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New genera of Alleculinae (Coleoptera: Tenebrionidae) from Palaearctic and Oriental Regions. Part IV - *Gerdacula* gen. nov.

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Taxonomy, description, new genus, new species, key, Coleoptera, Tenebrionidae, Alleculinae, *Gerdacula*, Palaearctic and Oriental Regions

Abstract. New genus of Alleculinae *Gerdacula* gen. nov. is described with the following four new species: *Gerdacula brancuccii* sp. nov. and *Gerdacula nepalica* sp. nov. from Nepal, *Gerdacula fujianica* sp. nov. from China (Fujian), *Gerdacula hubeica* sp. nov. from China (Hubei). A further species of the genus is transferred from the genus *Allecula* Fabricius, 1801 as *Gerdacula communis* (Borchmann, 1942) comb. nov. from Myanmar (Burma). The new genus is compared with similar genera from Palaearctic and Oriental Regions. All the new species are illustrated and keyed together.

INTRODUCTION

Fabricius (1801) described *Allecula* Fabricius, 1801 with type species *Allecula morio* Fabricius, 1801 as a new genus of Alleculinae. The species of this genus have elongate body with pronotum distinctly narrower than elytra at base. Fairmaire (1897) established *Borboresthes* Fairmaire, 1897 with its type species *Allecula cruralis* Marseul, 1876 as a new genus of Alleculinae. Species of this genus have oval or elongate oval, egg-shaped body, antennae filiform, pronotum almost semicircular, as wide as elytra at base or very slightly narrower. Borchmann (1910) listed 2 *Borboresthes* species and 151 *Allecula* species in the world Coleopterorum Catalogus. Mader (1928) knew 29 species of *Allecula* and 7 species of *Borboresthes*; Novák & Pettersson (2008) listed 64 species of *Allecula* and 43 species of *Borboresthes* from the Palaearctic Region. While species of *Borboresthes* have more or less the same shape of body and live also in the Oriental Region, species of *Allecula* are more different and live in all regions.

Four new species of the new genus *Gerdacula* gen. nov. are described, illustrated and keyed as follows: *Gerdacula brancuccii* sp. nov. and *Gerdacula nepalica* sp. nov. from Nepal, *Gerdacula fujianica* sp. nov. from China (Fujian), and *Gerdacula hubeica* sp. nov. from China (Hubei). *Gerdacula communis* (Borchmann, 1942) comb. nov. is transferred from the genus *Allecula*.

Species of *Gerdacula* gen. nov. with elongate oval body and bell-shaped pronotum as wide as elytra at base, have some characters of *Allecula* (elongate body, pronotum longer

than semicircular) and some characters of *Borboresthes* (body slightly oval, pronotum as wide as elytra at base).

MATERIAL AND METHODS

Two important morphometric characteristics used for descriptions of species in the subfamily Alleculinae, the 'ocular index' dorsally (Campbell & Marshall 1964), 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 the index by multiplying by 100), and the 'pronotal index' (Campbell 1965) expressing the ratio of the length of the pronotum along the midline to the width at basal angles (this ratio is multiplied by 100 for convenience in handling) are used in the present paper. The following codens are used in the paper:

NHMB Naturhistorisches Museum, Basel, Switzerland;
VNPC private collection of Vladimir Novák, Praha, Czech Republic;
ZMUH Zoologisches Institut und Museums der Universität Hamburg, Germany.

Measurements were made with the Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS. Measurements of body parts and corresponding abbreviations used in text are as follows:

AL total antennae length
BL maximum body length
EL maximum elytral length
EW maximum elytral width
HL maximum length of head (visible part)
HW maximum width of head
OI ocular index dorsally
PI pronotal index dorsally
PL maximum pronotal length
PW pronotal width at base
RLA ratios of relative lengths of antennomeres 1-11 from base to apex (3=1.00)
RL/WA ratios of length / maximum width of antennomeres 1-11 from base to apex
RLT ratios of relative lengths of tarsomeres 1-5 respectively 1-4 from base to apex (1=1.00)

Other abbreviations used: bf= black frame; hb= handwritten black; pb= printed black; rl= red label; wl= white label.

Moreover, a double slash (//) separates data on different labels and a slash (/) data in different lines.

TAXONOMY

Gerdacula gen. nov.
(Figs. 1-18)

Type species: *Gerdacula fujianica* sp. nov.

Description. General shape as in Figs. 1, 5, 7, 11 and 15, body relatively large, narrow, elongate-oval, long, *Borboresthes*-shaped, or oval, *Allecula*-shaped, dorsal surface shiny, with long, pale setation, punctuation and microgranulation. Head (as in Figs. 2, 6, 8, 12 and 16) widest across eyes, distinctly narrower than base of pronotum, posterior part with punctuation and microgranulation, anterior part and clypeus paler than posterior part, with shallow punctuation, microgranulation and pale setation, denser than in posterior part. Eyes very large, transverse, deeply excised by genae, space between eyes narrow, approximately as wide as or slightly wider than diameter of one eye, distinctly wider than length of antennomere 2; as wide as or slightly wider than length of antennomere 1, distinctly narrower than length of antennomere 3. Maxillary palpus pale brown, with fine microgranulation and pale setation. Palpomeres 2, 3 and ultimate palpomere distinctly widest on apex, penultimate palpomere relatively short, palpomere 2 long and narrow, ultimate palpomere large, broadly triangular, axe-shaped. Antenna long, filiform, slightly longer than half body length. Antennomeres narrow, with short and dense pale setation, fine microgranulation and small punctures. Antennomere 2 shortest, antennomere 3 slightly shorter than antennomere 4 (as in Figs. 2, 6, 8, 12 and 16). Pronotum (as in Figs. 2, 6, 8, 12 and 16) longer, bell-shaped, widest at base, as wide as elytra at base, with microgranulation, dense punctuation and pale setation. Posterior angles sharp-angled or rectangular, anterior angles indistinct. Anterior margin arcuate, base bisinuate. Side margins more or less evenly narrowing in posterior half, arcuate in anterior part. Elytra elongate-oval, with pale setation and microgranulation, slightly shiny. Elytral striae with distinct rows of punctures, elytral interspaces flat or slightly convex, with microgranulation and very small punctures. Elytral epipleura well-developed, regularly narrowing in basal half, then leading parallel, with pale setation. Legs long and narrow, with microgranulation, punctuation and dense, pale setation. Protarsomeres, mesotarsomeres 3 and 4 and metatarsomere 3 widened, with membranous lobes. Aedeagus (as in Figs. 3, 4, 9, 10, 13, 14, 17 and 18).

