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NOTES ON THE SUBFAMILY SAPRININAE (COLEOPTERA: HISTERIDAE) OF INDONESIA

By MASAHIRO ÔHARA AND SRI HARTINI

Abstract

ÔHARA, M. AND HARTINI, S. 2008. Notes on the subfamily Saprininae (Coleoptera: Histeridae) of Indonesia. *Ins. matsum. n. s.* 64: 1–22, 8 figs., 1 Tabs.

A total of seven species of the subfamily Saprininae are recorded from Indonesia. *Gnathoncus* sp*., Saprinus* (*Saprinus*) *chalcites* and *Hypocaccus* (*Hypocaccus*) *sinae* are recorded from Indonesia for the first time. *Saprinus* (*Saprinus*) *chalcites* and *Chalcionellus condolens* are redescribed and illustrated.

Key words. Coleoptera, Histeridae, Saprininae, taxonomy, redescriptions, Indonesia.

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Introduction

Saprininae contain 41 genera and 620 species worldwide (Mazur, 1997). Of these only 4 genera, 9 species and 1 subspecies have been previously recorded from Indonesia, and no revisionary work has been undertaken.

In this paper, 4 genera and 7 species of the subfamily are recognized from Indonesia; *Gnathoncus* sp., *Saprinus* (*Saprinus*) *cyaneus auricollis, S.* (*S.*) *optabilis, S.* (*S.*) *splendens, S.* (*S.*) *chalcites*, *Chalcionellus condolens,* and *Hypocaccus* (*Hypocaccus*) *sinae*. Of them, *Gnathoncus* sp., *Saprinus* (*Saprinus*) *chalcites*, and *Hypocaccus* (*Hypocaccus*) *sinae* are newly recorded from Indonesia, and *Saprinus* (*S.*) *optabilis, S.* (*S.*) *splendens, S.* (*S.*) *cyaneus acuricollis* and *Chalcionellus condolens* are found in several islands as new distributional localities. *Saprinus* (*S.*) *chalcites* and *Chalcionellus condolens* is redescribed and illustrated, with emphasis on the male and female genitalic features. Key to the species is provided.

Materials and Methods

Methods. The general observation and dissection were made under a stereoscopic microscope (NIKON SMZ-1000). Some structures were also observed in a SEM (Hitachi S-2250N). The genitalia were removed from dried specimens and then 1) kept in 10 % KOH about 10 hours or more depending to the size; 2) washed and dissected in 80 % ethyl alcohol; 3) transferred into lactic acid containing fuchsin and kept at 60˚C for 3 hours; 4) transferred into a mixture of acetic acid and methyl salicylate (1:1) and left there for 15 minutes, and 5) observed in alpha-terpineol in a small dish.

Specimens were borrowed from the following collection:

Museum acronym. MZB: Museum Zoologicum Bogoriense / Zoology Division, Research Center for Biology, Indonesian Institute of Science (LIPI), Cibinong, Indonesia.

For the description format, we use the following abbreviations:

Abbreviations of measurements. Measurements of some body parts are given in text and tables in the order of range, mean ± standard deviation (all in mm), and sample size. PPL: length between anterior angles of pronotum and apex of pygidium, PEL: length between anterior angles of pronotum and apices of elytra, APW: width between anterior angles of pronotum, PPW: width between posterior angles of pronotum, PL: length of pronotum along mid line, EL: length of elytron along sutural line, EW: maximal width between outer margins of elytra, ProW: maximal width of propygidium, ProL: length of propygidium, PyL: length of pygidium, PTL: length of protibia, MSTL: length of mesotibia, MTTL: length of metatibia. See also Ôhara (1994: 8, fig. 2).

Abbreviations of localities. Dsn: Dusun (= village far from urban area); Ds: Desa (= village); Kec: Kecamatan (= district) ; Kab: Kabupaten; Prop: Propinsi (= Province).

The present study was carried out with the permission of LIPI as follows: in 2003 (1148/IPH-1/KS-01/02), in 2005 (6443/SU/KS/2005), in 2006 (4744/SU/KS/2006), in 2007 (6312/SU/KS/2007)

Redescriptions and notes

Subfamily Saprininae Blanchardt, 1845

Genus *Gnathoncus* Jacquelin-Duval, 1858

Gnathoncus sp.

Specimens examined. [Java] 1 female, Dammerman, Babakan, M. Java, 2-III-1933 (MZB).

Distribution. Indonesia (Java).

Remarks. This is the first representative of the genus recorded from Indonesia. Species of the genus *Gnathoncus* are generally hard to determine based on external characters, without observing the male genitalia. Since the only available specimen is a female we leave its identity tentatively unresolved until further material becomes available.

Genus *Saprinus* Erichson, 1834

Saprinus Erichson, 1834: 172 [type species: *Hister nitidulus* Fabricius, 1801: 85. Designated by Westwood, 1840: 22]; Mazur, 1997: 218.

Saprinus (*Saprinus*) *cyaneus cyaneus* (Fabricius, 1775)

Hister cyaneus Fabricius, 1775: 52 [Australia].

Saprinus laetus Erichson, 1834: 179; Marseul, 1855: 388 [Australie, Tasmanie]; Marseul, 1864: 338 [Nouvelle-Hollande (Célèbes: Makassar; Moluques: Morty = Morotai Is.)], synonymized by Marseul, 1862: 714.

Saprinus speciosus: Boisduval, 1835: 148, synonymized by Gemminger and Harold, 1868: 785.

Saprinus gayndahensis MacLeay, 1871: 158, synonymized by Blackburn, 1903: 104.

Saprinus australasiae Blackburn, 1903: 107, synonymized by Wenzel, 1955: 609.

Saprinus cyaneus: Marseul, 1864: 337 [Nouvelle-Guinée; Nouvelle-Holande (Arrou)]; Dahlgren, 1971: 52 [New Guinea: Hauptform (1 male, N. Guinea mer., Loria leg; 1 male, Dilo, Loria leg. 1890.)].

Specimens examined. No material of this subspecies has been available for our study.

Distribution. Indonesia (Sulawesi, Morotai, Aru, New Guinea), Australia, New Caledonia, Tasmania.

Notes. The subspecies *Saprinus cyaneus cyaneus* and *S. c. auricollis* are distinguished by the punctation of elytra: *S. c. cyaneus* has punctation on apical 1/3 of elytra only, while *S. c. auricollis* has elytra entirely covered with dense punctation except mirror area where behind scutellum (Dahlgren, 1971: 49).

Saprinus (*Saprinus*) *cyaneus auricollis* Marseul, 1855

Saprinus auricollis Marseul, 1855: 390 [Illes Philippines]; Marseul, 1864: 338 [Philippines]; Dahlgren, 1967: 223 [Bali, Sumbawa].

Saprinus auricollis australasiae: Dahlgren, 1967: 220, 223 [New Guinea: Kaiser, Wilhelm-Land].

Saprinus cyaneocupreus Marseul, 1864: 337 [Nouvelle-Guinée: Dorey (= Manokwari)], synonymized by Dahlgren, 1967: 220.

Saprinus cyaneus auricollis: Dahlgren, 1971: 49, 52 [Buru (1 male, Doherty leg, 1892)].

Saprinus (*Saprinus*) *cyaneus auricollis*: Ôhara, 1994: 226 [redescription, figures of male genitalia].

Specimens examined. [Kalimantan] Kalimantan Timur: 2 exs. (Gen. HT 1 (5th)-228 and 227), National forest, Sungai Wain, 12-XII-2004, Woro, Makihara, Sugiharto leg. (MZB); 1 ex., Sungai Wain, 01˚14'30"S 116˚50'11"E, Karangjoang, Kec. Balikpapan, Kab. Balikpapan, 18-XI-2007, M. Ôhara, collected from decaying fish trap in forest (KL-07-MO-032); 2 exs., *Acacia* plantation, near Sungai Wain, 26 km (RPF2), 27-XII-2006, A. Ueda leg.; 22 exs., *Acacia* plantation, near Sungai Wain, 12 km, BPN-SMD, 27-XII-2006, A. Ueda leg., Pit fall trap with dead fish bait (DSPF1) (MZB); 2 exs., Secondary forest, near Sungai Wain, 24 km (EK), 21-XII-2006, A. Ueda leg.; 1 ex., BPN-SMD (Balikpapan-Samarinda Road), 29 km, Alang-alang grassland, 27, 31-XII-2005, A. Ueda, Pit fall trap with dead fish bait (29A2I) (MZB); 2 exs., BPN-SMD, 29 km, *Acacia* plantation, 8, 10-VIII-2006, A. Ueda, Pit fall trap with dead fish bait (PSI2) (MZB); 13 exs., BPN-SMD, 29 km, Alang-alang grassland, 9, 10-VIII-2006, A. Ueda, Pit fall trap with dead fish bait (ALI5, ALI3, ASI2, ASI3), Flight intercept trap with dead fish bait (AFI1, AFI2, AFI5, AFI6) (MZB); 2 exs., BPN-SMD, 29 km, *Acacia* plantation, 9, 10-VIII-2006, A. Ueda, Flight intercept trap with dead fish bait (PFI6), Pit fall trap with dead fish bait (PSI2) (MZB); 1 ex., Ds. Karya Merdeka RT09, 01˚03'04"S 116˚56'52"E, Kec. Samboja, Kab. Kutai Kartanegara, 18-XI-2007, M. Ôhara, collected from cow dung (Bali sapi) from open land (KL-07-MO-028). [Java] 2 males, Bama, 07 ˚50'62"S 114˚27'62"E, Taman Nasional Baluran, Eastern Java, 24-XI-2005, M. Ôhara, collected from monkey feces (JA-05-MO-056). [Bali] 3 exs., Kuta, 8-V-1986, M. Nishikawa. [Lombok] 20 exs., Sabito, 500 m in altitude, Nusa Tenggara, 29 to 30-IV-1986, M. Nishikawa. [Sumba] 4 males and 5 females, Kec. Kambajawa, 09˚40'55"S 120˚12'19"E, Kab. Kota Waingapu, Sumba timur, Prop. Nusa Tenggara Timur (NTT), 30-I-2003, M. Ôhara, collected from dead cow (SM-03-MO-020). [Buru] 1 ex., Balu Balu, P. Buru, VI-1959, A.M.R. Wegner (MZB). [No provenience] 2 exs., Holland Indien / *Saprinus cyaneocupreus* Mars., H. Desbordes, det., 1924 (MZB).

