

New species of *Isomira* Mulsant, 1856 (Coleoptera: Tenebrionidae: Alleculinae) from Nepal and China – Part II

VLADIMÍR NOVÁK

Abstract

Four new species of the genus *Isomira* Mulsant, 1856, subgenus *Asiomira* Dubrovina, 1973 are described and illustrated: *Isomira (Asiomira) farkaci* n. sp., *I. (A.) martensi* n. sp. and *I. (A.) schawalleri* n. sp. from Nepal, and *I. (A.) zhongdianica* n. sp. from China. A key and a checklist to the species of the subgenus *Asiomira* from Nepal and China are added.

Key words: Taxonomy, new species, key, Alleculinae, *Isomira*, Palearctic region.

Zusammenfassung

Vier neue Arten der Gattung *Isomira* Mulsant, 1856, Untergattung *Asiomira* Dubrovina, 1973 werden beschrieben und abgebildet: *Isomira (Asiomira) farkaci* n. sp., *I. (A.) martensi* n. sp. und *I. (A.) schawalleri* n. sp. aus Nepal, sowie *I. (A.) zhongdianica* n. sp. aus China. Ein Bestimmungsschlüssel und eine Checkliste der Arten der Untergattung *Asiomira* aus Nepal und China werden hinzugefügt.

Contents

1	Introduction	153
2	Material and methods.....	153
3	Taxonomy	154
3.1	<i>Isomira (Asiomira) farkaci</i> n. sp.	154
3.2	<i>Isomira (Asiomira) martensi</i> n. sp.	155
3.3	<i>Isomira (Asiomira) schawalleri</i> n. sp.	157
3.4	<i>Isomira (Asiomira) zhongdianica</i> n. sp.	158
4	Key to the males of <i>Isomira</i> , subgenus <i>Asiomira</i> from Nepal and China.....	160
5	Checklist of the species of <i>Isomira</i> , subgenus <i>Asiomira</i> from Nepal and China.....	161
6	References	161

1 Introduction

MULSANT (1856) described the genus *Isomira* Mulsant, 1856 of the subtribe Gonoderina Seidlitz, 1896 with the type species *Cistela antennata* Panzer, 1796. MADER (1928) knew 35 species of the genus *Isomira*. The subgenus *Asiomira* was established by DUBROVINA (1973) with *I. (A.) opthalmica* Seidlitz, 1896 as the type species. NOVÁK & PETERSSON (2008) listed 73 species of the genus *Isomira*, eight of them belonging to subgenus *Asiomira*. The first species of the subgenus *Asiomira* from China (Guanxi and Sichuan) was described by MUCHE (1981) as *I. (A.) stoetznieri* Muche, 1981. NOVÁK (2009) described four additional new species of this subgenus – *I. (A.) murzini* from China (Yunnan), *I. (A.) sichuanica* from China (Sichuan); *I. (A.) nepalica* and *I. (A.) pizurae* from Nepal – and transferred *Isomira eustrophoides* Pic, 1930 from the nominotypical subgenus to the subgenus *Asiomira*.

In this paper, four further new species – *Isomira (Asiomira) farkaci* n. sp., *I. (A.) martensi* n. sp. and *I. (A.) schawalleri* n. sp. from Nepal and *I. (A.) zhongdianica* n. sp.

from China (Yunnan) are described, illustrated, compared and keyed with other Sub-Himalayan *Asiomira* species.

Acknowledgements

My sincere thanks go to WOLFGANG SCHAWALLER (SMNS) for loan of material in his care. I am grateful to WOLFGANG SCHAWALLER and LUBOŠ PURCHART (Brno, Czech Republic) for reviewing the manuscript. Special thanks are due to ZUZANA ČADOVÁ (Liberec, Czech Republic) for executing line-drawings and LUBOŠ DEMBICKÝ (Brno, Czech Republic) for making digital photographs.

2 Material and methods

Two important morphometric characteristics used for the descriptions of the species of the subfamily Alleculinae are employed: 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 being converted into an index by multiplying by 100, and the “pronotal index” (CAMPBELL 1965), the ratio of the length of the pronotum along the midline to the width at the posterior angles, this ratio being multiplied by 100 for convenience.

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

Measurements of body parts and corresponding abbreviations used in text are as follows:

AL	total antennal 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)

A slash (/) separates data in different lines on locality labels, a double slash (//) separates data on different labels.

Acronyms of depositories

SMNS	Staatliches Museum für Naturkunde Stuttgart, Germany
VNPC	private collection of VLADIMÍR NOVÁK, Prague, Czech Republic

3 Taxonomy

3.1 *Isomira (Asiomira) farkaci* n. sp. (Figs. 1–4, 16)

Holotype (♂): Nepal 468 Myagdi Distr. / Myagdi Khola, Boghara / 1800 m, 26.V.1995 / MARTENS & SCHAWALLER (SMNS).

Paratypes: (1 ♂): same data as holotype (VNPC); (2 ♂♂): 518 Nepal: Solukhumbu / Distr. Dudh Kosi bridge / 1550 m, 13.V.1997 / leg. W. SCHAWALLER (SMNS, VNPC); (1 ♀): same data as holotype, but 1400 m, 27.–28.V.1995 (SMNS); (3 ♀♀): 525 Nepal: Solukhumbu / Distr., Hinku Drungka Khola / bridge, 2000 m, 18.–19.V.1997 / leg. W. SCHAWALLER (SMNS, VNPC); (14 ♂♂ 9 ♀♀): Nepal Centr., Bagmati Zone Rasuwa / Distr. Langtang Nat. P., Dhunche / Bharkhu-Syakru, 2000–2800 m, 6.– / 13.V.1996, P. ČECHOVSKÝ lgt. (VNPC).

All types are provided with printed red labels “*Isomira (Asiomira) farkaci* sp. nov. Holotypus [respectively Paratypus] V. NOVÁK det. 2011”.

Etymology

The new species is dedicated to my friend JAN FARKAČ (Prague, Czech Republic), specialist in Carabidae.

Description

Male holotype.

Habitus as in Fig. 16, body small, longitudinally oval, brown with pale brown setation, slightly shiny, BL 5.72 mm. Widest near two thirds of elytral length; BL/EW 2.51.