Female. Space between eyes distinctly wider, anterior tarsal claws with less teeth.

Differential diagnosis. Species of *Gerdacula* gen. nov. with elongate oval body and bell-shaped pronotum as wide as elytra at base have some characters of *Allecula* (elongate body, pronotum longer than semicircular) and some characters as *Borboresthes* (body slightly oval, pronotum as wide as elytra at base); from *Allecula* species they differ mainly by bell-shaped pronotum with the base of pronotum as wide as elytra at base and body slightly oval,

while *Allecula* species have body mostly elongate, pronotum often square-shaped with the base of pronotum distinctly narrower than the elytral base. Species of *Gerdacula* differ from *Borboresthes* species mainly by longer, bell-shaped pronotum and body more elongate, only slightly oval, while *Borboresthes* species have the pronotum approximately semicircular and body more oval.

Etymology. Compound name formed by Gerda (after my first four-leg friend, a female dog of Brazilian Fila and the ending -*cula* marking similarity to the genus *Allecula* Fabricius, 1801. Gender: feminine.

Distribution. China (Fujian, Hubei), Myanmar, Nepal.

KEY TO THE SPECIES OF *GERDACULA* GEN. NOV.

1(2) Elytra bicolour. Habitus as in Fig. 1; head, pronotum and antennomeres 1-4 as in Fig. 2; aedeagus (Figs. 3 and 4). Nepal. ..... *Gerdacula brancuccii* sp. nov.
2(1) Elytra unicolour. 3
3(4) Body smaller, posterior angles of pronotum approximately rectangular, metatarsomere 1 distinctly longer than metatarsomeres 2-4 together. 5
4(3) Body larger, posterior angles of pronotum slightly sharp-angled, metatarsomere 1 shorter than or at most as long as metatarsomeres 2-4 together. 7
5(6) Penultimate tarsomeres broadly widened. Habitus as in Fig. 15; head, pronotum and antennomeres 1-4 as in Fig. 16; aedeagus (Figs. 17 and 18). Nepal. ..... *Gerdacula nepalica* sp. nov.
6(5) Penultimate tarsomeres narrowly widened. Habitus as in Fig. 5; head, pronotum and antennomeres 1-4 as in Fig. 6. Burma. .....*Gerdacula communis* (Borchmann, 1942) comb. nov.
7(8) Dorsal surface sparsely setose. Habitus as in Fig. 11; head, pronotum and antennomeres 1-4 as in Fig. 12; aedeagus (Figs. 13 and 14). China (Hubei). ..... *Gerdacula hubeica* sp. nov.
8(7) Dorsal surface densely setose. Habitus as in Fig. 7; head, pronotum and antennomeres 1-4 as in Fig. 8; aedeagus (Figs. 9 and 10). China (Fujian). ..... *Gerdacula fujianica* sp. nov.

***Gerdacula brancuccii* sp. nov.**

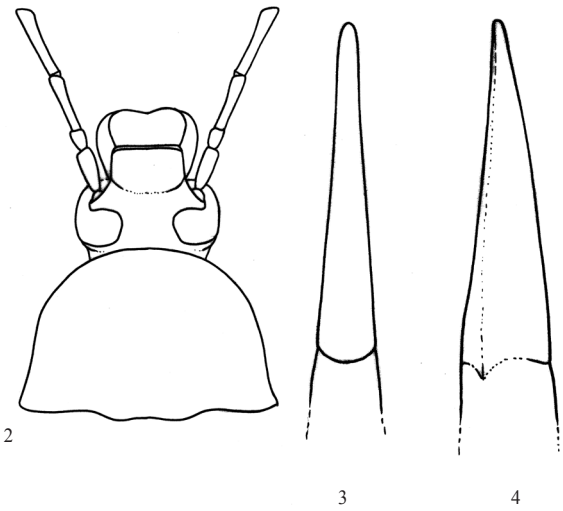
(Figs. 1-4)

Type locality. East Nepal, Arun valley, Hedangan - Num, 800 m.

Type material. Holotype (♂): Arun R. 800m / Hedangan - Num / 16.VI.1983 // E.Nepal / Arun V. / M. Brancuccii, (NHMB). Paratypes: (2 ♂♂): same data as holotype, (NHMB, VNPC); (2 ♂♂): Mure 2000m / 2-8.VI.1983 // E-Nepal / Arun V. / M. Brancucci, (NHMB, VNPC). The types are provided with a printed red label: 'Gerdacula brancuccii sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

Description of holotype. Habitus of male holotype as in Fig. 1. Body narrow, parallel, only slightly oval, from ochre yellow to brown, BL 7.37 mm, widest near elytral half, elytra bicolour, maximum width 2.74 mm, 2.69 times longer than wide.

