

**Revision of the genus *Sulcobruchus* CHUJO 1937,
and description of *Parasulcobruchus* nov. gen.
(Coleoptera, Bruchidae, Bruchinae)**

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Abstract: The Oriental genus *Sulcobruchus* CHUJO 1937, is redescribed and revised, whilst the closely related new genus *Parasulcobruchus* is described from Australia. *Sulcobruchus cruciatus* nov. spec. ♂, ♀ is described from Laos and Thailand, *S. siamensis* nov. spec. ♂, ♀ from Thailand and *S. violaceus* nov. spec. ♀ from Indonesia. New combinations and new synonymies are as follows: *Parasulcobruchus semicalvus* (LEA 1899), nov. comb., *S. griseosuturalis* (PIC 1932), nov. comb. (= *S. kingsolveri* ARORA 1977, nov. syn.), *S. subsuturalis* (PIC 1929), nov. comb. (= *S. bakeri* KINGSOLVER 1984, nov. syn.). A key to *Sulcobruchus* species is provided.

Key words: Coleoptera, Bruchidae, *Sulcobruchus*, *Parasulcobruchus*, new species, new genus, Orientalis, Australia.

Introduction

The genus *Sulcobruchus* CHUJO 1937 comprises 8 species, distributed in the Oriental Region. Five species were described by PIC (1922, 1927, 1928, 1929, 1932). Several taxonomical and biological studies were done on *S.* species in India (ARORA 1977, SINGAL 1987), Japan (CHUJO 1937, WATANABE 1985, MORIMOTO 1990), Philippines (KINGSOLVER 1984) and in generally by BOROWIEC (1987). The present paper deals with a new generic definition, redescrptions and synonymies of the known five species and the descriptions of three new species. A key to *S.* species is given.

Parasulcobruchus, closely related to *Sulcobruchus*, is described new to science. It is represented by a lone species from Australia.

Abbreviations used in the text:

- BMNH: British Museum of Natural History (London, Great Britain)
CKWA: Collection of author (Emmendingen, Germany)
MRAC: Musée Royale de l'Afrique Centrale (Tervuren, Belgium)
MNHN: Muséum National d'Histoire Naturelle (Paris, France)
NMHB: Naturhistorisches Museum (Basel, Switzerland)
OLML: Oberösterreichisches Landesmuseum/Biologiezentrum (Linz, Austria)
SAMA: South Australian Museum (Adelaide, Australia)
SMNS: Staatliches Museum für Naturkunde (Stuttgart, Germany)
USNM: National Museum Natural History, Smithsonian Institution (Washington, USA)
ZMAN: Zoölogisch Museum, Universiteit Amsterdam (Amsterdam, The Netherlands).

Genus *Sulcobruchus* CHUJO 1937

Sulcobruchus CHUJO 1937: 189 (type species: *Bruchus sauteri* PIC 1927, designated by CHUJO (1937) as genotype).

D i a g n o s i s : CHUJO (1937) described this genus only with a common combination of characters which are even to find in several genera of the subfamily Bruchinae. The etymology of *Sulcobruchus* refers to the hind femur with a strong apical sulcus at ventral side, which also occurs in same or somewhat weakened manner in species described in the genus *Tuberculobruchus* DECELLE 1951, and *Pygobruchidius* PIC 1951, as well as in several species of *Bruchidius* SCHILSKY 1905. Thus BOROWIEC (1987) correctly stated that the genus *Sulcobruchus* has not been well defined. He characterized *Sulcobruchus* in a way that also includes the above mentioned genera except *Bruchidius*. However, MORIMOTO (1990) already notes that this genus status needs revision because *S. sauteri* has peculiar genitalia.

Fortunately, the type species designated by CHUJO (1937) allows a new redescription of *Sulcobruchus*. With regard to the middle of male abdominal sternite I, the apex of the lateral lobes, and in some species the ventral valve, *Sulcobruchus* species show characters, which separate them distinctly from all above mentioned and other known genera of *Bruchidae*.

R e d e s c r i p t i o n : Body shape oval, stout (figs 1, 4-8). Length (pronotum - elytra): about 1.9-3.3 mm.

Integument completely black, or partially black to brownish and partially reddish to yellowish or violet. Ventral side of elytra pale yellowish, often with longitudinal rows of blackish spots in accordance with punctation of dorsal striae.

Vestiture recumbent, greyish to whitish or yellowish and brownish, nearly uniform or with characteristic pattern, with fine, scarcely dense to thick, more or less moderately dense setae, at most not covering integument completely.

Head of moderate length, with moderate and dense punctures, constricted behind eyes, frons and vertex with interocular carina or elongated protuberance. Eyes bulging, postocular lobe short, ocular sinus deep. Antenna extending to humeral callus or somewhat behind, with indistinct sexual dimorphism, segments 1-2 cylindrical, 3 subserrate, 4-10 moderately serrate, 11 oval to oblong-oval (fig. 2).

Pronotum conical, without lateral carina. Disc convex, with dense, coarse punctation, distance of coarse punctures less than their diameters, with shiny welts between punctures. Scutellum of moderate size, visible part about as long as wide, moderately to strongly bifid.

Elytra with distinct to indistinct basal, double or more-hooked, basal protuberance; sometimes protuberance reduced to minimum, but hooks always distinct. Humeral callus distinct, smooth. Sides convex, maximum width at basal fourth to third. Inner third of apical margin with 5-10 feebly visible, minute denticles. Disc weakly flattened to moderately convex. Striae distinct, flat, with distinct, flat, setiporous punctation as broad as to broader than stria, distance between punctures less than their diameters. Intervals flat, with micropunctation and reticulation, with irregular row of flat-bottomed punctures; reticulation becoming gradually stronger from apex to base.

Abdominal sternite I with sexual dimorphism. Hind femur strongly incrassate, apical half

of ventral side with distinct sulcus between margins, without denticle on ventral margins (fig. 3). Hind tibia simple, of moderate width, with 4-6 carinae: at least with ventrolateral, lateral, dorsomesal and ventral, carinae, with mucro distinctly longer than lateral coronal denticle at extension of lateral carina, dorsolateral denticles distinctly shorter than lateral coronal denticle. Hind tarsal segment I elongate, at least 1.7 times longer than hind tibia. Pygidium as wide as long to oblong, with dense, coarse punctation becoming gradually denser and smaller towards apex.

Male. Abdominal sternite I modified, with median concavity; concavity strong, distinctly demarcated with extremely dense microsetation unlike remaining part of sternite, or weak, indistinctly demarcated, with scarcely to moderately dense or dense common setation like remaining part of sternite. Sternites II-IV weakly to moderately telescoped, V emarginate (figs 9-13). Pygidium vertical, convex. Median lobe of moderate length; ventral valve curved ventrad, simple, subtriangular to suboval, or deeply emarginate, produced into strong lateral process, with dorsal valve extending between. Internal sac with numerous spines or denticles, in one species with a single, elongate sclerite (figs 14-20). Lateral lobes separated at least to three fifths of their length, in part strongly sclerotized, expanded towards apex; apex modified, with minute to large, strongly sclerotized, acute, apical process (figs 21-27). Tegminal strut with median carina (fig. 21).

Female. Antenna somewhat shorter than in male. Abdomen simple. Sternite I simple, without concavity, V not emarginate. Pygidium subvertical, plane to convex.

Host plants: Species of Leguminosae: *Albizia*, *Caesalpinia*, *Dalbergia* and *Moullava*.

Distribution: Oriental Region.

Remarks: *Sulcobruchus* can be divided in two groups. The *rugulosus* group (*S. rugulosus*, *S. sauteri*, *S. subsuturalis*, *S. violaceus*) is characterized as follows: scutellum strongly bifid; hind tibia with 4 carinae, without dorsal and second ventral carinae; median concavity of male sternite I strong, distinctly demarcated with extremely dense microsetation (figs 9-11); median lobe of male genitalia deeply emarginate and produced into lateral processes, with dorsal valve visible between (figs 14-16). In comparison, the *maculatithorax* group (*S. cruciatus*, *S. griseosuturalis*, *S. maculatithorax*, *S. siamensis*) has following features: scutellum moderately bifid; hind tibia with 5-6 carinae, at least with dorsal carina; median concavity of male sternite I weak, indistinctly demarcated, with common setation (figs 12-13); ventral valve subtriangular or suboval, not emarginate, not produced into lateral process (figs 17-20).