Head (Fig. 1). Brown, with sparse and short, pale brown setation, microgranulation and punctuation. Punctures large and shallow, clypeus without distinct punctuation. HW 1.00 mm; HW/PW 0.59. HL (visible part) 0.68 mm. Eyes dark, large, transverse, deeply excised, space between eyes approximately as broad as antennomere 1 long; OI equal to 20.32.

Antennae. Long, relatively narrow; unicoloured brown with microgranulation, relatively short and dense pale brown setation and dense punctuation, punctures small and more matte. AL 3.47 mm, AL/BL 0.73. Antennomere 2 as long as antennomere 3, both shortest. – RLA (1–11): 1.37 : 1.00 : 1.00 : 3.26 : 3.38 : 3.67 : 3.50 : 3.80 : 3.74 : 3.74 : 3.87. – RL/WA (1–11): 1.40 : 1.07 : 1.15 : 2.73 : 2.68 : 2.73 : 2.52 : 3.02 : 3.02 : 2.92 : 3.30.

Maxillary palpus. Pale brown with sparse and longer pale brown setation. Palpomeres 2–4 narrowest at base and broadest at apex, with microgranulation, slightly shiny. Ultimate palpomere axe-shaped.

Pronotum (Fig. 1). Semicircular, transverse, unicoloured brown, with dense and relatively long pale brown setation, with dense punctuation, punctures small-sized. PL 1.02 mm; PW 1.89 mm; PI equal to 53.98. Borders complete, base bisinuate, on ante-scutellar area straight. Posterior angles rectangular, anterior angles rounded, indistinct.

Ventral side of body. Brown, with pale brown setation and distinct punctuation. Abdomen brown with sparse pale brown setation, slightly shiny.

Elytron. Unicoloured brown, covered by dense and longer pale brown setation, slightly shiny. EL 4.02 mm. Broadest near middle of elytra, EW 2.28 mm. EL/EW 1.76. Elytral striae indistinct, elytral surface with dense punctuation and distinct microgranulation, punctures small.

Scutellum. Brown, regularly triangular and shiny.

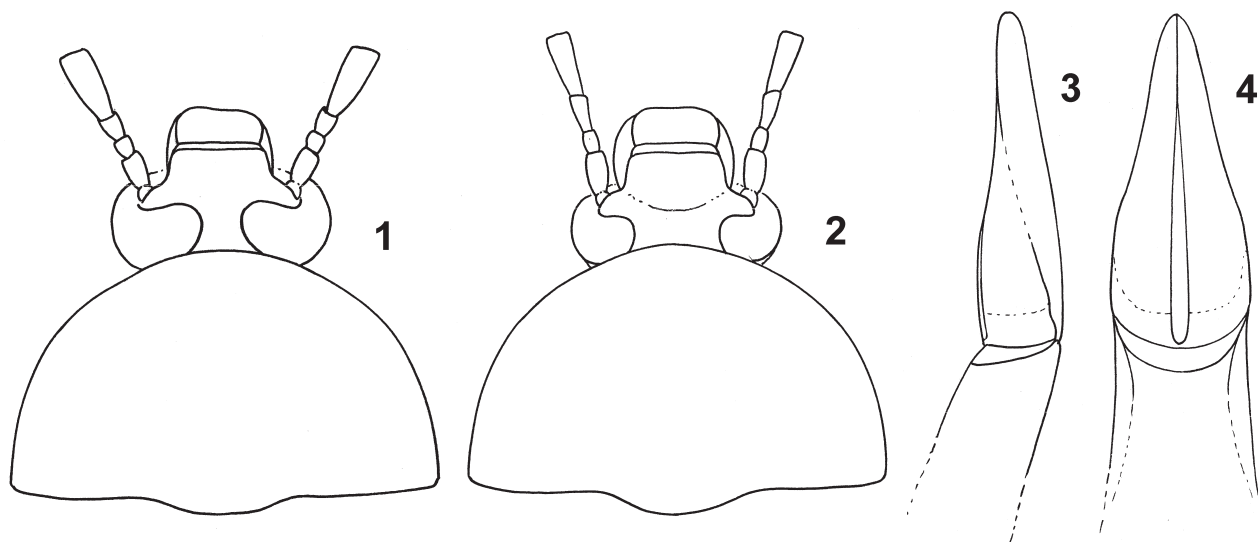
Elytral epipleura. Brown, finely narrowing to abdominal ventrite 1, then parallel.

Legs. Narrow, pale reddish-brown, with dense and short, pale brown setation. Tibia and tarsi narrow, tibia slightly dilated anteriorly. RLT: protarsus: 1.00 : 0.51 : 0.48 : 0.29 : 1.23; mesotarsus: 1.00 : 0.38 : 0.31 : 0.16 : 0.65; metatarsus: 1.00 : 0.39 : 0.15 : 0.46.

Both anterior tarsal claws with 4 teeth.

Aedeagus (Figs. 3, 4). Pale brown, slightly shiny. Basal piece regularly rounded laterally and in apical part slightly narrowing dorsally. Apical piece very short, triangular. Ratio of length of apical piece to length of basal piece 1 : 3.10.

Female (Fig. 2) with space between eyes distinctly broader than in male, antennae distinctly shorter than in male. – RLA (1–11): 1.15 : 0.66 : 1.00 : 1.64 : 1.74 : 1.85 : 1.81 : 1.85 : 1.74 : 1.60 : 2.08. – RL/WA (1–11): 1.65 : 1.17 : 1.83 : 2.29 : 2.36 : 2.58 : 2.34 : 2.58 : 2.88 : 2.30 : 3.55. – RLT: protarsus: 1.00 : 0.43 : 0.42 : 0.34 : 1.26; mesotarsus: 1.00 : 0.32 : 0.28 : 0.19 : 0.72; metatarsus: 1.00 : 0.38 : 0.20 : 0.52. –



Figs. 1–4. *Isomira (Asiomira) farkaci* n. sp. – **1.** Head, pronotum and antennomeres 1–4 of male. **2.** Head, pronotum and antennomeres 1–4 of female. **3.** Aedeagus, lateral view. **4.** Aedeagus, dorsal view.

BL 6.04 mm; HL 0.69 mm; HW 0.99 mm; OI 40.54; PL 0.95 mm; PW 2.01 mm; PI 47.33; EL 4.40 mm; EW 2.60 mm; AL 3.20; AL/BL 0.53.