Head (Fig. 2) brown, relatively small and narrow, with microgranulation and dense punctuation, with long, yellow setation, anterior half and clypeus distinctly paler than



Figs. 1-4: *Gerdacula brancuccii* sp. nov. (male holotype): 1- Habitus; 2- head, pronotum and antennomeres 1-4; 3- aedeagus, dorsal view; 4- aedeagus, lateral view.

posterior half. Punctuation of posterior half distinctly denser than in anterior half, punctures relatively small and shallow. Head widest across eyes, HW 1.14 mm, approximately 0.55 as wide as pronotal base. HL (visible part) 0.90 mm. Eyes large, transverse, paler than head surface, distinctly excised. Space between eyes relatively narrow, approximately as wide as diameter of one eye, OI equal to 33.29.

Antenna (Fig. 2). Relatively long (5.30 mm, i.e. reaching 0.72 of body length), filiform, unicoloured ochre yellow with yellow setation and microgranulation. Antennomeres 1-4 slightly shiny, antennomeres 5-11 matter, antennomere 2 shortest, antennomeres 4-11 distinctly longer than antennomere 3.

RLA (1-11) equal to 0.88 : 0.34 : 1.00 : 1.49 : 1.21 : 1.23 : 1.16 : 1.28 : 1.18 : 1.21 : 1.28. RL/WA (1-11) equal to 2.44 : 1.18 : 3.29 : 5.72 : 4.09 : 4.72 : 3.90 : 4.00 : 3.79 : 4.07 : 4.43.

Maxillary palpus ochre yellow, with microgranulation and short yellow setation, penultimate palpomere and palpomere 2 with a few long brown setae at apex, slightly shiny. Palpomeres 2, 3 distinctly widest at apex, penultimate palpomere shorter than palpomere 2. Ultimate palpomere broadly tringular.

Pronotum (Fig. 2) brown, bell-shaped, with long yellow setation, microgranulation and punctuation, punctures medium-sized, dense and shallow, interspaces between punctures very small; at base 1.83 as wide as head across eyes, longest at middle, PL 1.07 mm, and widest at base, PW at base 2.09 mm. PI equal to 51.20. Borders complete and distinct, only in middle of anterior margin indistinct. Posterior margin bisinuate, straight before scutellum. Posterior angles roundly rectangular, anterior angles indistinct, lateral margins narrowing in posterior part and regularly rounded in anterior part.

Elytra bicolour, brown with terminal ochre yellow spot on each elytron and dense, long yellow setation and microgranulation, EL 5.40 mm; EW 2.74 mm, widest near elytral half. EL/EW ratio equal to 1.97. Elytral striae with distinct rows of small-sized punctures, punctures of elytral striae separated by less than one diameter. Elytral intervals with sparse, very small punctures.

Elytral epipleura well-developed, brown with yellow setation, evenly narrowing in basal half to ventrite 1, then more or less parallel-sided.

Scutellum large, pentagonal, brown, paler than elytron itself, with microgranulation and yellow setation.

Legs narrow, ochre yellow, with dense, yellow setation. Tibia narrow, slightly dilated anteriorly. Protarsomere, mesotarsomere 3 and 4 and metatarsomere 3 distinctly widened, with membranous lobes. RLT 1-5 and 1-4 equal to 1.00 : 0.54 : 0.64 : 0.76 : 1.74 (protarsus), 1.00 : 0.35 : 0.29 : 0.34 : 0.76 (mesotarsus), and 1.00 : 0.25 : 0.25 : 0.57 (metatarsus). Anterior tarsal claws with 9 and 8 visible teeth.

Ventral side of body reddish-brown, with short and sparse yellow setation and punctuation. Abdomen pale brown, with sparse, short, yellow setation, microgranulation and dense and shallow punctuation, punctures small, slightly shiny.

Aedeagus (Figs. 3, 4). Pale brown, with fine microgranulation. Basal piece shiny, distinctly rounded laterally and narrowing dorsally, 3.70 times longer than apical piece. Apical piece in dorsal and lateral view longitudinally triangular.

Female. Unknown.

Variability. The type specimens somewhat vary in size; each characteristic is given as its mean value, with full range in parentheses. Males (n = 5). BL 7.62 mm (7.18-8.32 mm); HL 0.85 mm (0.65-1.02 mm); HW 1.19 mm (1.14-1.24 mm). OI 36.05 (33.29-38.05). PL (along midline) 1.22 mm (1.07-1.49 mm); PW at base 2.09 mm (1.99-2.25 mm). PI 54.88 (51.20-58.42). EL 5.56 mm (5.34-6.03 mm); EW 2.80 mm (2.53-3.08 mm).

Differential diagnosis. *Gerdacula brancuccii* sp. nov. differs from the species *Gerdacula communis* (Borchmann, 1942) comb. nov., *Gerdacula fujianica* sp. nov., *Gerdacula hubeica* sp. nov. and *Gerdacula nepalica* sp. nov. mainly by the dorsal surface of elytra bicolour, while *G. communis*, *G. fujianica*, *G. hubeica* and *G. nepalica* have elytra unicolour. For further details see the key above.

Etymology. The new species is dedicated to Michel Brancucci (†), the former head of the Department of Entomology (NHMB).

Distribution. Nepal.

Gerdacula communis (Borchmann, 1942) comb. nov.
(Figs. 5, 6)

Allecula communis Borchmann, 1942: 17.

Type locality. N. E. Burma, Kambiati, 2000 m.

Type material. Paratype (♂): wl: „N. E. BURMA / Kambaiti, 2000 m / 9/6.1934 *Malaise*“ [pb] // wl: „Allecula“ [pb] / „communis n.“ [hb] // rl with bf: „Paratypus“ [pb] // wl: „Sammlung / F. Borchmann / Eing. Nr. 5, 1943“ [pb], (ZMUH).

Type condition. Paratype complete, glued on wl.

