

## Three new Asian species of *Bruchidius* (Coleoptera: Chrysomelidae: Bruchinae)

Klaus-Werner ANTON<sup>1)</sup> & Alex DELOBEL<sup>2)</sup>

<sup>1)</sup>Grünewaldstr.13, D-79312 Emmendingen, Germany; e-mail: bruchitax@gmx.de

<sup>2)</sup>47 avenue Paul-Langevin, F-92260 Fontenay-aux-Roses, France; e-mail: delobel.alex@aliceadsl.fr

**Abstract.** Descriptions of three new species in the genus *Bruchidius* Schilsky, 1905 are presented. *Bruchidius nepalensis* sp. nov. from Nepal and *B. tricolor* sp. nov. from India, Laos and Thailand are assigned to the *Bruchidius japonicus* species-group, while *B. planicornis* sp. nov. from Iran and Turkey is assigned to the *Bruchidius astragali* species-group. Detailed figures of antennae and genitalia are given.

**Key words.** Coleoptera, Chrysomelidae, Bruchinae, *Bruchidius*, seed beetles, entomology, taxonomy, India, Iran, Laos, Nepal, Thailand, Turkey, Asia

### Introduction

The *Bruchidius japonicus* species-group as defined by DELOBEL (2010) was initially composed of four Asian species: three Eastern Palearctic species, namely *B. japonicus* (Harold, 1878), *B. kiritschenkoi* Egorov & Ter-Minassian, 1981, and *B. lespedezae* (Iablokov-Khnzorian, 1974), and an Eastern Paleotropical species, *B. zollingerianae* Delobel, 2010. Two additional species belong to this group: *B. comptus* (Sharp, 1886) from the Russian Far-East, Northern China, Korea and Japan, and *B. punctoterminalis* Arora, 1980, which is widely distributed in the Himalayan regions of Pakistan, India, Nepal and in the highlands of Thailand, Laos, Vietnam and China (Yunnan). *Bruchidius orissiensis* Arora, 1980 from India is also probably a member of this group, but this needs confirmation. In the present study we describe two new species in the *B. japonicus* species-group: *B. nepalensis* sp. nov. from Nepal, and *B. tricolor* sp. nov. from India, Laos and Thailand, which confirms the presence of this group at lower latitudes.

BOROWIEC (1985) established and described the *Bruchidius astragali* species-group. At the time of its description, the group comprised nine species, namely *B. astragali* (Boheman, 1829), *B. atbasaricus* Lukjanovitch & Ter-Minassian, 1954 (= junior synonym of

*B. astragali* (ANTON 1998)), *B. lucifugus* (Boheman, 1833), *Bruchidius marginalis* (Fabricius, 1776), *B. myobromae* (Motschulsky, 1874), *B. scutulatus* Baudi, 1890 (= junior synonym of *B. myobromae* (DELOBEL et al. 2004)), *B. tragacanthae* (Olivier, 1795), *B. virgatoides* Lukjanovitch & Ter-Minassian, 1957, and *B. virgatus* (Fåhræus, 1839). BOROWIEC (1988) later included *B. brignolii* Zampetti, 1979 (= junior synonym of *B. virgatus* (ANTON 1998)). More recently, several additional species were included: *B. varipes* (Boheman, 1839), *B. lindbergi* Hoffmann, 1961, *B. reitteri* Schilsky, 1906, *B. spathopus* Khnzorian, 1959, as well as five unnamed species by ANTON (1998); and *B. caninus* (Kraatz, 1869), *B. leprieuri* (Jacquet, 1886), *B. richteri* Lukjanovitch & Ter-Minassian, 1954, *B. sivasensis* Zampetti, 1984, *B. talyshensis* Ter-Minassian, 1969, and *B. bernardi* Delobel & Anton, 2004, by DELOBEL et al. (2004). To date we can add *B. armeniacus* Ter-Minassian, 1969, *B. fischeri* Hummel, 1827, *B. kaszabi* Ter-Minassian, 1973, *B. melanocerus* Ter-Minassian, 1973, *B. ochraceus* (Baudi di Selve, 1886), *B. osellai* Zampetti, 1979, *B. prolongatus* Lukjanovitch & Ter-Minassian, 1954, and *B. pubicornis* Lukjanovitch & Ter-Minassian, 1957. The number of described species now sums up to 25, while probably a same number of undescribed species belongs to the same group. In our opinion, no revision of the *B. astragali* species-group should be attempted without proper knowledge of genetic relationships within the group, and sufficient data need to be collected on the ecology and biology of its members, both of which are lacking at the moment. We however find useful to describe here a quite spectacular species from Iran and Turkey, which we place in the *B. astragali* species-group based on external and genital morphology.

## Material and methods

The following statements apply to the descriptions of the new species: total body length is measured from the apex of pronotum to the apex of elytra. Body width and length, and width of elytra are understood as the maximum values observed in given specimens. 'W/L' stands for width/length ratio. Lengths of antennomeres I to XI are given as the ratio of each to the length of the antennomere II. Terminology follows in most parts KINGSOLVER (1970) and NILSSON & JOHNSON (1993). Genitalia of some types are mounted on microscope slides in water-soluble PVP (polyvinyl-pyrrolidone, specimens prepared by K.W.A.); other genitalia are mounted in a drop of water-soluble DMHF (dimethyl hydantoin formaldehyde resin, specimens prepared by A.D.), on a rectangular cardboard pinned under the specimen. The figures of genitalia were made from both methods of preparation. Label data of examined material are transcribed between quotation marks, with single marks indicating line breaks, and double marks for different labels. The examined specimens are deposited in the following collections:

- CKWA Collection of K.-W. Anton, Emmendingen (Germany);
- MNHN Museum National d'Histoire Naturelle, Paris (France);
- HNHM Hungarian Natural History Museum, Budapest (Hungary);
- NHMB Naturhistorisches Museum, Basel (Switzerland);
- NME Naturkundemuseum, Erfurt (Germany).

