

**New genera of Alleculinae (Coleoptera: Tenebrionidae)
from the Palaearctic Region.
Part II. *Chitwania* gen. nov.**

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Taxonomy, new genus, new species, Tenebrionidae, Alleculinae, Alleculini, *Chitwania*, Palaearctic Region

Abstract. A new genus *Chitwania* gen. nov. with a new species *Ch. kejvali* sp. nov. from the Palaearctic Region is proposed, described and illustrated. The new genus *Chitwania* is compared with similar genera.

INTRODUCTION

The genus *Allecula* Fabricius, 1801 with its type species *Cistela morio* Fabricius, 1787 was established by Fabricius (1801). Borchmann (1910) knew only 151 species from the whole world and Mader (1928) listed only 29 species from the Palaearctic Region. The genus comprises today more than 500 species in all the zoogeographical regions (Novák 2014); we recognize 65 species in the Palaearctic Region (Novák & Pettersson 2008). Similar genera having their representatives in the Palaearctic Region were proposed later as follows: *Anthracula* Fairmaire, 1896, *Bobina* Novák, 2015, *Bolbostetha* Fairmaire, 1896, *Borbonalia* Novák, 2014, *Gerdacula* Novák, 2015 and *Makicula* Novák, 2012.

The taxon *Chitwania kejvali* gen. nov. and sp. nov. is similar to the species of the above mentioned genera. Males of *Chitwania* differ mainly by the following characters or their combinations: protibia slightly bent and excised in anterior half, mesotibia distinctly bent, all femora strong and broad, lateral margins of pronotum distinctly arcuate, pronotum broadest near middle, elytra elongate oval and anterior tarsal claws with many teeth.

Chitwania kejvali gen. nov. and sp. nov. is described, illustrated and compared with other similar Palaearctic genera as shown in Table 1.

MATERIAL AND METHODS

Two important morphometric characteristics used for the descriptions of species of the subfamily Alleculinae, the 'ocular index' dorsally (Campbell & Marshall 1964) and 'pronotal index' (Campbell 1965), are used in this paper. The ocular index equals $(100 \times \text{minimum dorsal distance between eyes}) / (\text{maximum width of head across eyes})$. The pronotal index is calculated as $(100 \times \text{length of pronotum along midline}) / (\text{width across basal angles of pronotum})$.

In the list of type or examined material, a double slash (//) separates data on different labels and a slash (/) data in different rows.

The following codens are used:

NMEG collection of Naturkundemuseum, Erfurt, Germany;

VNPC private collection of Vladimír Novák, Praha, Czech Republic.

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; PWm - pronotal width near middle; 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 ($1=1.00$).

Measurements were made with Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS.

TAXONOMY

***Chitwania* gen. nov.**

(Figs. 1-5)

Type species. *Chitwania kejvali* sp. nov.

