

Two new genera of Alleculinae (Coleoptera: Tenebrionidae) from Malaysia

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Abstract. Two new genera are described as follows: *Evaostetha* gen. n. with new species *E. petri* sp. n. and *Petrostetha* gen. n. with new species *P. tibialis* sp. n. from Malaysia. New species are illustrated. Key to the genera related to *Bolbostetha* Fairmaire, 1896 is provided.

INTRODUCTION

In 1896, Fairmaire has described a new genus *Bolbostetha*. This genus is closely related to the genus *Allecula*. It differs mainly by having antennomere 3 distinctly shorter than antennomere 4, by anterior tarsomeres 1-4 mostly strongly broadened and lobed, by anterior tibia of males often with teeth, angles, excisions and depressions. Borchmann (1910) in *Coleopterorum Catalogus* listed only 2 species of this genus. Till the present time, 33 species of this tenebrionid genus have been described (Novák 2008), 4 species are known from Palaearctic region (Novák & Pettersson 2008).

Two new genera *Evaostetha* gen. n. and *Petrostetha* gen. n. differ from the related genus *Bolbostetha* mainly by bizzare anterior tibia and strongly broadened anterior femora of males - as posterior femora of some males of *Oedemera* species like and by sides of pronotum distinctly rounded, pronotum broadest near middle (males of *Bolbostetha* species without strongly broadened anterior femora and with sides of pronotum straight or regularly narrowing to the middle). *Evaostetha* gen. n. differs from *Petrostetha* gen. n. mainly by a large, deep and oval hole at anterior half of the upper side of both anterior femora and by a deep depression and sharp edges at anterior tibia of males, by strongly broadened and lobed only anterior tarsomeres 3 and 4. *Petrostetha* gen. n. without holes at anterior part of strongly broadened anterior femora and with strongly broadened and excised anterior part of anterior tibia of males and by strongly broadened anterior tarsomeres 2-4.

Two new genera *Evaostetha* gen. n. with the new species *E. petri* sp. n. and *Petrostetha* gen. n. with the new species *P. tibialis* sp. n. from Malaysia are presently described and illustrated. Key to the genera related to *Bolbostetha* Fairmaire, 1896 is added.

MATERIAL AND METHODS

Material from Malaysia was collected by P. Čechovský in 1998, 2005 (*E. petri* sp. n.), respectively 2004 (*P. tibialis* sp. n.) and by M. Říha & M. Němec in 2003 (*E. petri* sp. n.). Two important morphometric characteristics used for the descriptions of species of the subfamily Alleculinae, the ‘ocular index’ dorsaly (Campbell & Marshall 1964) is calculated by measuring the minimum distance between the eyes and dividing this value by the maximum dorsal width across eyes, the quotient resulting from this division is converted into an index by multiplying by 100 and ‘pronotal index’ (Campbell 1965) expresses the ratio of the length of the pronotum along the midline to the width at the basal angles, this ratio is multiplied by 100 for convenience in handling, are used in this paper as well.

Specimens of the presently described species are provided with one red label printed: „*Evaostetha petri* sp. n. or *Petrostetha tibialis* sp. n. HOLOTYPUS [or PARATYPUS, respectively] V. Novák det. 2008“. Holotypes and paratypes are deposited in author’s collection, Prague, Czech Republic and one paratype (*E. petri* sp. n.) is deposited in collection of D. Hauck, Brno, Czech Republic.

„Type material“ information is taken from recent locality labels.

The following abbreviations are used in the paper:

DHBC collection of David Hauck, Brno, Czech Republic;

VNPC collection of Vladimír Novák, Prague, Czech Republic

KEY TO THE GENERA - *BOLBOSTETHA* GENUS GROUP

- 1 (2) Sides of pronotum rounded, pronotum broadest near half, males with strongly broadened femora
- 2 (1) Sides of pronotum straight or narrowing, pronotum broadest at base, males with normally broadened femora *Bolbostetha* Fairmaire, 1896
- 3 (4) Anterior femora of males with large holes at upper side of anterior half, only anterior tarsomeres 3 and 4 strongly broadened and lobed *Evaostetha* gen. n.
- 4 (3) Anterior femora of males without holes, anterior tarsomeres 2-4 strongly broadened and lobed *Petrostetha* gen. n.