Variation. Measurements: mean (minimum–maximum). – Males (n = 18). BL 5.74 mm (5.36–6.04 mm); HL 0.69 mm (0.63–0.75 mm); HW 1.01 mm (0.98–1.07 mm); OI 24.07 (20.32–27.50); PL 1.00 mm (0.86–1.10 mm); PW 1.94 mm (1.88–2.05 mm); PI 51.56 (44.76–53.98); EL 4.04 mm (3.76–4.16 mm); EW 2.36 mm (2.28–2.47 mm). – Females (n = 13). BL 6.13 mm (5.58–6.48 mm); HL 0.73 mm (0.64–0.78 mm); HW 1.01 mm (0.82–1.07 mm); OI 40.77 (38.75–43.24); PL 1.03 mm (0.95–1.09 mm); PW 2.07 mm (2.01–2.16 mm); PI 50.50 (47.33–56.64); EL 4.35 mm (4.05–4.59 mm); EW 2.60 mm (2.46–2.75 mm).

Differential diagnosis

Isomira farkaci n. sp. differs from the close species *I. stoetzneri* and *I. murzini* by the smaller body length of less than 6.5 mm (*I. stoetzneri* and *I. murzini* have a body length of more than 7 mm). The new species *I. farkaci* has a bicoloured antenna, while *I. martensi*, *I. nepalica*, *I. pizurae*, *I. schawalleri*, *I. sichuanica* and *I. zhongdianica* have the antenna unicoloured. *I. farkaci* can be separated from the similar species *I. eustrophoides* by the coarsely punctuate pronotum (finely punctuate in *I. eustrophoides*).

3.2 *Isomira (Asiomira) martensi* n. sp.

(Figs. 5–8, 17)

Holotype (♂): Nepal-Expeditionen / JOCHEN MARTENS // 334 Taplejung Distr., Worebung / Pass, degradet broad-leaved

fo- / rest, 2000 m, 21. Apr 1988, J. / MARTENS & W. SCHAWALLER leg. (SMNS).

Paratypes: (7 ♂♂ 3 ♀♀): same data as holotype (SMNS, VNPC); (1 ♂): Nepal-Expeditionen / JOCHEN MARTENS // 351 Taplejung Distr., Yamputhin / cultural land, open forest, 1650– / 1800 m, 26 Apr–1 May 1988 / J. MARTENS & W. SCHAWALLER leg. (SMNS); (1 ♂): Nepal-Expeditionen / JOCHEN MARTENS // 351 Taplejung Distr., above Yam- / puthin, left bank of Kabeli / Khola, bushes, open forest, 1800– / 2000 m, 27–29 Apr. 1988, J. MAR- / TENS & W. SCHAWALLER leg. (SMNS); (1 ♂): 365 Taplejung Distr., Yamputhin / ascent to pass Deorali, 2100– / 2600 m, cultural land, bushes, / 16 May 88 MARTENS & SCHAWALLER // Nepal – Expeditionen / JOCHEN MARTENS (VNPC); (1 ♂ 1 ♀): 536 Nepal: Bhojpur Distr. / Valley NW Phedi / 1900 m, 25.V.1997 / leg. W. SCHAWALLER (SMNS); (1 ♂): 412 Sankhua Sabha Distr., Arun Val- / ley betw. Mure and Murure, mixed / broad-leaved forest, 2050–2150 m, 9– / 17 June 88 MARTENS & SCHAWALLER leg. // Nepal – Expeditionen / JOCHEN MARTENS (SMNS).

All type material is provided with red labels “*Isomira (Asiomira) martensi* sp. nov. Holotypus [respectively Paratypus] V. NOVÁK det. 2011”.

Etymology

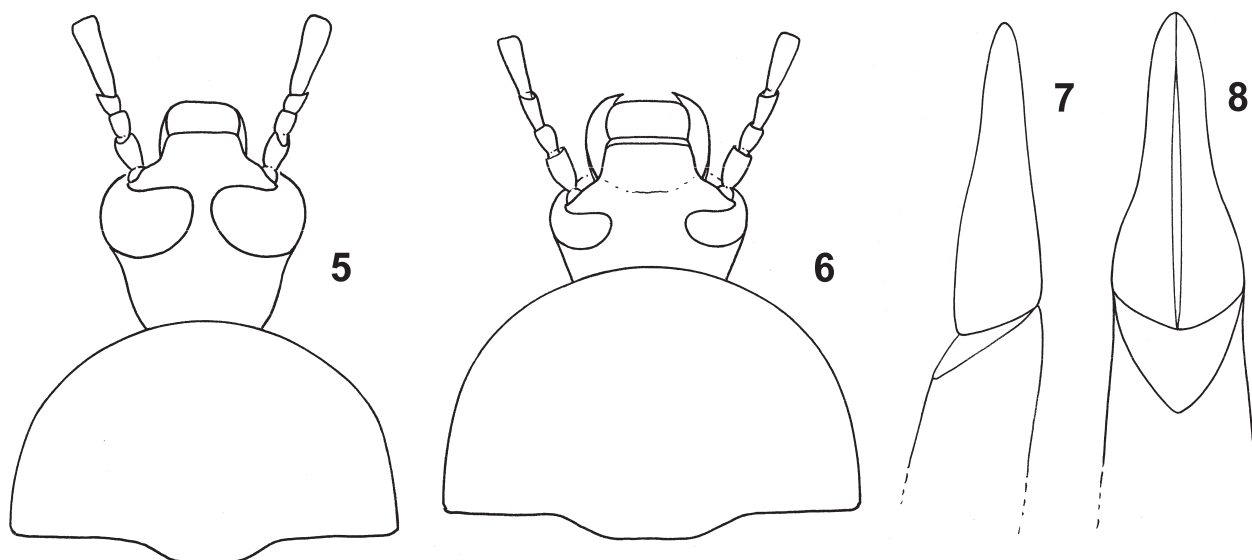
The new species is dedicated to JOCHEN MARTENS (Mainz, Germany) – one of the collectors of the new species.

Description

Male holotype.

Habitus as in Fig. 17, body small, longitudinally oval, unicoloured, pale reddish-brown with pale brown setation, slightly shiny, BL 5.79 mm. Widest near two thirds of elytral length; BL/EW 2.74.