Key to the *Sulcobruchus* species

1. Antenna completely black. Hind tibia with 4 carinae, without dorsal and second ventral carinae. Male: median concavity of sternite I strong, with extremely dense microsetation unlike remaining part of sternite (figs 9-11); median lobe deeply emarginate and produced into lateral process, with dorsal valve visible between (figs 14-16). *S. rugulosus* group.....2
- At least antennal segments 1-2 ventrally reddish to yellowish. Hind tibia with 5-6 carinae, at least with dorsal carina. Male: median concavity of sternite I weak, with common setation like remaining part of sternite; ventral valve subtriangular or suboval, not emarginate, not produced into lateral process (figs 17-20). *S. maculatithorax* group...5
2. Body shiny violet except antenna and legs. Indonesia (Java).*S. violaceus*
- Body completely black; rarely front and mid legs distally weakly testaceous.3

3. Elytral pubescence uniformly greyish. Mucro about 2 times longer than lateral coronal denticle. Male: median concavity of sternite I oval, basally acute and not extending beyond apical margin of sternite I (fig. 9); ventral valve with bifid, lateral process (fig. 14); lateral lobes with lateroapical row of about 23-26 setae (fig. 21). Japan, Taiwan.....*S. sauteri*
- Elytral pubescence greyish, intervals 1-3 often paler greyish-whitish. Mucro of hind tibia about 3 times longer than lateral coronal denticle. Male: median concavity of sternite I basally arcuate (figs 10-11); ventral valve with sickle-shaped, lateral process (figs 15-16); lateral lobes with lateroapical row of about 12-15 setae (figs 22-23).4
4. Male: median concavity of sternite I apically blunt, not extending beyond apical margin of sternite I (fig. 10); ventral valve with lateral process slender (fig. 15); lateral lobes with oblique carina below lateroapical row of setae (fig. 22). Female: pygidium without apical tubercle. India, Philippines, Thailand *S. subsuturalis*
- Male: median concavity of sternite I apically arcuate, extending beyond apical margin of sternite I (fig. 11); ventral valve with lateral process broader (fig. 16); lateral lobes without oblique carina below lateroapical row of setae (fig. 23). Female: pygidium with smooth, apical tubercle. Philippines..... *S. rugulosus*
5. Antenna, front and mid legs completely yellowish. Hind tibia with 5 carinae, ventral carina simple. Elytral pubescence with yellowish to greyish and pale or dark brownish pattern (figs 4-6). Male: sternite I without shiny, medioapical tubercle (fig. 12); ventral valve subtriangular (figs 17-18); lateral lobes with large, apical process (figs 24-25).....6
- At least antennal segments 1-2, front and mid legs partially reddish to yellowish. Hind tibia with 6 carinae, with two ventral carinae. Elytral pubescence greyish to brownish, with intervals 1-3(4-5) or suture including a transverse band greyish-whitish (figs 7-8). Male: sternite I with shiny, medioapical tubercle (fig. 13); ventral valve suboval (figs 19-20); lateral lobes with minute, apical process (figs 26-27)7
6. Combined elytral pattern forms a yellowish to whitish cross (fig. 6). Male: ventral valve broader, less acute (fig. 18) and lateral lobes with homogeneously convex, apical process (fig. 25). Laos, N Thailand..... *S. cruciatus*
- Elytral pattern forms two, often irregular, transverse, yellowish bands(fig. 4-5). Male: ventral valve slimmer, more acute (fig. 17); lateral lobes with sinuate, apical process (fig. 24). India, Sri Lanka..... *S. maculatithorax*
7. Elytral pubescence brownish to greyish, with intervals 1-3(4-5) greyish-whitish, without transverse band (fig. 7). Male: ventral valve shorter (fig. 19); lateral lobes with smaller, sclerotized area at apical process (fig. 26). S China, N India, Laos, N Thailand. *S. griseosuturalis*
- Elytral pubescence brownish, with suture and irregular, transverse band greyish-whitish (fig. 8). Male: ventral valve longer (fig. 20); lateral lobes with larger, sclerotized area at apical process (fig. 27). N Thailand *S. siamensis*

Species of *Sulcobruchus*

Sulcobruchus cruciatus nov. spec., ♂, ♀

Holotype: N Laos, 20 km NW Louang Namtha, 21°09.2'N 101°18.7'E, 900+100 m, 5.-30.V.1997, ♂, leg. C. Holzschuh, in CKWA, genitalia preparation no. 131297VII; allotype: N Laos, Louangnamtha prov., Namtha - Muang Sing, 21°09'N 101°19'E, 800-1200 m, 5.-31.V.1997, ♀, leg. V. Kubáň, in NHMB; paratype: NW Thailand, Mae Hong Son - Ban Huai Po, 8.-17.V.1992, ♀, leg. S. Bily, in NHMB; paratypes: NW Thailand, Soppong - Pai, 1500 m, 1.V.1992, 2♂♂2♀♀ leg. P. Pacholátko, in CKWA and OLML; paratype: NW Thailand, Mae Hong Son prov., Soppong - Pai, 19°27'N 98°20'E, 1500 m, 7.-12.V.1996, ♀, leg. J. Horák, in CKWA; paratype: NW Thailand, Soppong, 19°27'N 98°20'E, 1550 m, 10.13.V.1993, ♀, leg. V. Kubáň, in SMNS.

E t y m o l o g y : The name refers to the striking pattern of elytral vestiture.

D i a g n o s i s : *S. cruciatus* belongs to the *maculatithorax* group and it is very closely related to *S. maculatithorax*. The other group species, *S. griseosuturalis* and *S. siamensis*, differ in the less striking pattern of partially slimmer setae, less dense, dorsal vestiture and only partially yellowish antenna, front and mid legs. Externally *S. maculatithorax* shows different features than *S. cruciatus*: the pygidium slimmer and the pattern of pronotal and elytral vestiture different, strongly varying, with at least two whitish, transversal bands (see figs 4-5). The male genitalia of *S. maculatithorax* are very similar, but have the ventral valve slimmer, with apical tip more acute, and the lateral lobes less curved ventrad, with apical process homogeneously arcuate (figs 17, 24).

D e s c r i p t i o n : Length (pronotum - elytra): 2.3-2.6 mm, width: 1.7-1.8 mm.

Integument black; antenna, front and mid legs, and hind tarsal segments 3-4 yellowish except darkened claws and mid coxae.

Vestiture with very dense, thick, pale yellowish to straw-yellow setae, covering integument nearly completely, and with moderately dense, less thick, whitish-greyish and dark-brownish to blackish setae, not covering integument completely. Pygidium and lateral part of ventral body yellowish to straw-yellowish, ventral parts of sternites greyish, apical pygidial fourth blackish. Pattern of pronotum and elytra feebly varying. Pronotum straw-yellowish, laterad of prescutellar base whitish-greyish to whitish -yellowish, disc with large, blackish spot. Scutellum whitish-greyish to whitish-yellowish. Elytra blackish; narrow circumscutellar area, suture and regular, transverse band at mid whitish-greyish to straw-yellowish (fig. 6).

Head with distinct, slim, glabrous interocular carina. Ratio minimum distance of eyes to eye diameter mean about 3.0.

Pronotum about 1.3 times wider than long; sides nearly linear. Scutellum moderately bifid.

Elytra about as long as their combined width, with maximum width at basal fourth. Distinct, basal, double-hooked protuberance at striae 3-4.

Hind femur about 3.0 times longer than wide. Hind tibia with 5 carinae: ventrolateral, lateral, dorsal, dorsomesal and ventral, carinae; mucro about twice as long as lateral coronal denticle. Hind tarsal segment 1 about 0.6 times of length of hind tibia.

Male. Antennal segment 1 about twice longer than 2, about 1.5 times longer than 3 and 1.2 times longer than 4, 4-10 becoming steadily wider, 5 about 1.1 times longer than wide, 8-10 about as long as wide, 11 about 1.3 times longer than wide. Abdominal sternite I with weak, indistinctly demarcated, commonly setate, median concavity; setation of concavity recumbent, as dense as at remaining part of sternite, arranged oblique towards middle (fig. 12). Pygidium about 1.1 times longer than wide. Ventral valve subtriangular with apical tip acute. Internal sac with numerous spines in subbasal part (fig. 18). Lateral lobes separated to four fifths of their length, laterally expanded at apical third, latero-apically with about 10-15 large and about 10 small setae; apical process homogeneously convex towards tip (fig. 25).

Female. Antenna feebly shorter and more square than in male, 8-10 about 1.2 times wider than long, 11 about 1.2 times longer than wide. Pygidium about 1.2-1.3 times longer than wide, less convex than in male.

H o s t p l a n t : Unknown.

Distribution: Laos, N Thailand.

***Sulcobruchus griseosuturalis* (PIC 1932), nov. comb.**

Bruchus griseosuturalis PIC 1932: 331.

Sulcobruchus kingsolveri ARORA 1977: 86, syn. nov.