Distribution. Indonesia (Kalimantan, Java, Bali, Lombok, Sumbawa, Sumba, Buru, New Guinea), Philippines, Japan (Ogasawara), Volcano Is. New to Kalimantan, Java, Lombok and Sumba.

Saprinus (*Saprinus*) *grandiclava* Kanaar, 1989

Saprinus (*Saprinus*) *grandiclava* Kanaar, 1989: 285 [New Guinea: Hollandia (= Jayapura)]; Mazur, 1997: 223.

Specimens examined. No material of this species has been available for our study.

Distribution. Indonesia (New Guinea).

Note. According to Dr. Sławomir Mazur (Warsaw, Poland), there is a specimen of this species in his collection with following data: “1 female, Indonesia: Irian Jaya, Nabire area, road Nabire - Ilaga, km 54, 03˚20'517"S, 135˚43'913"E, 750 m NN, X.1997, LEK, leg. M. Balke”. This record is a second record of *S. grandiclava* (personal communication).

Saprinus (*Saprinus*) *optabilis* Marseul, 1855

Saprinus optabilis Marseul, 1855: 438; Dahlgren, 1968b: 261 [figures of male genitalia].

Saprinus dives Lewis, 1911: 88, synonymized by Dahlgren, 1969b: 266.

Saprinus (*Saprinus*) *optabilis*: Mazur, 1997: 226; Ôhara, 2003: 32 [redescription, figures of male genitalia, SEM pictures]; Mazur and Ôhara, 2003: 8 [Thailand].

Specimens examined. [Sumatra] 1 ex., W. Sumatra, 450 m, Loeboek, Sikaping, 1923–27, L. Hundeshagen (MZB); 1 ex., Sukabumi, Padang, 17-VIII-1998, M. Ôhara, from carrion trap.

Distribution. Indonesia (Sumatra, New Guinea), India, southern China, Thailand, Vietnam, Taiwan, Nepal. New to Sumatra.

Saprinus (*Saprinus*) *splendens* (Paykull, 1811)

Hister splendens Paykull, 1811: 53 [RSA: Capland]; Dahlgren, 1967: 221 [New Guinea].

Hister speciosus Dejean, 1821: 48 (nom. nud.).

Saprinus speciosus Erichson, 1834: 179, synonymized by Dahlgren, 1967: 214.

Saprinus (*Saprinus*) *splendens*: Ôhara, 1994: 236 [redescription, figures of male genitalia]; Mazur, 1997: 229; Ôhara, 2003: 39 [figure of spermatheca, SEM pictures]; Hayashi, 1986: pl. 11 [larvae].

For more detailed synonymies see Mazur (1997: 229).

Specimens examined. [Natuna Is.] 3 exs., V-1990, no collector's name. [No provenience] 1 ex., Bragi, X-1934; 1 ex., Holland Indien, *Saprinus specious* Er., H. Desbordes det, 1924 (MZB).

Distribution. Indonesia (Natuna, New Guinea), Kashmir, Afghanistan, Pakistan, Taiwan, Japan, Australia, RSA: Capland, tropical Africa, Arabia. New to Natuna Is.

Saprinus (*Saprinus*) *quadriguttatus* (Fabricius, 1798)

Hister quadriguttatus Fabricius, 1798: 39 [type locality not stated].

Saprinus quadriguttatus: Erichson, 1834: 176; Mazur, 1997: 227 [Sumatra]; Mazur and Ôhara, 2003: 8 [Thailand; redescription, figures of male genitalia, SEM pictures].

Specimens examined. No material of this species has been available for our study.

Distribution. Indonesia (Sumatra), Afghanistan, Pakistan, India, Bangladesh, Thailand, Vietnam, Taiwan.

Saprinus (*Saprinus*) *chalcites* (Illiger, 1807)

Hister chalcites Illiger, 1807: 40 [Portugal].

Saprinus chalcites: Erichson, 1834: 182; Marseul, 1855: 445; Schmidt, 1885: 305 [keyed]; Ganglbauer, 1899: 384; Reitter, 1909: 292 [keyed]; Jacobson, 1911: 649; Desbordes, 1919: 413 [keyed]; Bickhardt, 1921: 113; Müller, 1931: 96; Reichardt, 1941: 184 [keyed]; Dahlgren, 1968a: 90 [figures of male genitalia]; Kryzhanovskij and Reichardt, 1976: 168 [figures of male genitalia].

Saprinus (*Saprinus*) *chalcites*: Mazur, 1997: 221.

Hister affinis Paykull, 1811: 76, synonymized by Erichson, 1834: 182.

Hister ruficornis Cristofori et Jan, 1832: 27 (nom. nud.), synonymized by Gemminger and

Harold, 1868: 784.

Hister aeneus: Brullé, 1838: 59, correctly identified by Wollaston, 1865: 170.

Saprinus affinis: Kolenati, 1846: 61.

Saprinus certus Lewis, 1888: 643 [Rangoon (= Yangôn, Myanmar)], synonymized by Desbordes, 1919: 413.

Saprinus aerosus Normand et Thérond, 1952: 175, synonymized by Thérond, 1962: 64.

Saprinus aerosus var. *melanocephalus* Normand et Thérond, 1952: 175.

Saprinus aerosus var. *prolongatus* Normand et Thérond, 1952: 176.

Saprinus aerosus var. *scapularis* Normand et Thérond, 1952: 176.

Redescription. Body (Fig. 1A) broadly oval, convex. Body length, male: PPL 3.68, PEL 2.99, APW 1.13, PPW 2.45, PL 1.42, EL 1.67, EW 2.99, ProW 1.81, ProL 0.54, PyL 1.67, PTL 1.08, MSTL 1.13, MTTL 1.32. Cuticle strongly shiny and bronze metallic hue. Antennal scape and funicle, mandibles and legs light rufopiceous.

Frontal stria (Fig. 1C) impressed only laterally; basal ends united with supraorbital stria. Disc of front densely and finely punctate, punctures separated by about half their diameter. Epistoma convex but flattened medially; surface with transverse rugae. Labrum deeply depressed medially. Mandibles finely punctate laterally.

Pronotal sides evenly arcuate and convergent forward on basal 3/4, thence strongly convergent apically. Apical angles obtuse. Marginal pronotal stria impressed, complete anteriorly but shortened on basal 1/5 on lateral margin and outer side of stria carinate. Disc rather densely covered with round and large punctures on lateral 1/4; punctures becoming finer interiorly, large punctures separated by 0.3 (on anterior) – 1.0 (on posterior) times their diameter; interspaces among large punctures intermingled with fine punctures; fine punctures on median area of pronotum separated by about 5 times their diameter; pronotal base covered with 2 rows of large elongate punctures; antescutellar area with small foveiform elongate puncture. Area behind eyes rather deeply depressed. Pronotal epipleura deeply concave; puncture on apical half dense, coarse and round.

Epipleura of elytra even, sparsely covered with fine oblong punctures. Marginal epipleural stria distinct, finely impressed completely, reaching elytral apex not united with marginal elytral stria. Marginal elytral stria complete, prolonged on elytral apex as apical stria and united with sutural stria. External subhumeral stria (Fig. 1D) wanting; internal one present as a row of six coarse punctures on medio-posterior 1/4. Oblique humeral stria slightly impressed on basal 1/3. First to 4th striae well impressed and present on basal half; basal half of 2nd and 4th striae strongly crenate; 4th one inwardly hamate basally. Sutural stria complete; basal end united with 4th dorsal stria and apical end with apical stria. Surface of elytra, except scutellar area (basal half of interstices between sutural and 4th striae), basal 1/3 of interstices among 2nd to 4th striae and apical marginal areas, densely covered with oval and coarse punctures, separated by 0.5 – 4 times their diameter; remaining area (without coarse punctures) sparsely covered with microscopic punctures.

Propygidium (Fig. 1F) short, transverse; surface densely covered with round, large punctures, separated by 0.5 – 1.5 times their diameter. All interspaces very finely and transversely shagreened. Pygidium convex medially on apical 1/3; surface densely covered with oval, large and deep punctures, separated by 0.5 (on basolateral) – 1.5 (medially) times their diameter and becoming finer apically.

