with transverse granulate band 13
- Both notogaster and anogenital region without transverse granulate band 20
- 13. Pteromorph mostly with long, dense lines 14
- Pteromorph mostly without lineate pattern 16
- 14. Genital plate without lineate pattern. Body length 325–345
Trichogalumna (Trichogalumna) lineata Ohkubo, 1984
Distribution: Japan
- Genital plate with dense, longitudinal lines 15
- 15. Subcapitular mentum with dense tubercles. Body length 323–358
Trichogalumna (Trichogalumna) pseudoohkuboi Hu, Zheng & Yang, 2023
Distribution: southeastern China
- Subcapitular mentum without tubercles. Body length 316–326
Trichogalumna (Trichogalumna) ohkuboi Hagino, Bayartogtokh & Shimano, 2017
(see also Bayartogtokh & Bae 2024) Distribution: Japan, Korea
- 16. Prodorsum nearly smooth 17
- Prodorsum with sparse granules 18
- 17. Bothridial seta with broadly dilated head unilaterally, having small, pointed tip distoventrally, smooth. Subcapitular mentum without lineate pattern. Body length 370–395
Trichogalumna (Trichogalumna) arborea Ohkubo, 1984
Distribution: Japan
- Bothridial seta lanceolate-fusiform. Posterior part of subcapitular mentum with transverse lines. Body length 297–300 *Trichogalumna (Trichogalumna) imperfecta* Ohkubo, 1984 (see also Hagino *et al.* 2017)
Distribution: Japan
- 18. Medioanterior part of pteromorph with dense granules versus posterior half of pteromorph with lines. Body length 320–350 *Trichogalumna (Trichogalumna) chimaera* Ohkubo, 1984
Distribution: Japan
- Anterior and/or median parts of pteromorph with dense granules versus posterior part of pteromorph mostly smooth 19
- 19. Anterior part of pteromorph with dense granules versus medioanterior part of pteromorph without granules. Interlamellar seta not longer than diameter of bothridium. All notogastral porose areas of normal size. Body length 280–302
Trichogalumna (Trichogalumna) boninensis Hagino, Bayartogtokh & Shimano, 2017
(see also Bayartogtokh and Bae 2024) Distribution: Japan, Korea
- Anterior and median parts of pteromorph with dense granules. Interlamellar seta distinctly longer than diameter of bothridium. All notogastral porose areas unusually small. Body length 310–330
Trichogalumna (Trichogalumna) granuliala Ohkubo, 1984
Distribution: Japan
- 20. Pteromorph mostly with long lines 21

- Pteromorph mostly without lineate pattern 24
- 21. Lines of pteromorph sparse, longitudinal to oblique. Head of bothridial seta with acicular apex. Dorsocentral region of notogaster with dense, polygonate-foveolate ornamentation. Region between genital and anal plates with slightly developed, dense, polygonate-tuberculate sculpturing. All notogastral porose areas small. Body length 240–270 *Trichogalumna* (*Trichogalumna*) *giaensis* **sp. nov.**
Distribution: Vietnam
- Lines of pteromorph dense, transverse. Head of bothridial seta without acicular apex. Dorsocentral region of notogaster without polygonate-foveolate ornamentation. Region between genital and anal plates without polygonate-tuberculate sculpturing. All notogastral porose areas of normal size 22
- 22. Prodorsum with dense, longitudinal lines. Notogaster and anogenital region with dense, curved ridges. Body length 290–310 *Trichogalumna* (*Trichogalumna*) *vittateata* Hu, Zheng & Yang, 2023
Distribution: southeastern China.
- Prodorsum without lineate pattern. Notogaster and anogenital region without dense, curved ridges ..
..... 23
- 23. Prodorsum, notogaster, and ventral plate with granulate pattern. Genital plate with dense, longitudinal lines. Body length 370–400 *Trichogalumna* (*Trichogalumna*) *hygrophila* Ohkubo, 1984
Distribution: Japan
- Prodorsum, notogaster, and ventral plate without granulate pattern. Genital plate without lineate pattern. Body length 286–321
Trichogalumna (*Trichogalumna*) *trivella* Nakamura, Nakamura & Fujikawa, 2013 (= *Trichogalumna gotoensis* Shirotsuki, Nakamura & Fujikawa, 2017)
Distribution: Japan
- 24. Lamellar seta short, about bothridium diameter, distinctly shorter than rostral seta. Body length 328
..... *Trichogalumna* (*Trichogalumna*) *punctata* Engelbrecht, 1972
Distribution: South Africa
- Lamellar seta medium-sized, distinctly longer than bothridium diameter, slightly differs from rostral seta in length 25
- 25. Interlamellar seta long, subequal to prodorsum length, subflagellate. Body length 350
..... *Trichogalumna* (*Trichogalumna*) *seminuda* Balogh, 1960
Distribution: Afrotropical region, India
- Interlamellar seta medium-sized or short, or represented by alveolus, distinctly shorter than prodorsum length, setiform or acicular 26
- 26. Rostral, lamellar, and interlamellar setae slightly differs in length 27
- Interlamellar seta distinctly shorter than rostral and lamellar setae 28
- 27. Head of bothridial seta with small, pointed tip distoventrally, smooth. Body length 381–415
..... *Trichogalumna* (*Trichogalumna*) *africana* Ermilov, Sidorchuk & Rybalov, 2011
Distribution: Afrotropical region
- Head of bothridial seta bifid distally, partially barbed. Body length 360–370
..... *Trichogalumna* (*Trichogalumna*) *lunai* (Balogh, 1958) (see also Balogh 1960)
Distribution: Afrotropical region, Japan
- 28. Interlamellar seta short, subequal to bothridium diameter, or represented by alveolus 29
- Interlamellar seta distinctly longer than bothridium diameter 30
- 29. Head of bothridial seta smooth. Body length 320
..... *Trichogalumna* (*Trichogalumna*) *chitralensis* Hammer, 1977
Distribution: Pakistan, India
- Head of bothridial seta barbed. Body length 318–350
..... *Trichogalumna* (*Trichogalumna*) *subnuda* Balogh & Mahunka, 1967
Distribution: Vietnam
- 30. Notogastral porose area *Aa* oval, smaller than *A1*. Body length 356–369