Material studied: Type *B. griseosuturalis*: Fraserpet, Coorg, F.R.I. Sandal, Insect Survey. 15.II.30, ♂, in BMNH. Paratypes *S. kingsolveri*: Ref. No. 37, ♂ and ♀, in USNM. **India:** Assam, Kaziranga, 7.-9.V.1976, leg. W. Wittmer & U. Baroni, in NHMB; Darjeeling, Kalimpong, Lava-Forest, 2000 m, 27.IV.1988, leg. N. Dangal, in CKWA; Lucknow, 5.III.1973, ♂, S. R. Wadhi, in MRAC. **Laos:** 20 km NW Louang Namtha, 21°09'N 101°18'E, 5.-30.V.1997, 900-1000 m, leg. C. Holzschuh, in CKWA; Louangnamtha prov., Namtha - Muang Sing, 21°09'N 101°19'E, 900-1200 m, 5.-31.V.1997, leg. V. Kubáň, in NHMB and CKWA; 75 km N Vientiane (road 13), 18°34'N 102°22'E, 330 m, 3.V.1997, leg. C. Holzschuh, in CKWA; ca. 150 km NE Luang Prabang, 30 km E Ban Nong Khioy, 23.IV.1999, leg. K.-W. Anton, in CKWA. **Thailand:** Mae Hong Son prov., Ban Huai Po, 1600-2000 m, 9.-16.V.1991, leg. J. Horák, in NHMB; same data, but 30.IV.-4.V.1991, 8.-18.V.1992, in CKWA and MRAC; Mae Hong Son prov., Ban Si Lang, 1200 m, 23.-31.V.1991, leg. J. Horák, in CKWA; Mae Hong Son prov., Soppong, 19°27'N 98°20'E, 1500 m, 7.-12.V.1996, leg. S. Bečvář, in CKWA; same data, but leg. J. Horák, in CKWA; same data, but leg. V. Kubáň, in CKWA and OLML; Doi Suthep - Pui, 1300-1500 m, 18.-23.IV.1991, leg. P. Pacholátko, in NHMB; Umphang, 16°04'N 98°53'E, 500 m, 26.IV.-6.V.1991, leg. V. Kubáň, in NHMB and CKWA. **China:** Yunnan, Xinje, 23°14'N 104°34'E, 1250-1500 m, 24.VI.1994, leg. V. Kubáň, in NHMB and CKWA.

Diagnosis: This species belongs to the *S. maculatithorax* group. At first glance, *S. griseosuturalis* resembles *S. rugulosus*, *S. sauteri* and *S. subsuturalis* in a less dense, more or less greyish, dorsal vestiture. But the latter three species are well separated by completely black antenna and legs; rarely in *S. subsuturalis* the front and mid tibiae are distally somewhat testaceous. See also diagnosis of *S. cruciatus* and *S. siamensis*.

Redescription: Length (pronotum - elytra): 1.9-3.0 mm, width: 1.2-1.9 mm.

Integument black; basal antennal segments, front and mid legs, and hind tarsal segments 3 varying, at least antennal segments 1-2 ventrally, front tibia and distal end of mid tibia reddish-blackish with remaining parts black, hind tarsal segment 3 black, at most antennal segments 1-3(4) nearly completely, front and mid tibiae, front and mid tarsi partially, front femur completely, and apical half of mid femur yellowish to yellowish-red, claws darkened, hind tarsal segments 3 red.

Vestiture with scarcely dense, slimmer, greyish to brownish setae, and moderately dense, broader, whitish setae, both not covering integument completely. Ventral body, pronotum laterally, scutellum, elytral intervals 1-3, and pygidium whitish, remaining parts of pronotum and elytra greyish to brownish. Often pygidial base at mid with longitudinal spot of denser setae, reaching from basal mid towards disc, and pronotum with whitish, longitudinal line reaching from basal mid towards disc. Rarely elytra with enlarged, whitish area (fig. 8).

Head with distinct, slim, glabrous, often shiny interocular carina. Ratio minimum distance of eyes to eye diameter mean about 1.9.

Pronotum about 1.3 times wider than long; sides linear, feebly concave in apical fourth. Scutellum moderately bifid.

Elytra about as long as their combined width, with maximum width at end of basal third. Indistinct basal protuberance with distinct, often recumbent, glabrous, more or less blunt hooks at striae (2)3-4.

Hind femur about 2.6 times longer than wide. Hind tibia with 6 carinae: ventrolateral, lateral, dorsal, dorsomesal and two ventral carinae; mucro about twice as long as lateral coronal denticle. Hind tarsal segment 1 about 0.6 times of length of hind tibia.

Male. Antennal segment 1 about twice longer than 2, about 1.5 times longer than 3 and 4, 4 abruptly wider than 1-3 and nearly as wide as remaining segments, 5 about as long as wide, 8-10 about 1.1 times longer than wide, 11 about twice longer than wide. Abdominal sternite I with weak, indistinctly demarcated, commonly setate, median concavity, with medial, glabrous protuberance at apical margin; setation of concavity recumbent, as dense as at remaining part of sternite (fig. 13). Pygidium about 1.2 times longer than wide. Ventral valve short-oval with apical tip subacute, with setae in middle of basal half (fig. 19). Mid part of internal sac with 6 denticle-like sclerites, basally followed by single elongate plate with row of 8-10 denticles; subbasal part with numerous, short spines. Lateral lobes separated to five sixths of their length, lateroapically with 8-12 large and 8-10 small setae; apical process minute, square, linear, covered by four more or less blunt, short setae (fig. 26).

Female. Antenna feebly shorter and segments somewhat wider than in male, segments 8-10 about as wide as long. Pygidium about 1.2-1.3 times longer than wide, feebly convex, with indistinct, smooth, longitudinal depression along basal three fifth of pygidial side.

Host plant: In India *Albizia* sp. (ARORA 1977), *Dalbergia fusca* and *D. lanceolaria* (SINGAL 1987), *D. latifolia* (communicated by Dr. J. M. Kingsolver)

Distribution: S China (Yunnan), N India, Laos, N Thailand.

Remark: The precise original description of *S. kingsolveri* shows that it is a junior synonym of *S. griseosuturalis*.

***Sulcobruchus maculatithorax* (PIC 1928)**

Bruchus maculatithorax PIC 1928: 298.

Sulcobruchus maculatithorax: SINGAL 1987: 219.

Material examined: Lectotype, ♂, and paralectotypes, ♂, 5 ♀♀ and 1?, designed by the author: For. Zool. Coll., Janakpur, Gonda, U.P., 14.IV.1911, R. S. Troup, ex *Dalbergia paniculata* pods, in BMNH and paralectotype, ♀, in MNHN. **India:** Fraserpet, Coorg, F.R.I. Sandal, Insect Survey, 25.II.30, in BMNH; Dehra Dun, 17.5.1911, out of *Dalbergia* pods, in BMNH. **Sri Lanka:** Dambulla env., 200 m, 19.IV.-9.V.1991, J. Kolibáč, in NHMB.

Diagnosis: This species belongs to the *S. maculatithorax* group. See diagnosis of *S. cruciatus*.

Description: Length (pronotum - elytra): 2.2-2.7 mm, width: 1.6-1.8 mm.

Integument redbrown to black; antenna, front and mid legs, and hind tarsal segment 3 yellowish except darkened claws.

Vestiture with dense, thick, pale yellowish to straw-yellow setae, covering integument nearly completely, and with moderately dense, less thick, whitish and pale to dark brownish setae, not covering integument completely. Pygidium completely and often ventral body laterally yellowish to straw-yellowish; ventral parts of sternites always whitish. Pronotum straw-yellowish to whitish, laterally of prescutellar base always whitish; disc with two pairs of pale to dark brown spots; shape and size of spots varying. Scutellum whitish to yellowish-whitish. Elytral pattern varying, from predominately yellowish to whitish, to rarely predominately pale to dark brown; at least narrow circum-

scutellar area, basal three quarter of suture and two irregular, transverse bands at end of basal third and second third whitish to straw-yellowish (fig. 4-5).

Head with distinct, slim, glabrous interocular carina. Ratio minimum distance of eyes to eye diameter mean about 3.7.

Pronotum about 1.3 times wider than long; sides nearly linear at basal three fourth and weakly concave at apical fourth. Scutellum moderately bifid.

Elytra about as long as their combined width, with maximum width at end of basal third. Distinct, basal, double-hooked protuberance at striae 3-4.

Hind femur about 4.0 times longer than wide. Hind tibia with 5 carinae: ventrolateral, lateral, dorsal, dorsomesal and ventral carinae; mucro about twice as long as lateral coronal denticle. Hind tarsal segment 1 about 0.6 times of length of hind tibia.

Male. Antennal segment 1 about twice as long as 2, about 1.5 times longer than 3 and 1.2 times longer than 4, 4-10 becoming steadily wider, 5 about 1.1 times longer than wide, 8-10 about 1.1 times wider than long, 11 about 1.2 times longer than wide. Abdominal sternite I with weak, indistinctly demarcated, commonly setate, median concavity; setation of concavity recumbent, as dense as at remaining part of sternite, arranged towards middle from oblique at base to transversal at apex (fig. 12). Pygidium about 1.4 times longer than wide. Ventral valve subtriangular with apical tip acute. Internal sac with numerous spines in subbasal part (fig. 17). Lateral lobes separated to four fifths of their length, laterally expanded at apical third, lateroapically with about 10-15 large and about 10 small setae; apical process weakly sinuate (fig. 25).

Female. Antenna feebly shorter and more square than in male, 8-10 about 1.2 times wider than long, 11 about 1.2 times longer than wide. Pygidium about 1.5 times longer than wide, less convex than in male.

