

A key to Oriental continental species of *Smaragdina Chevrolat, 1936 (Chrysomelidae, Clytrinae)*

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A key to Oriental continental species of *Smaragdina* Chevrolat, 1936 (Chrysomelidae, Clytrinae)

by Lev N. Medvedev

Abstract. A key to Oriental continental species of *Smaragdina* is proposed. A total of 11 species are described as new for science: *S. thailandica*, *S. divisomima*, *S. constrictifrons* (Thailand), *S. bezdeki* (Laos), *S. himalayana* (Megalaya), *S. occidentalis* (North India, Pakistan), *S. pakistanica* (Pakistan), *S. daklaka*, *S. tamdaoana* (Vietnam), *S. bisbipunctata* (Myanmar), *S. malaccana* (Malacca). *S. maduraiensis* Erber et L. Medvedev, 1999 is a new synonym of *S. flaviventris* Bryant, 1934. *Smaragdina nigroapicalis* Lopatin, 2005 is a new synonym of *Aetheomorpha apicata* L. Medvedev, 1988. Taxonomical notes for some of the species are given.

Key words. *Chrysomelidae* – *Clytrinae* – *Smaragdina* – Oriental Region – key – new species

Introduction

The large genus *Smaragdina* is represented by numerous species in the Oriental Region, most of them described in recent decades. Keys exist only for China (GRESSITT & KIMOTO 1963), Taiwan (KIMOTO & TAKIZAWA 1997) Indo-China (KIMOTO & GRESSITT 1981; MEDVEDEV 1988), Sri Lanka (MEDVEDEV 1984) and the south-eastern islands (MEDVEDEV 1988) This contribution therefore attempts the preparation of a first key to continental Oriental species distributed south and west of China.

The genus *Smaragdina* Chevrolat, 1836 (*Cyaniris* Chevrolat, 1836; *Gynandrophthalma* Lacordaire, 1848) is very close to *Aetheomorpha* Lacordaire, 1848. Theoretically, the genus in question differs from *Aetheomorpha* in the slight epipleural lobe of elytra and pygidium covered by the elytra. In practice, these characters are quite inconsistent and it is sometimes very difficult to separate the genera.

The classification of *Clytrinae* at genus level remains inadequate; as a result, for more than a century, many species of unclear generic position, especially females, have been placed in *Smaragdina*. To date, more than 30 Oriental species described as *Smaragdina* have been removed to other genera (a list is given below).

Exact determination of the majority of *Smaragdina* requires study of the aedeagus.

Material

The following abbreviations are used for the places in which the material is deposited:

NHMB Naturhistorisches Museum Basel
JB Jan Bezděk collection, Brno
LM L. N. Medvedev collection, Moscow

Taxonomy

A key to the species of *Smaragdina*

- 1(118) Elytra confusely punctate.
- 2(5) Upperside metallic blue, prothorax may be dark metallic or black. Hind angles of prothorax more or less elevated. Antennae black with fulvous basal segments, distinctly serrate from the 4th segment, segment 3 triangular (Fig. 1).
- 3(4) Prothorax impunctate, with very slight, oblique impressions before slightly elevated hind angles. Underside black, legs fulvous, sometimes with black tarsi and apices of tibiae or black with fulvous base of tibiae. Aedeagus Fig. 45. Length 4.5–6.3 mm. Nepal, northern India: Uttar Pradesh, Sikkim (legs fulvous), Megalaya (tarsi black), Assam (legs dark with fulvous base of tibiae). *S. dohertyi* (Jacoby, 1908)
- 4(3) Prothorax punctate, especially near base, with transverse impression behind anterior margin and oblique impressions before distinctly elevated hind angles. Underside black, legs black to piceous. Length 3.5–4.0 mm. Sri Lanka: Anuradhapura, Dambulla. *S. medvedevi* L. Medvedev, 1984
- 5(2) Upperside not entirely metallic.
- 6(15) Elytra entirely metallic, prothorax fulvous or bicoloured.
- 7(12) Prothorax entirely fulvous.
- 8(11) Head impunctate and not pubescent. Elytra metallic blue.
- 9(10) Head, thorax (at least partly) and legs fulvous, elytra metallic blue. Aedeagus Fig. 46. Length 3.0–3.8 mm. Nepal, northern India: Sikkim (western Bengal). Type (female) studied. *S. laticollis* (Duvivier, 1892)
- 10(9) Head fulvous with black vertex, underside fulvous with black metasternum and apex of abdomen, legs fulvous with black tarsi and apices of tibiae. Length 3.7 mm. Laos. *S. bezdeki* sp.nov.
- 11(8) Head densely punctate and pubescent, metallic blue or greenish-blue, only anterior margin of clypeus more or less fulvous. Elytra metallic blue or greenish-blue, underside fulvous with black metasternum, legs fulvous (males) or with blackish tarsi and apices of tibiae (females). Aedeagus Fig. 47. Length 3.1–4.0 mm. Thailand. *S. thailandica* sp.nov.
- 12(7) Prothorax fulvous with dark mid-section. Elytra blue or greenish-blue.
- 13(14) Prothorax with quite small, dark, metallic central spot, not reaching either anterior or posterior margin (Fig. 9). Head dark metallic with fulvous anterior part. Underside black, legs fulvous with tarsi and upperside of tibiae black. Aedeagus with broadly rounded apex (Fig. 48). Length 4.7–5.6 mm. South Vietnam: Buon Loi. *S. taynguensis* L. Medvedev, 1985
- 14(13) Prothorax with broad black stripe, especially in male, connected to anterior and posterior margins (Figs 5, 6). Head black (male) or with fulvous

- anterior part (female). Underside black, legs fulvous with black tarsi and apices of femora. Aedeagus Fig. 49. Length 4.2–4.9 mm. North India: Megalaya. ***S. himalayana* sp.nov.**
- 15(6) Elytra not entirely metallic.
- 16(17) Species from Pakistan. Body entirely fulvous including antennae, elytra fulvous or with poorly delimited black patch before apex near side margin, sometimes prolonged towards the leading edge or with additional dark patch in basal area, or black with fulvous apex, or entirely black. Fourth antennal segment smaller than fifth, segments 7–10 slightly longer than wide. Anterior margin of clypeus deeply triangularly emarginated in male. Aedeagus with triangular apex and obtuse longitudinal ridge on underside (Fig. 75). Length 5.7–6.7 mm. ***S. pakistanica* sp.nov.**
- 17(16) Other combinations of characters.
- 18(19) Elytra entirely black and impunctate. Antennae black with fulvous basal segments. Antennal segments 7–10 distinctly transverse. Fulvous, tibiae and tarsi more or less blackish. Length 4.0 mm. South Vietnam (Binh Phuok), 1 female in poor condition. ***S. sp. A***
- 19(18) Elytra not entirely black.
- 20(33) Elytra metallic or black with fulvous apex and sometimes with more or less fulvous base.
- 21(24) Head and prothorax of male enlarged, prothorax wider than base of elytra and not narrowing towards the front, mandibles enlarged. Antennae feebly serrate from the 4th segment, entirely fulvous. Elytra impunctate, black coloration predominating. Whole body (not elytra) entirely fulvous. The two species that follow share many characters with the genus *Ceratobasis* Lacordaire, 1848.
- 22(23) Elytra black with extreme apex and epipleurae fulvous. Aedeagus strongly widened preapically (Fig. 50). Length 5.0–6.6 mm. Northern India (Delhi, Nagpore, Bengal). Indications from southern India (Medvedev, 2005) are associated with the species below. Type was studied.
..... ***S. longicornis* (Jacoby, 1897)**
- 23(22) Elytra black with apex, side margin (entirely or partly) and epipleurae fulvous, sometimes also basal triangle fulvous, rarely black coloration strongly reduced (Figs. 22, 23). Aedeagus slightly widened subapically (Fig. 51). Length 4.7–5.6 mm. southern India: Tamil Nadu, Madras.
..... ***S. laevipennis* (Jacoby, 1908)**
- 24(21) Head and prothorax of male not enlarged, prothorax narrower than base of elytra and distinctly narrowing towards the front, mandibles not enlarged. Antennae quite strongly serrate from the 4th segment onwards. Elytra distinctly punctate, with more or less metallic main coloration.
- 25(26) Elytra with basal margin fulvous, including triangular area between humerus and scutellum (Fig. 27), prothorax with triangular spot at centre.