## Results

### *Bruchidius nepalensis* sp. nov.

(Figs 1–4, 7, 21)

**Type locality.** Nepal, Bagmati Zone, Godawari, 1600 m a.s.l.

**Type material.** HOLOTYPE: ♂ (dissected), ‘Nepal, W. Wittmer / C. Baroni Urbani 76 // Godavari / 1600m 10.6.’, genitalia slide ‘Bruchidius / 19 11 16 I’ (NHMB). PARATYPES: 4 ♂♂ 2 ♀♀, ‘O.Nepal 1978 / Bhakta B. Ch. // Junhesi 2700m / 25.5.79 Khumbu’ (NHMB, 1 ♂ 1 ♀ MNHN); 2 ♀♀, ‘NEPAL centr, Bagmati Zone / Kathmandu valley / Lalipur Distr., Godawari, / Phulchoki, 2200–2700m / 1–7.vi.1996 / P. Cechovsky lgt.’, 1 ♀ with genitalia slide ‘Bruchidius / 18 07 16 II’ (CKWA); 1 ♂, ‘C. NEPAL, Nawakot / Triauli Khola, 2200m / Thade Gaon-Dhunche, 27.9. / leg. C. Holzschuh 1982’, genitalia slide ‘Bruchidius / 02 02 97 I’ (CKWA); 5 spec., unsexed, ‘C. NEPAL, Bagmati / Nuwakot, 1900m / Pati, Bhanyang, 16–19.vi.1989 / leg. C. Holzschuh’ (NME).

**Description.** Length: 2.0–2.6 mm, width: 1.3–1.8 mm.

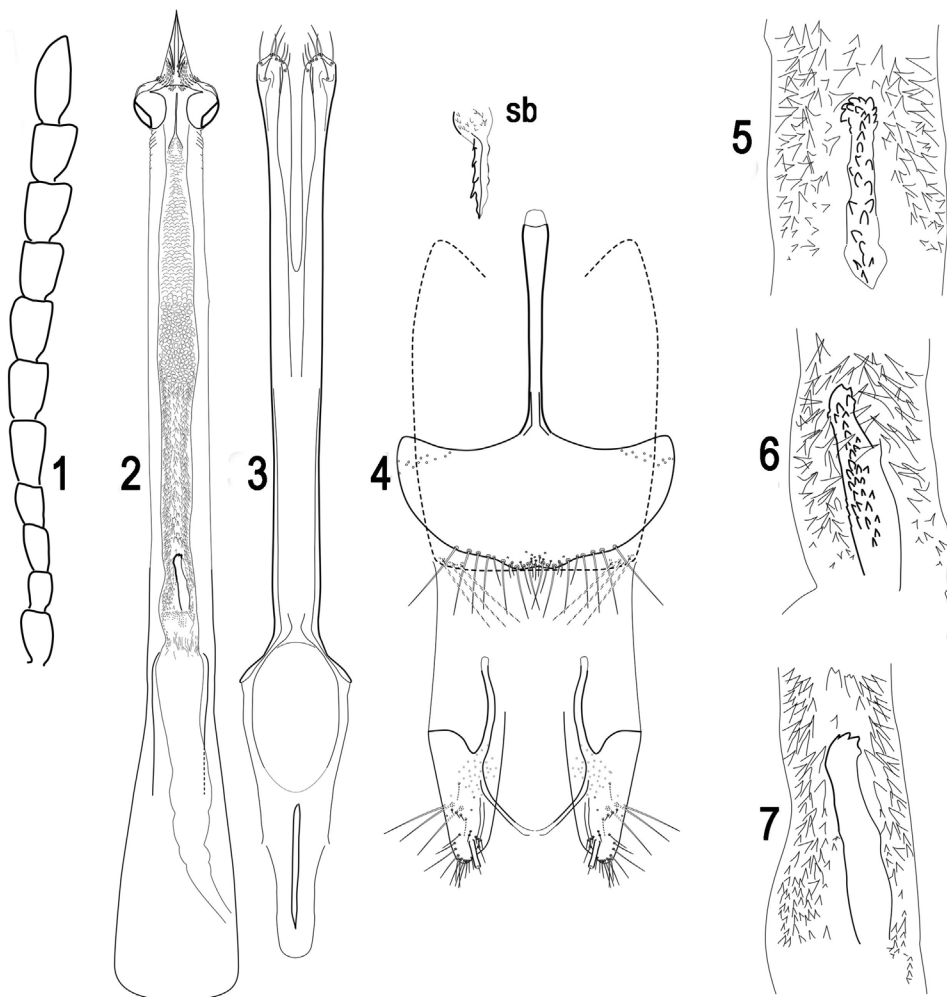
Body stout and thick, last visible tergite vertical. Colour of integument black; antennomeres I–IV, front and mid legs including coxae yellowish-brown, hind legs varying from paler to darker reddish-brown, base of claws darkened, apex of antennomere XI and extreme apex of elytra testaceous. Vestiture moderately dense, not completely covering body, made of long and thin, greyish-white setae, uniformly on head, last visible tergite and complete ventral body, denser and covering body on scutellum, denser and silky setae on prescutellar bulge of pronotum; dark brownish markings on pronotum and elytra: transverse arrangement of two or four irregular spots in mid of pronotal length, and 3 large spots on elytra, first in basal part on interstriae 3–9, second subcircular in median part on interstriae (3) 4–9, third transverse at complete apex.