Host plant: In India *Dalbergia paniculata*.

Distribution: India, Sri Lanka.

Sulcobruchus rugulosus (PIC 1922)

Bruchus rugulosus PIC 1922: 15.

Sulcobruchus rugulosus: KINGSOLVER 1984: 371.

Material examined: Type: Dapitan, Mindanao, Baker, ♀, in MNHN. Philippines: Bohol, Sempers, in BMNH and CKWA.

Diagnosis: This species belongs to the *rugulosus* group. With regard to the similar dorsal vestiture, distinct interocular carina, longer hind tibial mucro and the similar male genitalia, *S. subsuturalis* is closest related to *S. rugulosus*, while *S. sauteri* has the dorsal vestiture homogeneously greyish, interocular carina indistinct, mucro of hind tibia shorter and the male genitalia different. But *S. subsuturalis* differs from *S. rugulosus* in the scutellum less bifid, male sternite 1 with an extending concavity, the male genitalia with lateral process of ventral valve basally slimmer and the lateral lobes with oblique carina below lateroapical row of setae. See also diagnosis of *S. violaceus* and *S. griseosuturalis*.

Redescription: Length (pronotum - elytra): 2.5-3.0 mm, width: 1.6-1.9 mm.

Integument completely black.

Vestiture with scarcely dense, slimmer, greyish setae, and moderately dense, broader,

greyish-whitish to whitish setae, both not covering integument completely. Ventral body, pronotum laterally, scutellum, elytral intervals 1-3, and pygidium greyish-whitish to whitish, remaining parts of pronotum and elytra greyish. Often pygidial base at mid with somewhat denser setae, and pronotum with whitish, longitudinal line reaching from basal mid towards disc. Sometimes elytra with additional apical fourth of intervals 4-5 whitish.

Head with distinct, broad, smooth, lustreless, basally enlarged, interocular carina. Ratio minimum distance of eyes to eye diameter mean about 1.8-1.9.

Pronotum about 1.3 times wider than long; sides linear. Scutellum strongly bifid.

Elytra somewhat longer than their combined width, with maximum width at end of basal third. More or less distinct basal protuberance with short, sharp hooks at striae (2)3-4(5).

Hind femur about 2.6 times longer than wide. Hind tibial mucro about 4.0 times longer than lateral coronal denticle. Hind tarsal segment 1 about half of length of hind tibia.

Male. Antennal segment 1 about twice longer than 2, about 1.5 times longer than 3 and about 0.9 times length of 4, 4-10 becoming steadily wider, 5 about 1.1 times longer than wide, 8-10 about as long as wide, 11 about 1.7-1.8 times longer than wide. Abdominal sternite I with strong, distinctly demarcated, oblong-oval, microsetous, median concavity extending beyond apical margin of sternite I (fig. 11); microsetation of concavity extremely dense, flat, strongly recumbent, arranged in parallel, longitudinal rows. Pygidium about 1.1 times longer than wide. Ventral valve deeply emarginate, produced into ventrally directed, strongly sclerotized, sickle-shaped, lateral processes; about 15 setae in middle of basal part (fig. 16). Mid part of internal sac with numerous, short to elongate denticles of different size. Lateral lobes separated to two third of their length, latero-apically with about 12-15 setae of different size; apical process large, slender, hook-like (fig. 23).

Female. Antennal segments similar to male. Pygidium about 1.2-1.3 times longer than wide, feebly convex, with smooth, longitudinal, apical protuberance.

Host plant: Unknown.

Distribution: Philippines.

Sulcobruchus sauteri (PIC 1927)

Bruchus sauteri PIC 1927: 248.

Sulcobruchus sauteri: CHUJO 1937: 189.

?*Sulcobruchus discus* ZHANG & LIU 1987: 192.

Material examined: Lectotype, ♂, and paralectotypes, 2♂♂ and 3♀♀, designated by author: Kankau (Koshun), Formosa, H. Sauter, VII.1912, in MNHN and paralectotype, ♂, in MRAC. Taiwan: Kosempo, H. Sauter, 1912, in MNHN; Kenting, 3.-12.VI.1995, P. Moravec, in CKWA.

Diagnosis: This species belongs to the *rugulosus* group. See diagnosis of *S. rugulosus* and *S. violaceus*.

Redescription: Length (pronotum - elytra): 2.6-3.0 mm, width: 1.5-1.8 mm.

Integument completely black. Vestiture with scarcely dense, slim, greyish setae; ventral body with somewhat denser and paler setae.

Head with indistinct, elongated, smooth, dead, interocular protuberance. Ratio minimum distance of eyes to eye diameter mean about 1.6.

Pronotum about 1.4 times wider than long; sides linear. Scutellum strongly bifid.

Elytra somewhat longer than their combined width, with maximum width at end of basal third. Indistinct basal protuberance with minute, sharp hooks at striae 3-4.

Hind femur about 2.6 times longer than wide. Hind tibial mucro about 2.0 times longer than lateral coronal denticle. Hind tarsal segment 1 about half of length of hind tibia.

Male. Antennal segment 1 about 1.7 times longer than 2, about 1.3 times longer than 3 and about as long as 4, 4-10 becoming steadily wider, 5 about as long as wide, 8-10 about 1.1 times wider than long, 11 about 1.5 times longer than wide. Abdominal sternite I with strong, distinctly demarcated, oval, basally acute, microsetous, median concavity not extending beyond apical margin of sternite I (fig. 9); microsetation of concavity extremely dense, flat, strongly recumbent, arranged in parallel, longitudinal rows. Pygidium about 1.1 times longer than wide. Ventral valve deeply emarginate, produced into ventrally directed, strongly sclerotized, bifid, lateral process; about 8 setae at base of each process (fig. 14). Mid part of internal sac with numerous spines of different size. Lateral lobes separated to three fourths of their length, lateroapically with about 23-26 setae of different size; apical process large, broad, hook-like (fig. 21).

Female. Antennal segments similar to male. Pygidium about 1.2 times longer than wide, feebly convex, without protuberance.

Host plant: In Japan *Caesalpinia decapetala* (WATANABE 1985, as *C. sepiaria* v. *japonica*).

Distribution: Japan (MORIMOTO 1990), Taiwan. S China (Zhejiang)?

Remark: With regard to the description of *S. discus*, this species name is probably a junior synonym of *S. sauteri*. The first was described from Zhejiang Province (China), where it was found in a drug store. Thus it may possibly be imported from adjacent Taiwan.

***Sulcobruchus siamensis* nov. spec., ♂, ♀**

Holotype: NW Thailand, Mae Hong Son prov., Soppong-pai, 19°27'N 98°20'E, 1500 m, 7.-12.V.1996, ♂, leg. J. Horák, genitalia preparation no. 210198III, in CKWA; allotype, ♀, and paratypes, 6♂♂, 2♀♀: same data as holotype, in CKWA; paratypes: same data as holotype, but Soppong, 4♂♂, leg. V. Kubáň, in CKWA, paratype each in MRAC and OLML; paratype: same data as holotype, but Soppong, ♂, leg. S. Bečvář, in CKWA; paratype: same data as holotype, but 1550 m, 10.-13.V.1991, ♂, leg. V. Kubáň, in SMNS; paratypes: NW Thailand, Soppong - Pai, 1500 m, 1.V.1992, 4♂♂, 3♀♀, leg. P. Pacholátko, in CKWA and OLML; paratype: Thai, Lansang, 16°48'N 98°57'E, 500 m, 18.-24.IV.1991, ♀, leg. V. Kubáň, in NHMB.

Etymology: The name is derived from the hitherto known distribution area.

Diagnosis: This species belongs to the *S. maculatithorax* group. *Sulcobruchus siamensis* is closely related to *S. griseosuturalis*. The male genitalia are similar, but *S. griseosuturalis* has the ventral valve shorter, with setae in middle of basal half, and each lateral lobe with smaller, sclerotized area at apical process. Externally the last differs in the pronotum wider, elytral pubescence without irregular, transverse band of whitish-greyish setae, and the pygidium without brownish setae. See also diagnosis of *S. cruciatus*.

Description: Length (pronotum - elytra): 2.3-2.9 mm, width: 1.4-1.8 mm.

Integument black; most part of antennal segments 1-3(4), complete front and mid tibiae

yellowish-red; front and mid tarsi, front and mid femora varying, from tarsi scarcely, and extreme distal part of femora yellowish-red (predominately in males), to tarsi for most part, and femora completely yellowish-red (predominately in females); front and mid claws more or less completely darkened; hind tarsal segment 3 red.

Vestiture with scarcely dense, slimmer, dark-brownish setae, and moderately dense, broader, greyish-whitish to whitish setae, not covering integument completely. Ventral body, scutellum and pygidium greyish-whitish. Pygidial disc often with indistinct pair of brownish spots. Pronotum predominately dark-brownish, laterally and at prescutellar base greyish-whitish to whitish, often with longitudinal line from medial base towards apical third of disc. Elytra predominately dark-brownish, with suture and irregular, oblique band from lateral mid to mesoapical margin of elytra greyish-whitish to whitish (fig. 8).