- Underside fulvous with black metasternum and pygidium. Aedeagus Fig. 52. Length 3.8 mm. A single female from the Nilgiri Hills appears to be *S. nilgiriensis* Jacoby with considerably widened stripes on elytra and additional spot on prothorax. See also item 40.
 ***S. nilgiriensis* (Jacoby, 1903)**
- 26(25) Basal margin of elytra not fulvous.
- 27(28) Prothorax with somewhat narrow, dark, metallic stripe (Fig. 7). Elytra greenish-blue, punctures in sutural area arranged in more or less regular rows. Head black with fulvous anterior part, underside, legs black with fulvous knees. Aedeagus Fig. 53. Length 3.5–4.2 mm. (the size of 2.5 mm (Jacoby, 1908) results from incorrect metric linear conversion.). Southern India: Nilgiri Hills. ***S. delesserti* (Lacordaire, 1848)**
- 28(27) Prothorax unicolorous. Elytra with entirely confused punctures.
- 29(30) Prothorax black. Body black, basal antennal segments and abdomen fulvous, elytra dark blue with fulvous apical quarter. Antennae serrate from the 4th segment onwards. Prothorax with elevated hind angles. Aedeagus Fig. 54. Length 4.0–4.6 mm. Southern India: North Salem, Madura, Tamil Nadu. (*S. maduraiensis* Erber et L. Medvedev, 1999 – **syn.nov.**).
 ***S. flaviventris* (Bryant, 1934)**
- 30(29) Prothorax fulvous.
- 31(32) Elytra black with apex, epipleurae and narrow side margin in humeral area fulvous (Fig. 28). Body black, anterior part of head, antennae and legs fulvous. Prothorax impunctate, with elevated hind angles. Length 4.3–4.4 mm. Northern Pakistan, north-western India: Jammu.
 ***S. occidentalis* sp.nov.**
- 32(31) Elytra including epipleurae dark metallic blue with elongate fulvous spot on apex of each elytron, very closely punctate, with finely rugose interstices. Black, bases of antennae and forelegs fulvous, prothorax flavous, with a few minute punctures. Tarsi very slender. Length 2.0 mm. Southern India: Bombay, Belgaum. ***S. orientalis* (Jacoby, 1896)**
- 33(20) Elytra fulvous or bicolorous.
- 34(75) Elytra bicolorous or prothorax black or bicolorous.
- 35(48) Elytra fulvous with all margins black or metallic or black with fulvous spots. Antennae black with fulvous basal segments.
- 36(45) Prothorax entirely fulvous, impunctate.
- 37(42) Head fulvous, vertex mostly black.
- 38(39) Species from South Vietnam. Elytra with all margins dark blue, this colour band broader at base and apex (Fig. 10). Pale flavous, vertex black, metasternum darkened, tibiae and tarsi more or less darkened above. Prothorax minutely punctate, elytra rather deeply and strongly punctured. Length 3.65–3.9 mm. Known only from Dalat, one paratype has large

- piceous spot in centre of prothorax. Taxonomical position somewhat unclear. South Vietnam: Dalat. ***S. dalatensis* Kimoto et Gressitt, 1981**
- 39(38) Species from southern India.
- 40(41) Elytra with broad sutural and more narrow marginal stripes, both widening in the middle and sometimes united (Figs 24–27). Prothorax twice as wide as long. Underside fulvous with blackish metasternum and pygidium, legs fulvous. Aedeagus Fig. 52. Length 3.6–4.5 mm. Southern India: Nilgiri Hills, Sri Lanka. ***S. nilgiriensis* (Jacoby, 1903)**
- 41(40) Elytra with sutural stripe angularly widened below base and marginal stripe, slightly widened at middle and apex. Prothorax almost 3 times as wide as long. Flavous, breast, tibiae and tarsi black. Length 3.0 mm. Southern India: Nilgiri Hills. ***S. nigrosuturalis* (Jacoby, 1908)**
- 42(37) Head black with lower portion fulvous (male) or entirely black (female).
- 43(44) Elytra black with oblique spot before centre and transverse spot at the rear fulvous (Fig. 29). Legs fulvous with tarsi and apical half of tibiae black. Aedeagus Fig. 55. Length 3.4–4.2 mm. Laos. ***S. ornatipennis* L. Medvedev, 2004**
- 44(43) Elytra with marginal stripe widened at base and apex, narrow sutural stripe and common transverse spot on suture behind centre black (Figs 30, 31). Prothorax twice as wide as long. Fulvous, breast black, abdomen partly piceous, legs flavous with infusate tarsi. Aedeagus Fig. 56. Length 3.5–3.7 mm (Length of 2.5 mm indicated in the original description erroneous). Myanmar: Ruby Mines, Tenasserim; North Vietnam. ***S. crucipennis* (Jacoby, 1908)**
- 45(36) Prothorax with black marks.
- 46(47) Prothorax with broad central black stripe. Elytra with marginal and very narrow sutural black stripes. Flavous, vertex, breast, apices of tibiae and tarsi black. Length 3 mm. Southern India: Nilgiri Hills. ***S. imitans* (Jacoby, 1903)**
- 47(46) Prothorax with large black spot at centre of fore-margin extending downwards almost to base. Elytra with all margins narrowly black, this border widening almost imperceptibly to apex. Flavous, base of head and breast black. Length 2.5 mm. Southern India: Nilgiri Hills. ***S. planifrons* (Jacoby, 1908)**
- 48(35) Elytra with black spots or bands, sutural and lateral margins not entirely black.
- 49(50) Prothorax black, impunctate, without depressions. Black, 3 basal antennal segments, elytra and abdomen apart from apex, fulvous. Aedeagus Fig. 57. Length 4.3–4.4 mm. Laos: Phongsaly. ***S. nigricollis* L. Medvedev, 2004**
- 50(49) Prothorax not entirely black.
- 51(60) Prothorax fulvous with black marks.

- 52(57) Prothorax with broad central stripe, as wide as width of frons between eyes (Fig. 8), impunctate except for a few large punctures at base, with distinct transverse impression behind anterior margin and a fainter one before base. Black, basal antennal segments fulvous, elytra flavous. The following three species are rare and differ only in the form of the aedeagus.
- 53(54) Apex of aedeagus very broad, not curved downwards (Fig. 58). Length 5.1–5.3 mm. North Vietnam: Mt. Maison, Kim-Kuong, Lang-Tanh.
..... ***S. bertiae* L. Medvedev, 1992**
- 54(53) Apex of aedeagus with narrow apical process curved downwards.
- 55(56) Apical process of aedeagus triangular, acute, strongly curved downwards (Fig. 59). Length 4.5–4.8 mm. North Vietnam: Hoa Binh.
..... ***S. laboissierei* (Pic, 1928)**
- 56(55) Apical process of aedeagus rectangular, truncate at apex, feebly narrowing downwards (Fig. 60). Length 5.2–6.3 mm. North Vietnam: Tam Dao, Shapa. ***S. jeanvoinei* (Pic, 1932)**
- 57(52) Prothorax otherwise marked.
- 58(59) Prothorax with black serrate band basally (Fig. 11). Elytra fulvous with basal, postmedian and apical bands (Fig. 11). Head black with fulvous labrum, breast black, abdomen fulvous, legs piceous. Length 5.5 mm. North Vietnam: Vinh Phu. Male unknown. ***S. kimshona* L. Medvedev, 1988**
- 59(58) Prothorax with more or less conical black patch basally, sometimes divided into 3 spots. Elytra with pre- and postmedian bands (Fig. 32,33). Head and underside black, legs fulvous. Aedeagus Fig. 61. Length 5.0–6.1 mm. Western India: Maharashtra. ***S. maharashtra* Kantner et Bezděk, 2007**
- 60(51) Prothorax entirely fulvous.
- 61(62) Hind angles of prothorax distinctly elevated. Elytra with large subquadrate spots on base and behind centre, slightly variable (Figs 34, 35). Head except clypeus, antennae except basal segments, scutellum, breast and apex of abdomen black, very rarely prothorax with two small dark spots in middle. Aedeagus Fig. 62. Length 4.2–4.5 mm. Afghanistan: Nuristan; Pakistan: Swat, Kawai; Nepal, northern India: Himachal Pradesh, Megalaya, Punjab.
..... ***S. minutissima* (Lopatin, 1967)**
- 62(61) Hind angles of prothorax not elevated.
- 63(64) Elytra with common sutural black marking beyond centre connected with black apex and broad basal band (Fig. 12). Head fulvous with black vertex, underside fulvous, legs mostly fulvous, partly blackish. Length 4.0 mm. North Vietnam. ***S. discoidalis* (Pic, 1932)**
- 64(63) Elytra without common sutural marking.
- 65(66) Prothorax with impressions and strong, sparse punctures. Elytra strongly and densely punctate, each elytron with 4 spots (2-2) and apex black (Fig. 13). Black, clypeus, labrum, antennae and legs fulvous, upperside of femora