**Male.** Head moderately elongated, eyes bulging, maximum head width about 1.5 times width behind eyes; eyes separated by 0.25 times head width including eyes; face short and narrow, with distance between posterior rim of eye and apex of clypeus / distance between eyes = 3.8; eye cleft to about 1/3 its diameter, width at bottom of sinus composed of about eight ommatidia; carina on frons faintly developed, less shiny, widened at base. Punctuation of face small and dense, vanishing on apical part of clypeus. Antenna (Fig. 1) long, reaching end of basal third of elytra; antennomeres elongate, I–IV cylindrical, V–X subserrate and faintly widened to apex, length of antennomeres: 1.7 : 1.0 : 1.4 : 1.6 : 2.0 : 1.8 : 1.8 : 1.7 : 1.7 : 1.7 : 2.9.

Pronotum campaniform, greatest width at base ( $W/L = 1.4$ ), with sides strongly bisinuate; disc mediolaterally faintly bulging, with small oblique impression on side of basal lobe; disc with dense punctuation, punctures of moderate size and regular.

Elytra 1.13 times as long as their combined width, widest at end of basal third; sides parallel in mid third; scutellar area faintly depressed, base of striae 3–4 provided with scarcely visible protuberance with two minute teeth at their distance to elytral base twice as large as distance between teeth; striae on disc deep and sharp, with strong punctures; interstriae flat, with dense micropunctuation and irregularly dispersed, coarse punctures.

Hind femora incrassate, at their widest 2.1 times as wide as mid femora; mesoventral margin with preapical denticle of moderate size, ventrolateral margin faintly sinuate oppo-



Figs 1–7. Morphology of the *Bruchidius japonicus* species-group. 1–4 – *Bruchidius nepalensis* sp. nov.: 1 – male antenna; 2 – median lobe; 3 – tegmen; 4 – ovipositor. 5–7 – detail of sclerite in saccus: 5 – *B. japonicus*, specimen from Hangchuan (Fujian, China); 6 – *B. japonicus*, specimen from Nagasaki (Japan); 7 – *B. nepalensis* sp. nov., paratype (Nepal).

site denticle. Hind tibiae moderately arched in basal half, continuously widened from base to apex, 2.5 times wider at apex than width at base, with dorsomesal, ventral and latero-ventral margins complete, lateral margin not reaching to base; apex of tibia with mucro longer than width of tarsomere I at base; lateral denticle wide and acute, about 1/3 mucro length; dorsally series composed of three minute denticles. Tarsomere I ventrally provided with blunt denticle.

Abdomen with ventrite V emarginate, medially turned out, its length medially long as ventrite IV; ventrite I basomedially without a particular arrangement of setae. Last visible tergite subtriangular, strongly arched, about 1.1 times as wide as long, with apex not turned under, briefly truncate.

Genitalia. Median lobe (Fig. 2) strongly elongate (maximum width excluding basal hood / total length = 0.06), sides parallel, briefly narrowed before apex; basal hood of moderate size, oblong with sides subparallel, not emarginated; ventral valve subtriangular, produced apically as faintly recurved beak, basally moderately subconcave, in mid with pairy vertical row of each barely visible four setae; dorsal valve braced with strongly sclerotized, large ring; no hinge sclerites, but instead wall of internal sac bears two dense groups of long, acute and flattened bristles, longest ones emerging as fringe between ventral and dorsal valves; wall of internal sac with faintly sclerotized tubercles and hyaline scales; saccus lined with two lateral groups of sclerotized needles, and with an elongate, moderately sclerotized sclerite (Fig. 7) with two blunt teeth at apex; gonopore wide and circular, surrounded by minute hyaline needles; spiculum gastrale long, slender, Y-shaped. Basal strut (Fig. 3) with slim keel; lateral lobes cleft to about 1/3 their length; apex of parameres with seven small setae, modified with conical flap and internal projection.

**Female.** Similar to male, antenna about 0.1 times shorter; pygidium subvertical and less arched; ventrite V about twice as long as IV. Genitalia (Fig. 4): vagina faintly sclerotized, bursa copulatrix with faintly sclerotized sclerite with acute apex and widened base, sclerite bearing along its apical side series of four teeth and on area of basal half group of about 20 minute teeth; ovipositor short, with moderately long and flattened spiculum gastrale; segment IX short and wide, longitudinal apodemes distinctly arched; spermathecal body ovoid, with apical diverticulum stout and faintly curved.