Remarks. Body brown, habitus elongate oval, as in Fig. 5, dorsal surface with punctuation, microgranulation and dense and long, golden-yellow setation. Antennae filiform. Pronotum bell-shaped as in Fig. 6. BL 7.06 mm; HL 0.69 mm; HW1.08 mm; OI 35.25; PL 1.03 mm; PW 1.82 mm; PI 56.59; EL 5.34 mm; EW 2.41 mm.

Distribution. Burma.

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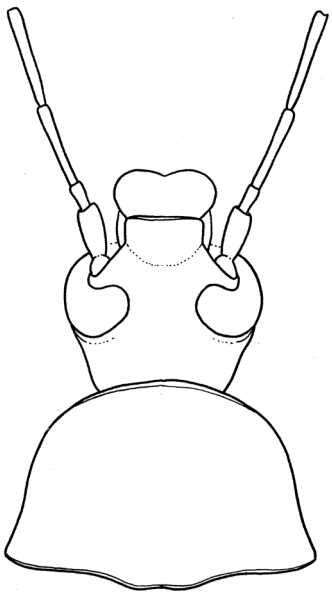

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Figs. 5-6: *Gerdacula communis* (Borchmann, 1942) comb. nov. (paratype): 5- Habitus; 6- head, pronotum and antennomeres 1-4.

Gerdacula fujianica sp. nov.

(Figs. 7-10)

Type locality. China, Fujian c., Ziyungdongshan, 25°46´N 117°20´E, NW slopes, 700-1100m.

Type material. Holotype (♂): China, Fujian c., 700-1100m / Ziyungdongshan, NW slopes / 25°46´N 117°20´E, 29.IV. / Jaroslav Turna leg., 2008, (VNPC). Paratypes: (8 ♂♂ 5 ♀♀): same data as holotype, (VNPC). The types are provided with a printed red label: 'Gerdacula fujianica sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

Description of holotype. Habitus of male holotype as in Fig. 7. Body narrow, parallel, only slightly oval, from pale brown to blackish-brown, dorsal surface with long and relatively dense golden yellow setation, punctuation and fine microgranulation, BL 8.50 mm, widest

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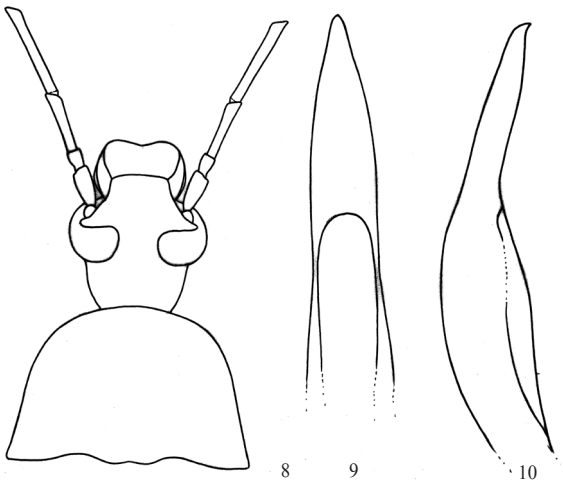

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Figs. 7-10: *Gerdacula fujianica* sp. nov. (male holotype): 7- Habitus; 8- head, pronotum and antennomeres 1-4; 9- aedeagus, dorsal view; 10- aedeagus, lateral view.

near the half of elytra length, maximum width 2.79 mm, 3.05 times longer than wide.

Head (Fig. 8) relatively small and narrow, pale brown, with long, golden yellow setation, microgranulation and dense punctuation, punctures small-sized, shiny. Anterior half and clypeus distinctly paler than posterior part. Head widest across eyes, HW 1.28 mm, approximately 0.60 as wide as pronotal base. HL (visible part) 1.16 mm. Eyes large, transverse, distinctly excised. Space between eyes relatively narrow, approximately as wide as diameter of eye, distinctly narrower than length of antennomere 3, OI equal to 38.35.

Antenna (Fig. 8). Relatively long and narrow (6.20 mm, i.e. reaching 0.73 body length), filiform, unicoloured pale brown with long and dense, ochre yellow setation and microgranulation. Antennomere 1 slightly shiny, antennomeres 2-11 matter, antennomere 2 shortest, antennomere 4 distinctly longer than each of antennomeres 5-11. RLA (1-11) equal to 0.58 : 0.29 : 1.00 : 1.65 : 1.10 : 1.10 : 1.06 : 0.96 : 0.94 : 0.83 : 0.99. RL/WA (1-11) equal to 2.86 : 1.18 : 4.15 : 7.06 : 4.44 : 4.58 : 4.03 : 3.97 : 3.91 : 3.05 : 3.89.

Maxillary palpus pale brown, with microgranulation and short ochre yellow setation, penultimate palpomere and palpomere 2 with few long setae at apex, matter. Palpomeres 2, 3 distinctly widest at apex, penultimate palpomere shorter than palpomere 2. Ultimate palpomere broadly tringular.

Pronotum (Fig. 8) reddish-brown, bell-shaped, with long, golden yellow setation, microgranulation and punctuation, punctures medium-sized, dense and shallow, interspaces between punctures very small; at base as wide as elytral base, at base 1.68 as wide as head across eyes, longest at middle, PL 1.36 mm, and widest at base, PW at base 2.15 mm. PI equal to 63.26. Borders complete and distinct only in middle of anterior margin and at base near posterior angles indistinct. Posterior margin bisinuate, posterior angles sharp-angled, anterior angles indistinct, arcuate, lateral margins evenly narrowing in posterior part and regularly rounded in anterior part.