Description. General shape as in Fig. 1, body robust, elongate oval, broadest at half elytral length, slightly shiny, dorsal surface with punctuation, fine microgranulation and pale setation. Head (as in Fig. 2) from ochre yellow to blackish brown, broadest through the eyes, distinctly narrower than base of pronotum. Posterior half with dense punctuation and fine microgranulation, anterior part slightly paler than posterior part, clypeus ochre yellow with shallow punctuation, punctures distinctly smaller than in posterior half. Setation sparse, pale brown, setation of clypeus distinctly denser than that in posterior half. Eyes relatively large, transverse, deeply excised, space between eyes distinctly narrower than diameter of one eye. Maxillary palpus ochre yellow, with microgranulation and long, ochre yellow setation, more matte. Palpomere 2 and penultimate palpomere distinctly broadest at apex, penultimate palpomere relatively short, palpomere 2 long and narrow, ultimate palpomere broadly triangular, axe-shaped. Antenna ochre yellow, long, filiform, distinctly exceeding two thirds body length. Antennomeres narrow, with short and dense ochre yellow setation, fine microgranulation, sparse punctuation, punctures very small. Antennomere 2 shortest, antennomere 4 longest. Antennomere 3 more than three times longer than antennomere 2, antennomere 4 slightly, but distinctly longer than antennomere 3. Antennomeres 3-10 broadest at apex, antennomere 11 slightly arcuate and widest near half. Pronotum (as in Fig. 2) slightly convex, distinctly narrower than elytra, with microgranulation, sparse, pale setation and dense punctuation, punctures relatively large, interspaces between punctures very narrow. Margins distinct in their entire length, lateral margins arcuate, broadest near half. Posterior angles obtuse angled, anterior angles indistinct, rectangular. Anterior margin straight, base very finely bisinuate. Elytra elongate oval, distinctly widest in half of elytral length, with sparse, pale setation. Elytral striae with distinct rows of medium-sized punctures, elytral interspaces slightly convex with fine microgranulation and very small, sparse punctures. Elytral epipleura well-developed, regularly narrowing to ventrite 1, then leading parallel with sparse pale setation and punctures. Legs pale, with microgranulation, punctuation and dense, pale setation. Tibia relatively narrow, protibia (as in Fig. 3) with angle in middle of inner side, distinctly excised and slightly bent in anterior half of inner side. Mesotibia distinctly bent. All femora strong and broad. Protarsomeres and mesotarsomeres 3 and 4, metatarsomere 3 distinctly broadened and lobed. Anterior tarsal claws with many teeth. Aedeagus beak-shaped (as in Figs. 4 and 5) relatively large, pale brown, with apical piece distinctly darker.

Female. Space between eyes distinctly wider than those in male, protibia without angle and not excised. Mesotibia not bent. Anterior tarsal claws with less teeth.

Differential diagnosis. Males of *Chitwania* gen. nov. are similar to the males of the genera *Allecula* Fabricius, 1801, *Anthracula* Fairmaire, 1896, *Bobina* Novák, 2015, *Bolbostetha* Fairmaire, 1896, *Borbonalia* Novák, 2014, *Gerdacula* Novák, 2015 and *Makicula* Novák, 2012 and differ mainly by mesotibia bent, lateral margins of pronotum arcuate and pronotum widest near middle (all important characters and differences can be seen in Table 1); while males of genera *Allecula* Fabricius, 1801, *Anthracula* Fairmaire, 1896, *Bobina* Novák, 2015, *Bolbostetha* Fairmaire, 1896, *Borbonalia* Novák, 2014, *Gerdacula* Novák, 2015 and *Makicula* Novák, 2012 have mesotibia straight and pronotum not widest at the middle, together with lateral margins arcuate.

Table 1: Differences between males of similar genera near *Chitwania* gen. nov. in the Palaearctic Region.