- and tibiae more or less darkened. Length 4.5 mm. North Vietnam: Tam Dao. Male unknown. ***S. eroshkinae* L. Medvedev, 1988**
- 66(65) Prothorax impunctate, elytra finely punctate.
- 67(68) Elytra with broad basal and postmedian black bands (Figs 14, 15). Fulvous, vertex black, antennae fulvous with apical segments brownish, apices of tibiae and tarsi infuscate. Length 4.0–4.5 mm. South Vietnam: Cochinchina. ***S. bicoloriceps* Pic, 1929**
- 68(67) Elytra with black spots. Antennae black except bases.
- 69(70) Scutellum elongate, subpentagonal, with truncate apex, black with fulvous apical third. Elytra with humeral and lateral markings blackish or partly reduced (Figs 17–20). Fulvous, vertex more or less blackish, basal abdominal segments darkened, tarsi infuscate. Elytra with larger and smaller punctures, quite distinctly different, over entire surface. Aedeagus Fig. 63. Length 6.0–6.2 mm. South Vietnam: Dalat; Cambodia, Laos, possibly Myanmar (Kimoto, Gressitt, 1981). Taxonomical position unclear. ***S. spenceri* Kimoto et Gressitt, 1981**
- 70(69) Scutellum short, triangular.
- 71(72) Head and prothorax fulvous, elytra pale flavous, each with humeral spot and another one before apex black (Fig. 16). Scutellum and tarsi black. Length 5.8 mm. North Vietnam: Nghe-Tinh, Cho-Ghanh. Male unknown. ***S. duporti* (Pic, 1927)**
- 72(71) Prothorax and elytra not different in colour, reddish-fulvous. Scutellum fulvous. Each elytron with 4 black spots (2,2), but lateral and basal spots often connected (Figs 36–39).
- 73(74) Legs robust, tarsi short and markedly widened, with segments 1–3 distinctly transverse. Elytra Fig. 36. Aedeagus Fig. 64. Length 4.2–5.1 mm. Bangladesh. Unclear species, possibly belongs to *Physosmaragdina* L. Medvedev, 1971. ***S. mapellii* Takizawa, 1990**
- 74(73) Legs not robust, tarsi thin, with segments 1–3 distinctly elongate. Fulvous, tarsi and dorsal part of tibiae more or less black. Elytra Figs 37, 38. Aedeagus Fig. 65. Length 4.5–5.65 mm. Western India: Maharashtra. ***S. kejvali* Kantner et Bezděk, 2007**
- 75(34) Upperside entirely fulvous, sometimes elytra with humeral spot.
- 76(77) Apical half of elytra distinctly paler than basal half. Fourth antennal segment as large as 5th (Fig. 2), segments 4–10 large, triangular. Fulvous, antennae apart from bases and tarsi black. Prothorax impunctate, elytra distinctly punctate. Apex of aedeagus narrowly truncate (Fig. 66). Frons of female about 1.5 times as wide as transverse diameter of eye. Pygidium of female with obtuse apex bearing 2 small teeth (Fig. 92). Length 4.6–6.2 mm. Widely distributed species: India, Sri Lanka, Myanmar, Thailand, Vietnam (= *S. indica* [Jacoby, 1895]). ***S. divisa* (Jacoby, 1889)**

- 77(76) Other combination of characters. Apical half of elytra not paler than basal half.
- 78(99) Species from Indo-China.
- 79(82) Antennae entirely fulvous.
- 80(81) Head impunctate except for a few punctures near eyes. Antennal segment 4 smaller than 5 (Fig. 1). Elytra almost entirely impunctate. Aedeagus Fig. 67. Fulvous, females sometimes with darkened head, tibiae and tarsi. Length 4.0–4.8 mm. North Vietnam: Vinh Phu, Quang Ninh.
..... ***S. montana* L. Medvedev, 1988**
- 81(80) Head punctate on frons and clypeus, elytra densely punctate. Antennal segment 4 as large as 5. Aedeagus Fig. 68. Length 3.6 mm. South Vietnam: Daklak. ***S. daklaka* sp.nov.**
- 82(79) Antennae black with fulvous basal segments.
- 83(88) Fourth antennal segment smaller than 5th, following segments not large, rather narrow, irregularly rectangular or feebly triangular.
- 84(85) Head, underside and legs black. Aedeagus broadly truncate at apex (Fig. 58). Length 5.1–5.3 mm. North Vietnam. See also item 53. This form has been cited previously as *S. laboissierei* var. *reducta* L. Medvedev, 1988.
..... ***S. bertiae* L. Medvedev, 1992 (light form)**
- 85(84) Head fulvous.
- 86(87) Side margin of prothorax quite broadly expanded especially beyond midway and bent upwards. Body fulvous, antennae except bases, metasternum, tibiae and tarsi black. Length 4.8–5.3 mm. North Vietnam. ...
..... ***S. tamdaoana* sp.nov.**
- 87(86) Side margin of prothorax very narrowly expanded and not bent upwards. Body fulvous, only antennae black, apart from bases and tarsi. Aedeagus quite narrowly truncate at apex (Fig. 69). Length 4.4–4.8 mm. North-west Thailand. ***S. divisomima* sp.nov.**
- 88(83) Fourth antennal segment subequal to 5th.
- 89(90) Scutellum elongate, subpentagonal with truncate apex. Elytra with black humeral spot (Fig. 20). Vertex more or less blackish, tarsi infuscate. Length 6.0–6.2 mm. South Vietnam, Cambodia, Laos, possibly Myanmar. See also item 69. ***S. spenceri* Kimoto et Gressitt, 1981**
- 90(89) Scutellum short, triangular with acute or slightly rounded apex.
- 91(92) Antennae feebly serrate (Fig. 3), segments 4–10 more or less rectangular, preapical segments more narrow. Body fulvous with elytra pale flavous. Aedeagus Fig. 70. Length 4.9 mm. Vietnam: Tjam Island.
..... ***S. insulana* L. Medvedev, 1992**
- 92(91) Antennae strongly serrate, segments 4–10 sharply triangular (Fig. 2).
- 93(94) Pygidium of female with deep trapeziform or arcuate excavation (Fig. 91). Vertex, humeral spot, underside and legs black (tibiae may be partly