Elytra unicolor, blackish-brown with long and dense, golden yellow setation and microgranulation, shiny, EL 5.98 mm; EW 2.79 mm, widest near elytral half. EL/EW ratio equal to 2.14. Elytral striae with distinct rows of medium-sized punctures, separated by less than one diameter. Elytral intervals distinctly rounded, with sparse, very small punctures and fine microgranulation.

Elytral epipleura well-developed, reddish-brown with sparse, pale setae, evenly narrowing in basal half to ventrite 1, then more or less parallel-sided.

Scutellum roundly tringular, pale brown, sides darker, paler than elytron itself, with fine and sparse microgranulation.

Legs long, narrow, pale brown, with dense and long, pale setation. Tibia narrow, slightly dilated anteriorly. Protarsomere and mesotarsomere 3 and 4 and metatarsomere 3 distinctly widened, with membranous lobes. RLT 1-5 and 1-4 equal to 1.00 : 0.62 : 0.70 : 0.87 : 1.73 (protarsus), 1.00 : 0.42 : 0.43 : 0.44 : 0.74 (mesotarsus), and 1.00 : 0.34 : 0.25 : 0.53 (metatarsus). Anterior tarsal claws with 30 visible teeth.

Ventral side of body reddish-brown, with very sparse, pale setae and punctuation, punctures small-sized. Abdomen pale brown, with sparse setation, microgranulation and dense and shallow punctuation, punctures very small, slightly shiny.

Aedeagus (Figs. 9, 10). Ochre yellow, with fine microgranulation. Basal piece distinctly rounded laterally and narrowing dorsally, 3.58 times longer than apical piece. Apical piece beak-shaped in dorsal and lateral views.

Female. Antennae as in male reaching 0.73 of BL, space between eyes slightly wider than in male. RLA (1-11) equal to 0.62 : 0.36 : 1.00 : 1.54 : 1.19 : 1.18 : 1.13 : 1.04 : 1.00 : 0.89 : 0.97. RL/WA (1-11) equal to 1.83 : 1.61 : 5.15 : 7.64 : 5.69 : 5.66 : 5.07 : 5.14 : 4.34 : 3.88 : 4.82. RLT 1-5 and 1-4 equal to 1.00 : 0.40 : 0.51 : 0.70 : 1.44 (protarsus), 1.00 : 0.33 : 0.30 : 0.35 : 0.93 (mesotarsus), and 1.00 : 0.35 : 0.26 : 0.52 (metatarsus). Both anterior tarsal claws with 8 visible teeth.

Variability. The type specimens somewhat vary in size; each characteristic is given as its mean value, with full range in parentheses. Males (n = 9). BL 8.79 mm (8.50-9.28 mm); HL 1.06 mm (0.98-1.16 mm); HW 1.32 mm (1.26-1.43 mm). OI 35.00 (31.97-39.32). PL (along midline) 1.36 mm (1.28-1.43 mm); PW at base 2.28 mm (2.15-2.41 mm). PI 59.47 (56.40-63.26). EL 6.37 mm (5.98-6.78 mm); EW 2.76 mm (2.30-3.12 mm). Females (n = 5). BL 8.89 mm (8.61-9.34 mm); HL 0.99 mm (0.97-1.03 mm); HW 1.32 mm (1.25-1.37 mm). OI 40.71 (37.50-42.74). PL (along midline) 1.40 mm (1.33-1.52 mm); PW at base 2.35 mm (2.19-2.48 mm). PI 59.49 (56.71-63.34). EL 6.49 mm (6.25-6.96 mm); EW 2.99 mm (2.85-3.14 mm).

Differential diagnosis. *Gerdacula fujianica* sp. nov. differs from *Gerdacula brancuccii* sp. nov. mainly by elytra unicolour; while *G. brancuccii* has elytron bicolour. *G. fujianica* is clearly different from the species *Gerdacula communis* (Borchmann, 1942) comb. nov. and *Gerdacula nepalica* sp. nov. mainly by posterior angles of pronotum sharp-angled and metatarsomere 1 distinctly shorter than metatarsomeres 2-4 together, while *G. communis* and *G. nepalica* have posterior angles of pronotum rectangular and metatarsomere 1 distinctly longer than metatarsomeres 2-4 together. *G. fujianica* differs from the species *Gerdacula hubeica* sp. nov. by its dorsal surface densely setose, while *G. hubeica* has dorsal surface sparsely setose. For further details see the key above.

Etymology. Toponymic, named after the type locality, the Chinese province Fujian.

Distribution. China (Fujian).

Gerdacula hubeica sp. nov.

(Figs. 11-14)

Type locality. China, SE Hubei, Mufu Shan, 29.4 N 114.6 E, JUGONGSHAN forest park, 1000 m.

Type material. Holotype (♂): China, SE Hubei, 2002 / Mufu Shan, 29.4 N 114.6 E / JUGONGSHAN forest / park, - 1000m, 3.-5. + 18.VI. / Jaroslav Turna leg., (VNPC). Paratypes: (1 ♂ 3 ♀♀): same data as holotype, (VNPC). The types are provided with a printed red label: 'Gerdacula hubeica sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

Description of holotype. Habitus of male holotype as in Fig. 11. Body narrow, parallel, elongate, only slightly oval, from pale brown to blackish-brown, BL 7.51 mm, widest near

half elytra length, dorsal surface with punctuation, sparse setation and fine microgranulation, shiny, elytra unicolour, maximum width 2.37 mm, 3.17 times longer than wide.

Head (Fig. 12) relatively small and narrow, with dense punctuation, punctures small-sized. Posterior part dark brown, almost glabrous, shiny. Anterior half pale brown, glabrous with dense and fine microgranulation and microrugosities, pale brown clypeus with golden yellow setation and large, shallow punctures. Head widest across eyes, HW 1.18 mm, approximately 0.62 times as wide as pronotal base. HL (visible part) 0.64 mm. Eyes large, transverse, paler than head surface, distinctly excised. Space between eyes relatively narrow, shorter than diameter of eye, approximately as wide as length of antennomere 1, OI equal to 32.90.