DESCRIPTIONS

Evaostetha gen. n.

Type species. *Evaostetha petri* sp. n.

Description. General shape (Fig. 1) *Bolbostetha*-like. Head (Fig. 2) narrower than pronotum. Eyes large, transverse, excised; vertex between eyes narrow. Antennae (Fig. 3) longer and narrow, all antennomeres longer than wide, antennomere 1 broadest, antennomere 2 shortest, antennomere 3 shorter than antennomeres 4-11. Maxillary palpus (Fig. 4), with broadly triangular ultimate palpomere. Pronotum (Fig. 2) narrower than base of elytra, broadest at middle, slightly longer than wide. Posterior angles distinctly obtuse-angled, base excised from both sides and against scutellum. Elytra longer and narrow, broadest at base. Scutellum smaller with distinct longitudinal impression at middle. Ventral side of body dark blackish-

brown, abdomen lighter, five-segmented, matt. Ultimate abdominal sternite with deep, large, oval depression, abdominal segments with microgranulation and small shallow punctures. Prosternum, mesosternum and metasternum with deeper and coarse punctures, shiny. Legs longer, narrow, anterior tibia of male bizarre (Fig. 6) with excision, strongly broadened at anterior half with deep depression and sharp edges. Mesotibia normal. Male metatibia without excision at anterior half. Anterior tarsomeres 3-4 (Fig. 5), middle tarsomeres 3-4 and posterior tarsomere 3 of male strongly broadened with lobes. Anterior femora (Fig. 7) of males strongly broadened - as posterior femora of some males of *Oedemera* species like, with large, deep, oval hole at upper part of anterior half and with large, flat, shiny, shallow depression at inner part. Male genitalia (Figs 9, 10) *Bolbostetha*-like.

Etymology. The compound name formed of the name of my wife Eva and the ending - *stetha* marking affinity to the genus *Bolbostetha* Fairmaire, 1896. Gender: feminine.

Distribution. Malaysia.

Evaostetha petri sp. n.

(Figs 1-10)

Type material. Holotype (♂) labelled: MALAYSIA West, PAHANG, Cameron Highlands, TANAH RATA, 3.-19.ii.2005, 1200-1500 m, P. Čechovský lgt., (VNPC); Paratypes: (♂): MALAYSIA-W, Pahang, 30 km E of IPOH, 1500 m, Cameron Highlands, TANAH RATA, 20.ii.-3.iii.1998, P. Čechovský leg., (VNPC); (♂): MALAYSIA-W, PAHANG, Cameron Highlands, 1500 m, TANAH RATA (35km SEE IPOH), 4°28'N, 101°23'E, 19.-31.iii.2003, Říha M. & M. Němec leg., (DHBC).

Description of holotype. Body elongate, relatively narrow, habitus (Fig. 1), dark brown with light setation. Tarsomeres and antennae distinctly paler. Length 12.88 mm; widest at base; 3.55 longer than wide.

Head (Fig. 2). Dark brown, clypeus lighter with longer light setation. Eyes large, dark, transverse, deeply excised. Width across eyes approximately 0.65 of pronotal base width. Length of head (visible part) 1.61 mm. Width of head (across eyes) 1.79 mm. Ratio L/W (length/maximum width) 0.90. Ocular index equal to 24.85. Punctuation dense and shallow, punctures middle-sized. Frons between eyes with smaller glabrous space without punctures.

Antennae (Fig. 3). Longer, length 8.99 mm, reaching up 0.70 of body length. All antennomeres pale brown and narrow with short light setation, apex of antennomeres with a few longer light setae. Antennomeres slightly shiny and rugose, with distinct and relatively larger and deeper punctures. Only antennomere 1 slightly darker and broader. Antennomere 2 shortest, antennomeres 4-11 distinctly longer than antennomere 3. Ratios of relative lengths of antennomeres 1-11 equal to 0.77: 0.30: 1.00: 1.34: 1.36: 1.49: 1.56: 1.61: 1.61: 1.49: 1.44. Length/maximum width ratios of antennomeres 1-11 equal to 2.47: 1.29: 3.59: 4.60: 5.19: 6.50: 6.33: 6.53: 7.53: 8.26: 7.33.