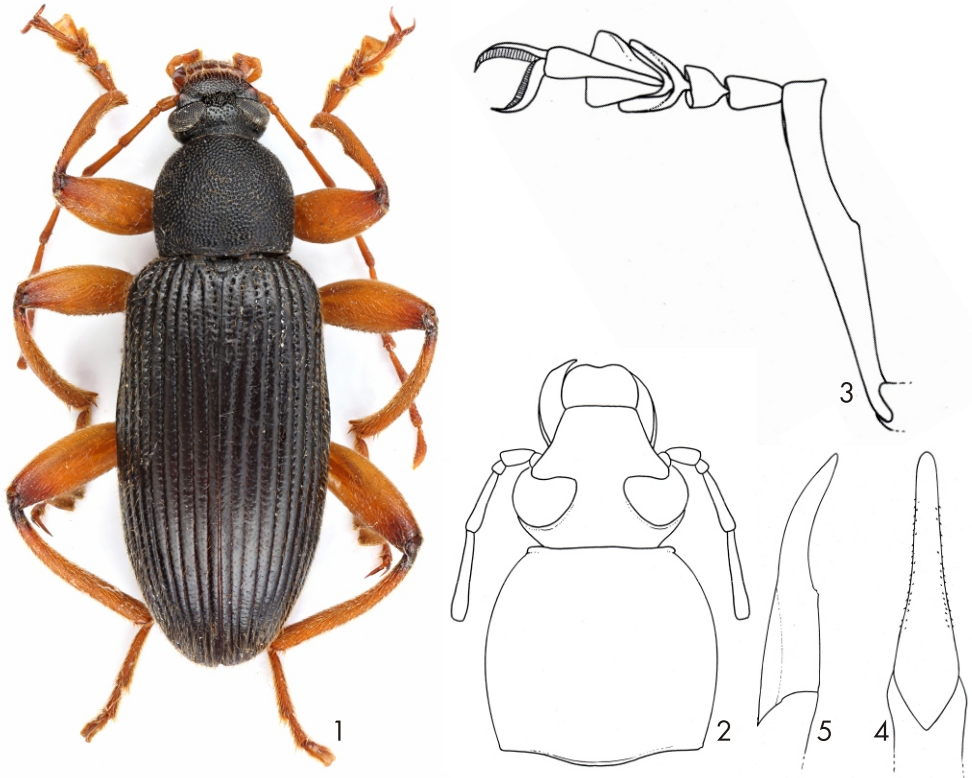
*Genus *Allecula* Fabricius comprises many species; characters are taken from the species *Allecula morio* (Fabricius, 1787)

Genus	Protibia	Mesotibia	Femora	Pronotum lateral margins	Elytra	Teeth on anterior tarsal claws
<i>Allecula</i> * Fabricius	Straight	Straight	Narrow	Square straight	Narrow, parallel	Few
<i>Anthracula</i> Fairmaire	Straight	Straight	Relatively narrow	Broadest in anterior third	Broadest in apical third	Less than 15
<i>Bobina</i> Novák	Bent and short	Straight	Strong	From base narrowing	Elongate oval	More than 20
<i>Bolbostetha</i> Fairmaire	Teeth angles excisions	Straight	Strong and broad	Bell - shaped	Narrow, parallel	More than 20
<i>Borbonalia</i> Novák	Straight	Straight	Narrow	Nearly square	Broadest at apical third	Almost less than 20
<i>Chitwania</i> gen. nov.	Bent and excised	Bent	Strong and broad	Widest near middle, arcuate	Elongate oval	More than 40
<i>Gerdacula</i> Novák	Straight	Straight	Narrow	Bell - shaped	Elongate oval	10-30
<i>Makicula</i> Novák	Teeth angles excisions	Teeth angles excisions extensions	Strong and broad	Straight, slightly rounded	Narrow, parallel	More than 20

Etymology. Toponymic name, after the type locality Chitwan Natural Park in Nepal. Gender feminine.

Distribution. India (Uttaranchal state), Nepal.

Chitwania kejvali sp. nov.
(Figs. 1-5)



Figs. 1-5: *Chitwania kejvali* sp. nov.: 1-Habitus of male holotype; 2-Head, pronotum and antennomeres 1-4 of male holotype; 3-Anterior tibia of male holotype; 4-Aedeagus, dorsal view; 5-Aedeagus, lateral view.

Type locality. Nepal centr., province Narayani, Chitwan NP near Sauraha, N27°33'25'', E84°21'34'', 150 m.