Head with distinct, slim, glabrous interocular carina. Ratio minimum distance of eyes to eye diameter mean about 1.5-1.6.

Pronotum about 1.2 times wider than long; sides linear, feebly concave in apical third. Scutellum moderately bifid.

Elytra about 1.1 times longer than their combined width, with maximum width at end of basal third. Indistinct basal protuberance with flat, recumbent, glabrous, blunt hooks at striae (2)3-4(5).

Hind femur about 2.7 times longer than wide. Hind tibia with 6 carinae: ventrolateral, lateral, dorsal, dorsomesal and two ventral carinae; mucro about twice longer than lateral coronal denticle. Hind tarsal segment 1 about 0.6 times of length of hind tibia.

Male. Antennal segment 1 about twice longer than 2, about 1.5 times longer than 3 and 1.4 times longer than 4, 4-10 becoming steadily wider, 5 about 1.1 times longer than wide, 8-10 about as long as wide, 11 about 1.3 times longer than wide. Abdominal sternite I with weak, indistinctly demarcated, commonly setate, median concavity, with glabrous, medial protuberance at apical margin; setation of concavity recumbent, less dense than at remaining part of sternite (fig. 13). Pygidium about 1.3 times longer than wide. Ventral valve oval with apical tip subacute, with setae in basal third (fig. 20). Mid part of internal sac with 6 denticle-like sclerites, basally followed by single elongate plate with row of 8-10 denticles; subbasal part with numerous, short spines. Lateral lobes separated to five sixths of their length, lateroapically with about 9-15 large and about 8-10 small setae; apical process minute, square, linear, covered by four more or less blunt, short setae (fig. 27).

Female. Antenna feebly shorter and segments somewhat smaller than in male, ratios as in male. Pygidium about 1.2-1.3 times longer than wide, feebly convex, with indistinct, smooth, longitudinal depression along basal three fifth of pygidial side, without protuberance.

Host plant: Unknown.

Distribution: N Thailand.

***Sulcobruchus subsuturalis* (PIC 1929), nov. comb.**

Bruchus subsuturalis PIC 1929: 36.

?*Bruchus subsuturalis* var. *javanus* PIC 1929: 36.

Bruchus ocellaris PIC 1932: 331, syn. nov.

Sulcobruchus bakeri KINGSOLVER 1984: 369, syn. nov.

Material examined: Type *B. subsuturalis*: Banguay, leg. Waterstrudt, ♂, in MNHN. Type *B. ocularis*: India, Jawalagiri, ♀, in BMNH. Type *S. bakeri*: Cuernos Mts., Negros, leg. Baker, ♂, in USNM. Philippines: 1910, leg. C. S. Banks, in BMNH; Los Banos, leg. Baker, in MNHN. India: Assam, Kaziranga, 75 m, 7.-9.V.1976, leg. W. Wittmer & U. Baroni, in NHMB; Karnataka, Kolar distr., Chick Ballapur, 27.-28.VIII.1998, leg. H. Mühle, in CKWA. Thailand: Mae Hong Son prov., Ban Huai Po, 1600-2000 m, 8.-18.V.1992, leg. J. Horák, in CKWA; Pai, 6.-9.VI.1997, leg. M. Snížek, in CKWA.

Diagnosis: It belongs to the *S. rugulosus* group. See diagnosis of *S. rugulosus* and *S. violaceus*.

Redescription: Length (pronotum - elytra): 2.3-2.6 mm, width: 1.5-1.7 mm.

Integument black; rarely front and mid tibiae distally somewhat testaceous.

Vestiture with scarcely dense, slimmer, greyish setae, and moderately dense, broader, greyish-whitish to whitish setae, both not covering integument completely. Ventral body, pronotum laterally, scutellum, elytral intervals 1-3, and pygidium greyish-whitish to whitish, remaining parts of pronotum and elytra greyish. Often pygidial base at middle with somewhat denser setae, and pronotum with whitish, longitudinal line reaching from basal middle towards disc. Sometimes elytra with additional apical third of intervals 4-5 whitish.

Head with distinct, broad, smooth, dead, basally enlarged, interocular carina. Ratio minimum distance of eyes to eye diameter mean about 1.6.

Pronotum about 1.3 times wider than long; sides linear. Scutellum strongly bifid.

Elytra somewhat longer than their combined width, with maximum width at basal third. More or less distinct basal protuberance with short, sharp hooks at striae (2)3-4(5).

Hind femur about 2.5 times longer than wide. Hind tibial mucro about 4.0 times longer than lateral coronal denticle. Hind tarsal segment 1 about half of length of hind tibia.

Male. Antennal segment 1 about twice longer than 2, about 1.5 times longer than 3 and as long as 4, 4-10 becoming steadily wider, 5 about 1.2 times longer than wide, 8-10 about 1.2 times longer than wide, 11 about 1.7 times longer than wide. Abdominal sternite I with strong, distinctly demarcated, suboval, apically blunt, microsetous, median concavity not extending beyond apical margin of sternite I (fig. 10); microsetation of concavity extremely dense, flat, strongly recumbent, arranged in parallel, longitudinal rows. Pygidium about 1.2 times longer than wide. Ventral valve deeply emarginate, produced into ventrally directed, strongly sclerotized, sickle-shaped, lateral process, with about 6-8 setae below each process (fig. 15). Mid part of internal sac with numerous short to elongate denticles of different size. Lateral lobes separated to two third of their length, latero-apically with about 12-15 setae of different size; apical process large, broad, hook-like (fig. 22).

Female. Antennal segments similar to male. Pygidium about 1.3 times longer than wide, feebly convex, without protuberance.

Host plant: In India *Caesalpinia decapetala*, *Dalbergia torta* and *Moullava spicata* (communicated by Dr. J. M. Kingsolver).

Distribution: Philippines; probably imported: India, Thailand.

Remark: The deposition of the type(s) of *S. subsuturalis* var. *javanus* is unknown.

***Sulcobruchus violaceus* nov. spec., ♂, ♀**

H o l o t y p e : Java, Noesa Kambangan, 10.1912, ♀, leg. Drescher, in ZMAN.

E t y m o l o g y : The name refers to the colour of the integument.

D i a g n o s i s : This species belongs to the *S. rugulosus* group. Externally *S. rugulosus*, *S. sauteri* and *S. subsuturalis* differ in the completely black integument and the shorter pygidium. Additionally, females of *S. rugulosus* show the pygidium with a smooth, longitudinal protuberance at the apical middle, while females of *S. sauteri* and *S. subsuturalis* have no pygidial protuberance.

D e s c r i p t i o n : Length (pronotum - elytra): 3.3 mm, width: 2.1 mm.

Integument shiny violet; antenna, front and mid legs blackish, tarsal segments 3 reddish.

Vestiture with scarcely dense, greyish setae, and somewhat denser, greyish-whitish setae, not covering integument completely. Ventral body, pronotum laterally and pygidium greyish-whitish. Elytra, scutellum and remaining part of pronotum greyish.

Head with more or less distinct, moderately broad, smooth, dead, interocular carina. Ratio minimum distance of eyes to eye diameter mean about 1.5.

Pronotum about 1.2-1.3 times wider than long; sides linear. Scutellum strongly bifid.

Elytra somewhat longer than their combined width, with maximum width at basal third. Basal protuberance absent; elytral base with short, blunt hooks at striae (2)3-4(5).

Hind femur about 2.3 times longer than wide (fig. 3). Hind tibial mucro about 2.7 times longer than lateral coronal denticle. Hind tarsal segment 1 about 0.6 times of length of hind tibia.

Male. Unknown.

Female. Antennal segment 1 about twice longer than 2, about 1.2 times longer than 3 and as long as 4, 4-10 distinctly wider, 5 about 1.1 times longer than wide, 8-10 about as long as wide, 11 about 1.7 times longer than wide (fig. 2). Pygidium about 1.4 times longer than wide, feebly convex, two indistinct, smooth, circular protuberances, each at middle of disc and apex.

H o s t p l a n t : Unknown.

D i s t r i b u t i o n : Indonesia (Java).

***Parasulcobruchus* nov. gen.**

Type species: *Bruchus semicalvus* LEA 1899, herewith designated.

E t y m o l o g y : The name refers to the close relationship to *Sulcobruchus* CHUJO 1937.

D i a g n o s i s : Externally *Parasulcobruchus* looks at first glance like *Bruchidius* SCHILSKY 1905. But the large dorsolateral coronal denticles do not occur in *Bruchidius* and point to *Salviabruchus* DECELLE 1982. With regard to the male genitalia it is very closely related to *Sulcobruchus* CHUJO 1937. However, the last has the male abdominal sternite I with median concavity, hind femur with deep sulcus on ventral side and without preapical denticle at mesoventral margin, number of carinae on hind tibia larger (4-6), tegminal strut with median carina, and in some species with ventral valve emarginate.