- fulvous). Length 5.4–6.1 mm. Male unknown. North Vietnam.
 ***S. coomani* (Pic, 1928)**
- 94(93) Pygidium of female with shallow excavation or with apex truncate or rounded.
- 95(98) Elytra without humeral spot. Body entirely fulvous, at least in male; female may have dark underside.
- 96(97) Elytra finely and densely punctate. Apical process of aedeagus toothed on each side (Fig. 71). Pygidium of female truncate at apex. Length 5.0–6.0 mm. Thailand. ***S. constrictifrons* sp.nov.**
- 97(96) Elytra rather strongly, but less densely, punctate. Aedeagus without apical process, apex simple triangular (Fig. 72). Pygidium of female with bilobate apex (Fig. 93). Frons of female about 2.2–2.3 times as wide as transverse diameter of eye. Females usually more or less darkened on occiput, breast and pygidium, sometimes whole underside dark. Length 5.1–5.7 mm. North Vietnam. ***S. divisoides* L. Medvedev, 1988**
- 98(95) Elytra with black humeral spot. Head black with fulvous clypeus and labrum, underside black, legs fulvous. Aedeagus Fig. 73. Length 4.4–6.1 mm. China (Yunnan), Vietnam, Laos. (= *S. divisella* L. Medvedev, 1988). ...
 ***S. diversiceps* (Pic, 1941)**
- 99(78) Species distributed west of Indo-China, from Myanmar to Pakistan.
- 100(103) Species from southern India.
- 101(102) Prothorax about 3 times as wide as long, clypeus with deep subquadrate emargination, anterior legs elongate. Fulvous, antennae apart from basal segments, underside, tibiae and tarsi black, labrum nearly black. Length 4.5 mm. Southern India: Nilgiri Hills. Unclear species, very possibly to be excluded from *Smaragdina* after closer study of type.
 ***S. nigrotibialis* Jacoby, 1908**
- 102(101) Prothorax not more than twice as wide as long, clypeus without deep subquadrangular emargination, anterior legs not elongate. Labrum and legs fulvous. Antennae black with fulvous basal segments, segment 4 only a little smaller than 5, acutely triangular. Elytra distinctly punctate. Anterior margin of clypeus slightly concave. Underside fulvous, females mostly with blackish breast. Aedeagus with long, finger-like apical process (Fig. 74). Length 3.7–4.7 mm. Southern India: Nilgiri Hills.
 ***S. pacholatkoi* L. Medvedev, 2003**
- 103(100) Species from Pakistan, Nepal, northern and eastern India, Myanmar.
- 104(105) Fourth antennal segment smaller than 5th, antennae fulvous, apical segments may be dark fulvous but not black. Body entirely fulvous. Anterior margin of clypeus with shallow emargination. Antennal segments 7–10 slightly wider than long. Aedeagus with long and acute apical process curved under, underside with impression on each side of apex (Fig. 76). Length 4.0–4.7 mm. India: West Bengal.
 ***S. fulvitarsis* L. Medvedev, 1992**

- 105(104) Fourth antennal segment not distinctly smaller than 5th, antennae black with fulvous basal segments, quite strongly serrate.
- 106(107) In male, head enlarged, Frons broad, about 2.7 times as wide as transverse diameter of eye. forelegs longer than mid-legs. Aedeagus (Fig. 77) with central ridge on underside and preapical transverse impression. Apices of femora, tibiae and tarsi black, in male labrum and anterior margin of clypeus may be black. Length 5.3–6.4 mm. North-eastern India: Megalaya. *S. sprecherae* L. Medvedev, 2002
- 107(106) In male, head not enlarged and forelegs not longer than mid-legs. Tibiae at least partly fulvous. The following species may be divided by width of frons, form of aedeagus and partly by colour, which could be variable.
- 108(109) Body elongate, elytra with confused rows. Tarsi black. Length 6.0 mm. Myanmar. Unclear species, possibly belongs to another genus. *S. fuscitarsis* (Jacoby, 1900)
- 109(108) Body robust or slightly elongate, elytra confusedly punctate.
- 110(113) Frons not narrowing towards the rear or very slightly so, its width in male not less than transverse diameter of eye.
- 111(112) Frons of male about twice as wide as eye. Vertex, scutellum, small humeral spot, metasternum and pygidium black or fuscous, sometimes scutellum partly fulvous. Aedeagus Fig. 78. Length 4.9–6.0 mm. Northern India: Assam, West Bengal; Nepal. *S. nigriscutis* L. Medvedev, 1970
- 112(111) Frons of male about as wide as eye. Tarsi and apices of tibiae black. Aedeagus comparatively broad, with flattened apical part and apex rounded with a small tip (Fig. 79). Length 4.5–5.2 mm. Northern India: Megalaya, Assam. *S. regalini* L. Medvedev et Kantner, 2002
- 113(110) Frons very distinctly narrowing towards the rear, its width in male about 0.5–0.6 of transverse diameter of eye.
- 114(115) Aedeagus with long finger-like apical process bent downwards and emarginated at extreme apex (Fig. 80). Underside or at least metasternum and tarsi black. Length 4.7–6.0 mm. Nepal, northern India: Sikkim, West Bengal. *S. sikhima* (Jacoby, 1903)
- 115(114) Aedeagus without finger-like process.
- 116(117) Aedeagus with acute triangular apex, its underside roof-like with sharp central ridge, more developed in basal half (Fig. 81). Elytra with small black humeral spot, pygidium black at least in basal half, metasternum and abdominal sternites 4 and 5 black at sides, antennal segments 4–7 fulvous with black widened part, tarsi infuscate. Length 5.3–5.7 mm. Northern India: Megalaya. *S. megalayana* L. Medvedev et Kantner, 2002
- 117(116) Aedeagus with apical part in form of narrow elongate triangle with broken sides and specific pubescence; its underside almost evenly convex, without central ridge (Fig. 82). Fulvous, breast darkened at sides. Length 5.0 mm. Northern India: Assam. *S. oculata* L. Medvedev, 1988

- 118(1) Elytra with regular rows of punctures, at least in inner part.
- 119(124) Prothorax fulvous with dark central stripe.
- 120(121) Dark upperside, tending to black. Elytra with 1–2 fulvous spots or with fulvous apex (Figs 40, 41). Fulvous, vertex, antennae except bases, middle of prothorax, scutellum, apices of tibiae, tarsi black; in female breast and pygidium mostly blackish. Aedeagus Fig. 83. Length 3.4–4.2 mm. Malacca, Sumatra. ***S. flavovariegata* L. Medvedev, 1999**
- 121(120) Elytra fulvous with all margins black or metallic.
- 122(123) Margins of elytra and central stripe of prothorax black. Frons black, vertex metallic blue, clypeus, labrum, bases of antennae and legs fulvous, elytra Fig. 21. Aedeagus Fig. 84. Length 2.3–2.4 mm. South Vietnam: Buon Loi. This species may be revealed as *Aetheomorpha* Lacordaire, 1848.
..... ***S. regularis* L. Medvedev, 1985**
- 123(122) Margins of elytra and central stripe of prothorax metallic green, sutural stripe sometimes very narrow (Fig. 42, 43). Frons and vertex metallic green, clypeus, labrum, bases of antennae, abdomen and legs fulvous. Aedeagus Fig. 85. Length 3.0–4.0 mm. Southern India: Nilgiri Hills, Kerala, Tamil Nadu. ***S. striatipennis* (Jacoby, 1903)**
- 124(119) Prothorax entirely fulvous.
- 125(132) Elytra blue to dark blue with or without fulvous apex. Antennae black with fulvous basal segments.
- 126(129) Species from southern India.
- 127(128) Fulvous; base of head, scutellum, breast and pygidium black. Elytra finely punctate, with rows more widely separated. Length 3.0 mm. Southern India: Nilgiri Hills. ***S. frontalis* (Jacoby, 1908)**
- 128(127) Fulvous, including head, scutellum and pygidium. Elytra quite strongly punctate in closely matching rows. Length 3.5 mm. Southern India: Nilgiri Hills. ***S. apicipennis* (Jacoby, 1908)**
- 129(126) Species from Vietnam and Laos. Antennae black with fulvous basal segments, prothorax fulvous.
- 130(131) Head with fine, dense punctures and distinct elongate groove along middle, bluish-black with fulvous clypeus. Elytra with fulvous apex. Underside black, legs black with fulvous base of femora. Aedeagus Fig. 86. Length 3.2–3.5 mm. Laos. ***S. laosensis* Kimoto et Gressitt, 1981**
- 131(130) Head almost impunctate except for a few punctures near eyes, fulvous or with more or less black vertex and shallow groove in middle, elytra entirely metallic or with fulvous apices, underside fulvous to dark brown, legs fulvous with apices of tibiae and tarsi infuscate. Length 3.5–4.0 mm. South Vietnam from Pleiku to Dalat. ... ***S. vietnamensis* Kimoto et Gressitt, 1981**
- 132(125) Elytra fulvous, sometimes with black spots.