**Differential diagnosis.** The size and shape of body as well as colour pattern are similar to *B. japonicus*, which is distributed from the southern Russian Far East to SE China and Japan (ANTON 2010). The new species differs markedly by the colour of antennomeres (V) VI–XI, which are always black, in vestiture with a line of greyish-white setae of the second elytral interstria not prolonged towards apex, and in male genitalic morphology: basal hood and basal strut slender, with median carina smaller; in addition, the shape and serration of the posterior sclerite in the saccus markedly differs from what may be observed in specimens of *B. japonicus* from Eastern China (Fig. 5) or Japan (Fig. 6).

**Host plants.** Unknown.

**Etymology.** The specific epithet (masculine) is a Latin adjective meaning ‘inhabiting Nepal’.

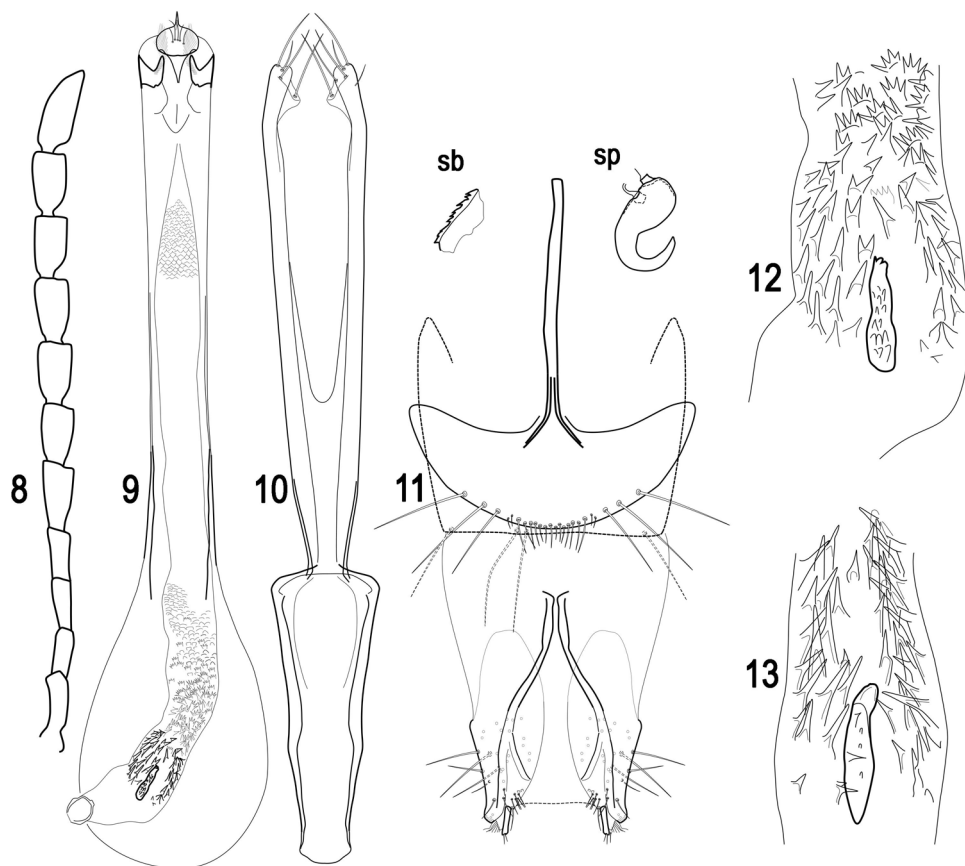
**Distribution.** Nepal.

### *Bruchidius tricolor* sp. nov.

(Figs 8–13, 22)

**Type locality.** Laos, Louangphrabang Province, 5 km W of Ban Song Cha, 20°33–34'N, 102°14'E, 1200 m a.s.l.

**Type material.** HOLOTYPE: ♂ (dissected), ‘LAOS, 1.-16.v.1999 / Louangphrabang pr. / 20°33-4'N 102°14'E / Ban Song Cha (5km W), / 1200 m, Vit. Kubán leg.’, genitalia slide ‘Bruchidius / 26 09 99 I’ (NHMB). PARATYPES: 2 ♀♀, ‘NW THAILAND 1-8.v. / MAE HONG SON 1992 / BAN SI LANG 1200 m / J.HORAK LEG.’ (CKWA); 1 ♀, ‘NE INDIA: ASSAM; / 5km N of Umrongsor, 700 m; / 25°27'N 92°43'E; 21.v.1999 / Dembický & Pacholátko leg.’ (NHMB); 1 ♀, ‘THAILAND, / Prov. Nan, / above Mae / Charim waterfall, // 6.xi.2004, / M. Földvári, / A. Orosz,



Figs 8–13. *Bruchidius tricolor* sp. nov.: 8 – male antenna; 9 – median lobe; 10 – tegmen; 11 – ovipositor (sb – sclerite in bursa copulatrix; sp – spermathecal body); 12 – detail of sclerite in saccus, holotype (Laos); 13 – detail of sclerite in saccus, specimen from Uttar Pradesh (India).

L. Papp'; 1 ♀, same data but 7-8.xi; 1 ♀, THAILAND, / Prov. Nan, / Nam Mae Charim Road, 20<sup>th</sup> km // secondary bamboo / forest, 6.xi.2004, / M. Földvári, / A. Orosz, L. Papp' (HNHM).

**Additional material examined.** ♂ (dissected), 'INDIA, U.P. 1978, W. Wittmer / Bhimtal 1.-15.5 / 1400-1500 m', genitalia slide 'Bruchidius / 23.10.00V' (CKWA).