Maxillary palpus (Fig. 4). Brown, somewhat paler than head, same colour as clypeus, with longer light setation, a few setae at apex of penultimate palpomere distinctly longer. Palpomerer slightly shiny and rugose. Penultimate palpomere distinctly shorter than

palpomere 2 and ultimate palpomere. Palpomere 2 distinctly roundedly excised at inner side. Palpomeres 2-4 narrowest at base, broadest at apex, ultimate palpomere broadly triangular. Ratios of relative lengths of palpomeres 2-4 equal to 2.05: 1.00: 1.61. Length/maximum width ratios of palpomeres 2-4 equal to 2.87: 1.38: 0.89.

Pronotum (Figs 2, 8). Dark brown, slightly shiny with sparser and relatively shorter light setation, at base distinctly narrower than elytron at base. Longest at middle 2.49 mm; widest near half 2.98 mm; width of base 2.75 mm. Pronotal index equal to 90.39. Borders complete and clearly conspicuous through their entire length, only in the middle of anterior border and base borders not clearly conspicuous. Base from both sides and against scutellum distinctly excised. Posterior angles roundedly obtuse-angled, anterior angles only very slightly conspicuous. Basal part near posterior angles with shallow impressions from both sides. Surface densely and shallowly punctuated, punctures middle-sized, interspaces very narrow, shiny. Punctures inside with microgranulation.

Ventral side of body dark blackish brown, abdomen lighter. Ultimate abdominal sternite with large, deep and oval depression at anterior half. Abdominal sternites with sparser longer light setation, at sides setation denser. Punctuation of abdominal sternites shallow, punctures smaller, interspaces with microgranulation. Prosternum, mesosternum and metasternum with deeper and coarse punctures, shiny.

Elytron (Fig. 8). Unicolorous dark brown, shiny, with dense, longer light setation. Length 8.78 mm; widest at base, at this place width 3.63 mm. Length/maximum width ratio L/W equal to 2.42. Surface with distinct rows of very large, oval punctures in elytral striae. Elytral intervals rugose with small punctures with setae near large punctures in elytral striae.