Anterior margin of median portion of prosternum (Fig. 2A, B) straight; marginal

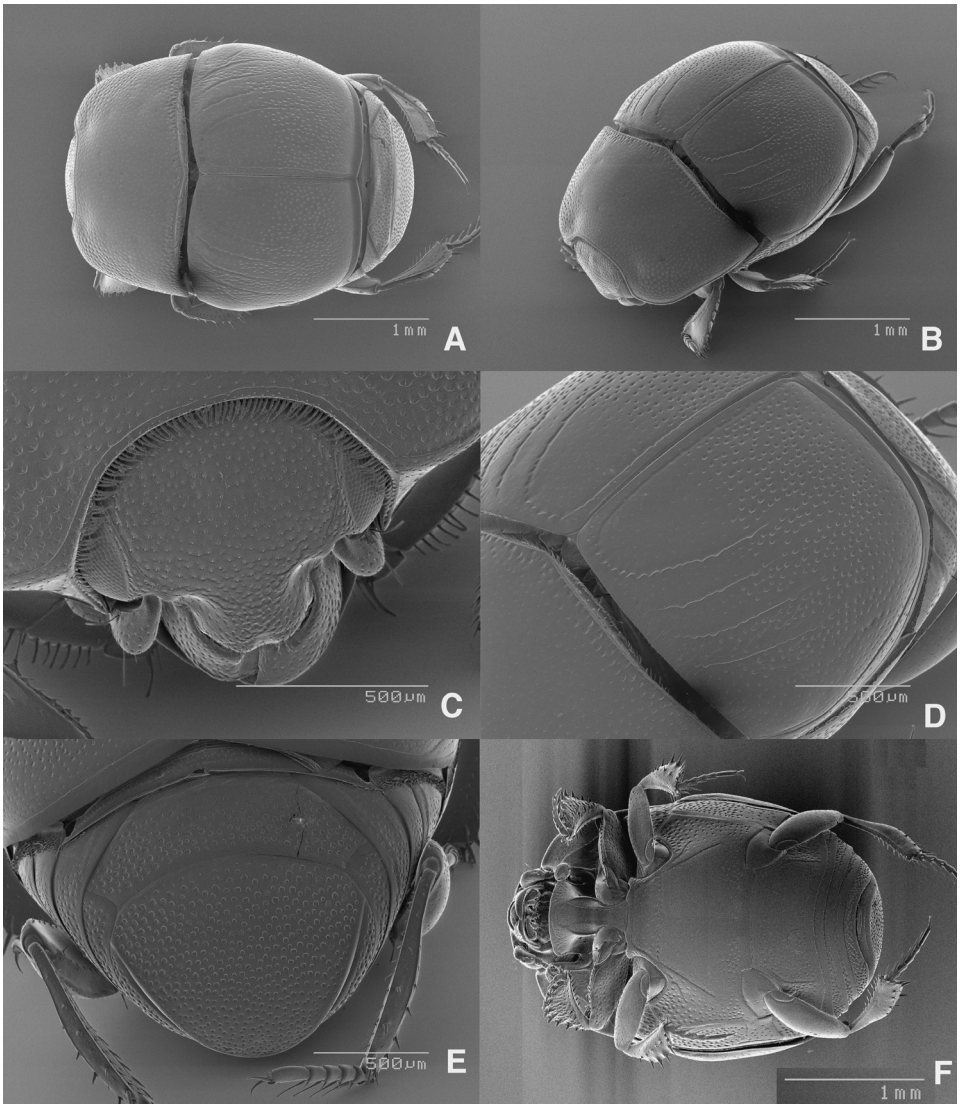

Fig. 1. *Saprinus chalcites*. A: Habitus, dorsal view. B: Ditto, dorso-oblique view. C: Head, frontal view. D: Left elytron, dorso-oblique view. E: Propygidium and pygidium, caudal view. F: Habitus, ventral view. [A – F: male, MO-06-026 from Bali: BA-06-MO-045].

stria complete. Disc of prosternal keel (process) sparsely covered with fine punctures separated by about 4 times their diameter; surface feebly depressed on apical 1/5. Descending lateral striae strongly carinate on outer side, convergent apically, united with carinal striae on apical 1/6. Carinal striae complete, carinate on outer sides, slightly divergent posteriorly and anteriorly, thence on apical 1/6 striae convergent anteriorly and connected by a loop.

Anterior margin of mesosternum (Fig. 2C) nearly straight; marginal stria complete; outer side of stria carinate. Disc sparsely covered with coarse punctures separated by 2 –

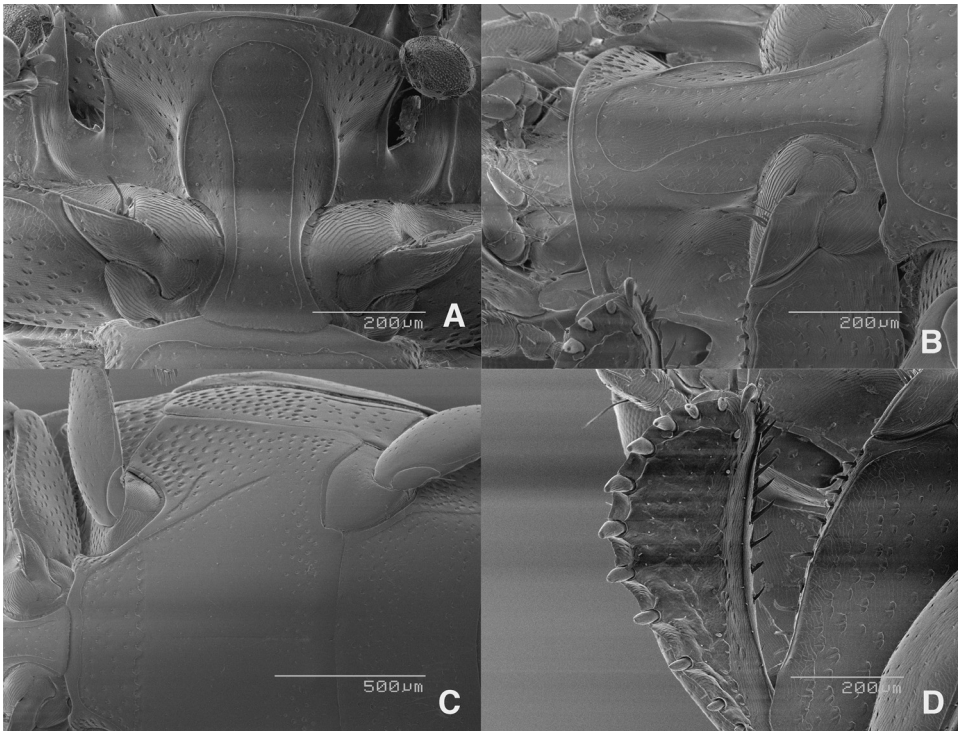

Fig. 2. *Saprinus chalcites*. A: Prosternal process, ventral view. B: Ditto, ventral and oblique view. C: Meso-, and metasterna and 1st abdominal sternum, ventral view. D: Protibia, ventral view. [A – D: male, MO-06-026 from Bali: BA-06-MO-045].

5 times their diameter. Meso-metasternal suture (Fig. 2C) indicated by a strongly crenate line. Intercoxal disc of metasternum flat; median area very sparsely covered with fine punctures, except transverse apical band of irregular rows of oblong, coarse punctures; some coarse punctures present along metasternal lateral stria. Lateral metasternal stria carinate on outer side, extending obliquely and posteriorly on about basal 3/4. Lateral metasternal disc covered with large, round and shallow punctures separated by 0.5 – 1.0 times their diameter. Post-mesocoxal stria impressed on inner half of lateral disc. Metepisternum densely covered with oblong large punctures on basal half, and sparsely scattered with several large punctures on apical half.

Intercoxal disc of 1st abdominal sternum striate on each side; striae a little shortened apically; punctures coarse, rather dense, separated by about their own diameter, becoming sparser medially; interspaces among punctures intermingled with shagreened sculptures.

Protibia (Fig. 2D) with 10 spinules on outer margin.

Male genitalia (Figs. 3A – J): apical part of 8th sternum furnished with 2 rows of short hairs. Basal piece short: ratio in length of parameres to basal piece about 5.5.

Specimens examined. [Bali] 1 male (MO-06-026), Dsn. Gondol, 08˚09.41'S 114˚42.89'E, Ds. Penyosangan, Kec. Geogak, Kab. Buleleng, 22-XI-2005, M. Ôhara, collected from cow dung (BA-05-MO-045) .