- 133(134) Elytra with 2 black spots beyond centre (Fig. 39). Fulvous with black labrum and antennae except basal segments. Aedeagus Fig. 87. Length 3.0 mm. Myanmar: Mandalay. *S. bisbipunctata* sp.nov.
- 134(133) Elytra without spots.
- 135(138) Body small, not more than 3 mm.
- 136(137) Underside black. Antennae dark fulvous with fulvous basal segments, segment 4 comparable in size with 5. Length 2.5 mm. Southern India: Belgaum. *S. minuta* (Jacoby, 1908)
- 137(136) Underside fulvous. Antennae black with fulvous basal segments, segment 4 much smaller than 5. Length 2.8 mm. Aedeagus Fig. 88. Malacca.
..... *S. malaccana* sp.nov.
- 138(135) Body not less than 4.8 mm, entirely fulvous or with reddish head, rather narrow and elongate.
- 139(140) Head fulvous. Underside of aedeagus evenly convex (Fig. 89). Length 5.0–6.0 mm. India (appears to be widely distributed), Sri Lanka. (= *S. citrinella* [Jacoby, 1908]).
..... *S. chrysomeloides chrysomeloides* (Lacordaire, 1848)
- 140(139) Head red-brown. Underside of aedeagus with more or less distinct longitudinal rib and slight impression on each side (Fig. 90). Length 4.8–5.5 mm. Northern India: Megalaya, Northern Thailand, Northern Laos.
..... *S. chrysomeloides rufocapitis* L. Medvedev et Kantner, 2002

***Smaragdina bezdeki* sp.nov.**

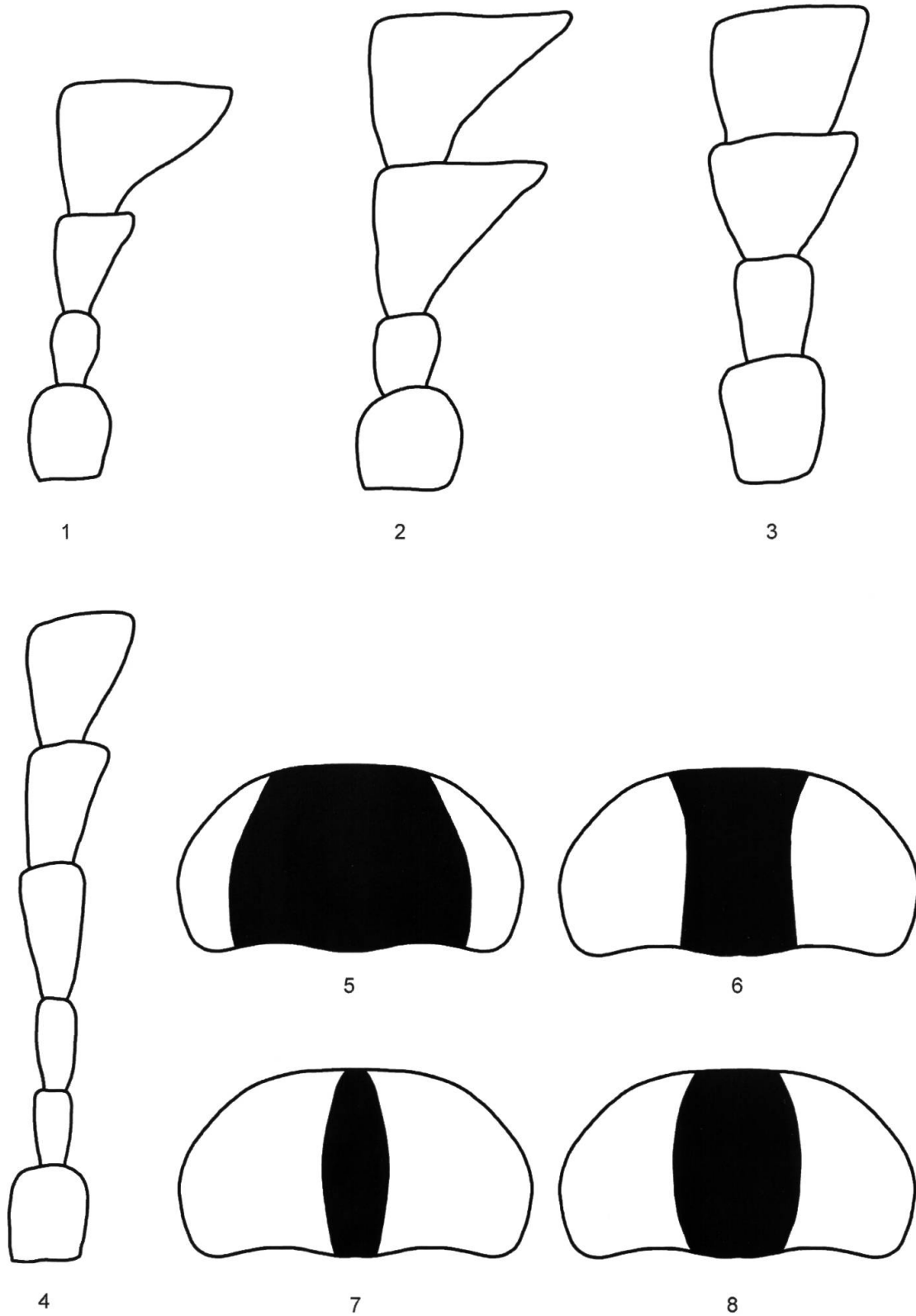
Material examined. Holotype (female): NE Laos, Hua Phan Prov., Ban Saluei, Phu Phan Mt., 20°15'N, 104°02'E, 1500–2000m, 26.IV–11.V.2001, leg. J. Bezděk (LM).

Description. Head fulvous forward, posterior half black, antennae black with 4 basal segments fulvous, prothorax fulvous, scutellum black, elytra dark metallic blue, underside fulvous with metasternum and apical segment of abdomen black, legs fulvous with darkened tarsi. partly apices of tibiae also darkened.