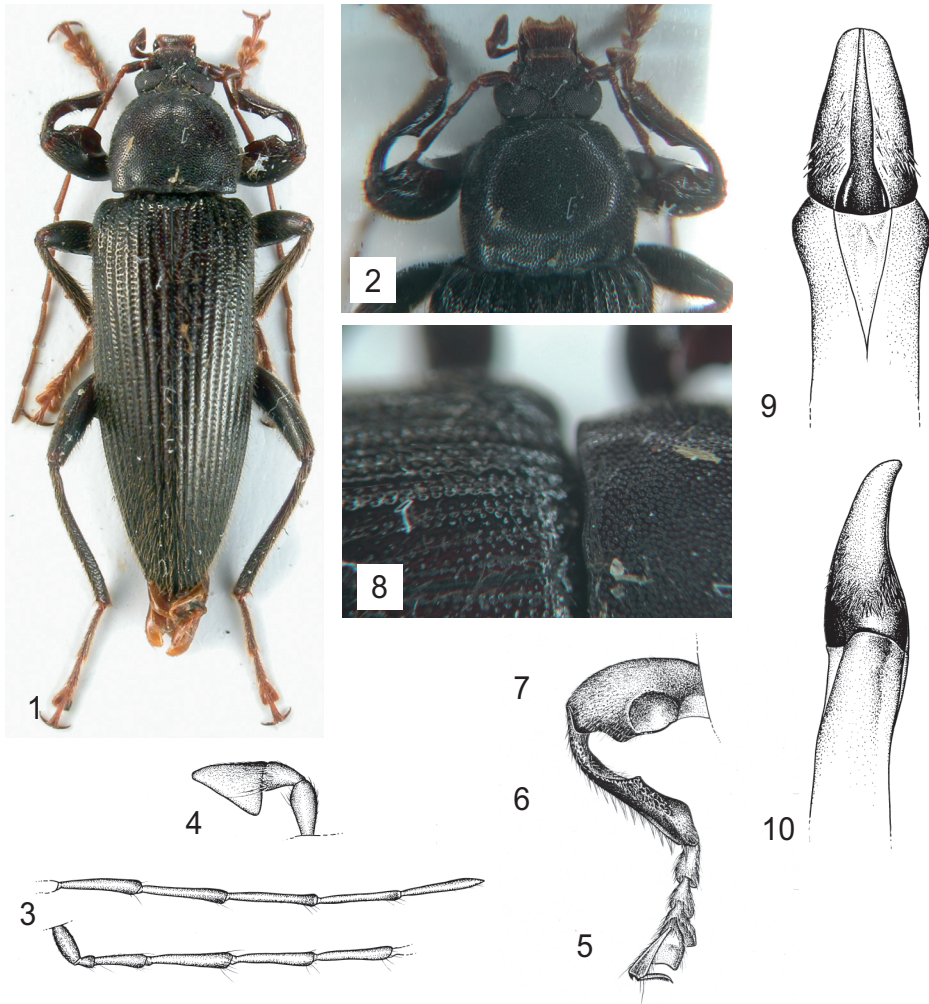
Scutellum. Brown, rugose, matt, near sides darker, at middle with distinct impression, sides parallel, anterior part broadly triangular.

Elytral epipleura. Well developed, brown, as colour as elytron, regularly narrowing to first abdominal sternite, then in anterior half running parallel. Posterior half with relatively dense small punctures, anterior half with sparse punctures, distinctly smaller than punctures in posterior half, punctures with longer light setae.

Legs (Figs 5-7). Dark brown, tarsomeres pale brown with light setation. Setation of tibia and tarsomeres distinctly longer than setation of femora. Anterior tarsomeres with longer light setation, anterior tarsomeres 3 and 4, middle tarsomeres 3 and 4 and posterior tarsomere 3 broadened and lobed. Anterior femora strongly broadened, with very large and deep hole (as Fig. 7) at middle of upper side and with smaller depression at inner side near apex. Upper part of femora with light setation and rugose, inner side strongly shiny with large glabrous part. Anterior tibia (as Fig. 6) strongly and extremely excised with deep depression, with longer light setation. Ratios of relative lengths of tarsomeres 1-5 and 1-4 equal to 1.00: 0.72: 0.74: 0.98: 1.40 (protarsus); 1.00: 0.53: 0.53: 0.66: 0.98 (mesotarsus); 1.00: 0.48: 0.40: 0.67 (metatarsus). Length/maximum width ratios L/W of tarsomeres 1-5 and 1-4 equal to 2.06: 1.52: 0.88: 0.94: 3.44 (protarsus); 5.16: 2.50: 1.15: 1.08: 4.48 (mesotarsus); 6.80: 3.11: 1.26: 4.10 (metatarsus).

Both anterior tarsal claws with 40 visible teeth.

Aedeagus (Figs 9-10). Pale brown, shiny, basal piece large, regularly rounded laterally. Apical piece very short with beak-shaped rounded apex. Basal piece regularly narrowing



Figs 1-10. *Evaostetha petri* sp. n. (holotype): 1- habitus of male; 2- head and pronotum of male; 3- antennae of male; 4- maxillary palpus of male; 5- anterior tarsomeres of male; 6- anterior tibia of male; 7- anterior femora of male; 8- punctuation of pronotum and elytra; 9- aedeagus, dorsal view; 10- aedeagus, lateral view.

from posterior part to anterior part, dorsally. Ratio of lengths of apical piece to basal piece 1: 8.47.

Male (Figs 1-10). Both anterior tarsal claws with 40 visible teeth.

Female. Unknown.