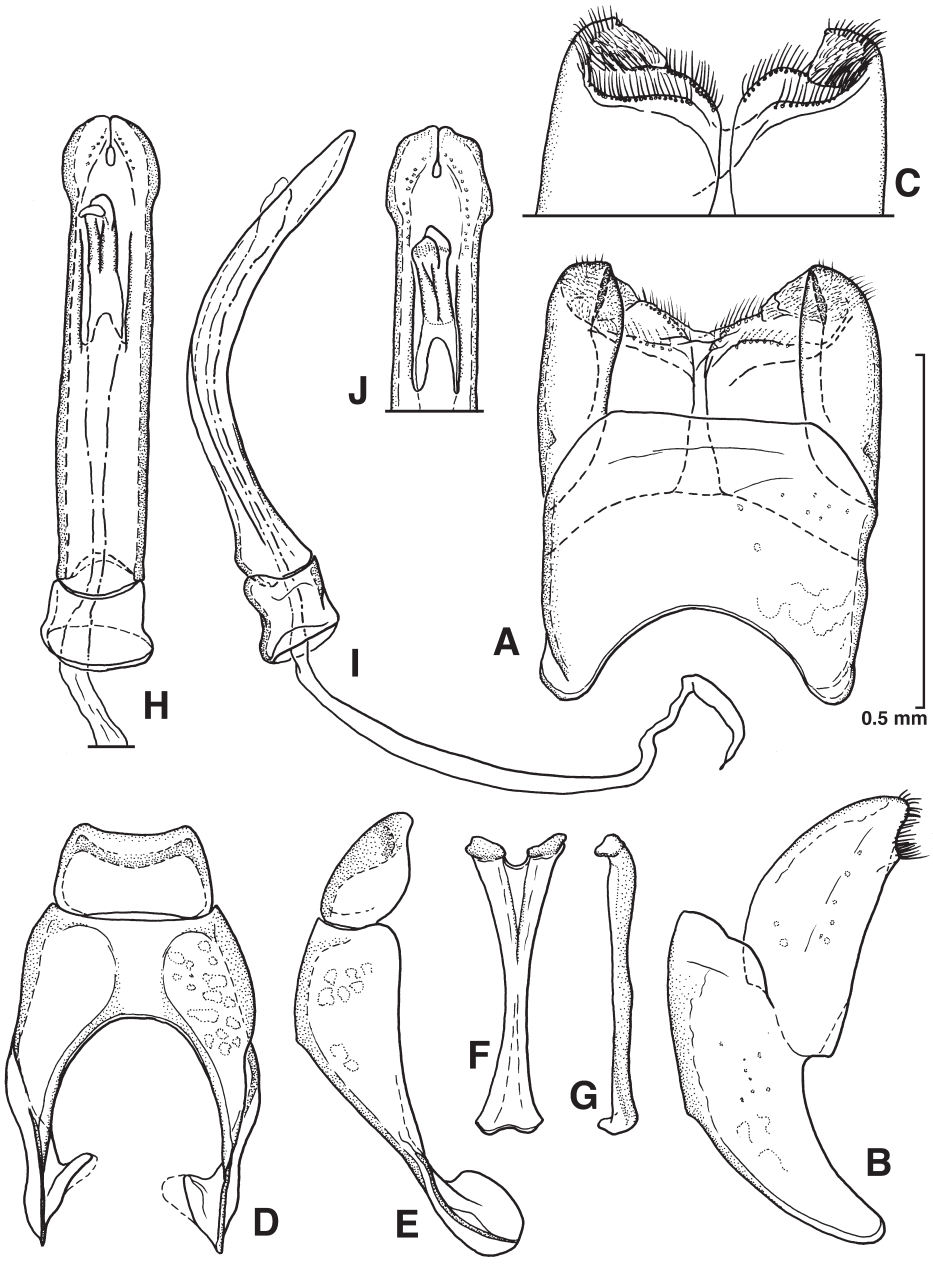

Fig. 3. *Saprinus chalcites*. Male genitalia. A: Eigth tergite and sternite, dorsal view. B: Ditto, lateral view. C: Apical part of 8th sternite, ventral view. D: Ninth and 10th tergites, dorsal view. E: Ditto, lateral view. F: Spicule (9th sternite), dorsal view. G: Ditto, lateral view. H: Aedeagus, dorsal view. I: Ditto, lateral view. J: Apical part of aedeagus, dorsal view. [A – J: MO-06-026 from Bali: BA-06-MO-045].

Distribution. Indonesia (Bali); Mediterranean subregion, Africa, Arabia, Central Asia, India, Burma, Australia. New to Indonesia.

Remarks. The species has not been recorded from Wallacean area between Sumatra to New Guinea. I collected only one male specimen from Bali Island but probably this species is distributed more widely in the area.

Genus *Chalcionellus* Reichardt, 1932

Chalcionellus condolens (Marseul, 1864)

Saprinus condolens Marseul, 1864: 338 [Célèbes: Makassar].

Hypocacculus condolens: Bickhardt, 1916: 96.

Chalcionellus condolens: Reichardt, 1932: 94 [Celebes; Java: Tergger (Tengger ?)]; Dahlgren, 1969a: 231 [Java: Tergger]; Mazur, 1997: 246.

Redescription. Body (Fig. 4A) broadly oval, convex. Body length (in mm), PPL, male, 1.87 – 3.00 (2.49 ± 0.26, n =15), female, 2.28 – 3.33 (2.87 ± 0.33, n =12); PEL 1.75 – 2.62 (2.16 ± 0.19, n = 15), female, 1.92 – 2.75 (2.38 ± 0.26, n = 12). Width, EW, male, 1.46 – 2.16 (1.86 ± 0.16, n = 15), female, 1.68 – 2.29 (2.04 ± 0.21, n = 12). Biometric data are given in Table 1. Cuticle strongly shiny and bronze metallic hue. Antennal scape and funicle, mandibles and legs light rufopiceous.

Frontal stria (Fig. 4C) well impressed completely, united laterally with supraorbital stria. Disc of front rather densely and coarsely punctate; punctures separated by their own diameter. Occiput with a small fovea in middle. Epistoma convex but flattened medially as a shape of trapezium; surface sparsely punctate. Labrum deeply depressed medially, with a pair of setae. Mandibles sparsely and coarsely punctate laterally.

Pronotal sides evenly arcuate and convergent forward on basal 3/4, thence strongly convergent apically. Apical angles obtuse. Marginal pronotal stria deeply impressed, complete and carinate on outer sides. Disc rather densely covered with large elongate punctures on lateral 1/4; punctures becoming finer medially and on longitudinal area near lateral margin, and on median 1/3 punctures becoming larger again; large punctures separated by 0.2 (anterior) – 1.0 (posterior) times their diameter; pronotal base covered with 2 to 3 rows of large elongate punctures; antiscutellar area with small foveiform elongate puncture; remaining area (triangular medio-basal area) and interspaces among punctures intermingled with microscopic punctures. Area behind eyes slightly depressed. Pronotal epipleura deeply concave, densely covered with coarse and round punctures on apical half.

Epipleura of elytra even, sparsely covered with fine punctures. Marginal epipleural stria distinct, finely impressed, reaching elytral apex, not united with marginal elytral stria. Marginal elytral stria complete, prolonged on elytral apex as apical stria, united with sutural stria; stria crenulate with coarse punctation only along lateral margin of elytra. External subhumeral stria (Fig. 4D) wanting; internal one sometimes present as a row of three or four coarse punctures in middle. Oblique humeral stria slightly impressed and present on basal 2/5. First to 4th striae crenate, impressed and present on about basal 2/3; 4th one inwardly hamate basally. Sutural stria present on apical 3/4, finely crenate. Surface of elytra, except its scutellar area (basal half of interstices between sutural and 4th striae), basal 1/3 of interstices among 2nd to 4th striae and rather broad lateral and

Table 1. Biometric data of *Chalcionellus condolens.*

	Male	Female
APW	0.60–0.84 (0.73 ± 0.06) 15	0.67–0.90 (0.80 ± 0.08) 12
PPW	1.37–1.97 (1.68 ± 0.15) 15	1.51–2.13 (1.85 ± 0.21) 12
PL	0.72–1.10 (0.87 ± 0.09) 15	0.72–1.10 (0.95 ± 0.11) 12
EL	1.03–1.58 (1.26 ± 0.12) 15	1.10–1.62 (1.39 ± 0.16) 12
EW	1.46–2.16 (1.86 ± 0.16) 15	1.68–2.29 (2.04 ± 0.21) 12
PROW	0.91–1.32 (1.07 ± 0.11) 15	0.89–1.42 (1.18 ± 0.15) 12
PROL	0.26–0.42 (0.32 ± 0.04) 15	0.24–0.42 (0.34 ± 0.05) 12
PYL	0.65–0.93 (0.79 ± 0.07) 15	0.65–1.03 (0.87 ± 0.11) 12
PTL	0.50–0.74 (0.63 ± 0.07) 15	0.55–0.81 (0.70 ± 0.09) 12
MSTL	0.46–0.78 (0.61 ± 0.08) 15	0.48–0.78 (0.66 ± 0.09) 12
MTTL	0.53–0.81 (0.69 ± 0.08) 15	0.62–0.87 (0.76 ± 0.09) 12

apical marginal areas, densely covered with oval, deep and coarse punctures, separated by 0.5 – 1.0 times their diameter; remaining area (without coarse punctures) sparsely covered with microscopic punctures.

Propygidium (Fig. 4E) short, disc densely covered with round, large and deep punctures, separated by 0.1 – 0.5 times their diameter. All interspaces very finely and transversely shagreened. Pygidium slightly convex, moderately densely covered with oval, large and deep punctures, separated by 0.5 – 1.5 times their diameter; punctation becoming finer and sparser medially and apically; apex finely punctulate. Latero-basal half of pygidium with fine alutaceous microsculpture.

Anterior margin of median portion of prosternum (Fig. 5C) evenly round and shortly straight medially; marginal stria represented by a deep furrow, joining the preapical foveae. Preapical foveae deep, clearly marginate laterally. Disc of prosternal keel (process) sparsely clothed with fine punctures; surface depressed on apical 1/6. Descending lateral striae strongly carinate on outer side, convergent to apex and united with the carinal stria on apical 1/6 (behind preapical fovea). Carinal striae shortened on basal 1/6 and divergent posteriorly and anteriorly, and connected anteriorly by a rounded loop, its outer sides carinate.

Anterior margin of mesosternum (Fig. 5D) nearly straight, with shallow median emargination; marginal stria distinctly crenulate and carinate on outside. Disc sparsely clothed with coarse punctures. Meso-metasternal suture (Fig. 5D) indicated by a strongly crenate line. Intercoxal disc of metasternum flat or with a shallow depression along median line. Median area very sparsely covered with fine punctures, except for transverse apical band of irregular rows of oblong, large punctures, and with several small punctures along metasternal lateral stria. Lateral metasternal stria carinate on outer side, extending obliquely and posteriorly on about basal 3/4 or little shortened at posterior end. Lateral metasternal disc covered with large deep punctures separated by 0.2 – 1.0 times their diameter. Interspaces among punctures microscopically shagreened. Metepisternum densely covered with large oval punctures separated by about half their diameter.