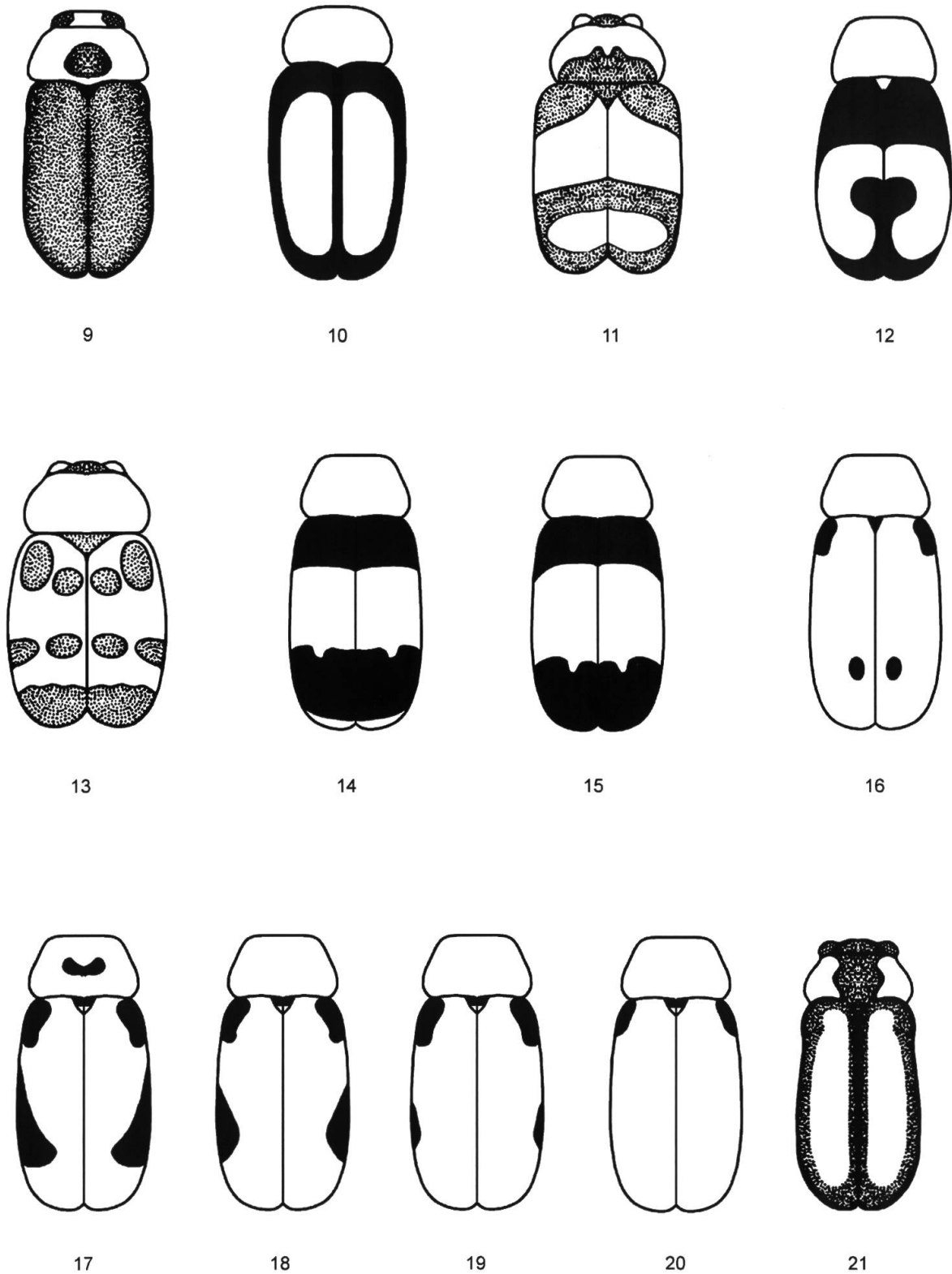
Body cylindrical. Head impunctate, frons twice as wide as transverse diameter of eye, with shallow central groove. Antennae with segments 3–5 cylindrical, 6th widening to apex, but smaller than following ones, which are distinctly widened, weakly serrate, about as long as wide (Fig. 4). Prothorax twice as wide as long, narrowing towards the front, with hind angles broadly rounded, surface impunctate and lustrous. Scutellum triangular, impunctate. Elytra with quite large, dense and confused punctures. Pygidium covered by elytra. Length 3.7 mm.

Etymology. The species is dedicated to my friend Dr. Jan Bezděk, a well-known Chrysomelidae specialist, who presented me with this specimen.

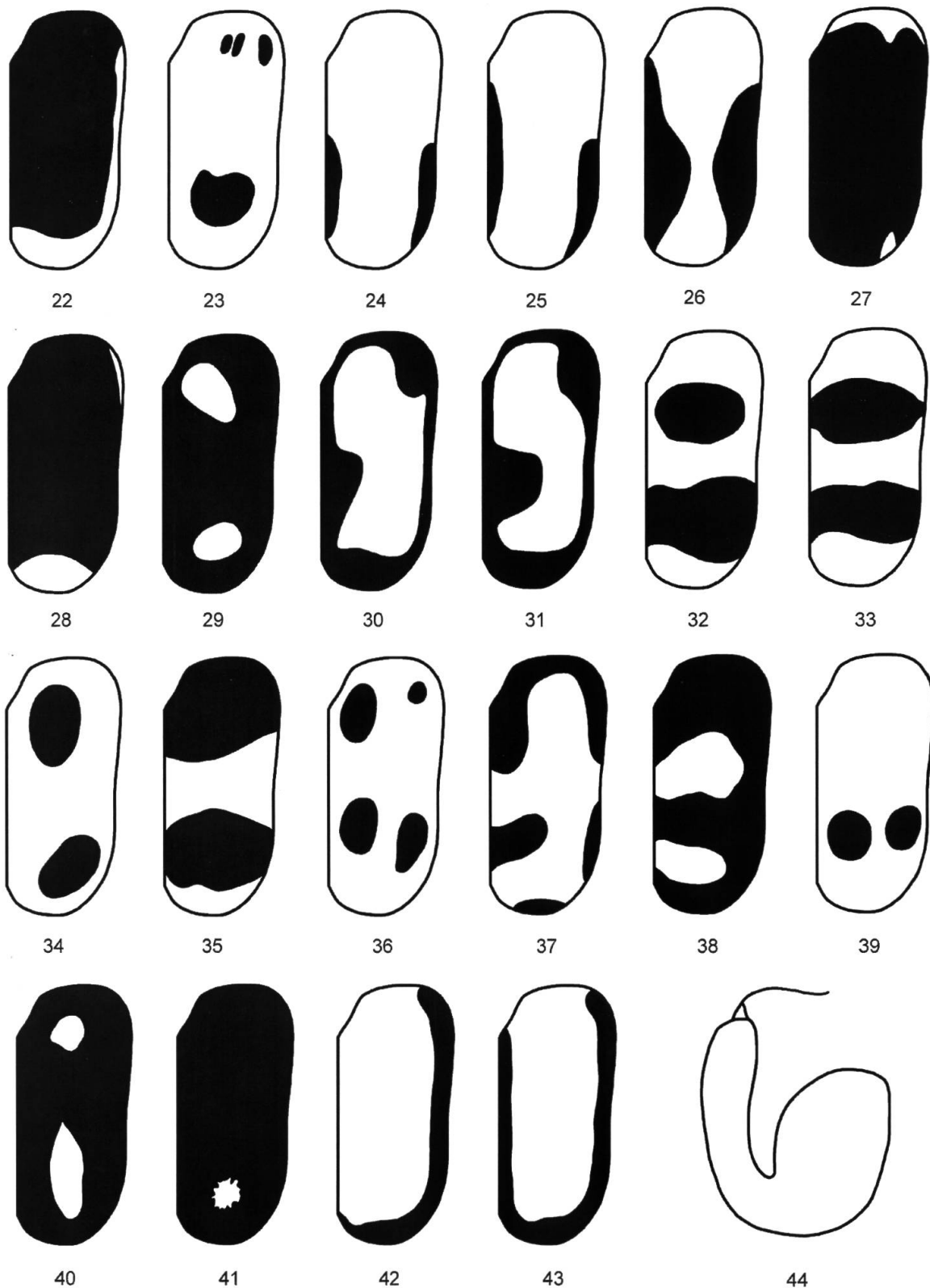
Differential diagnosis. Resembles *S. laticollis* (Duvivier, 1892), but differs in colour of head and abdomen and structure of antennae.