Head (Fig. 5). Small, pale reddish-brown, with long pale brown setation and microgranulation, slightly shiny. Punctuation distinct, punctures small. HL (visible part)



Figs. 5–8. *Isomira (Asiomira) martensi* n. sp. – **5.** Head, pronotum and antennomeres 1–4 of male. **6.** Head, pronotum and antennomeres 1–4 of female. **7.** Aedeagus, lateral view. **8.** Aedeagus, dorsal view.

0.84 mm; HW 0.99 mm; OI equal to 10.40; HW/PW 0.58. Eyes dark, large, transverse, deeply excised, space between eyes very narrow, narrower than antennomere 3 long.

Antennae. Long, relatively narrow, unicoloured pale brown with microgranulation, punctuation and pale brown setation. Antennomere 3 shortest, antennomere 2 distinctly longer than antennomere 3. AL 3.85 mm; AL/BL 0.67. – RLA (1–11): 1.89 : 1.27 : 1.00 : 3.77 : 4.05 : 4.09 : 4.85 : 4.46 : 4.09 : 4.05 : 4.55. – RL/WA (1–11): 1.89 : 1.60 : 1.16 : 3.19 : 3.42 : 3.21 : 3.22 : 3.06 : 3.27 : 3.49 : 4.08.

Maxillary palpus. Pale brown with sparse and short, pale brown setation and a few long pale brown setae. Palpomeres 2–4 narrowest at base and broadest at apex, with microgranulation, slightly shiny. Ultimate palpomere axe-shaped.

Pronotum (Fig. 5). Semicircular, transverse, unicoloured pale reddish-brown, with long pale brown setation and punctuation, punctures small. PL 1.00 mm; PW 1.71 mm; PI equal to 58.40. Borders complete, base bisinuate, on ante-scutellar area straight. Posterior angles roundly rectangular, anterior angles indistinct.

Ventral side of body. Pale reddish-brown, with short pale brown setation. Abdomen reddish-brown with pale brown setation and distinct punctuation, slightly shiny.

Elytron. Unicoloured pale reddish-brown, covered by pale brown setation, slightly shiny. EL 3.95 mm; broadest near middle of elytra, EW 2.11 mm. EL/EW 1.87. Elytral striae indistinct, surface with microgranulation and punctuation, punctures relatively small.

Scutellum. Triangular, pale reddish-brown with sides dark blackish-brown, with pale brown setation.

Elytral epipleura. Well-developed, pale reddish-brown, with pale brown setation, regularly narrowing to abdominal ventrite 1, then distinctly broadened parallel.

Legs. Narrow, pale reddish-brown, with dense and short, pale brown setation and microgranulation. Tibia and tarsi narrow, tibia slightly dilated anteriorly. RLT: protarsus: 1.00 : 0.42 : 0.45 : 0.31 : 1.24; mesotarsus: 1.00 : 0.32 : 0.21 : 0.16 : 0.69; metatarsus: 1.00 : 0.36 : 0.18 : 0.44.

Both anterior tarsal claws with 5 teeth.

Aedeagus (Figs. 7, 8). From pale brown to brown, slightly shiny. Basal piece slightly rounded laterally, in apical half distinctly narrowing dorsally. Apical piece short, triangular. Ratio of length of apical piece to length of basal piece 1 : 2.74.

Female (Fig. 6) with space between eyes distinctly broader than in male, antennae distinctly shorter than in male. – RLA (1–11): 0.96 : 0.75 : 1.00 : 1.46 : 1.50 : 1.79 : 1.71 : 1.67 : 1.75 : 1.71 : 2.13. – RL/WA (1–11): 1.35 : 1.64 : 2.00 : 2.19 : 2.40 : 3.20 : 3.15 : 2.50 : 2.80 : 2.41 : 3.19. – RLT: protarsus: 1.00 : 0.57 : 0.57 : 0.40 : 1.48; mesotarsus: 1.00 : 0.39 : 0.33 : 0.27 : 0.79; metatarsus: 1.00 : 0.46 : 0.21 : 0.56. – BL 5.67 mm; HL 0.70 mm; HW 0.88 mm; OI 41.79; PL 1.04 mm; PW 1.91 mm; PI 54.48; EL 3.93 mm; EW 2.40 mm; AL 2.84; AL/BL 0.50.

Variation. Measurements: mean (minimum–maximum). – Males (n = 13). BL 5.59 mm (4.95–6.16 mm); HL 0.69 mm (0.65–0.82 mm); HW 0.94 mm (0.79–1.04 mm); OI 11.53 (7.22–15.71); PL 0.90 mm (0.75–1.02 mm); PW 1.72 mm (1.53–1.85 mm); PI 52.36 (48.25–58.40); EL 4.00 mm (3.55–4.50 mm); EW 2.17 mm (1.95–2.43 mm). –

Females (n = 4). BL 5.70 mm (5.39–5.90 mm); HL 0.70 mm (0.67–0.72 mm); HW 0.90 mm (0.88–0.94 mm); OI 40.15 (36.09–43.28); PL 0.96 mm (0.83–0.97 mm); PW 1.86 mm (1.73–1.91 mm); PI 51.52 (48.09–54.48); EL 4.05 mm (3.89–4.22 mm); EW 2.40 mm (2.24–2.51 mm).

Differential diagnosis

Isomira martensi n. sp. is different from the similar species *I. stoetzneri* and *I. murzini* by its small body length of less than 6.5 mm (*I. stoetzneri* and *I. murzini* have a body length of more than 7 mm). *I. martensi* differs from the species *I. eustrophoides* and *I. farkaci* n. sp. mainly by unicoloured antenna (*I. eustrophoides* and *I. farkaci* have a bicoloured antenna). *I. martensi* can be separated from the similar species *I. nepalica*, *I. pizurae*, *I. schawalleri* and *I. sichuanica* by the very narrow space between the eyes, which is as wide as or narrower than the length of antennomere 2 (the mentioned four species have the space between the eyes broad, distinctly broader than the length of antennomere 2). The new species *I. martensi* differs from *I. zhongdianica* n. sp. mainly by antennomere 3 shortest (antennomere 2 shortest in *I. zhongdianica*).

3.3 *Isomira (Asiomira) schawalleri* n. sp. (Figs. 9–11, 18)

Holotype (♂): 414 Sankhua Sabha Distr., Arun Valley, Chichila, 1900–2000 m, *Quercus* / forest, bushes near village, 18–20 / June 88 J. MARTENS & W. SCHAWALLER // Nepal – Expeditionen / JOCHEN MARTENS (SMNS).