Intercoxal disc of 1st abdominal sternum striate on each side; striae a little shortened apically; punctures elongate, large and even laterally, becoming sparser on

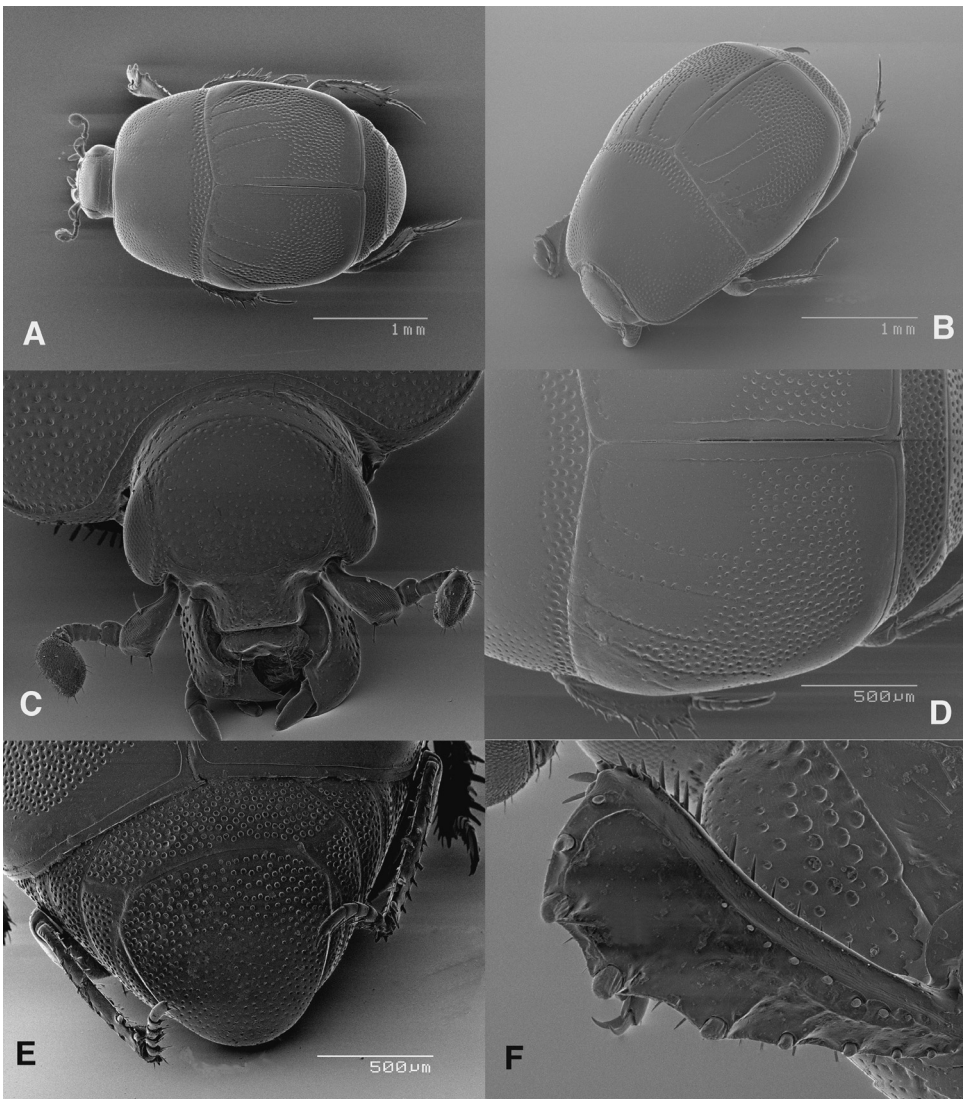

Fig. 4. *Chalcionellus condolens*. A: Habitus, dorsal view. B: Ditto, dorso-oblique view. C: Head, frontal view. D: Left elytron, dorsal view. E: Propygidium and pygidium, dorsal view. F: Protibia, ventral view. [A – F: male, MO-06-019 from Sulawesi: SU-06-MO-064].

middle; interspaces among punctures intermingled with fine punctures and shagreened sculptures.

Protibia (Fig. 4F) with 7 spinules on outer margin.

Male genitalia (Figs. 6A – I): apical part of 8th sternum partly furnished with short hairs. Basal piece short: ratio in length of parameres to basal piece about 2.38.

Specimens examined. [Java] 1 female, Ujung Kulon, Cidaun, Grass field, 13-VI-1972, Duehaer (MZB). [Bali] 1 female, Ds. Belukan Bawang, 08˚12.05'S 114˚52.09'E, Kec. Groga, Kab.

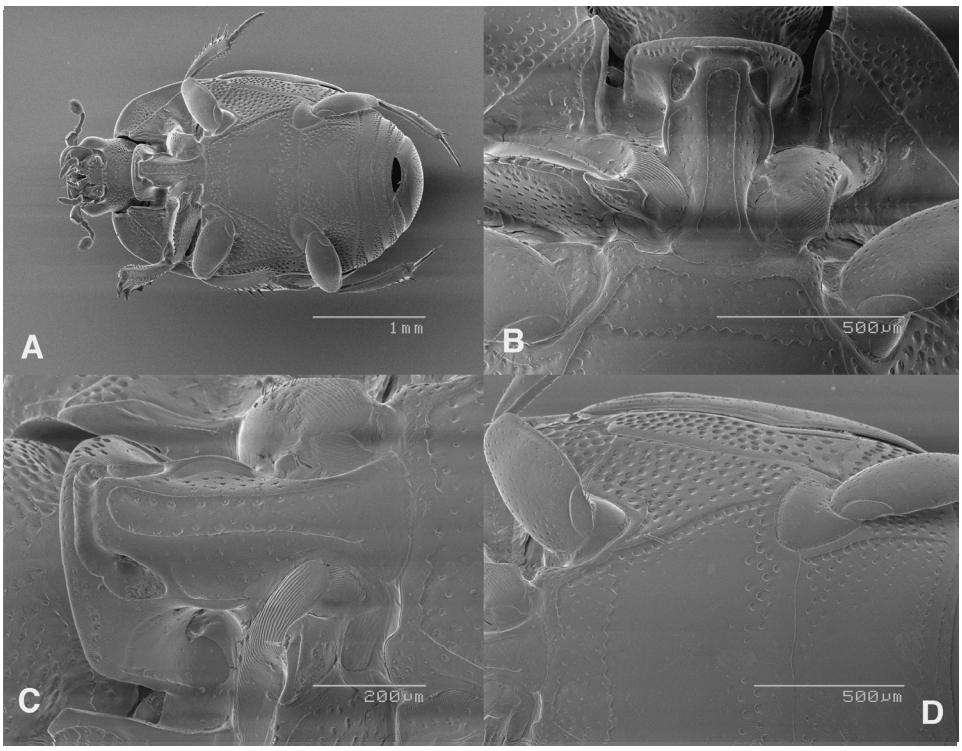

Fig. 5. *Chalcionellus condolens*. A: Habitus, ventral view. B: Prosternal process, ventral view. C: Ditto, ventral and oblique view. D: Meso-, and metasterna and 1st abdominal sternum, ventral view. [A – D: male, MO-06-019 from Sulawesi: SU-06-MO-064].

Buleleng, 22-XI-2005, M. Ôhara, collected from cow dung (BA-05-MO-044); 5 males, 1 female and 1 ex., Ds. Telek Terima, 08˚09.74'S 114˚30.68'E, Kec. Geogak, Kab. Buleleng, 22-XI-2005, M. Ôhara, collected from cow dung (BA-05-MO-046). [Lombok] 3 males and 1 female, Ds. Kotaraja, 08˚35'10"S 116˚25'14"E, Kec. Sikur, Kab. Lombok Timur, Prop. NTB, 5-XI-2000, M. Ôhara (LO-00-MO-024); 2 exs., Ds. Teluk Dalem, 08˚22'27"S 116˚07'88"E, Kec. Tanjung, Kab. Lombok Barat, Prop. NTB, 20-XI-2005, M. Ôhara, collected from cow dung in dry field (LO-05-MO-036). [Sumbawa] 13 males, 3 females and 1 ex., Ds. Batudulang, 08˚35'31"S 117˚16'38"E, Kec. Batulanteh, Kab. Sumbawa Besar, Prop. NTB, 10-XI-2000, M. Ôhara (SB-00-MO-035); 1 female, Ds. Panda, 08˚35'12"S 118˚41'58"E, Kec. Rasanae, Kab. Bima, Prop. NTB, 12-XI-2000, M. Ôhara (SB-00-MO-040). [Flores] 2 males, 3 females and 1 ex., Ds. Baramari, 08˚47'88"S 121˚33'58"E, Kec. Nanguala, Kab. Ende, Prop. NTT, 25-I-2003, M. Ôhara (FL-03-MO-006). [Sulawesi] 2 males and 2 females, Ds. Samangki, 05˚02'43"S 119˚42'43"E, Kec. Simbang, Kab. Maros, Prop. Sulawesi Selatan, 3-IX-2006, M. Ôhara, cow (bali sapi) dung, open land (SU-06-MO-064).

Distribution. Indonesia (Java, Bali, Lombok, Sumbawa, Flores, Sulawesi). New to Lombok, Sumbawa and Flores.