Type material. Holotype (♂): NEPAL, P: Narayani / D: Chitwan / 13-15 km W Sauraha, Chitwan- / NP, 150m N27°33'25'', E84°21'34'', 08.VII.2009 leg. A. Kopetz / open landscape & deciduous / forest #69a, (NMEG); Paratypes: (1 ♂ 1 ♀): same data as holotype, (NMEG); (1 ♂): NEPAL centr. Prov. Narayani / SW Sauraha, Royal Chitwan / Nat. Park 180 m, 27°34'51''N, / 84°29'30''E, 15.07.2001 KL/HF / leg. A. Kopetz deciduous forest, (VNPC); (2 ♀♀): NEPAL, P: Narayani / D: Chitwan 2 km NW / Sauraha, community / forest "Bagnara", 170m, / N 27°35'18'', E 84°28'34'', / 08.VII.2009, leg. A. Weigel, (NMEG, VNPC); (2 ♀♀): NEPAL, P: Bheri / D: Banke, Nepalguni / N, Dunua river near / airport, riverside // N28°06'09'', E81°40'59'', 150 m, 24.VI. / 2011, leg. Küßner, #52, (NMEG, VNPC); (1 ♂): N-INDIA, Uttaranchal state, ca 13 km NW of Nainital, / KHAIRNA BRIDGE, 13.-17. / vii.2003, riverbanks 900 m, / Z. Kejval & M. Trýzna lgt., (VNPC). The types are provided with printed red labels: *Chitwania kejvali* sp. nov. / HOLOTYPUS [or PARATYPUS resp.] / V. Novák det. 2015.

Description of holotype. Habitus of male holotype as in Fig. 1. Body black, dorsal surface slightly shiny, with sparse, ochre yellow setation, punctuation and microgranulation. BL 10.52 mm, widest near half elytral length, maximum width 3.66 mm, 2.87 times longer than wide.

Head (Fig. 2) relatively small and narrow, slightly shiny, anterior part and clypeus pale brown, with long and dense golden yellow setation, fine microgranulation and dense punctuation, punctures very small and shallow. Posterior half black, with pale setation sparser than that in anterior half, with dense punctuation, punctures medium-sized and distinctly larger than those in anterior half, with fine microgranulation and a few dark setae behind eyes. Head widest across eyes, HW 1.73 mm; approximately 0.78 times as wide as pronotal base. HL (visible part) 1.44 mm. Eyes large, transverse, deeply excised. Space between eyes relatively narrow, distinctly narrower than diameter of one eye, OI equal to 27.78.

Antenna. Relatively long (AL 7.39 mm, i.e. reaching 0.70 of body length), pale brown with relatively short yellow setation, punctuation and microgranulation. Antennomeres 1-4 slightly shiny, antennomeres 5-11 more matte. Antennomere 2 shortest, antennomeres 3-10 slightly serrate, antennomere 4 longest and distinctly longer than antennomere 3. Antennomere 11 distinctly rounded from one side and with sharp apex. RLA (1-11) equal to: 0.48 : 0.27 : 1.00 : 1.14 : 0.87 : 1.01 : 0.99 : 0.96 : 0.96 : 0.96 : 0.96. RL/WA (1-11) equal to: 1.86 : 1.29 : 4.86 : 5.35 : 4.37 : 5.48 : 5.40 : 4.50 : 4.19 : 4.33 : 3.71.

Maxillary palpus pale brown, with fine microgranulation and relatively long and dense golden yellow setation. Palpomeres 2-4 distinctly widest at apex, palpomere 2 longest. Ultimate palpomere in form of triangle, axe-shaped.

Pronotum (Fig. 2) black, convex, approximately as wide as long, disc with very dense punctuation, sparse pale brown setation and a few dark setae near lateral margins. Punctures medium-sized, elevated upper narrow interspaces with distinct microgranulation. Pronotum relatively narrow, at base 1.28 as wide as head across eyes, in apex narrower than head, longest in middle, PL 2.08 mm; PW 2.22 mm; widest near middle of lateral margins, PWm 2.46 mm; PI equal to 93.63. Borders complete and distinct. Posterior margin almost straight. Disc near base with two indistinct, oblique impressions near posterior angles. Posterior angles sharp, obtuse angled, anterior angles distinct. Lateral margins arcuate.

Elytra black, elongate oval, slightly shiny, with very sparse, pale setation. EL 7.00 mm; EW 3.66 mm; EL/EW ratio equal to 1.91. Elytral striae with rows of medium-sized punctures, elytral interspaces with fine microgranulation and sparse, very small punctures.