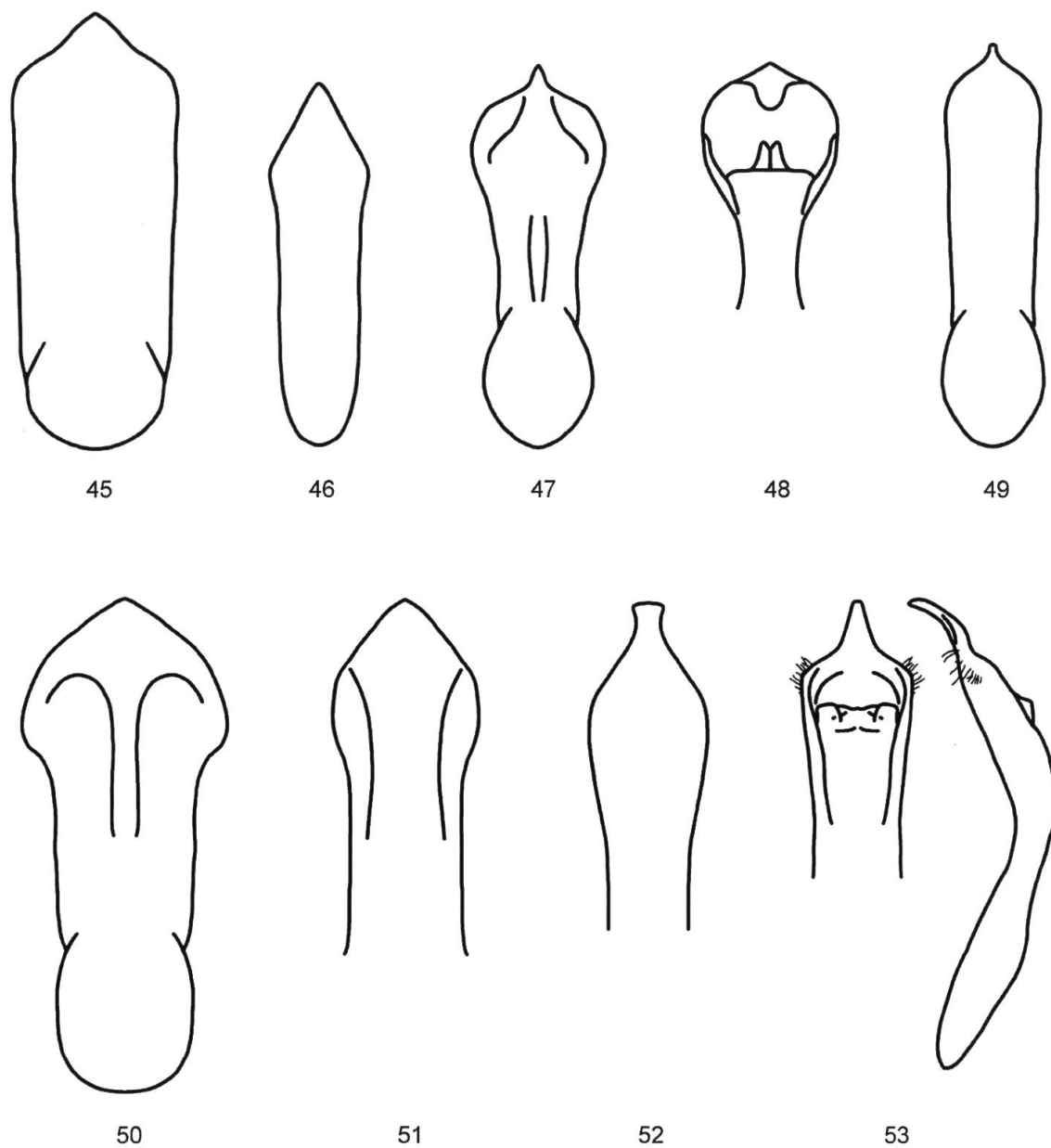
Figs 1–8. 1–4. Basal antennal segments (2–5 or 2–7): 1 – *S. divisomima* L. Medvedev; 2 – *S. constrictifrons* sp.nov.; 3 – *S. insulana* L. Medvedev; 4 – *S. bezdeki* sp.nov. 5–8. Pattern of prothorax: 5–6 – *S. himalayana* sp.nov.; 7 – *S. delesserti* Lacordaire; 8 – *S. bertiae* L. Medvedev.



Figs 9–21. General view: 9 – *S. taynguensis* L. Medvedev; 10 – *S. dalatensis* Kimoto et Gressitt; 11 – *S. kimshona* L. Medvedev; 12 – *S. discoidalis* Pic; 13 – *S. eroshkinae* L. Medvedev; 14–15 – *S. bicoloriceps* Pic; 16 – *S. duporti* Pic; 17–20 – *S. spenceri* Kimoto et Gressitt; 21 – *S. regularis* L. Medvedev.



Figs 22–44. 22–23 – *S. laevipennis* Jacoby; 24–27 – *S. nilgiriensis* Jacoby; 28 – *S. occidentalis* sp.nov.; 29 – *S. ornatipennis* L. Medvedev; 30–31 – *S. crucipennis* Jacoby; 32–33 – *S. maharashtra* Kantner et Bezděk; 34–35 – *S. minutissima* Lopatin; 36 – *S. mapellii* Takizawa; 37–38 – *S. kejvali* Kantner et Bezděk; 39 – *S. bisbipunctata* sp.nov.; 40–41 – *S. flavovariegata* L. Medvedev; 42–43 – *S. striatipennis* Jacoby. 44 – *S. tamdaoana* sp.nov., spermatheca.



Figs 45–53. Aedeagus (d- dorsal, v- ventral, l- lateral): 45 – *S. dohertii* Jacoby, v; 46 – *S. laticollis* Duvivier, v; 47 – *S. thailandica* sp.nov., v; 48 – *S. taynguensis* L. Medvedev, d; 49 – *S. himalayana* sp.nov., v; 50 – *S. longicornis* Jacoby, v; 51 – *S. laevipennis* Jacoby, v; 52 – *S. nilgiriensis* Jacoby, v; 53 – *S. delesserti* Lacordaire, d, l.

***Smaragdina thailandica* sp.nov.**

Material examined. Holotype (male): Thailand, Doi Suthep-pui, 1300–1500m, 18–23.IV.1991, leg. P. Pacholátko (NHMB).

Paratypes: same locality and date, 3 males, 2 females (NHMB, 2 ex.–LM); north-eastern Thailand, Chieng Mai Prov., Doi Suthep, 19–24.IV.1991, leg. S. Bílý, 2 males (NHMB, LM).

Description. Head metallic blue with anterior margin of clypeus fulvous, antennae and prothorax fulvous, elytra and scutellum metallic blue, underside fulvous with black metasternum, legs fulvous (males) or with blackish tarsi and apices of tibiae.

Body cylindrical. Head densely punctate and sparsely pubescent, especially on frons, which is about 1.5 times as wide as transverse diameter of eye in both sexes. Antennal segment 3 short and cylindrical, 4th a little longer and widened to apex, but not triangular, differs sharply from the 5th, segments 5–10 triangular, feebly serrate, about as long as wide or slightly transverse. Prothorax twice as wide as long, hind angles broadly rounded, surface lustrous and almost entirely impunctate. Scutellum triangular, impunctate. Elytra 1.4–1.5 times as long as wide, quite strongly and densely punctate. Pygidium covered by elytra. Propleurae bare. Segment 1 of anterior tarsi slightly widened in male. Aedeagus with triangular apex, underside with longitudinal concavity on each side of central line (Fig. 47). Length of male 3.1–3.3 mm, of female 3.4–4.0 mm.

Differential diagnosis. Resembles *S. semiaurantica* (Fairmaire, 1888) from China and the Russian Far East, but is much smaller, with underside mostly fulvous and aedeagus of a different form.

***Smaragdina himalayana* sp.nov.**

Material examined. Holotype (male): NE India, Meghalaya, 9 km of Jowai, 25°30'N, 92°10'E, 1400m, 12.V.1999, leg. Dembický & Pacholátko (NHMB).

Paratype: same locality, 11–15.V.1999, leg. Rolčík, 1 female (LM).

Description. Head black with fulvous anterior margin of clypeus (male) or with anterior part including frons (female), labrum black. Antennae black with fulvous basal segments, prothorax fulvous with central black stripe, which can be very wide (Figs 5, 6). Elytra metallic blue. Underside black, legs fulvous with tarsi; apices of tibiae black.