The holotype specimen is provided with the red label “*Isomira (Asiomira) schawalleri* sp. nov. Holotypus V. NOVÁK det. 2011”.

Etymology

The new species is dedicated to WOLFGANG SCHAWALLER (Stuttgart, Germany), specialist in Tenebrionidae and one of the collectors of the material described in this study.

Description

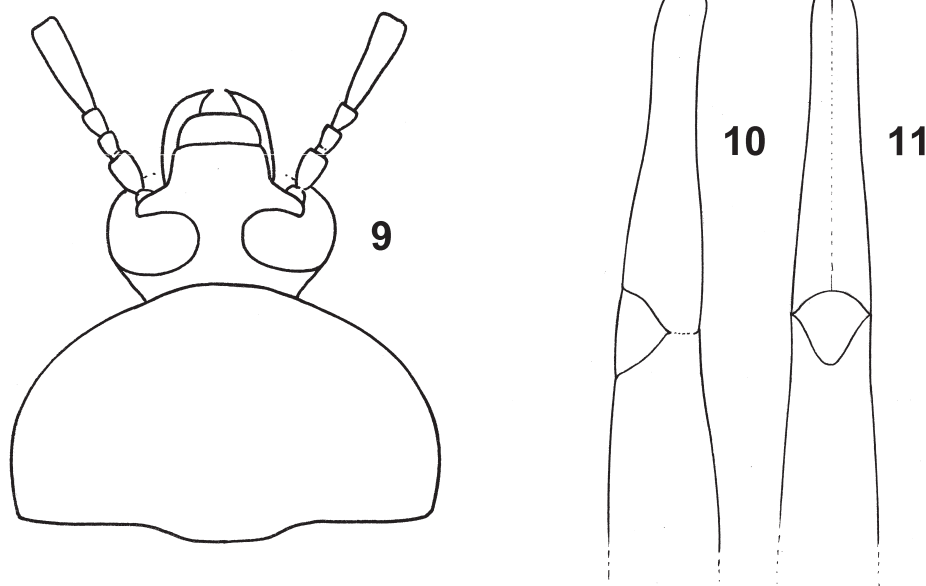
Male holotype.

Habitus as in Fig. 18, body small, longitudinally oval, unicoloured, pale reddish-brown with pale brown setation, slightly shiny, BL 4.73 mm. Widest near two thirds of elytral length, BL/EW 2.48.

Head (Fig. 9). Small, reddish-brown, with long and dense, pale brown setation and microgranulation, slightly shiny. Punctuation not clearly conspicuous, punctures small-sized and indistinct. HW 0.82 mm; HW/PW 0.56. HL (visible part) 0.66 mm. Eyes dark, large, transverse, deeply excised, space between eyes narrower than length of antennomere 1; OI equal to 17.19.

Antennae. Long, relatively narrow; unicoloured pale brown with microgranulation, punctuation and short, pale brown setation, matte; punctures small. AL 3.60 mm; AL/L 0.76. Antennomere 3 shortest, antennomere 2 distinctly longer than antennomere 3. – RLA (1–11): 1.59 : 1.16 : 1.00 : 3.57 : 3.61 : 3.91 : 4.00 : 4.30 : 3.71 : 3.80 : 4.18. – RL/WA (1–11): 1.59 : 1.65 : 1.33 : 3.34 : 3.24 : 3.37 : 3.52 : 3.64 : 3.44 : 3.63 : 4.28.

Maxillary palpus. Brown with sparse and short, pale brown setation. Palpomeres 2–4 narrowest at base and



Figs. 9–11. *Isomira (Asiomira) schawalleri* n. sp. – 9. Head, pronotum and antennomeres 1–4. 10. Aedeagus, lateral view. 11. Aedeagus, dorsal view.

broadest at apex, with microgranulation, slightly shiny. Ultimate palpomere axe-shaped.

Pronotum (Fig. 9). Semicircular, transverse, unicoloured pale reddish-brown, with dense and long pale brown setation, fine microgranulation and dense punctuation. Punctures small-sized. PL 0.78 mm; PW 1.47 mm; PI equal to 52.90. Border lines complete, base bisinuate, on ante-scutellar area straight. Posterior angles finely roundly obtuse, anterior angles rounded, indistinct.

Ventral side of body. Reddish-brown, with pale brown setation and distinct punctuation, slightly shiny.

Elytron. Unicoloured pale reddish-brown, covered by dense and long pale brown setation. EL 3.29 mm. Broadest near middle of elytra, EW 1.91 mm. EL/EW 1.72. Elytral striae indistinct, elytral intervals with microgranulation and punctuation, slightly shiny, punctures small.

Scutellum. Triangular, pale reddish-brown with sides darker, with pale brown setae.

Elytral epipleura. Well-developed, pale reddish-brown, with short, pale brown setation, finely narrowing to abdominal ventrite 1, then parallel.

Legs. Narrow, pale brown, with dense and short, pale brown setation. Tibia and tarsi narrow, tibia slightly dilated anteriorly. RLT: protarsus: 1.00 : 0.53 : 0.71 : 0.59 : 1.80; mesotarsus: 1.00 : 0.47 : 0.39 : 0.19 : 1.00; metatarsus: 1.00 : 0.42 : 0.20 : 0.68.

Both anterior tarsal claws with 4 teeth.

Aedeagus (Figs. 10, 11). Pale brown, shiny. Basal piece slightly rounded laterally, apical half laterally narrowing. Apical piece longitudinally knife-shaped dorsally and

beak-shaped laterally, both views with rounded top. Ratio of length of apical piece to length of basal piece 1 : 3.45.