- *Trichogalumna (Trichogalumna) madagassica* Mahunka, 1996 (in Mahunka 1996a)
Distribution: Madagascar
- Notogastral porose area *Aa* circular, not smaller than *A1* 31
31. Genital and anal plates with dense, granulate pattern. Rostrum pointed. Body length 384–414
..... *Trichogalumna (Trichogalumna) mexicana* Villagómez & Palacios-Vargas, 2013
Distribution: Mexico
- Genital and anal plates without granulate pattern. Rostrum rounded 32
32. Head of bothridial seta smooth. Body length 384–414
..... *Trichogalumna (Trichogalumna) montana* Balogh, 1962
Distribution: Afrotropical region.
- Head of bothridial seta barbed 33
33. Notogastral porose areas *A1* and *A2* distinctly distanced from each other. 314–333
..... *Trichogalumna (Trichogalumna) nabhitabhatai* Mahunka, 2008
Distribution: Thailand
- Notogastral porose areas *A1* and *A2* located close to each other Two similar species:
1. *Trichogalumna (Trichogalumna) curva* (Ewing, 1907) (see also Norton & Ermilov 2017) (body length
315–400; distribution: Holarctic region). 2. *Trichogalumna (Trichogalumna) nipponica* (Aoki, 1966) (see also
Aoki 2000; Fujikawa 2004; Fujikawa *et al.* 2006) (body length 293–412; distribution: semicosmo-
politan)

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اطلاعات آرایه‌شناختی در شناخت هرناهای اورibatید جنس *Trichogalumna* (Acari, Oribatida, Galumnidae)

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چکیده

جنس *Trichogalumna* (Oribatida, Galumnidae) در حال حاضر شامل دو زیرجنس و ۳۴ گونه است که به طور جمعی در مناطق گرمسیری و نیمه گرمسیری توزیع شده‌اند. زیرجنسی جدید - *Trichogalumna* (*Paratrichogalumna*) **subgen. nov.** با *Trichogalumna punctata* Engelbrecht, 1972 به عنوان گونه تایپ - پیشنهاد شده است. این زیرجنس با سایر زیرجنس‌های *Trichogalumna* از نظر محل شیار کنارمخرجی (که به طور مشخص از صفحه مخرجی فاصله دارد) متفاوت است. گونه جدید - *T. (T.) giaensis* **sp. nov.** - بر اساس کنه‌های کامل جمع‌آوری شده از زباله‌های جنگلی در ویتنام مرکزی توصیف شده است. این گونه جدید عمدتاً با اندازه کوچک بدن؛ اندام‌های بال مانند مخطط پراکنده؛ تزئینات متراکم چندضلعی-حفره ای در ناحیه پشتی-مرکزی پسین‌گرده؛ تزئینات متراکم چندضلعی-برجسته بین صفحات تناسلی و مخرجی؛ موهای حفره‌ای بلند نوک سر نیزه‌ای و خاردار، دارای رأس سوزنی شکل و مشخص؛ و چهار جفت ناحیه متخلخل کوچک و دایره‌ای مشخص می‌شود. مترادف زیر پیشنهاد شده است: *Trichogalumna* (*Trichogalumna*) *trouwella* Nakamura, Nakamura & Fujikawa, 2013 (= *Trichogalumna gotoensis* *Trichogalumna* Shirosaki, Nakamura & Fujikawa, 2017 **syn. nov.**)
آرایه شده است.

واژگان کلیدی: هرناهای گالومنیید، کلید شناسایی، ریخت‌شناسی، ناحیه شرقی، آرایه‌شناسی

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