Variability. Measurements: mean (minimum - maximum). Males (n=3). Length 13.50 mm (12.88-14.45 mm); head length 1.82 mm (1.61-2.04 mm); head width 1.80 mm (1.77-1.85 mm). Ocular index 22.41 (20.46-24.85). Pronotal length (in middle) 2.50 mm (2.39-2.63 mm); pronotal width at base 2.84 mm (2.77-3.06 mm). Pronotal index 91.59 (89.29-95.09).

Elytral length 9.18 mm (8.78-9.78 mm); elytral width 3.64 mm (3.47-3.81 mm).

Differential diagnoses. For the differential diagnoses see the key above.

Name derivation. Dedicated to the collector of type material Petr Čechovský; after his first name.

Petrostetha gen. n.

Type species. *Petrostetha tibialis* sp. n.

Description. General shape (Fig. 11) *Bolbostetha*-like. Head (Fig. 12) narrower than pronotum. Eyes large, transverse, excised; vertex between eyes narrow. Antennae (Fig. 13) longer and narrow, all antennomeres longer than wide, antennomere 1 broadest, antennomere 2 shortest, antennomere 3 shorter than antennomeres 4-11. Maxillary palpus (Fig. 14), with broadly triangular ultimate palpomere. Pronotum (Fig. 12) narrowed than base of elytra, broadest at middle, slightly longer than wide. Posterior angles finely obtuse-angled, base excised from both sides, against scutellum straight. Elytra longer and narrow, broadest near elytral half. Scutellum smaller with distinct longitudinal impression at middle. Ventral side of body dark blackish-brown, abdomen five-segmented and lighter. Ultimate abdominal sternite with shallow depression at anterior half, abdominal segments with microgranulation and small shallow punctures, abdomen more matt. Prosternum, mesosternum and metasternum with deeper and coarse punctures, shiny. Legs longer, narrow, anterior tibia of male bizzare (Fig. 16) with deep excision between two rounded obtuse-angled teeth at posterior half and rounded sharp-angled tooth at anterior half, strongly broadened and flat at anterior half. Middle tibia normal, posterior tibia with distinct obtuse angle near half. Anterior tarsomeres 2-4 (Fig. 15) middle tarsomeres 3-4 and posterior tarsomere 3 of male strongly broadened and lobed. Anterior femora (Fig. 17) of males strongly broadened - as posterior femora of some males of *Oedemera* species like, with large, shallow, oval depression at inner part. Male genitalia (Figs 19-20) *Bolbostetha* like.

Etymology. The compound name formed of the first name of the collector (Petr Čechovský) and the ending - *stetha* marking affinity to genus *Bolbostetha* Fairmaire, 1896. Gender: feminine.