Elytral epipleura well-developed, black, with sparse, pale setation and punctures, evenly narrowing in basal half to ventrite 1, in apical half narrow and parallel-sided.

Scutellum black, pentagonal, distinctly elevated up to elytra, with a few, shallow punctures, few pale setae and fine microgranulation, matte.

Legs pale brown, apex of femora and base of tibia slightly, narrowly darker, with fine microgranulation, very small punctures and pale brown setation. Setation of apical half of tibia and tarsi distinctly longer and denser. Femora strong and broad, protibia apically arcuate and distinctly excised on inner side of apical half (as in Fig. 3). Mesotibia distinctly arcuate. Protarsomeres and mesotarsomeres 3 and 4 and metatarsomere 3 with wide membranous lobes. RLT (1-5 or 1-4) equal to: 1.00 : 0.66 : 0.64 : 0.86 : 1.01 (protarsus), 1.00 : 0.42 : 0.52 : 0.62 : 1.06 (mesotarsus), and 1.00 : 0.43 : 0.44 : 0.64 (metatarsus). Anterior tarsal claws with more than 40 visible teeth.

Ventral side of body black, with sparse and short, pale brown setation and punctuation. Abdomen black, with sparse, pale brown setation, small, shallow punctures and microgranulation, matte. Apex of ultimate sternite pale brown.

Aedeagus (Figs. 4 and 5). Large, with fine microgranulation, slightly shiny. Basal piece ochre yellow, slightly rounded laterally and regularly narrowing dorsally, 3.93 times longer than apical piece. Apical piece distinctly darker than basal part, in dorsal view longitudinally triangular with rounded top and in lateral view longitudinally beak-shaped.

Female. Space between eyes distinctly broader than those in male. Protibia without angle and excision in inner side of anterior half. Both anterior tarsal claws with 12 visible teeth. BL 9.39 mm; HL 1.18 mm; HW 1.56 mm; OI equal to 36.59; PL 1.77 mm; PWm 2.16 mm; PW 2.07 mm; PI equal to 85.25; EL 6.44 mm; EW 3.43 mm; AL(1-10) 5.45 mm; AL(1-10)/BL 0.58; BL/EW 2.74; EL/EW 1.88; HW/PW at base 0.75. RLA (1-10) equal to: 0.46 : 0.23 : 1.00 : 1.23 : 0.94 : 0.95 : 1.00 : 1.01 : 1.01 : 1.01. RL/WA (1-10) equal to: 1.43 : 1.04 : 3.76 : 4.47 : 3.64 : 4.33 : 4.38 : 4.40 : 3.67 : 4.23. RLT (1-5 and 1-4) equal to: 1.00 : 0.54 : 0.62 : 0.84 : 1.13 (protarsus), 1.00 : 0.43 : 0.48 : 0.57 : 1.20 (mesotarsus), and 1.00 : 0.42 : 0.44 : ? (metatarsus).

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males ($n = 4$). BL 9.99 mm (9.55-10.52 mm); HL 1.35 mm (1.26-1.44 mm); HW 1.68 mm (1.62-1.73 mm); OI 29.73 (27.78-32.10); PL (along midline) 1.94 mm (1.88-2.08 mm); PW 2.03 mm (1.91-2.22 mm); PWm 2.30 mm (2.20-2.46 mm); PI 95.91 (91.76-100.60); EL 6.65 mm (6.31-7.00 mm); EW 3.41 mm (3.20-3.66 mm).

Differential diagnosis. No other species in genus. For differences between genera see above.

Etymology. Dedicated to Zbyněk Kejval (Domážlice, Czech Republic), one of the collectors of the new species and renowned expert in the beetle family Anthicidae.

Distribution. India (Uttaranchal state), Nepal.

ACKNOWLEDGEMENTS. Sincere thanks are due to Matthias Hartmann (NMEG) for the loan of material under his care. Special thanks are due to Zuzana Čadová (Liberec, Czech Republic) for excellent drawings and Luboš Dembický (Brno, Czech Republic) for making digital photographs.

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