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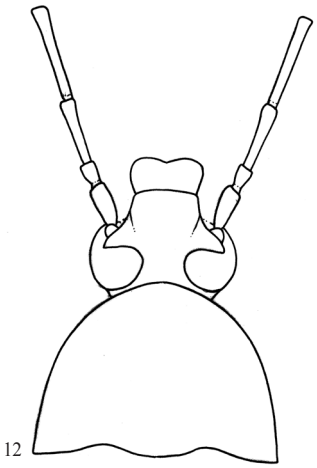
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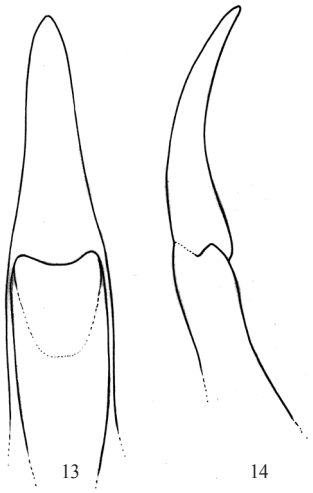
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Figs. 11-14: *Gerdacula hubeica* sp. nov. (male holotype): 11- Habitus; 12- head, pronotum and antennomeres 1-4; 13- aedeagus, dorsal view; 14- aedeagus, lateral view.

Antenna (Fig. 12). Relatively long and narrow (5.20 mm, i.e. reaching 0.69 body length), filiform, unicoloured pale brown with pale brown setation, microgranulation and punctuation, punctures small-sized. Antennomeres 1-3 slightly shiny, antennomeres 4-11 more dull, antennomere 2 shortest, antennomeres 4 distinctly longer than each of antennomeres 5-11. RLA (1-11) equal to 0.56 : 0.35 : 1.00 : 1.16 : 1.03 : 1.00 : 0.90 : 0.90 : 0.86 : 0.84 : 0.94. RL/WA (1-11) equal to 1.94 : 1.85 : 4.89 : 5.23 : 5.17 : 5.18 : 4.48 : 4.45 : 3.81 : 4.06 : 4.41.

Maxillary palpus pale brown, with microgranulation and short golden yellow setation, penultimate palpomere and palpomere 2 with few long pale setae at apex, slightly shiny. Palpomeres 2, 3 distinctly widest at apex, penultimate palpomere shorter than palpomere 2. Ultimate palpomere broadly tringular.

Pronotum (Fig. 12) dark brown, bell-shaped, shiny, at base as wide as elytra at base, with few pale setae and dense punctuation, punctures medium-sized, interspaces between punctures small; at base 1.63 as wide as head across eyes, longest in middle, PL 1.21 mm, widest at base, PW at base 1.92 mm. PI equal to 63.02. Borders complete and distinct, posterior margin bisinuate. Posterior angles sharp-angled, anterior angles indistinct, lateral margins narrowing in posterior part and regularly rounded in anterior part.

Elytra unicolor, blackish-brown, with long, ochre yellow setation near lateral margins and apex. EL 5.66 mm; EW 2.37 mm, widest near elytral half. EL/EW ratio equal to 2.40. Elytral striae with distinct rows of medium-sized punctures, separated by less than one diameter. Elytral intervals with sparse and shallow, very small punctures and very fine microgranulation.

Elytral epipleura well developed, reddish-brown with few pale setae, evenly narrowing in basal half to ventrite 1, then more or less parallel-sided.

Scutellum pale brown with sides darker, paler than elytron itself, roundly triangular, with small punctures.

Legs narrow, pale brown, with dense, pale brown setation. Tibia narrow, slightly dilated anteriorly. Protarsomere, mesotarsomeres 3 and 4 and metatarsomere 3 distinctly widened, with membranous lobes. RLT 1-5 and 1-4 equal to 1.00 : 0.57 : 0.65 : 0.93 : 1.84 (protarsus), 1.00 : 0.55 : 0.50 : 0.53 : 1.20 (mesotarsus), and 1.00 : 0.36 : 0.24 : 0.54 (metatarsus). Anterior tarsal claws with 30 visible teeth.

Ventral side of body reddish-brown, with few short, pale setae and punctuation. Abdomen reddish-brown, with sparse, pale setation, microgranulation and shallow punctuation, punctures small, slightly shiny.

Aedeagus (Figs. 13, 14). Pale brown, with fine microgranulation. Basal piece distinctly rounded laterally and narrowing dorsally, 4.96 times longer than apical piece. Apical piece longitudinally triangular in dorsal view, arcuate and beak-shaped lateral view.

Female. Space between eyes slightly wider than in male. RLA (1-9) equal to 0.49 : 0.35 : 1.00 : 1.47 : 1.05 : 0.99 : 0.97 : 0.89 : 0.95. RL/WA (1-9) equal to 1.88 : 1.70 : 4.52 : 6.86 : 5.11 : 4.82 : 4.54 : 4.30 : 5.64. RLT 1-5 and 1-4 equal to 1.00 : 0.45 : 0.41 : 0.59 : 1.27 (protarsus), 1.00 : 0.31 : 0.29 : 0.35 : 0.77 (mesotarsus), and 1.00 : 0.30 : 0.22 : 0.52 (metatarsus). Both anterior tarsal claws with 10 visible teeth.