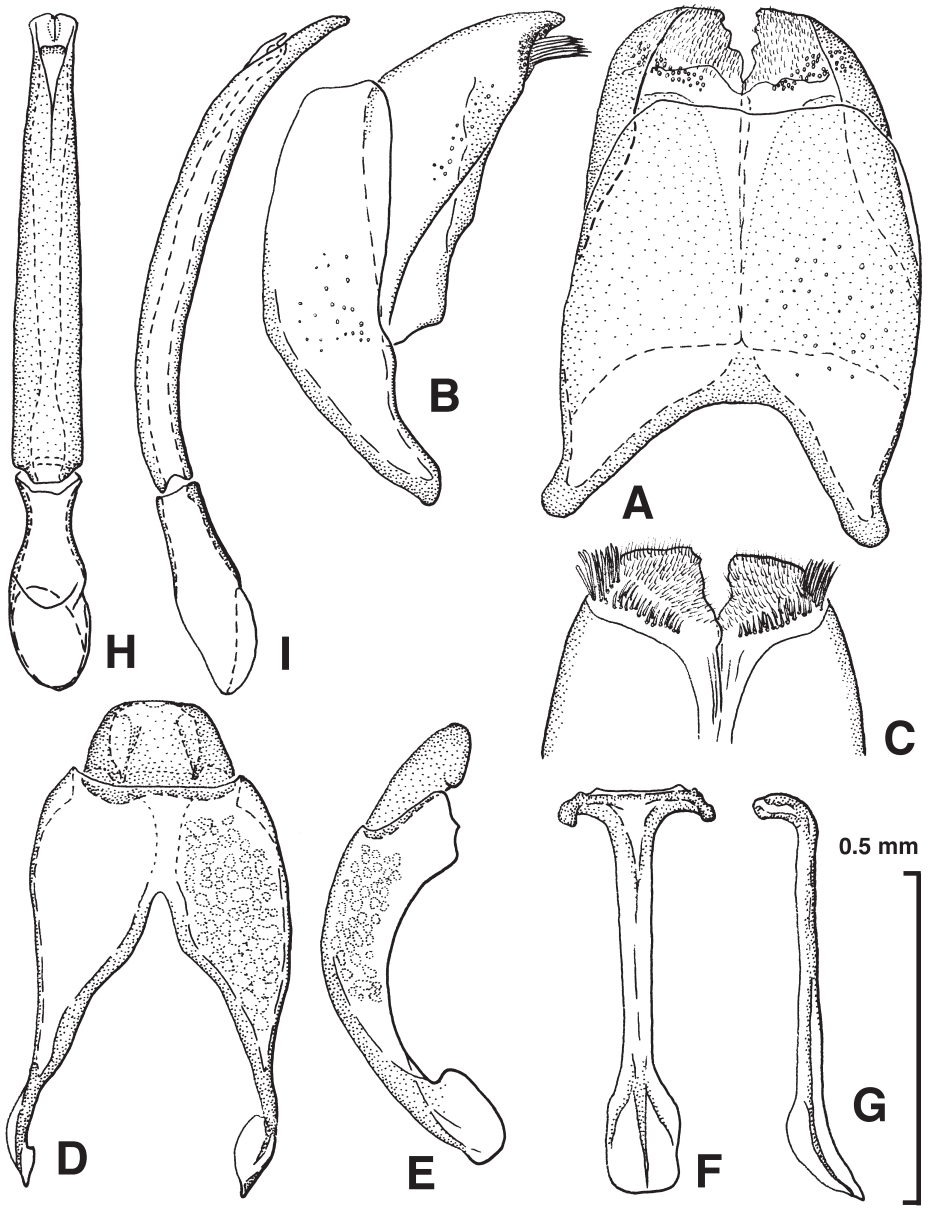

Fig. 6. *Chalcionellus condolens*. Male genitalia. A: Eigth tergite and sternite, dorsal view. B: Ditto, lateral view. C: Apical part of 8th sternite, ventral view. D: Ninth and 10th tergites, dorsal view. E: Ditto, lateral view. F: Spicule (9th sternite), dorsal view. G: Ditto, lateral view. H: Aedeagus, dorsal view. I: Ditto, lateral view. [A – I: MO-02-003 from Sumbawa: SB-00-MO-035].

Genus *Hypocacculus* Bickhardt, 1914
Subgenus *Hypocacculus* Bickhardt, 1914

Hypocacculus (*Hypocacculus*) *hyla* (Marseul, 1864)

Saprinus hyla Marseul, 1864: 339 [Nouvelle-Guinée].
Hypocacculus (*Hypocacculus*) *hyla*: Bickhardt, 1914: 311 [Java]; Reichardt, 1932: 34 [Birma; Sunda-Inseln]; Mazur, 1997: 251 [Vietnam].

Specimens examined. No material of this species has been available for our study.
Distribution. Indonesia (Java, Sunda Is., New Guinea), Vietnam, Burma.

Genus *Hypocaccus* C. Thomson, 1867
Subgenus *Hypocaccus* C. Thomson, 1867

Hypocaccus (*Hypocaccus*) *brahminus* (Marseul, 1864)

Saprinus brahminus Marseul, 1864: 339 [Célèbes: Makassar].
Hypocaccus brahminus: Lewis, 1905: 77.
Hypocaccus (*Hypocaccus*) *brahminius* (sic): Mazur, 1997: 257 [Indonesia: Celebes; Sri Lanka; Philippines].

Specimens examined. No material of this species has been available for our study.
Distribution. Indonesia (Sulawesi); Sri Lanka, Philippines

Hypocaccus (*Hypocaccus*) *brasiliensis* (Paykull, 1811)

Hister brasiliensis Paykull, 1811: 66 [Brasilia].
Saprinus brasiliensis: Marseul, 1855: 726.
Hypocaccus brasiliensis: Lewis, 1905: 77.
Hypocaccus (*Hypocaccus*) *brasiliensis*: Mazur, 1997: 257 [Oriental Region].
For more detailed synonymies see Mazur (1997: 257).

Distribution. Oriental Region (? Indonesia); South Europe, North and tropical Africa; Central and South America; Central Asia; Australia; Saudi Arabia; Canary Is., Reunion.

Hypocaccus sinae (Marseul, 1864)

Saprinus sinae Marseul, 1862: 496 [Chine: Shang-Hauï].
Hypocaccus sinae: Ôhara, 1994: 250 [Redescription, figures of male genitalia]; Mazur, 1997: 261 [Oriental Region].

Specimen examined. [Java] 5 males and 5 females, Tjilatjap (= Cilacap), Java, Drescher, V-1935. (MZB). [Japan] 1 female, Rebunge, Toyoura, Hokkaido, 22-V-1994, K. Sasaki (MO-06-022).
Note. Pronotum and elytra of the Indonesian specimens of this species are covered

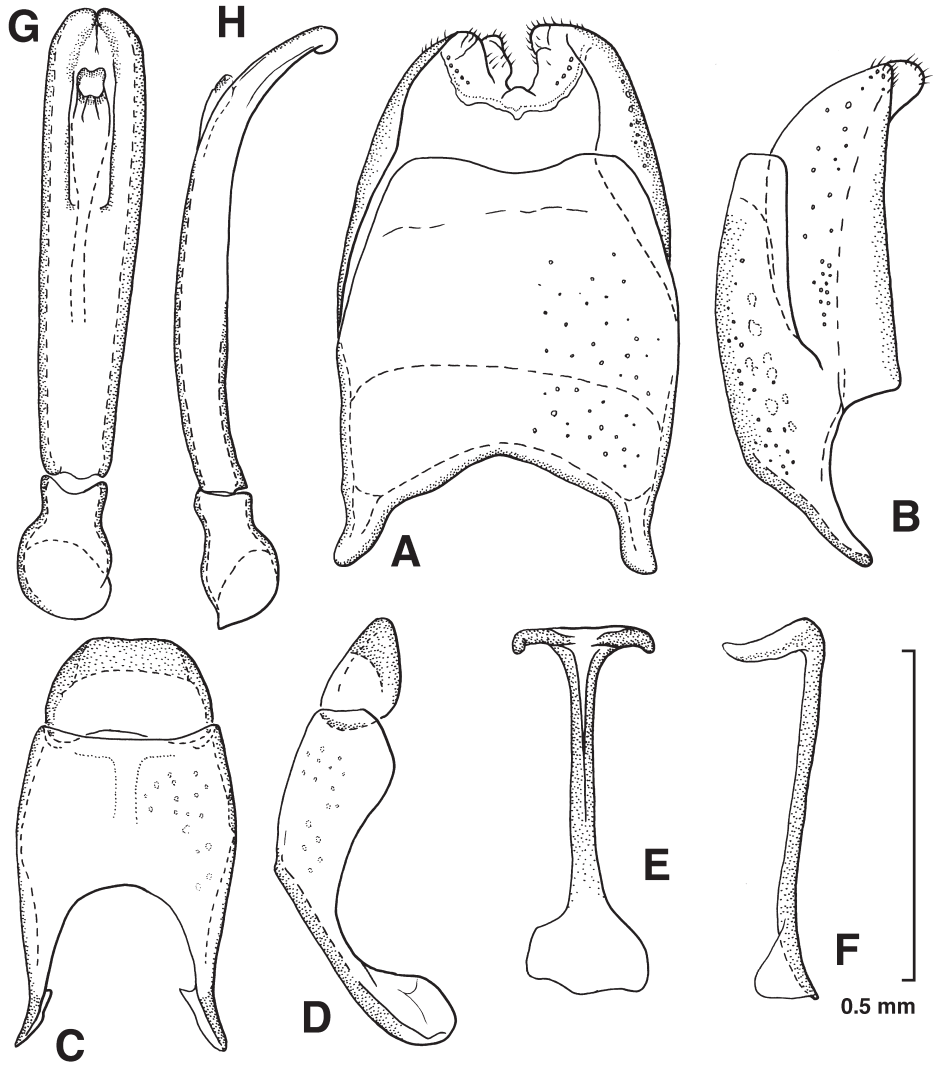

Fig. 7. *Hypocaccus sinae*. Male genitalia. A: Eigth tergite and sternite, dorsal view. B: Ditto, lateral view. C: Ninth and 10th tergites, dorsal view. D: Ditto, lateral view. E: Spicule (9th sternite), dorsal view. F: Ditto, lateral view. G: Aedeagus, dorsal view. H: Ditto, lateral view. [A – H: MO-05-001 from Cilacap, Java].

with coarser and denser punctation than Japanese specimens, but we have not discovered any significant differences concerning male genitalia (Fig. 7; Ôhara, 1994: 250, fig. 150). On the other hand, comparing the spermatheca of Indonesian and Japanese specimens, slight differences can be observed: basal excavation of the spermatheca of Indonesian specimen (Fig. 8C) is a little larger than that of the Japanese specimen (Fig. 8D); spermatheca depicted on Fig. 8B is probably abnormally shaped, because usually inflexed apical piece is projected on the outside compared with figures 8C and 8D of the specimens of same species.