**Description.** Length: 1.6–1.8 mm, width: 1.1–1.2 mm.

Body stout and thick, last visible tergite vertical. Integument colour reddish-brown; meso- and metathorax, abdominal ventrite I, hind femora excluding apex and elytra excluding apex black; tip of antennomere XI more or less darkened; antenna, front and mid legs yellowish-brown. Vestiture moderately dense, not completely covering body, made by long and thin, homogeneously greyish setae on head, elytra, complete ventral body and rarely last visible



tergite, distinctly denser setae completely covering body on scutellum; longer, homogeneously pale yellowish-brown setae on pronotum and often last visible tergite, denser and silky setae on prescutellar area of pronotum.

**Male.** Head moderately elongated, eyes bulging, maximum head width about 1.5 times width behind eyes; eyes separated by 0.16 times head width including eyes; face short and narrow, with distance between posterior rim of eye and apex of clypeus / distance between eyes = 4.5; eye cleft to less than half of its diameter, width at bottom of sinus composed of about 7 ommatidia; carina on frons well developed, shining, ending basally in blunt tubercle. Punctuation of face fine and dense, vanishing to extreme apex of clypeus. Antenna (Fig. 8) long, reaching end of basal third of elytra; antennomeres oblong, I–IV cylindrical, V–X with parallel sides and scarcely subserrate, length of antennomeres: 1.8 : 1.0 : 1.2 : 1.3 : 1.5 : 1.6 : 1.6 : 1.4 : 1.3 : 1.2 : 2.0.

Pronotum campaniform, greatest width at base ( $W/L = 1.3$ ), with sides moderately bisinuate; disc mediolaterally faintly bulging, with small oblique impression on side of basal lobe; punctuation dense, punctures strong, irregular and ocellate on disc.

Elytra 1.13 times as long as their combined width, widest at end of basal third; sides subparallel in mid third; scutellar area faintly depressed, scarcely visible protuberance with two small teeth at base of striae 3–4, their distance to elytral base scarcely larger than distance between teeth; striae on disc deep and sharp, with strong punctures; interstriae flat, with dense micropunctuation and irregularly dispersed, coarse punctures.

Hind femora incrassate, at their widest 2.4 times as wide as mid femora; mesoventral margin with strong, oblong preapical denticle, ventrolateral margin strongly sinuate opposite denticle. Hind tibiae continuously arched and widened from base to apex, 2.5 times wider at apex than width at base, with dorsomesal, ventral and lateroventral margins complete, lateral margin strong but not reaching to base; apex of tibia with mucro about twice longer than width of tarsomere I at base; lateral denticle slim and acute, about 1/3 mucro length; dorsally series of three minute denticles. Tarsomere I ventrally with blunt denticle.

Abdomen with ventrite V emarginate, medially turned out, its length medially as long as ventrite IV; ventrite I basomedially without particular arrangement of denser setae. Last visible tergite subtriangular, regularly arched, about 1.1 times as long as wide at base, with apex not turned under, briefly truncated.

Genitalia. Median lobe (Fig. 9) elongate (maximum width excluding basal hood / total length = 0.10), sides parallel, briefly narrowed before apex; basal hood of moderate size, subcircular, not emarginated; ventral valve subcircular, produced apically as thin and recurved beak, base convex, in mid with transverse and arched row of five setae; dorsal valve braced with strongly sclerotized, large ring; no hinge sclerites, but instead the wall of internal sac bears two dense groups of long and acute bristles, emerging as fringe between ventral and dorsal valves; wall of internal sac with hyaline scales; basal part of saccus lined with multifid scales, followed by sclerotized needles and one large, elongated, moderately sclerotized sclerite with about 18 teeth; gonopore wide and circular, surrounded by minute hyaline needles; spiculum gastrale long, slender, Y-shaped. Basal strut (Fig. 10) with barely visible trace of keel; lateral lobes cleft to about 2/3 their length; apex of parameres with 4–5 long setae, modified with conical flap and internal projection.

**Female.** Similar to male, antenna about  $\frac{1}{4}$  shorter; pygidium subvertical and less arched; ventrite V about twice as long as IV. Genitalia (Fig. 11): vagina membranous, bursa copulatrix with oblong, faintly sclerotized sclerite bearing lateral series of about nine teeth; ovipositor short, with moderately long and flattened spiculum gastrale; segment IX short and wide, longitudinal apodemes distinctly arched; spermathecal body oblong-ovoid, with apical diverticulum drawn out and evenly curved.

**Differential diagnosis.** Habitus, size and genital morphology indicate that the new species is a member of the *B. japonicus* species-group. Its reddish-brown colour, yellowish-grey vestiture on pronotum and greyish-white elytral pattern are characteristic; a single male from Uttar Pradesh showing an elytral pattern similar to *B. nepalensis*, though less striking (on each elytron two large dark brown areas, one basal and one lateral, beyond middle) belongs to the same species but was excluded from the list of paratypes. The posterior sclerite of the saccus (Fig. 12) is comparatively smaller than in *B. japonicus* or *B. nepalensis*; the specimen from Uttar Pradesh differs from the holotype in a smaller number of teeth on the sclerite surface (Fig. 13).

**Host plants.** Unknown.

**Etymology.** The specific epithet (masculine) refers to the three colors observed in *B. tricolor*: black and reddish-brown of the integument, and greyish of the dorsal vestiture.