The combination of following characters is unique.

D e s c r i p t i o n : Body shape oval (fig. 28).

Head of moderate length, constricted behind eyes, with interocular tubercle. Eyes bulging. Antenna with sexual dimorphism (fig. 29).

Pronotum conical, without lateral carina.

Elytra with basal, double-hooked protuberance.

Abdomen simple, sternite I without sexual dimorphism. Hind femur moderately incrassate, ventral side without sulcus, with very large, preapical, right-angled denticle on mesoventral margin (fig. 30). Hind tibia simple, broadened, with lateral and ventral carinae nearly complete and tapering off towards base, with dorsomesal carina indistinct, with mucro longer than coronal denticles, dorsolateral denticles mostly longer than lateral coronal denticle. Hind tarsal segment I elongate.

Male. Sternite V emarginate. Pygidium vertical. Median lobe of moderate length, apex not modified; ventral valve subtriangular (fig. 31). Internal sac with numerous needles. Lateral lobes separated, modified, with large, strongly sclerotized, acute, apical process; tegminal strut without median carina (fig. 32).

Female. Antenna shorter than in male. Sternite 5 not emarginate. Pygidium subvertical.

D i s t r i b u t i o n : Australian Region.

***Parasulcobruchus semicalvus* (LEA 1899), nov. comb.**

Bruchus semicalvus LEA 1899: 638.

M a t e r i a l e x a m i n e d : Type, ♂, and paratypes, 3 ♀♀: (Australia), Sy(dney), Galston, in SAMA.

R e d e s c r i p t i o n : Length (pronotum - elytra): 1.9 - 2.3 mm, width: 1.1 - 1.3 mm.

Integument predominantly red-yellowish to red-brown; darkened in following parts: head, sometimes apical half of antenna, apex and base of pronotum, scutellum completely, metathorax in part, humeral callus, base, suture and side of elytra, knees, tibial apices, tarsal segments 4. Ventral side of elytra pale yellowish.

Vestiture moderately dense, recumbent, not covering integument completely, whitish-greyish, elytra basally, medially and subapically with indistinct, irregular, transverse bands of denser setae, pygidium mediobasally with longitudinal band of denser setae tapering towards apex.

Head with moderate and dense punctures, with indistinct, glabrous interocular tubercle. Ratio minimum distance of eyes to eye diameter mean about 1.1; postocular lobe and ocular sinus moderately.

Pronotum about 1.3 times wider than long; sides linear to feebly bisinuate. Disc feebly convex, densely double punctured, with shiny welts, distance of coarse punctures less than their diameters. Scutellum small, as long as wide, apically bifid.

Elytra about 1.1 times longer than their combined width, with maximum width at basal fourth. Sides nearly parallel. Inner third of apical margin with 3-4 feebly visible denticles. Disc flattened to weakly convex. Humeral callus smooth. Indistinct, basal, sharp double-hooked protuberance at striae 3-4. Striae distinct, flat, with distinct, flat, setiporous punctation broader than stria, distance between punctures less than their diameters. Inter-

vals flat, with micropunctuation and irregular row of flat-bottomed punctures.

Hind tibia with mucro 1.5 times longer than lateral coronal denticle at extension of lateral carina; dorsolateral coronal denticles strikingly long, predominantly somewhat longer than lateral denticle (fig. 30). Hind tarsal segment I about 0.7 times of length of hind tibia. Pygidium oblong, with dense, double punctuation.

Male. Antenna extending to humeral callus; antennal segments 1-3 cylindrical, 4 subseriate, 5-10 moderately serrate, 11 oblong-oval, segment 1 about 1.6 times longer than 2 and about 1.1 times longer than 3-4, 4-10 becoming steadily wider, 5 about as long as wide, 8-10 about 1.2 times wider than long, 11 about 1.4 times longer than wide (fig. 29). Pygidium 1.1 times longer than wide. Sternite V emarginate towards base to one third of length. Ventral valve subtriangular with blunt apical tip, with apex directed ventrally (fig. 31). Internal sac with distinct needles, needles minute in apical part and moderate in basal part, with additional spines in subbasal part. Lateral lobes separated to half of their length, expanded towards apex, lateroapically with 4 longer, strong setae and about 10 fine, short setae; stronger setae becoming steadily broader towards apical process; apical process large, curved, in shape of combined five, huge, setae (fig. 32).

Female. Antenna extending to elytral base; antennal segments shorter and more square than in male, 8-10 about 1.5 times wider than long, 11 as long as wide. Pygidium nearly flat, laterally with weak, longitudinal impression.

Host plant: Unknown.

Distribution: SE Australia.

Remark: All types are fixed upon a lone label, with handwritten „Ty“ below the male specimen.

Acknowledgements

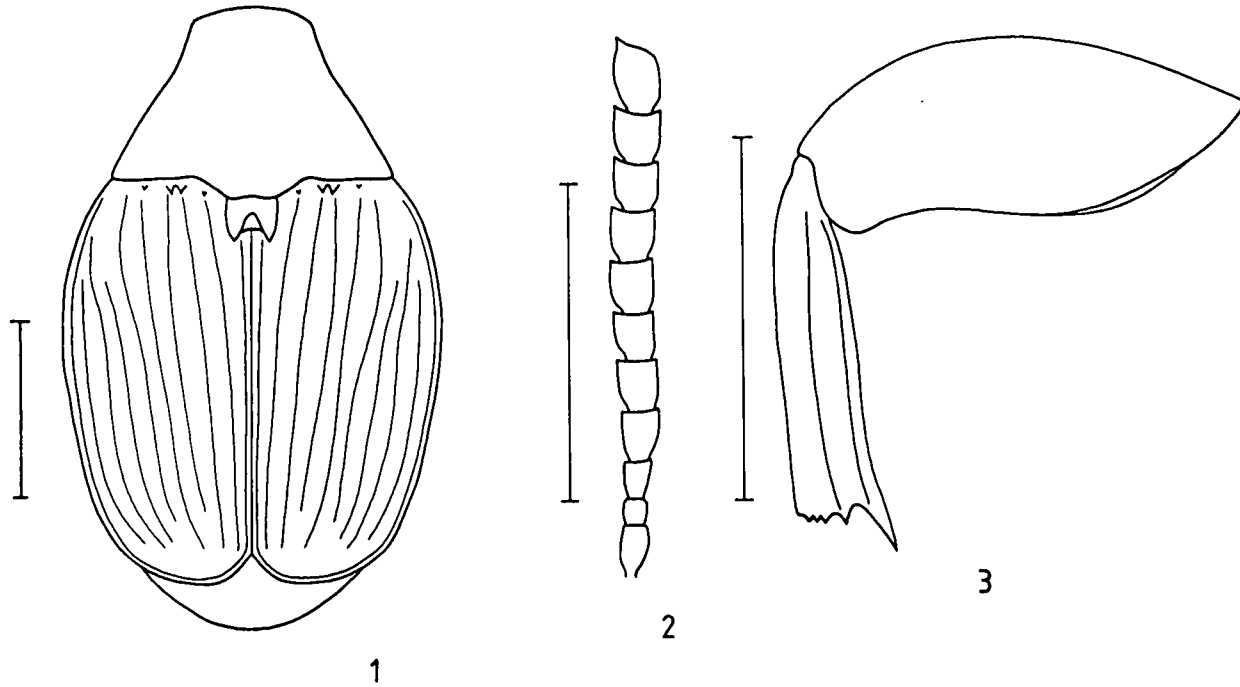
I wish to express my cordial thanks to Dr. J. M. Kingsolver, Florida (U.S.A.) for providing with host plant records, mediation of USNM types and review of the manuscript, as well as to the curators of institutions listed above for making types and other specimens available.

References

- ARORA G. L. (1977): Taxonomy of the Bruchidae (Coleoptera) of Northwest India. — *Orient. Insects*, suppl. 7: 1-132.
- BOROWIEC L. (1987): The genera of seed-beetles (Coleoptera, Bruchidae). — *Pol. Pismo Ent.* 57: 3-207.
- CHUJO M. (1937): Some additions and revisions of Bruchidae (Coleoptera) from the Japanese Empire. — *Trans. Nat. Hist. Soc. Formosa* 27: 189-200.
- DECELLE J.E. (1951): Contribution à l'études des Bruchidae du Congo belge (Col. Phythophaga). — *Rev. Zool. Bot. Afr.* 45: 172-192.
- DECELLE J.E. (1982): Une espèce de Coleoptera Bruchidae du Proche-Orient inféodée aux *Salvia* (Dicotylédones, Tubiflores, Lamiaceae). — *Bull. Ann. R. belge Entomol.* 118: 243-248.
- KINGSOLVER J. M. (1984): The Noona Dan Expedition: Descriptions of two new species of Bruchidae (Coleoptera) from the Philippines. — *Proc. Entomol. Soc. Wash.* 86: 369-373.