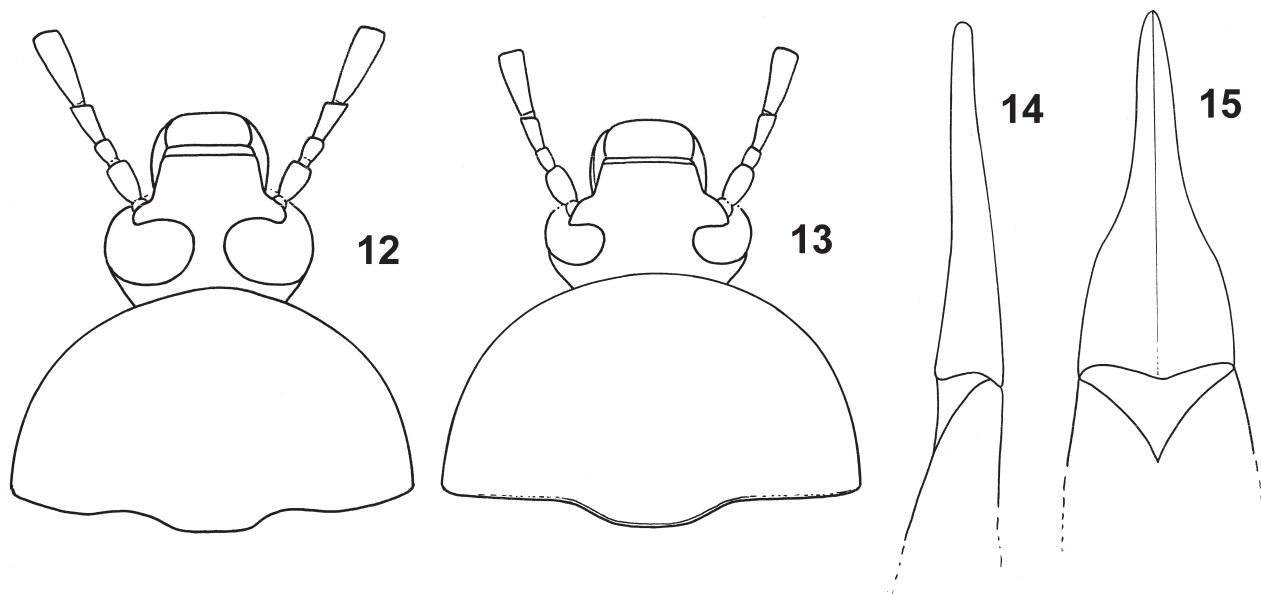
Female unknown.

Differential diagnosis

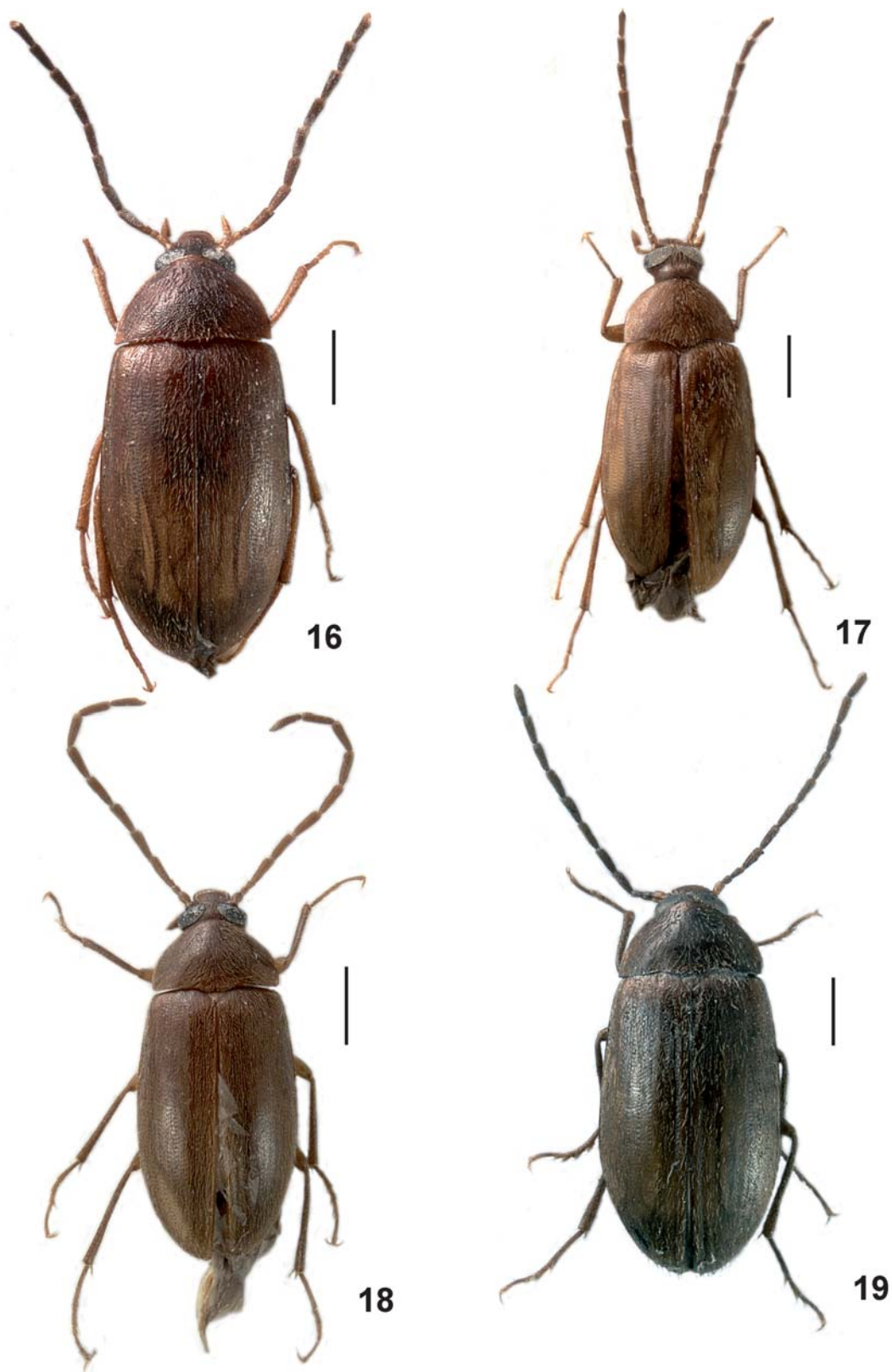
Isomira schawalleri n. sp. is clearly different from the similar species *I. stoetzneri* and *I. murzini* by its small body length of less than 5 mm (*I. stoetzneri* and *I. murzini* have a body length of more than 7 mm). *I. schawalleri* differs from the species *I. eustrophoides* and *I. farkaci* n. sp. by the unicoloured antenna (bicoloured in the latter two species). The new species *I. schawalleri* can be separated from the similar species *I. martensi* n. sp. and *I. zhongdianica* n. sp. mainly by the space between the eyes, which is distinctly broader than the length of antennomere 2 (*I. martensi* and *I. zhongdianica* have the space between the eyes very narrow, as wide as or narrower than the length of antennomere 2). *I. schawalleri* differs from the species *I. nepalica* and *I. sichuanica* mainly by antennomere 3 shortest (the latter two species have antennomere 2 shortest). Furthermore, *I. schawalleri* is different from the similar species *I. pizurae* by the pronotum broadest near the middle (*I. pizurae* has the pronotum broadest at base).