**Distribution.** India, Laos, Thailand.

### *Bruchidius planicornis* sp. nov.

(Figs 14–20, 23)

**Type locality.** Iran, Fars province, Qualat, 29°48'13 "N, 52°19'11 "E, 2000–2150 m. a.s.l.

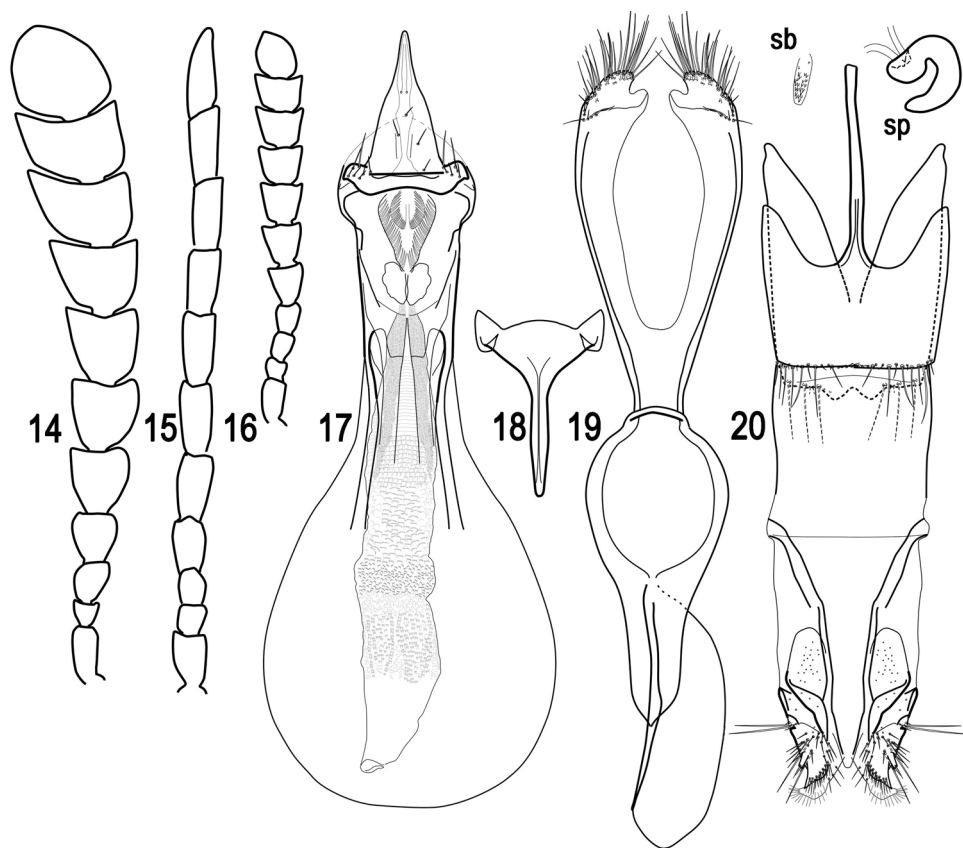
**Type material.** HOLOTYPE: ♂ (dissected), 'S-IRAN, Prov. Fars, vic. / Qualat, 2000-2150 m. / Bachtal (Trockenhang) 29.48.13N, 52.19.11E / 28.IV.10, leg. D. Frenzel' (NME). PARATYPES: ♂, 'IRAN, 1200 m / Prov. Azerbaydjan, / 3 km S of Margan // 1998.IV.29 / leg.: Székely K.' (HNHM); 2 ♂♂ 1 ♀ 'S-IRAN: Prov. Fars, vic. / Qalat village, 29°48'13"N, / 52°19'11"E, 2000-2150 m, / 28.IV.2010 / leg. A. Weigel #06" (NME, 1 ♂ MNHN); 2 ♀♀ (dissected) 'IRAN, Azerbaijan-e-Sharqi / Ghazenloo valley, 2.05. / leg. Y. Karimpour 2008', genitalia slides 'Bruchidius / 08 09 16 II', 'Bruchidius / 08.09.16 III' (CKWA); 1 ♀ (dissected), 'T [URKEY], Van Prov. 22.vi.2005 / coast nr Akdamar isl. / 1650 m, leg. K.W. Anton', genitalia slide 'Bruchidius / 08 09 16 I' (CKWA).

**Description.** Length: 2.8–3.0 mm, width: 1.3–1.7 mm.

Body oblong-oval; last visible tergite slanted about 50° from vertical. Integument colour mainly black, with several parts varying from yellowish-brown or reddish-brown to testaceous: antennomeres I–III (IV), with antennomere I dorsally and antennomeres II–III dorso-apically darkened, front leg at least with tarsomeres I–III, apical half of tibia and at apical quarter of femur, mid legs at least with tarsomere II and apical fifth of tibia; claws of legs always reddish-brown, whilst last tarsal segment always black. Vestiture moderately dense, not completely covering body, composed of long and moderately strong, homogeneous, pale olive-grey setae; distinctly denser and more or less whitish to pale yellowish setae at prescutellar area of pronotum, on scutellum and at basal mid of last visible tergite.