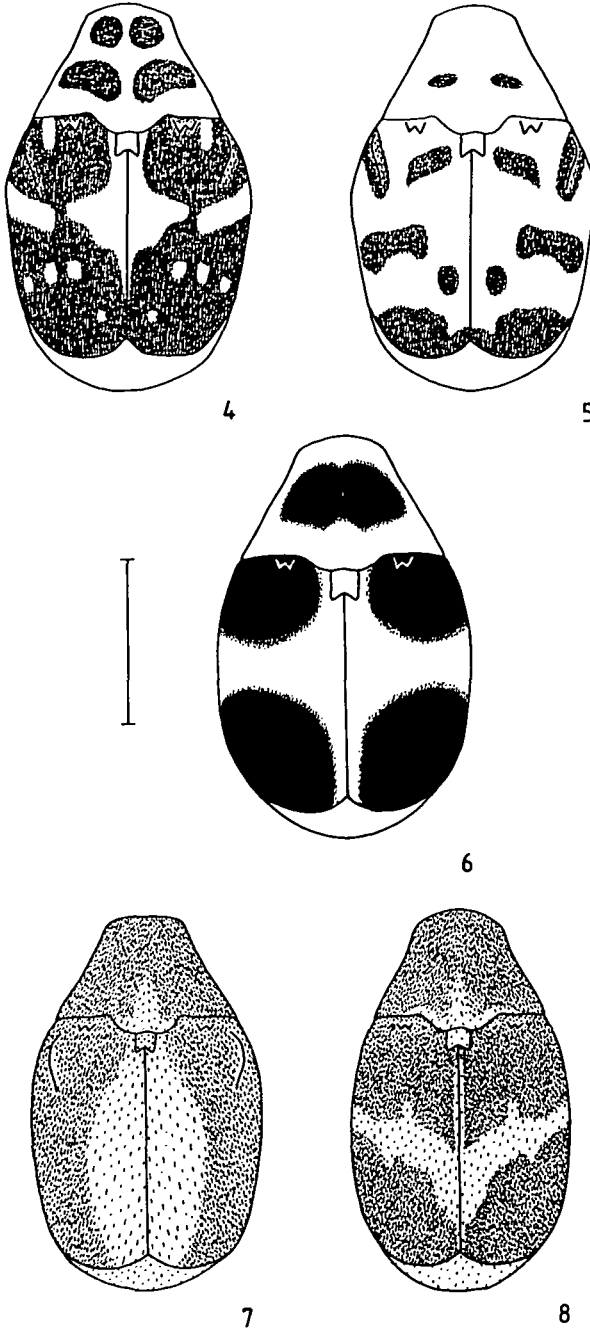
- LEA A.M. (1899): Descriptions of new species of Australian Coleoptera. Part 5. — Proc. Linn. Soc. N.S.W. 23 (1898): 637-641.
- MORIMOTO K. (1990): A synopsis of the bruchid fauna of Japan. In: FUJI K. et al. (eds.), Bruchids and legumes: Economics, Ecology and Coevolution. — Kluwer Acad. Publ.: 131-140. The Netherlands.
- PIC M. (1922): Nouveautes diverses. — Melang. Exot. Entomol. 35: 1-32.
- PIC M. (1927): Nouveaux coléoptères exotiques. — Entomol. Mitt. 16: 246-255.
- PIC M. (1928): Nouveaux Bruchidae. — Ann. Mag. Nat. Hist. 1: 297-299.
- PIC M. (1929): Nouveautes diverses. — Melang. Exot. Entomol. 54: 1-36.
- PIC M. (1932): Nouveaux Bruchidae des Indes. — Ann. Mag. Nat. Hist. 9: 329-333.
- PIC M. (1951): Nouveaux bruchides de l'Afrique australe. — Ann. Transv. Mus. 21: 427-428.
- SCHILSKY J. (1905): Bruchidae. In: KÜSTER H.C. & G. KRAATZ (eds.), Die Käfer Europa's 42: no. 1-100. — Nürnberg.
- SINGAL S.K. (1987): Taxonomic studies of genus *Sulcobruchus* CHUJO from India (Coleoptera: Bruchidae). — Entomon 12: 219-221.
- WATANABE N. (1985): Oviposition habit of *Sulcobruchus sauteri* (PIC) and its significance in speculation on the pre-agricultural life of seed beetles attacking stored pulses (Coleoptera: Bruchidae). — Kontyu 53: 391-397.
- ZHANG S.-F. & Y.-P. LIU (1987): Notes on a new species of the genus *Sulcobruchus* from China (Coleoptera: Bruchidae). — Entomotaxonomia 9: 192-193.

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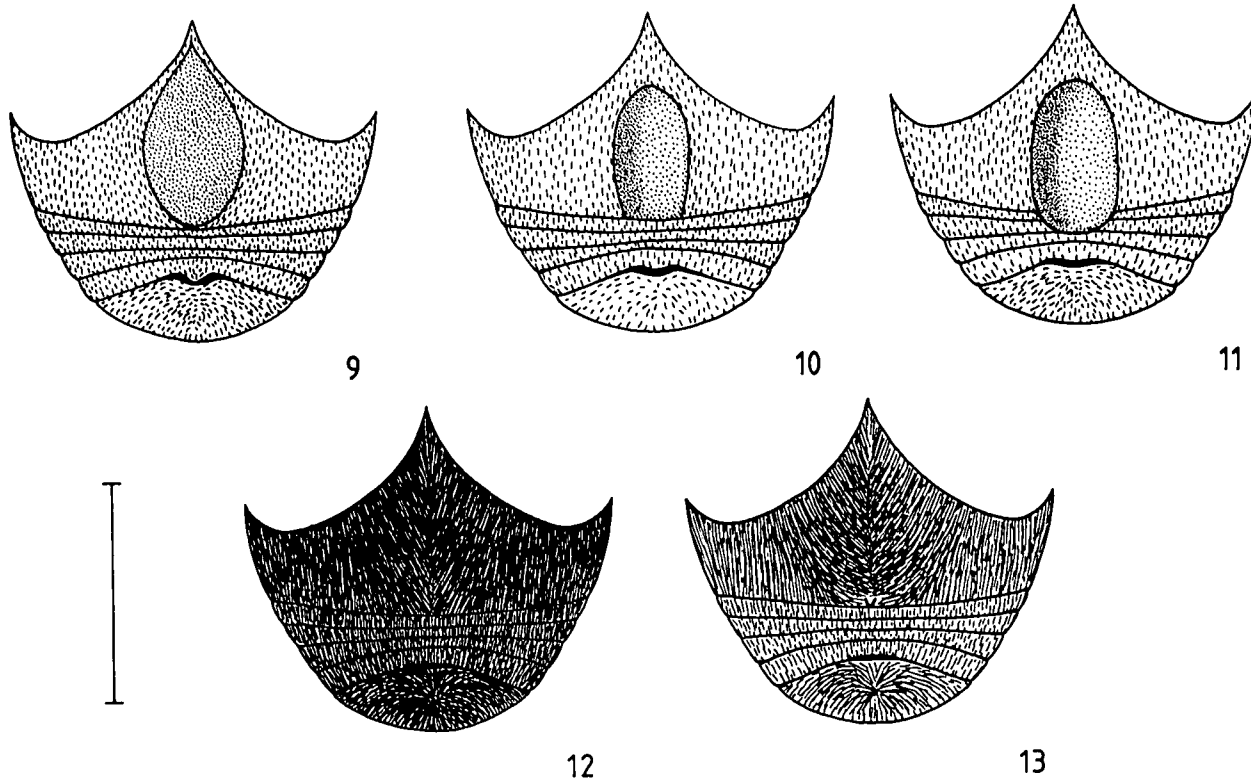


Figs 1-3. *Sulcobruchus violaceus*: 1 – habitus; 2 – antenna; 3 – hind leg (lateral view). Scale bar = 1.0 mm.