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n = 2). BL 7.31 mm (7.11-7.51 mm); HL 0.61

mm (0.57-0.64 mm); HW 1.15 mm (1.12-1.18 mm). OI 34.21 (32.90-35.51). PL (along midline) 1.23 mm (1.21-1.25 mm); PW at base 1.98 mm (1.92-2.04 mm). PI 62.18 (61.34-63.02). EL 5.48 mm (5.29-5.66 mm); EW 2.40 mm (2.37-2.42 mm).
Females (n = 3). BL 8.16 mm (8.03-8.31 mm); HL 0.79 mm (0.68-0.88 mm); HW 1.27 mm (1.25-1.31 mm). OI 43.09 (40.65-44.92). PL (along midline) 1.26 mm (1.22-1.31 mm); PW at base 2.18 mm (2.11-2.28 mm). PI 58.00 (56.76-59.42). EL 6.05 mm (6.01-6.09 mm); EW 2.79 mm (2.69-2.96 mm).

Differential diagnosis. *Gerdacula hubeica* sp. nov. differs from *Gerdacula brancuccii* sp. nov. mainly by elytra unicolor; while *G. brancuccii* has elytron bicolour. *G. hubeica* is clearly different from the species *Gerdacula communis* (Borchmann, 1942) comb. nov. and *Gerdacula nepalica* sp. nov. mainly by posterior angles of pronotum sharp-angled and metatarsomere 1 distinctly shorter than length of metatarsomeres 2-4 together; while *G. communis* and *G. nepalica* have posterior angles of pronotum rectangular and metatarsomere 1 distinctly longer than length of metatarsomeres 2-4 together. *G. hubeica* differs from the species *Gerdacula fujianica* sp. nov. by dorsal surface sparsely setose; while *G. fujianica* has dorsal surface densely setose. For further details see the key above.

Etymology. Toponymic, named after the type locality, the Chinese province Hubei.

Distribution. China (Hubei).

Gerdacula nepalica sp. nov.

(Figs. 15-18)

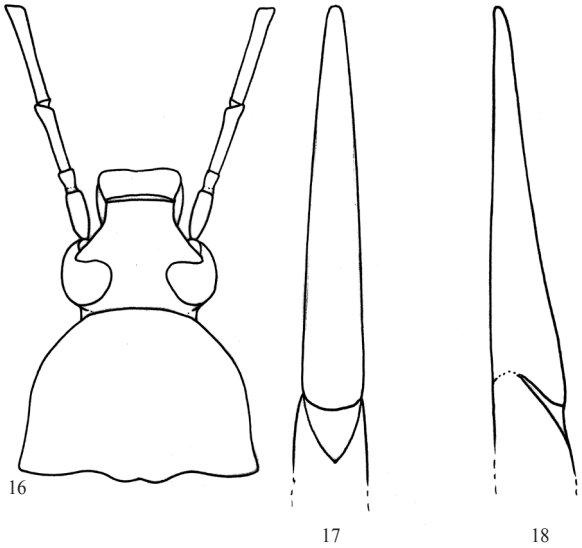
Type locality. East Nepal, Arun valley, Lamobagar Gola, 1400 m.

Type material. Holotype (♂): Lamobagar Gola / 1400m / 9.-14.VI.1983 // E.Nepal / Arun V. / M. Brancucci, (NHMB). Paratypes: (4 ♂♂ 1 ♀): same data as holotype, (NHMB, VNPC); (5 ♂♂ 7 ♀♀): same data as holotype, but 8.-14.VI.1983, (NHMB, VNPC); (1 ♂): Mure 2000- / Num 1550m / 4-7.VI.1983 // E.Nepal / Arun V. / M. Brancucci, (NHMB); (2 ♂♂): Chichila / 31.V.1983 1950m // E.Nepal / Arun V. / M. Brancucci, (NHMB, VNPC); (1 ♂): Num Chichila / 15-1900m 17.6. // O.Nepal 1980 / W. Wittmer., (VNPC); (1 ♂): Navagaon-Num / 1900-700-1500m /16.6. // O.Nepal 1980 / W. Wittmer, (VNPC); (1 ♀): Phulchoki 25.6. / 1500-1600m // O.Nepal 1980 / W. Wittmer, (NHMB). The types are provided with a printed red label: 'Gerdacula nepalica sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

Description of holotype. Habitus of male holotype as in Fig. 15. Body narrow, parallel, only slightly oval, from ochre yellow to brown, BL 6.71 mm, widest near the midlength of elytra, pronotum bell-shaped, as wide at base as elytra at base, maximum width 2.28 mm, 2.94 times longer than wide.

Head (Fig. 16) relatively small and narrow, with microgranulation and golden yellow setation. Posterior part brown with dense punctuation, punctures relatively small, anterior half and clypeus pale brown, distinctly paler than posterior half. Head widest across eyes, HW 1.19 mm, approximately 0.71 as wide as pronotal base. HL (visible part) 0.59 mm. Eyes large, transverse, paler than head surface, distinctly excised. Space between eyes relatively narrow, approximately as wide as diameter of one eye, OI equal to 33.55.

15



16 17 18

Figs. 15-18: *Gerdacula nepalica* sp. nov. (male holotype): 15- Habitus; 16- head, pronotum and antennomeres 1-4; 17- aedeagus, dorsal view; 18- aedeagus, lateral view.

Antenna (Fig. 16). Relatively long (5.30 mm, i.e. reaching 0.79 of body length), filiform, unicoloured ochre yellow with ochre yellow setation and microgranulation. Antennomeres 1-4 slightly shiny, antennomeres 5-11 matter, antennomere 2 shortest, antennomere 4 longest, distinctly longer than antennomere 5-11.

RLA (1-11) equal to 0.66 : 0.21 : 1.00 : 1.41 : 1.00 : 1.08 : 1.11 : 1.06 : 1.02 : 1.00 : 1.01. RL/WA (1-11) equal to 2.41 : 1.22 : 5.19 : 6.31 : 4.25 : 5.28 : 5.10 : 4.61 : 4.30 : 4.22 : 4.94.