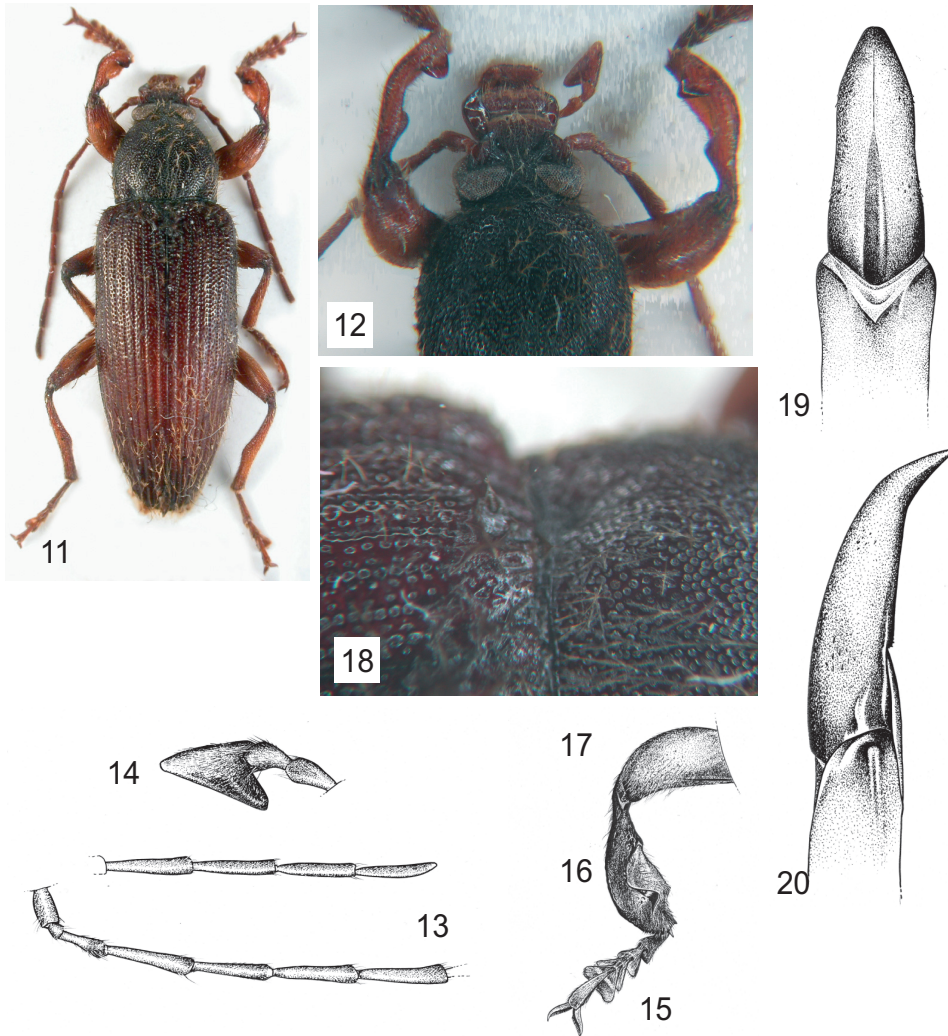
Distribution. Malaysia.

Petrostetha tibialis sp. n.

(Figs 11-20)

Type material. Holotype (♂) labelled: MALAYSIA West, PERAK, 40 km SE of IPOH, 900 m, Banjaran Titi Wangsu, RINGLET, 29.iii.-15.iv.2004, P. Čechovský lgt., (VNPC).

Description of holotype. Body elongate, relatively narrow, habitus (Fig. 11), from pale brown to dark brown with longer light setation. Length 15.36 mm; widest near elytral half; 3.79 times longer than wide.



Figs 11-20. *Petrostetha tibialis* sp. n. (holotype): 11- habitus of male; 12- head and pronotum of male; 13- antennae of male; 14- maxillary palpus of male; 15- anterior tarsomeres of male; 16- anterior tibia of male; 17- anterior femora of male; 18- punctuation of pronotum and elytra; 19- aedeagus, dorsal view; 20- aedeagus, lateral view.

Head (Fig. 12). Dark brown, clypeus lighter with longer light setation. Eyes large, transverse, deeply excised. Width across eyes approximately 0.64 of pronotal base width. Length of head (visible part) 2.29 mm. Width of head (across eyes) 1.97 mm. Ratio L/W (length/maximum width) 1.16. Ocular index equal to 20.53. Punctuation dense and relatively shallow, punctures middle-sized, between eyes large-sized. Clypeus without distinct punctuation with fine granulation, shiny.

Antennae (Fig. 13). Longer, length 8.91 mm, reaching up 0.58 of body length. All antennomeres brown and narrow with short light setation, apex of antennomeres with a few

longer light setae. Antennomeres more matt, rugose, with distinct and relatively larger and deeper punctures. Only antennomere 1 slightly darker and broader. Antennomere 2 shortest, antennomeres 4-11 distinctly longer than antennomere 3. Ratios of relative lengths of antennomeres 1-11 equal to 0.94: 0.36: 1.00: 1.57: 1.51: 1.78: 1.83: 1.73: 1.67: 1.64: 1.77. Length/maximum width ratios of antennomeres 1-11 equal to 2.03: 1.32: 2.47: 3.18: 3.46: 3.84: 4.66: 4.96: 6.05: 5.94: 6.78.