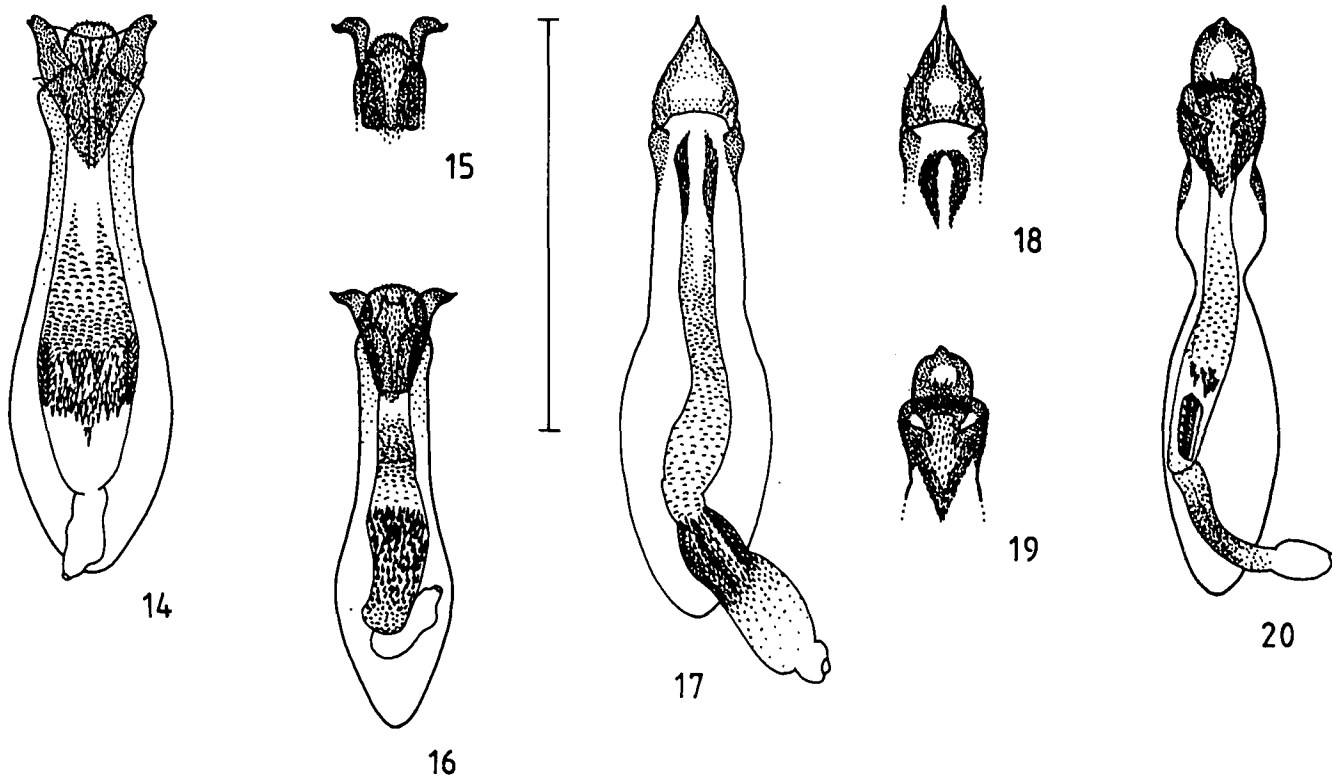
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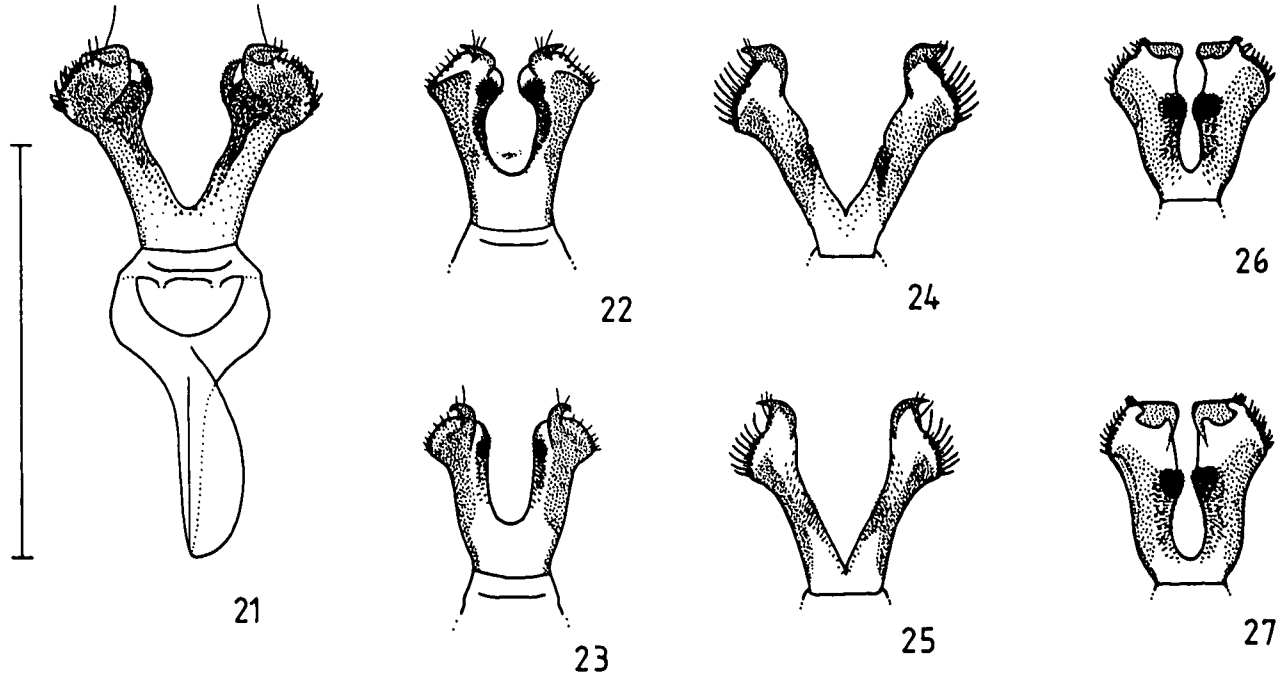
Figs 4-8. Pronotal and elytral vestiture: 4-5 - *S. maculatithorax*; 6 - *S. cruciatus*; 7 - *S. griseosuturalis*; 8 - *S. siamensis*. Scale bar = 1.0 mm.



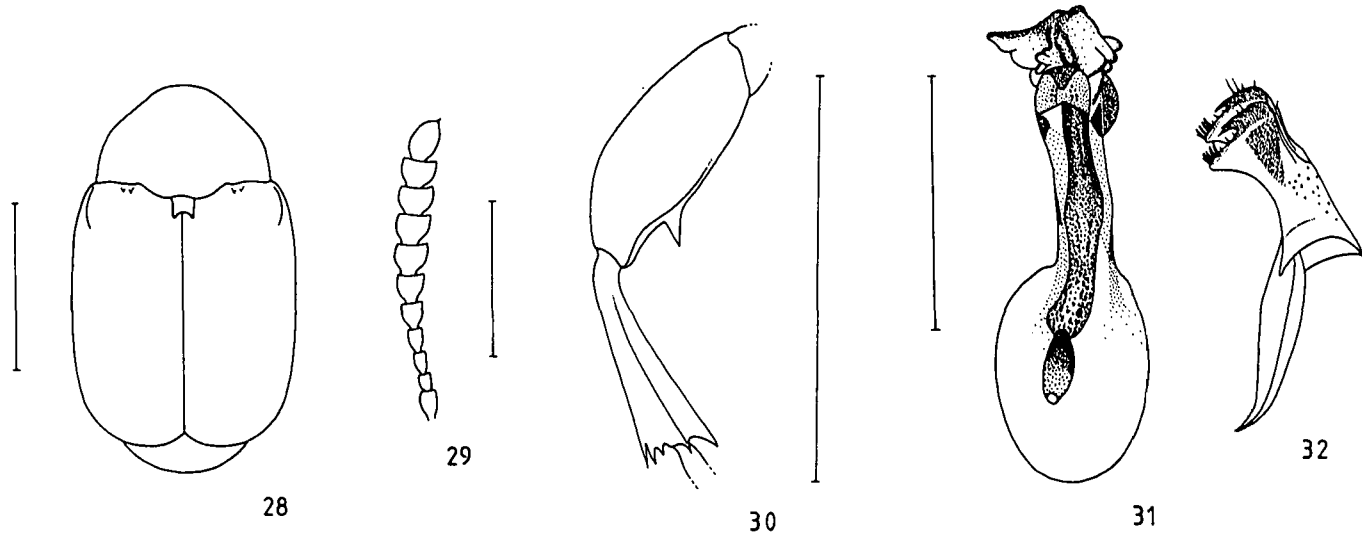
Figs 9-13. Male sternite I: **9** – *S. sauteri*; **10** – *S. subsuturalis*; **11** – *S. rugulosus*; **12** – *S. cruciatus*, *S. maculatithorax*; **13** – *S. griseosuturalis*, *S. siamensis*. Scale bar = 1.0 mm.



Figs 14-20. Median lobe (ventral view): 14 – *S. sauteri*; 15 – *S. subsuturalis*; 16 – *S. rugulosus*; 17 – *S. maculatithorax*; 18 – *S. cruciatus*; 19 – *S. griseosuturalis*; 20 – *S. siamensis*. Scale bar = 1.0 mm.



Figs 21-27. Lateral lobes (lateral view): 21 – *S. sauteri*; 22 – *S. subsuturalis*; 23 – *S. rugulosus*; 24 – *S. maculatithorax*; 25 – *S. cruciatus*; 26 – *S. griseosuturalis*; 27 – *S. siamensis*. Scale bar = 1.0 mm.



Figs 28-32. *Parasulcobruchus semicalvus*: 28 – habitus; 29 – antenna; 30 – hind leg (lateral view) ; 31 – median lobe (ventral view); 32 – lateral lobes (lateral view). 28: scale bar = 1.0 mm; 29-32: scale bar = 0.5 mm.

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