Maxillary palpus pale brown, with microgranulation and golden yellow setation, penultimate palpomere and palpomere 2 with few long setae at apex. Palpomeres 2, 3 distinctly widest at apex, penultimate palpomere shorter than palpomere 2. Ultimate palpomere broadly tringular.

Pronotum (Fig. 16) brown, bell-shaped, at base as wide as base of elytra, with long yellow setation, microgranulation and dense punctuation, punctures medium-sized, slightly larger than punctures of head, interspaces between punctures very small; at base 1.41 as wide as

head across eyes, longest at middle, HL 0.59 mm and widest at base, HW at base 1.19 mm. PI equal to 60.12. Borders complete and distinct, only in middle of anterior margin indistinct. Posterior margin bisinuate, posterior angles almost rectangular, anterior angles indistinct, lateral margins regularly narrowing in posterior part and regularly arcuate in anterior part.

Elytra unicolour, brown with dense, golden yellow setation and microgranulation, EL 5.11 mm; EW 2.28 mm, base as wide as base of pronotum, widest near elytra midlength. EL/EW ratio equal to 2.24. Elytral striae with distinct rows of medium-sized, coarse punctures, separated by less than one diameter. Elytral intervals with sparse, very small punctures.

Elytral epipleura well-developed, dark brown, evenly narrowing in basal part to metasternum, then relatively wide, parallel-sided.

Scutellum roundly triangular, pale brown, paler than elytron itself, with sides darker and microgranulation.

Legs narrow, with dense, ochre yellow setation. Tibia and tarsi ochre yellow, femora distinctly darker, pale brown, tibia narrow, slightly dilated anteriorly. Protarsomere, mesotarsomere 3 and 4 and metatarsomere 3 distinctly widened, with membranous lobes. RLT 1-5 and 1-4 equal to 1.00 : 0.59 : 0.62 : 0.73 : 1.27 (protarsus), 1.00 : 0.32 : 0.14 : 0.23 : 0.46 (mesotarsus), and 1.00 : 0.31 : 0.20 : 0.44 (metatarsus).

Both anterior tarsal claws with 18 visible teeth.

Ventral side of body dark brown, with punctuation, punctures medium-sized. Prosternum with sparse and short setation, mesosternum and metasternum glabrous. Abdomen with very sparse setae, microgranulation and sparse punctuation, punctures very small, shiny. Ventrites 1-4 brown, ventrite 5 pale brown.

Aedeagus (Figs. 17, 18). Relatively long and narrow, ochre yellow, with fine microgranulation. Basal piece slightly rounded laterally and narrowing dorsally, 3.13 times longer than apical piece. Apical piece in dorsal and lateral view longitudinally triangular.

Female. Antennae slightly shorter (reaching only 0.67 BL) than in male, space between eyes slightly wider than in male. RLA (1-11) equal to 0.67 : 0.35 : 1.00 : 1.50 : 1.13 : 1.17 : 1.19 : 1.08 : 1.05 : 0.94 : 1.08. RL/WA (1-11) equal to 2.64 : 2.05 : 6.94 : 10.13 : 7.35 : 7.12 : 7.77 : 7.50 : 6.88 : 5.78 : 5.22. RLT 1-5 and 1-4 equal to 1.00 : 0.42 : 0.53 : 0.59 : 1.36 (protarsus), 1.00 : 0.30: 0.22 : 0.32 : 0.74 (mesotarsus), and 1.00 : 0.27 : 0.16 : 0.38 (metatarsus). Both anterior tarsal claws with 8 visible teeth.

Variability. The type specimens somewhat vary in size; each characteristic is given as its mean value, with full range in parentheses. Males (n = 15). BL 6.37 mm (5.90-6.78 mm); HL 0.59 mm (0.48-0.62 mm); HW 1.09 mm (0.97-1.19 mm). OI 31.66 (27.62-34.65). PL (along midline) 1.02 mm (0.90-1.20 mm); PW at base 1.65 mm (1.55-1.77 mm). PI 61.47 (59.65-63.40). EL 4.76 mm (4.33-5.11 mm); EW 2.23 mm (2.03-2.38 mm). Females (n = 9). BL 7.12 mm (6.12-7.52 mm); HL 0.62 mm (0.48-0.70 mm); HW 1.18 mm (0.99-1.27 mm). OI 38.80 (36.67-41.91). PL (along midline) 1.17 mm (1.06-1.22 mm); PW at base 1.89 mm (1.64-1.98 mm). PI 61.70 (58.60-66.23). EL 5.33 mm (4.44-5.71 mm); EW 2.56 mm (2.31-2.76 mm).

Differential diagnosis. *Gerdacula nepalica* sp. nov. differs from *Gerdacula brancuccii* sp. nov. mainly by elytron unicolor; while *G. brancuccii* with elytron bicolour. *G. nepalica* is clearly different from the species *Gerdacula fujianica* sp. nov. and *Gerdacula hubeica* sp. nov. mainly by posterior angles of pronotum approximately rectangular and metatarsomere 1 distinctly longer than metatarsomeres 2-4 together, while *G. fujianica* sp. nov. and *G. hubeica* have posterior angles of pronotum distinctly sharp-angled and metatarsomere 1 as long as or shorter than metatarsomeres 2-4 together. *G. nepalica* differs from the species *Gerdacula communis* (Borchmann, 1942) comb. nov. mainly by penultimate tarsomeres widely lobed, while *G. communis* has penultimate tarsomeres narrowly lobed. For further details see the key above.

Etymology. Toponymic, named after the country of its distribution - Nepal.

Distribution. Nepal.

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