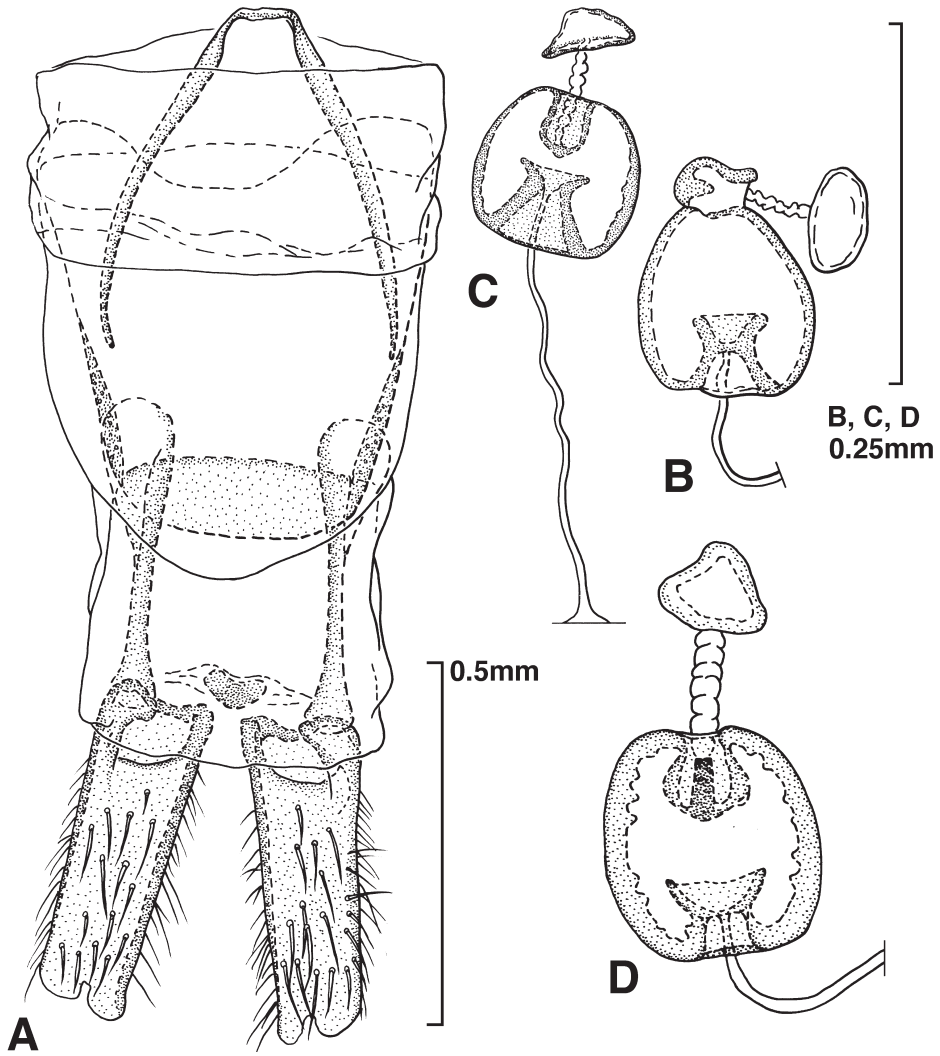

Fig. 8. *Hypocaccus sinae*. A: Female genitalia, ventral view. B, C, D: Spermatheca. [A–B: MO-04-031 and C: MO-07-058 from Cilacap, Java, Indonesia; D: MO-06-022, from Rebunge, Toyoura, Hokkaido, Japan].

Species *H. sinae* and *H. brasiliensis* are very similar concerning external characters and according to Kryzhanovskij and Reichardt (1976: 226) likely synonyms. *H. brasiliensis* should be clothed with prominent alutaceous microsculptuer covering elytral interspaces among coarse punctation. We had the opportunity to check 10 specimens of *H. sinae* from Indonesia and 3 of them are apparently clothed with such alutaceous microsculpture among coarse punctures. We believe that more material from all distributional areas of both species is necessary before resolving this question.

Distribution. Indonesia (Java), China (Shanghai), Japan, Russia (Ussuriyskiy Kray, Sakhalin), Afghanistan, Australia. New to Indonesia.

Key to the Indonesian species of the subfamily Saprininae

1 (16) Prosternum without preapical foveae.

2 (3) Head without frontal stria. ..... Genus *Gnathoncus* Jaeq.-Duv. ..... *Gnathoncus* sp.

3 (2) Frontal stria present, at least laterally. Carinal striae divergent apically and joining lateral striae, usually united with submarginal transverse apical stria. .... Genus *Saprinus* Er.

4 (15) Color of elytra metallic blue or greenish-blue. Body size more than 4 mm.

5 (6) Elytra with yellowish-orange maculae, at least on epipleuron. .... *S. quadriguttatus* (F.)

6 (5) Elytra without yellowish-orange maculae.

7 (8) Antennal club normal size: its greatest (transverse) length less than 0.6 times the distance between eyes on vertex.

8 (7) Antennal club unusually large: its greatest (transverse) length 0.65 times the distance between eyes on vertex. ..... *S. grandiclava* Kanaar

9 (10) Fourth dorsal elytral stria united by an arc with sutural stria. .... *S. optabilis* Mars.

10 (9) Fourth dorsal elytral stria not united with sutural stria.

11 (14) Marginal pronotal stria nearly complete, bordering margin. Fourth dorsal elytral stria complete. Pygidium entirely punctate, without impunctate band on longitudinal mid line. Mesosternum coarsely punctate.

12 (13) Elytra except for small "mirror" in the fourth interstices evenly entirely covered with punctures. ..... *S. cyaneus auricollis* Mars.

13 (12) Elytra covered with punctures only on posterior half. ..... *S. cyaneus cyaneus* Mars.

14 (11) Marginal pronotal stria abbreviated basally, progressively distanced from the margin. Fourth dorsal elytral stria abbreviated at base. Pygidium with an impunctate band on longitudinal mid line. Mesosternum without coarse punctures. .....*S. splendens* (Payk.)

15 (4) Color of elytra cupreous. Body size less than 4 mm. ..... *S. chalcites* (Ill.)

16 (1) Prosternum with preapical foveae.

17 (18) Prosternum wide; carinal striae anteriorly united by a loop. Front without rugae. .... Genus *Chalcionellus* Reich. ..... *Ch. condolens* Mars.

18 (17) Prosternum compressed; carinal striae abbreviated anteriorly or acutely united.

19 (24) Frontal disk with 1 or 2 transverse rows or irregular transverse rugae; anterior portion of frontal stria strongly impressed and straight. .... Genus *Hypocaccus* Thoms.

20 (21) First dorsal elytral stria nearly complete; 4th dorsal stria shortly present at base. .... *Hypocaccus* (*Hypocaccus*) *brahminus* (Mars.)

21 (20) First dorsal elytral stria shortened on posterior half; 4th dorsal stria present on basal 1/3 to half.

22 (23) Interspaces among elytral punctures clothed with alutaceous microsculpture. .... *Hypocaccus* (*Hypocaccus*) *brasiliensis* (Payk.)

23 (22) Interspaces among elytral punctures without alutaceous microsculpture. .... *Hypocaccus* (*Hypocaccus*) *sinae* (Mars.)

24 (19) Frontal disk usually with light punctation, without strongly transverse rows; anterior portion of frontal stria lightly impressed, usually partly arcuate, sometimes interrupted. ..... Genus *Hypocacculus* Bickh. ..... *Hypocacculus hyla* (Mars,)

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References

Bickhardt, H., 1910. Baiträge zur Kenntnis der Histeriden V. Ent. Bl., 6: 223–227.

Bickhardt, H., 1913. H. Sauter's Formosa-Ausbeute. Histeridae II. (Col.) (16. Beitrag zur Kenntnis der Histeriden). Ent. Mitt., 2: 166–177.

Bickhardt, H., 1914. Neue Histeriden und Bemerkungen zu bekannten Arten (23. Beitrag zur Kenntnis der Histeriden). Ent. Bl., 10: 309–316.

Bickhardt, H., 1916. Histeridae. In: P. Wytsman - Genera Insectorum, fasc. 166a. La Haye, p. 1–112.

Bickhardt, H., 1921. Die Histeriden des aethiopischen Faungebiets. Teil I, II. Arch. Naturg., 87 A, 6: 43–208.

Blackburn, T., 1903. Further notes on Australian Coleoptera, with descriptions of new genera and species. Trans. Proc. R. Soc. S. Austral., 27: 91–182.

Boisduval, J. A., 1835. Voyage de découvertes de l'Astrolabe exécuté par ordre du Roi, pendant les années 1826-1827-1828-1829, sous le commandement de M. J. Dumont d'Urville. Faune entomologique de l'Océan Pacifique, avec l'illustration des insectes nouveaux recueillis pendant le voyage. Deuxième partie. Coléoptères, Paris, vii + 716 pp.

Brullé, M., 1838. Entomologie 1, 1836–1844. In: P. B. Webb et S. Berthelot Histoire naturelle des Iles Canaries (2^{e} partie), Paris, 1835–1844. 119 pp. (p. 59 was edited in 1838).

Casey, F. G., 1893. Coleopterological notices, V. Ann. N. Y. Acad. Sci., 7: 533–578.

Cristofori, J. and Jan, G., 1832. Catalogus in IV. sectiones divisus rerum naturalium in museo exstantium. Sectio III.a Entomologia, pars I.a Conspectus Methodicus Insectorum, fasc. I.us Coleoptera. Mediolani, [4] + 16 + 111 pp.

Dahlgren, G., 1967. Beiträge zur Kenntnis der Gattung *Saprinus* (Col. Histridae). Opusc.