3.4 *Isomira (Asiomira) zhongdianica* n. sp. (Figs. 12–15, 19)

Holotype (♂): China (N-Yunnan) Zhongdian Co. / 46 km SSE Zhongdian, 3050– / 3100 m, 27°27.0'N, 99°54.7'E /



Figs. 12–15. *Isomira (Asiomira) zhongdianica* n. sp. – **12.** Head, pronotum and antennomere 1–4 of male. **13.** Head, pronotum and antennomere 1–4 of female. **14.** Aedeagus, lateral view. **15.** Aedeagus, dorsal view.



Figs. 16–19. *Isomira* (*Asiomira*) spp., habitus of male holotypes. – **16.** *I. (A.) farkaci* n. sp. **17.** *I. (A.) martensi* n. sp. **18.** *I. (A.) schawalleri* n. sp. **19.** *I. (A.) zhongdianica* n. sp. – Scales: 1 mm.

creek valley, secondary mixed / forest, bamboo, mushrooms / 17.VIII.2003 WRASE [05] (SMNS).

Paratypes: (3 ♀♀): same data as holotype (SMNS, VNPC).

All types are provided with the red labels "*Isomira (Asiomira) zhongdianica* sp. nov. Holotypus [respectively Paratypus] V. NOVÁK det. 2011".

Etymology

The new species is named after the type locality Zhongdian (China, Yunnan).

Description

Male holotype.

Habitus as in Fig. 19, body small, longitudinally oval, unicoloured brown, with pale brown setation, BL 5.85 mm. Widest near two thirds of elytral length; BL/EW 2.39.

Head (Fig. 12). Small, brown, with pale brown setation and microgranulation, slightly shiny. Punctuation distinct only in posterior part, punctures very small and shallow. HL (visible part) 0.73 mm; HW 0.99 mm; OI equal to 20.19; HW/PW 0.52. Eyes dark, large, transverse, deeply excised, space between eyes approximately as broad as antennomere 3 long; broader than antennomere 2 long.

Antennae. Long, relatively narrow; unicoloured brown with microgranulation and relatively long pale brown and brown setation, antennomere 1 slightly shiny; AL 3.73 mm; AL/BL 0.64. Antennomere 2 shortest, antennomere 3 distinctly longer than antennomere 2. – RLA (1–11): 0.97 : 0.81 : 1.00 : 2.21 : 2.41 : 2.26 : 2.31 : 2.43 : 2.27 : 2.20 : 2.46. – RL/WA (1–11): 1.49 : 1.42 : 1.71 : 3.61 : 3.69 : 3.78 : 3.68 : 3.96 : 3.62 : 3.30 : 3.21.

Maxillary palpus. Pale brown with sparse and short, pale brown setation and a few long pale brown setae. Palpomeres 2–4 narrowest at base and broadest at apex, with microgranulation, slightly shiny. Ultimate palpomere broadly axe-shaped.

Pronotum (Fig. 12). Transverse, semicircular, unicoloured brown, with fine microgranulation and pale brown setation. Punctuation indistinct. PL 0.95 mm; PW 1.91 mm; PI equal to 49.52. Borders complete, base bisinuate, on ante-scutellar area straight. Posterior angles finely obtuse, anterior angles indistinct.

Ventral side of body reddish-brown. Abdomen brown with pale brown setation, microgranulation and punctuation, slightly shiny.

Elytron. Unicoloured reddish-brown, covered by pale brown setation. EL 4.17 mm. Broadest near two thirds of elytra, EW 2.45 mm. EL/EW 1.70. Elytral striae indistinct. Elytral surface with punctuation and microgranulation, slightly shiny. Punctures relatively small and shallow.

Scutellum. Triangular, pale reddish-brown with sides dark blackish-brown, with a few pale brown setae.

Elytral epipleura. Well-developed, pale brown, with sparse, pale brown setation, regularly narrowing to abdominal ventrite 1, then parallel.

Legs. Narrow, brown, with dense and short pale brown setation. Tibia and tarsi narrow, tibia slightly dilated anteriorly. RLT: protarsus: 1.00 : 0.59 : 0.58 : 0.36 : 1.71; mesotarsus: 1.00 : 0.46 : 0.34 : 0.23 : 0.97; metatarsus: 1.00 : 0.40 : 0.21 : 0.60.

Both anterior tarsal claws with 9 teeth.

Aedeagus (Figs. 14, 15). Pale brown, shiny. Basal piece relatively short, regularly narrowing dorsally. Apical piece narrow laterally and in apical half dorsally. Ratio of length of apical piece to length of basal piece 1 : 1.94.

Female (Fig. 13) with space between eyes distinctly broader than in male, antennae distinctly shorter than in male. – RLA (1–11): 1.00 : 0.71 : 1.00 : 1.44 : 1.47 : 1.45 : 1.50 : 1.44 : 1.36 : 1.43 : 1.52. – RL/WA (1–11): 1.94 : 2.00 : 2.95 : 3.71 : 3.79 : 3.46 : 3.72 : 4.05 : 4.00 : 4.84 : 5.88. – RLT: protarsus: 1.00 : 0.68 : 0.81 : 0.43 : 2.13; mesotarsus: 1.00 : 0.74 : 0.33 : 0.30 : 0.89; metatarsus: 1.00 : 0.37 : 0.22 : 0.64. – BL 6.02 mm; HL 0.66 mm; HW 1.05 mm; OI 51.65; PL 1.06 mm; PW 2.14 mm; PI 49.61; EL 4.30 mm; EW 2.67 mm; AL 3.25; AL/BL 0.54.

Variation. Measurements: mean (minimum–maximum). – Females (n = 3). BL 5.77 mm (5.58–6.02 mm); HL 0.65 mm (0.64–0.66 mm); HW 1.00 mm (0.97–1.05 mm); OI 50.77 (49.32–51.65); PL 0.97 mm (0.82–1.06 mm); PW 2.00 mm (1.86–2.14 mm); PI 48.27 (44.29–50.91); EL 4.16 mm (4.05–4.30 mm); EW 2.56 mm (2.46–2.67 mm).