**Male.** Head moderately elongated, eyes bulging, maximum head width about 1.3 times width behind eyes; eyes separated by 0.26 times head width including eyes; face short and narrow, with distance between posterior rim of eye and apex of clypeus / distance between

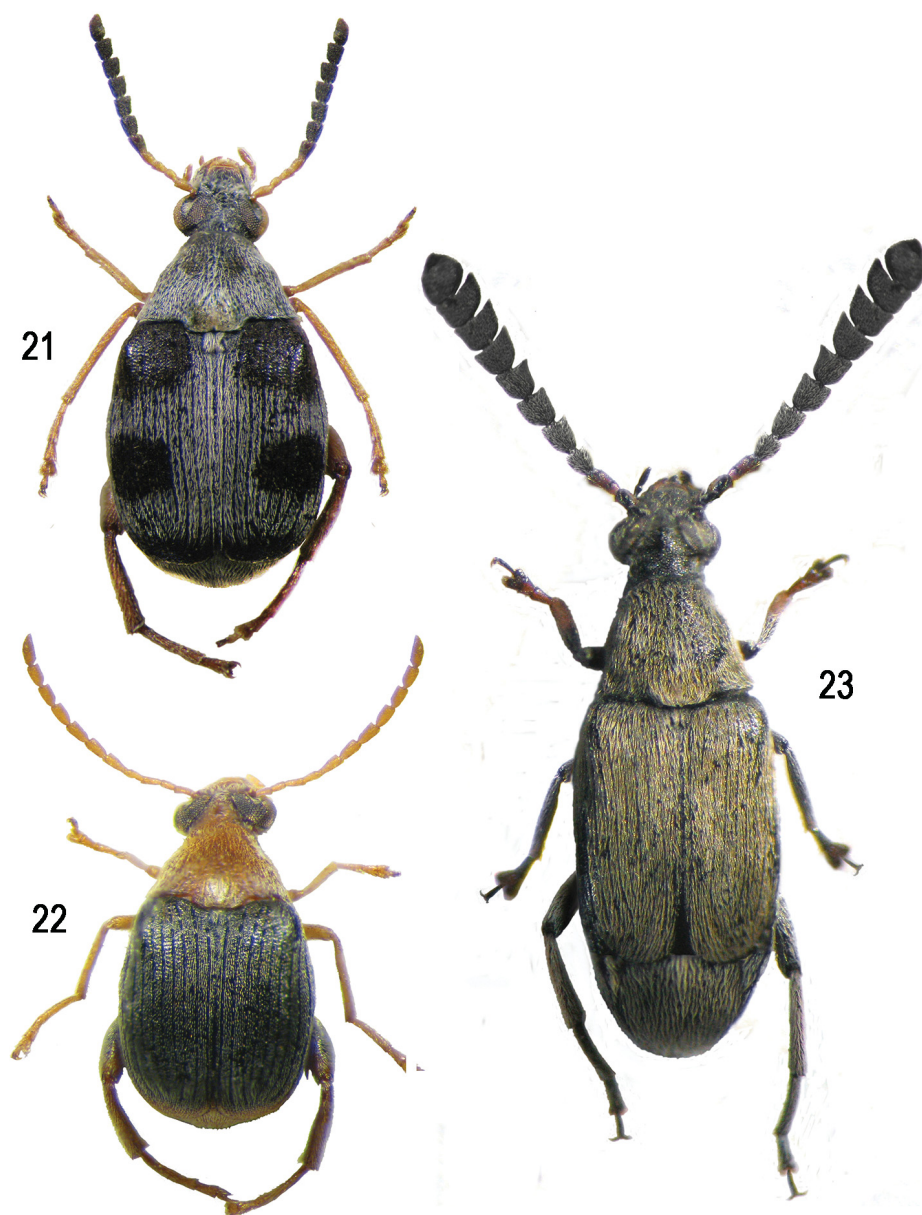




Figs 14–20. *Bruchidius planicornis* sp. nov.: 14 – male antenna, dorsal view; 15 – male antenna, lateral view; 16 – female antenna, dorsal view; 17 – median lobe; 18 – spiculum gastrale; 19 – tegmen; 20 – ovipositor, sb – sclerite in bursa copulatrix, sp – spermathecal body.

eyes = 3.0; eye cleft to about  $\frac{2}{5}$  its diameter, width at bottom of sinus composed of about four ommatidia; carina on frons well developed, shining, ending posteriorly in a blunt tubercle. Punctuation of face small and dense, vanishing in apical third of clypeus. Antenna (Figs 14–15) long, reaching to beginning of apical half of elytra; antennomeres I–II cylindrical and oblong, III subserrate and oblong, IV–X serrate, becoming gradually enlarged, flattened and cup-shaped, XI subcircular and large, antennomeres IV–V about 1.1–1.2 times as long as wide, VI as wide as long, VII–X about 1.1–1.4 times as wide as long; length of antennomeres: 1.7 : 1.0 : 1.5 : 2.0 : 2.2 : 2.5 : 2.5 : 2.6 : 2.7 : 2.5 : 3.7.

Pronotum campaniform, greatest width at base ( $W/L = 1.2$ ), with sides bisinuate, posterior edges with faint oblique impression; disc with dense double punctuation of fine and coarse punctures.



Figs 21–23. Habitus of male adults, dorsal view: 21 – *Bruchidius nepalensis* sp. nov.; 22 – *Bruchidius tricolor* sp. nov.; 23 – *Bruchidius planicornis* sp. nov.

Elytra 1.25 times as long as their combined width, widest at end of basal quarter; sides sub-parallel; scutellar area not depressed; without teeth at base of striae 3–4; striae on disc narrow, with small punctures; interstriae wide and flat, with dense and fine punctuation.