Maxillary palpus (Fig. 14). Brown with sparse shorter light setation, anterior part of palpomeres 2 and 3 with longer light setae. Palpomeres 2 a 3 distinctly roundedly excised before apex at inner side, broadest at apex. Palpomeres slightly shiny, penultimate palpomere short and distinctly broadest at apex. Ultimate palpomere broadly triangular, surface distinctly rugose. Ratios of relative lengths of palpomeres 2-4 equal to 1.81: 1.00: 2.48. Length/maximum width ratios of palpomeres 2-4 equal to 2.46: 1.25: 0.84.

Pronotum (Fig. 12, 18). Dark brown, slightly shiny, with longer light setation. Distinctly narrower than elytra; pronotum width at base 0.76 of elytral base width; at base 1.55 times wider than head with eyes together. Longest in the middle 2.83 mm; widest near half 3.06 mm. Pronotal index equal to 92.42. Borders complete through their entire length, only in the middle of base against scutellum not clearly conspicuous. Base from both sides distinctly excised. Posterior angles slightly rounded, anterior angles not conspicuous. Surface with deeper, dense middle-sized punctures, interspaces very narrow, with fine rugose, shiny. Middle of pronotum with distinct relatively narrow longitudinal impression.

Ventral side of body dark blackish brown, abdomen paler. Ultimate abdominal sternite with shallow oval depression at anterior half. Abdomen five-segmented, abdominal sternites with sparse, shorter, light setation, at sides setation denser. Punctuation of abdominal sternites shallow, punctures small, interspaces with microgranulation. Prosternum, mesosternum and metasternum with deeper and coarse punctures, shiny.

Elytron (Fig. 18). Brown, lighter than pronotum, with relatively dense light setation. Length 10.24 mm. distinctly broader than pronotum, widest near elytral half, at this place width 4.05 mm. Length/maximum width ratio equal to 2.53. Elytral striae with middle-sized punctures, but larger than punctures of pronotum, interspaces very narrow, with fine rugose, shiny. Elytral intervals with punctures of same diameter as in elytral striae.

Scutellum. Brown, matt, with fine microsculpture and sparse longer light setae. Anterior part slightly darker and in middle with fine impression.

Elytral epipleura well-developed, brown as colour as elytron, with light setation, regularly narrowing in posterior third, then running parallel. Posterior half with punctures same size as punctures of elytron, anterior half with smaller punctures.

Legs (Figs 15-17). Pale brown with longer light setation, inner borders of posterior part of femora, apex of femora, inner borders of tibia and tarsomere 1 darker. Anterior femora strong (as Fig. 15), strongly broadened at middle with large, broad and shallow depression at inner side. Anterior tibia (as Fig. 14) flat and strongly broadened at anterior half, with two rounded teeth and deep excision between teeth at inner side. Ratios of relative lengths of tarsomeres 1-5 and 1-4 equal to 1.00: 0.76: 0.81: 0.94: 1.87 (protarsus); 1.00: 0.77: 0.90: 0.83: 1.26 (mesotarsus); 1.00: 0.60: 0.63: 0.98 (metatarsus). Length/maximum width ratios of tarsomeres equal to 1.34: 0.96: 0.73: 0.81: 4.26 (protarsus); 2.15: 1.57: 1.41: 1.12: 3.46 (mesotarsus); 4.03: 1.78: 1.53: 4.63 (metatarsus).

Anterior tarsal claws with 17 and 22 visible teeth.

Aedeagus (Figs 19-20). Pale brown, slightly shiny, apical piece darker, basal piece large, regularly rounded laterally. Apical piece short with beak-shaped rounded anterior part. Basal piece regularly narrowing from posterior part to anterior part, then running parallel to apex of apical piece, dorsally. Ratio of lengths of apical piece to basal piece 1: 4.77.

Male (Figs 11-20). Only holotype.

Female. Unknown.

Differential diagnoses. For the differential diagnoses see the key above.

Name derivation. Marking unique shape of anterior tibia of males.

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