Ent., 32: 213–224.
Dahlgren, G., 1968a. Beiträge zur Kenntnis der Gattung *Saprinus* (Col. Histeridae), II. Opusc. Ent., 33: 82–94.
Dahlgren, G., 1968b. Beiträge zur Kenntnis der Gattung *Saprinus* (Col. Histeridae), III. Entomol. Ts. Arg., 89 (3–4): 255–268.
Dahlgren, G., 1969a. Zur Taxonomie der Gattungen *Chalcionellus* Rchdt und *Zorius* Rchdt (Col. Histeridae). Entomol. Ts. Arg., 90 (3-4): 230–232.
Dahlgren, G., 1969b. Beiträge zur Kenntnis der Gattung *Saprinus* (Col. Histeridae), IV. Opusc. Ent., 34: 257–269.
Dahlgren, G., 1971. Zur Taxonomie der Gattungen *Saprinus, Hypocaccus* und *Zorius* (Col. Histeridae). Entmol. Ts. Agr., 92 (1–2): 43–53.
Dejean, P. F., 1821. Catalogue de la collection de Coléoptères. Paris, viii + 136 + [2] pp.
Desbordes, H., 1919. Contribution à la connaissance des Histérides. 4e Mémoire. Étude des Histeridae de l'Indo-Chine (Tonkin, Laos, Siam, Annam, Cambodge, Cochinchine). Ann. Soc. Ent. France, 87 (1918–1919): 341–424.
Erichson, W. F., 1834. Uebersicht der Histeroides der Sammlung. Jahrb. Ins.-kunde, 1: 83 –208.
Fabricius, J. Ch., 1775. Systema Entomologiae, sistens Insectorum classes, ordines, genera, species, adiectis synonimis, locis, descriptionibus, observationibus. Flensburgi et Lipsiae, 32 + 832 pp.
Fabricius, J. Ch., 1798. Supplementum Entomologiae Systematicae. Hafniae, ii+572 pp.
Fabricius, J. Ch., 1801. Systema Eleutheratorum secundum ordines, genera, species adiectis synonimis, locis, observationibus descriptionibus. Tomus I. Kiliae, xxiv + 506 pp.
Ganglbauer, L., 1899. Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französischen und italienischen Alpengebietes. III, 1. Familienreihe Staphylinoidea. 2. Theil: Scydmenidae, Silphidae, Clambidae, Leptinidae, Platypsyllidae, Corylophidae, Sphaeriidae, Trichopterygidae, Hydroscaphidae, Scaphidiidae, Histeridae. Wien, 408 pp.
Gemminger, M. and Harold, E., 1868. Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus. Tom III. Histeridae [...] Lucanidae. Monachii. 753–978 + [5] pp.
Hayashi, N., 1986. Key to the families of the Coleoptera (Larva). In: K. Morimoto & N. Hayashi (eds.), The Coleoptera of Japan in Color. I: 202–217, pls. 1–113 (in Japanese).
Hoffmann, J. J., 1803. Monographie der von Verfassern in dem Departamente vom Donnersberge, und den angegrenzenden Gegenden der Departamente von der Saar, und von Rhein und Mosel einheimisch beobachteten Stutzkäfer (*Hister*). Ent. Hefte, 1: 1–119.
Illiger, K., 1807. Portugiesische Käfer (Fortsetzung). Mag. Ins.-k., 6: 28–80.
Jacobson, G. G., 1911-1915. Zhuki Rossii i zapadnoj Evropy. Rukovodstvo k opredeleniju zhukov. 9, St. Peterburg, p. 1 + 641–720.
Jacquelin-Duval, M., 1858. Genre des Coléoptères d'Europe comprenant leur classification en familles naturelles, la description de tous les genres, des Tableaux synoptiques destinés à faciliter l'étude, Catalogue de toutes les espèces de nombreux dessins au trait de caractères. II. Paris, 1858, p. 1–168, Cat. p. 53–83, 97–108.
Kanaar, P., 1989. A new *Saprinus* from Irian Jaya (Coleoptera: Histeridae). Tijdschrift voor Entomologie, 132: 285–287.
Kolenati, F. A., 1846. Meletemata Entomologica. Fasc. V. Insecta Caucasi. Coleoptera,

Dermaptera, Lepidoptera, Neuroptera, Mutillidae, Aphaniptera, Anoplura. Petropoli, iii + 169 pp.
Kryzhanovskij, O. L. and Reichardt, A. N., 1976. Zhuki nadsemejstva Histeroidea (semejstva Shpaeritidae, Histeridae, Synteliidae). In: Fauna SSSR, Zhestkokrylye, V. vyp. 4. Leningrad, 434 pp.
Kugelann, J. G., 1792. Verzeichniss der in einigen Gegenden Preussens bis jetzt entdeckten Käfer-Arten, nebst kurzen Nachrichten von denselben. Neustes Mag. für die Liebhaber der Ent., herausgegeben von D. H. Schneider. Stralsund. 1, 3: 275–306.
LeConte, J. L., 1878. Additional descriptions of new species. Proc. Amer. Phil. Soc., 17 (101): 373–434.
Lewis, G., 1888. Viaggio di Leonardo Fea in Birmania e regioni vicine. XII. Histeridae. Ann. Mus. Stor. Nat. Genova, (2) 6 (26): 630–645.
Lewis, G., 1905. A systematic catalogue of Histeridae. London, vi + 81 pp
Lewis, G., 1911. On new species of Histeridae and notices of others. Ann. Mag. Nat. Hist., (8) 8: 73–90.
Lewis, G., 1915. On new species of Histeridae and notice of others. Ann. Mag. Nat. Hist., (8) 16: 54–56.
MacLeay, W. S., 1871. Notes on a collection of insects from Gayndah. Trans. Ent. Soc. N. S. Wales, 2: 79–205.
Marseul, S. A., 1855. Essai monographique sur la famille des Histérides (suite). Ann. Soc. Ent. France, (3) 3: 83–165, 327–506, 677–758.
Marseul, S. A., 1862. Supplément a la monographie des Hitérides (suite). Ann. Soc. Ent. France, (4) 2: 5–48, 437–516, 669–720.
Marseul, S. A., 1864. Histérides de l'Archipel Malais ou Indo-Australien. L'Abeille, 1: 271–341.
Mazur, S., 1984. A world catalogue of Histeridae. Pol. Pismo Ent., 54 (3–4): 1–376.
Mazur, S., 1987. Description of a new *Pholioxenus* from Morocco with additional histerid notes (Coleoptera, Histeridae). Ent. Bl., 83: 28–32
Mazur, S., 1997. A world catalogue of the Histeridae (Coleoptera: Histeroidea). Genus, International Journal of Invertebrate Taxonomy (Supplement), Biologica Silesiae, Wrocław, 1997. 373 pp.
Mazur, S. and Ôhara, M., 2003. A revision of the subfamily Saprininae from Thailand (Coleoptera: Histeridae). Insecta matsumurana new series, 60: 1–30.
Miwa, Y., 1931. Histeridae and Niponiidae. In: A systematic catalogue of formosan Coleoptera. Dep. of Agr., Gov. Res. Inst., Formosa, Japan, Report, 55: 49–58.
Müller, G., 1931. Note sugli Histeridae della Tripolitania e Tunisia raccolti durante i viaggi organizzati da S. A. Serenissima il principe Alessandro della Torre e Tasso. Mem. Soc. Ent. Ital., 10: 93–104.
Normand, H. and Thérond, J., 1952. Nouveaux Histérides (Saprinini) d'Afrique du Nord. Rev. Franç. Ent., 19: 175–178.
Ôhara, M., 1994. A revision of the superfamily Histeroidea of Japan (Coleoptera). Insecta matsumurana new series, 51: 1–283.
Ôhara, M., 2003. Notes of Taiwanese species of the genus *Saprinus* (Coleoptera: Histeridae), with redescriptions of *S. optabilis* and *S. splendens*. Insecta matsumurana new series, 60: 31–41.
Paykull, G., 1811. Monographia Histeroidum. Upsaliae, 114 pp.
Ragusa, E., 1892. Catalogo ragionato dei Coleotteri di Sicilia. Naturalista Sicil., 11: 258–269.
Reichardt, A. N., 1932. Beiträge zu einer Monographie der Saprininae (Col., Histeridae). Mitt. Zool. Mus. Berlin, 18(1): 1–168.

Reichardt, A. N., 1941. Sem. Sphaeritidae i Histeridae (chast 1). In: Fauna SSSR, Nasekomye zhestkokrylye, V, 3. Moskva- Leningrad, xiii + 419 pp.
Reitter, E., 1909. Fauna Germanica. Die Käfer des Deutschen Reiches. Nach der analytischen Methode bearbeitet. II Band. Schr. Dtsch. Lehrerver. Naturk., 24, 392 pp.
Schmidt, J., 1885. Bestimmungs-Tabellen der europäischen Coleopteren. XIV. Histeridae. Berlin Ent. Z., 29: 279–330.
Thérond, J., 1948. Quelques variétés d'Histéridae qui méritent d'être considérées (Coléoptères). Entomologiste, 4: 121–127.
Thérond, J., 1962. Contribution à la connaissance de la faune de l'Afghanistan. 54. Coleoptera Histridae. Rev. Franç. Ent., 29: 62-65.
Wenzel, R. L., 1955. The histerid beetles of New Caledonia (Coleoptera: Histeridae). Fieldiana. zool., 37: 601–634.
Westwood, J. O., 1840. Synopsis of the genera of British insects. In: An introduction to the modern classification of insects; founded on the natural habits and corresponding organisation of the different families, II. London, vi + 158 pp.
Wollaston, T. V., 1865. Coleoptera Atlantidum, being an enumeration of the coleopterous insects of the Madeiras, Salvages, and Canaries. London, xlvii + 526 pp. + Appendix 140 pp.