Hind femora not incrassate, at their widest 1.2 times as wide as mid femora; mesoventral margin with minute preapical denticle, ventrolateral margin scarcely sinuate opposite denticle. Hind tibiae straight, continuously widened from base to apex, twice wider at apex than width at base, with dorsomesal ventral and lateral margins complete, lateroventral margin barely visible and not reaching to apical half of tibia; apex of tibia with mucro short, its length half of width of tarsomere I at base; lateral denticle wide and acute, about twice mucro length; dorsally series of three short denticles. Tarsomere I ventrally with blunt denticle.

Abdomen telescoped, with ventrite V faintly emarginate and medially not turned out, its length medially as long as ventrite IV; ventrite I basomedially without particular arrangement of denser setae. Last visible tergite oblong subtriangular, about 1.2 times as long as wide, apical third faintly arched, with apex neither turned under nor truncated.

Genitalia. Median lobe (Fig. 17) oblong (maximum width excluding basal hood / total length = 0.25), sides parallel, briefly narrowed before apex, strongly widened apically; basal hood oblong with sides moderately convex, not emarginated apically; ventral valve large and subtriangular, with acute apical tip, basally moderately concave, laterobasally group of 8–10 setae; dorsal valve braced with moderately sclerotized, slim ring; no hinge sclerites, but instead the wall of internal sac bears pair of oblong groups of dense, long, acute flattened bristles, followed posteriorly by pair of strikingly sclerotized, irregular areas; saccus lined with two lateral rows of faintly sclerotized microtubercles, followed posteriorly by hyaline multified scales; gonopore wide and circular; spiculum gastrale (Fig. 18) short, stout, T-shaped. Basal strut (Fig. 19) with huge dorsal keel; lateral lobes cleft about 3/4 their length; apex of parameres with about 20 strong and long setae, modified with hyaline, conical flap and internal projection.

**Female.** Similar to male, antenna (Fig. 16) 0.4 times shorter; last visible tergite flat and its apical third not arched; ventrite V about 1.5 times as long as IV. Genitalia (Fig. 20): apical rim of tergite VIII strongly bisinuated, bursa copulatrix with single flat dorsal sclerite bearing number of small teeth; spermathecal body dark brown, u-shaped, with crescentic diverticulum, its surface covered with wide, shallow wrinkles.

**Differential diagnosis.** Habitus and genital morphology indicate a placement of this new species in the *Bruchidius astragali* species-group. Several Iranian species, a number of which remain undescribed, belong to that group of species. Several of them, including *Bruchidius reitteri*, *B. richteri*, *B. spathopus*, *B. talyshensis*, *B. tragacanthae*, *B. virgatus*, or *B. varipes*, show quite similar male genitalia, especially modified parameres, with two distinct apical lips. *Bruchidius melanocerus*, *B. kaszabi*, *B. myobromae*, *B. tragacanthae* or *B. reitteri* also possess a basal strut with strongly enlarged keel. However, such characteristics as strongly widened and flattened apical antennomeres in male, median lobe with pair of strikingly sclerotized areas at entrance to internal saccus are unique within the *B. astragali* species-group.

**Host plants.** Unknown.

**Etymology.** From Latin adjective *planus* (flat) and neuter noun *cornu* (horn, insect antenna).

**Distribution.** Iran and Turkey.

### Acknowledgements

We are grateful to Dr. M. Borer (NHMB), Dr. O. Merkl (HNHM), and M. Hartmann (NME), who provided us with bruchine specimens.

### References

- ANTON K.-W. 1998: Results of the Czechoslovak-Iranian entomological expeditions to Iran in 1970, 1973 and 1977. *Časopis Národního muzea, Řada Přírodovědná* **167**: 73–90.
- ANTON K.-W. 2010: Bruchinae. Pp. 339–353. In: LÖBL I. & SMETANA A. (eds): *Catalogue of Palaearctic Coleoptera. Volume 6. Chrysomeloidea*. Apollo Books, Stenstrup, 924 pp.
- BOROWIEC L. 1985: The status of *Bruchus tragacanthae* Olivier (Coleoptera, Bruchidae). *Polskie Pismo Entomologiczne* **55**: 245–249.
- BOROWIEC L. 1988: *Bruchidae, strąkowce (Insecta: Coleoptera)*. *Fauna Polski – Fauna Poloniae, Tom. 11*. Państwowe Wydawnictwo Naukowe, Warszawa, 226 pp.
- DELOBEL A., ANTON K.-W. & KERGOAT G. 2004: New data on European *Astragalus*-feeding *Bruchidius*, with the description of a new species from Southern Italy (Coleoptera: Bruchidae: Bruchinae). *Genus* **15**: 173–185.
- DELOBEL A. 2010: A new seed beetle associated with *Indigofera zollingeriana* in Vietnam, with a note on the *Bruchidius japonicus* (Harold) species group (Coleoptera: Chrysomelidae: Bruchinae). *Genus* **21**: 249–255.
- KINGSOLVER J. M. 1970: A study of male genitalia in Bruchidae (Coleoptera). *Proceedings of the Entomological Society of Washington* **72**: 370–414.
- NILSSON J. A. & JOHNSON C. D. 1993: A taxonomic revision of the palm bruchids (Pachymerini) and a description of the world genera of Pachymerinae. *Memoirs of the American Entomological Society* **41**: 1–104.