Differential diagnosis

Isomira zhongdianica n. sp. is different from the similar species *I. stoetznerei* and *I. murzini* by the small body length of less than 6 mm (*I. stoetznerei* and *I. murzini* have a body length of more than 7 mm). *I. zhongdianica* differs from the species *I. eustrophoides* and *I. farkaci* n. sp. mainly by the unicoloured antenna (*I. eustrophoides* and *I. farkaci* have the antenna bicoloured). The new species *I. zhongdianica* n. sp. can be separated from the similar species *I. nepalica*, *I. pizurae*, *I. schawalleri* n. sp. and *I. sichuanica* by the very narrow space between the eyes, which is as wide as or narrower than the length of antennomere 2 (the latter species have the space between the eyes broad, distinctly broader than the length of antennomere 2). Furthermore, *I. zhongdianica* differs from *I. martensi* n. sp. by antennomere 2 shortest (antennomere 3 shortest in *I. martensi*).

4 Key to the males of *Isomira*, subgenus *Asiomira* from Nepal and China

- 1 Space between eyes broader than diameter of one eye in both sexes.....subgenus *Isomira* s. str.
- Males with space between eyes narrower than diameter of one eye, distinctly narrower than space between eyes of females.....subgenus *Asiomira* Dubrovina, 1973 2
- 2 Large species, body longer than 7 mm. 3

- Small species, body length 4–6.5 mm **4**
- 3** Pronotum more transverse, semicircular, apical half regularly rounded, male antennae reaching 0.75 of body length, each of antennomeres 4–11 more than four times as long as antennomere 3. ***I. murzini*** Novák, 2009
- Pronotum finely semi-elliptic, slightly roundly dilated apically, male antennae reaching 0.70 of body length, each of antennomeres 4–11 less than four times as long as antennomere 3. ***I. stoetznerei*** Muche, 1981
- 4** Antennae bicoloured, distally dark **5**
- Antennae unicoloured. **6**
- 5** Pronotum densely and finely punctuate. – China. ***I. eustrophoides*** Pic, 1930
- Pronotum densely and coarsely punctuate, punctures large, antennomeres 1–3 pale brown. – Nepal. ***I. farkaci*** n. sp.
- 6** Space between eyes distinctly broader than length of antennomere 2. **7**
- Space between eyes approximately as long as or narrower than length of antennomere 2. **10**
- 7** Antennomere 3 shortest. **8**
- Antennomere 2 shortest. **9**
- 8** Pronotum broadest at base. ***I. pizurae*** Novák, 2009
- Pronotum broadest near middle. ***I. schawalleri*** n. sp.
- 9** Space between eyes broader than length of antennomere 1. ***I. sichuanica*** Novák, 2009
- Space between eyes narrower than length of antennomere 1. ***I. nepalica*** Novák, 2009
- 10** Antennomere 2 shortest. ***I. zhongdianica*** n. sp.
- Antennomere 3 shortest. ***I. martensi*** n. sp.

5 Checklist of the species of *Isomira*, subgenus *Asiomira* from Nepal and China

Isomira (Asiomira) eustrophoides Pic, 1930 – China
Isomira (Asiomira) farkaci n. sp. – Nepal
Isomira (Asiomira) martensi n. sp. – Nepal

Author's address:

Dr. VLADIMÍR NOVÁK, Nepasické náměstí 796, 19014 Prague 9 – Klánovice, Czech Republic;
 e-mail: alleculinae.vn@centrum.cz

Manuscript received: 18.I.2013, accepted: 30.IX.2013.

Isomira (Asiomira) murzini Novák, 2009 – China (Yunnan)
Isomira (Asiomira) nepalica Novák, 2009 – Nepal
Isomira (Asiomira) pizurae Novák, 2009 – Nepal
Isomira (Asiomira) schawalleri n. sp. – Nepal
Isomira (Asiomira) sichuanica Novák, 2009 – China (Sichuan)
Isomira (Asiomira) stoetznerei Muche, 1981 – China (Guangxi, Hubei, Jiangxi, Sichuan, Yunnan, Zhejiang)
Isomira (Asiomira) zhongdianica n. sp. – China (Yunnan)

6 References

- CAMPBELL, J.M. (1965): A revision of the genus *Charisius* (Coleoptera: Alleculidae). – *Coleopterist's Bulletin* **19**: 41–56.
- CAMPBELL, J. M. & MARSHALL, J. D. (1964): The ocular index and its applications to the taxonomy of the Alleculidae (Coleoptera). – *Coleopterist's Bulletin* **18**: 42.
- DUBROVINA, M. I. (1973): New subgenus and new species of the pollen beetles of the genus *Isomira* Muls. (Coleoptera, Alleculidae) from middle Asia. – *Revue d'Entomologie de l'URSS* **52**: 367–376.
- MADER, L. (1928): Alleculidae. – In: WINKLER, A. (ed.) (1924–1932): *Catalogus coleopterorum regionis palaearcticae*, columns 901–913; Vienna (Winkler & Wagner).
- MUCHE, W.H. (1981): Eine neue *Isomira*-Art (Untergattung *Asiomira*) aus China (Coleoptera, Alleculidae). – *Reichenbachia* **19**: 157–158.
- MULSANT, M. E. (1856): *Histoire naturelle des Coléoptères de France*. Pectinipèdes, 96 pp.; Paris (L. Mason).
- NOVÁK, V. (2009): New species of *Isomira* from Nepal and China (Insecta: Coleoptera: Tenebrionidae: Alleculinae). – *Vernate* **28**: 363–376.
- NOVÁK, V. & PETTERSSON, R. (2008): Alleculinae. – In: LÖBL, I. & SMETANA, A. (eds.): *Catalogue of Palaearctic Coleoptera*, Vol. 5. Tenebrionoidea, pp. 319–339; Stenstrup (Apollo Books).

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Stuttgarter Beiträge Naturkunde Serie A \[Biologie\]](#)

Jahr/Year: 2014

Band/Volume: [NS_7_A](#)

Autor(en)/Author(s): Novak Vladimir

Artikel/Article: [New species of Isomira Mulsant, 1856 \(Coleoptera: Tenebrionidae: Alleculinae\) from Nepal and China – Part II 153-161](#)