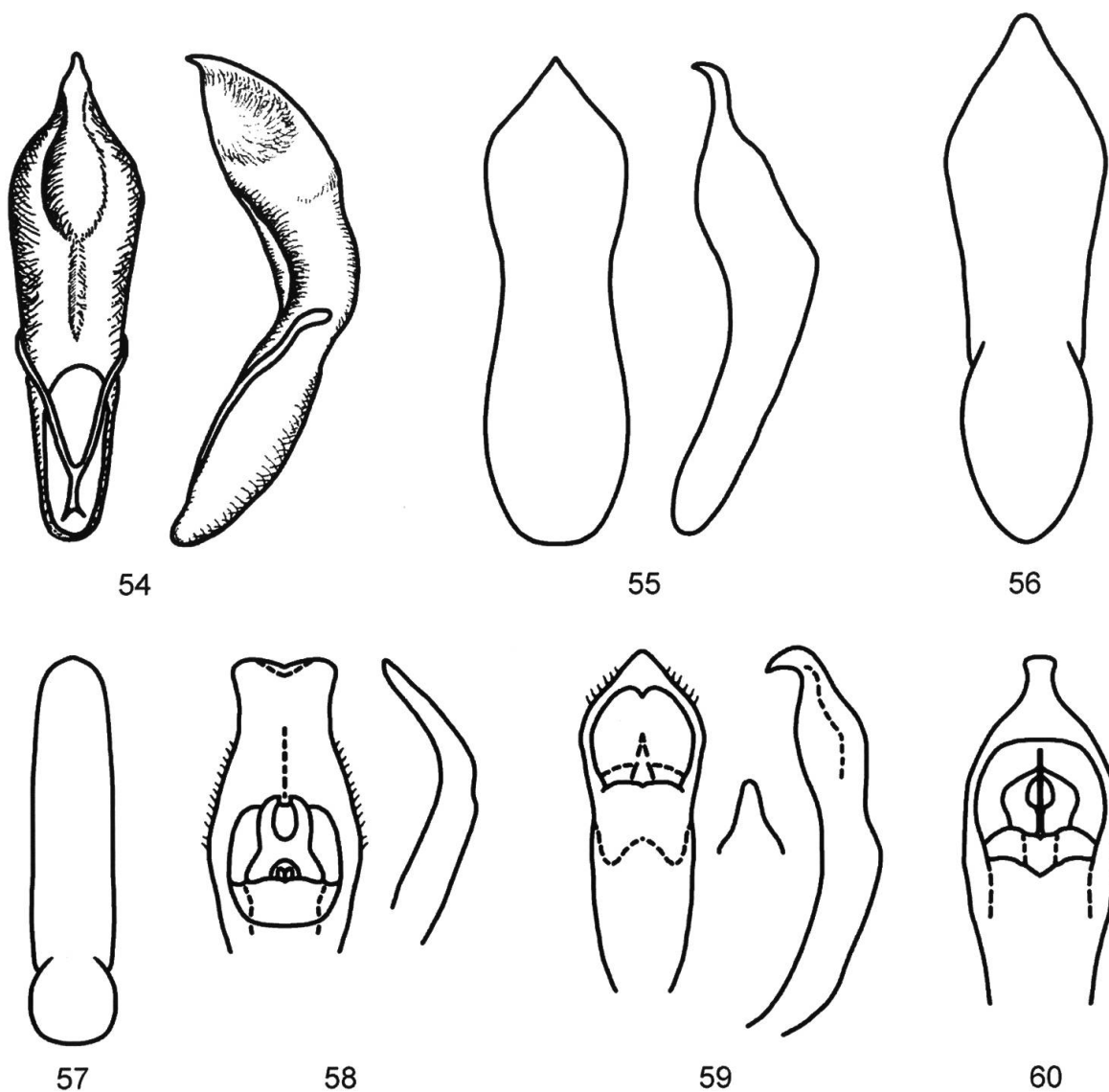
Head impunctate, its surface uneven, with deep impression on frons, clypeus shallow-concave at anterior margin, frons not narrowed towards the rear, about 1.5 times as wide as transverse diameter of eye in male. Antennae lightly serrate, segment 4 more or less triangular, a little smaller than 5, segments 5–10 subquadrangular, about as long as wide. Prothorax 1.9 times as wide as long, broadest before base, side margins slightly rounded, hind angles broadly arcuate, surface impunctate. Scutellum triangular, impunctate. Elytra of male 1.6 times as long as wide, of females 1.5 times, parallel-sided or widening to the rear, with rather coarse, dense punctures and flat, very finely punctate interspaces. Pygidium of male covered by elytra, exposed in female. Aedeagus with acute triangular apex, evenly convex on underside (Fig. 49). Length of male 4.2 mm, of female 4.9 mm.

Differential diagnosis. Near *S. taynguensis* L. Medvedev, 1985, differs in colour of prothorax and other form of aedeagus.

***Smaragdina occidentalis* sp.nov.**

Material examined. Holotype (female): northern India, Jammu, Yourdu, 2125–240m, 16.VII.1980, leg. W. Wittmer (NHMB).

Paratype. Pakistan, Salf-ul-Maluk, Sar, 2–3.VII.1953, leg. F. Schmid, 1 female (LM).



Figs 54–60. Aedeagus (d- dorsal, v- ventral, l- lateral): 54 – *S. flaviventris* Bryant, v, l; 55 – *S. ornatipennis* L. Medvedev, v, l; 56 – *S. crucipennis* Jacoby, v; 57 – *S. nigricollis* L. Medvedev, v; 58 – *S. bertiae* L. Medvedev, d, l; 59 – *S. laboissierei* Pic, d, l and extreme apex; 60 – *S. jeanvoinei* Pic, d.

Description. Black, anterior part of head, antennae, prothorax, apices and very narrow side margin of elytra in anterior half, epipleurae and legs fulvous.

Body parallel-sided. Head impunctate, anterior margin of clypeus arcuately incised, frons with deep groove, about 3 times as wide as transverse diameter of eye. Antennae feebly serrate, segment 4 short and slightly widened to apex, much smaller than 5, segments 5–7 subtriangular, 8–9 also subtriangular, but more narrow than preceding, 10 and 11 cylindrical. Prothorax 2.1 times as wide as long, broadest at base and slightly narrowing towards the front, side margins very weakly arcuate, hind angles elevated and broadly rounded, surface impunctate. Scutellum triangular with rounded apex,

impunctate. Elytra 1.6 times as long as wide, with fine and moderately dense punctures, confused. Pygidium covered by elytra.

Length of body 4.3–4.4 mm.

Differential diagnosis. Very near to *S. minutissima* (Lopatin, 1967), differs in colour of antennae, elytra and underside, also in other form of apical antennal segments.

Smaragdina daklaka sp.nov.

Material examined. Holotype (male): Vietnam, Daklak Prov., 12km SW of Buon Ma Thuot, lake Eakao, 400m, dry scrub and bush, 26–27.IV.1986, leg. L. Medvedev (LM).

Description. Entirely fulvous.

Body narrow, parallel-sided. Clypeus and frons sparsely punctate, vertex impunctate, anterior margin of clypeus feebly concave, frons not narrowing towards the rear, 1.3 times as wide as transverse diameter of eye. Antennal segment 4 as large as 5, segments 5–11 subquadrangular, moderately transverse. Prothorax 1.65 times as wide as long, broadest behind midway, side margins rounded, basal angles the most broadly rounded, surface almost impunctate. Scutellum triangular, impunctate. Elytra 1.7 times as long as wide, surface with dense and moderately strong punctures. Pygidium covered by elytra. Aedeagus with acute triangular apex, evenly convex on underside (Fig. 68).

Length of body 3.6 mm.

Differential diagnosis. Very near to *S. montana* L. Medvedev, 1988 from North Vietnam, but differs in large 4th antennal segment, distinctly punctate elytra and acute apex of aedeagus.

Smaragdina tamdaoana sp.nov.

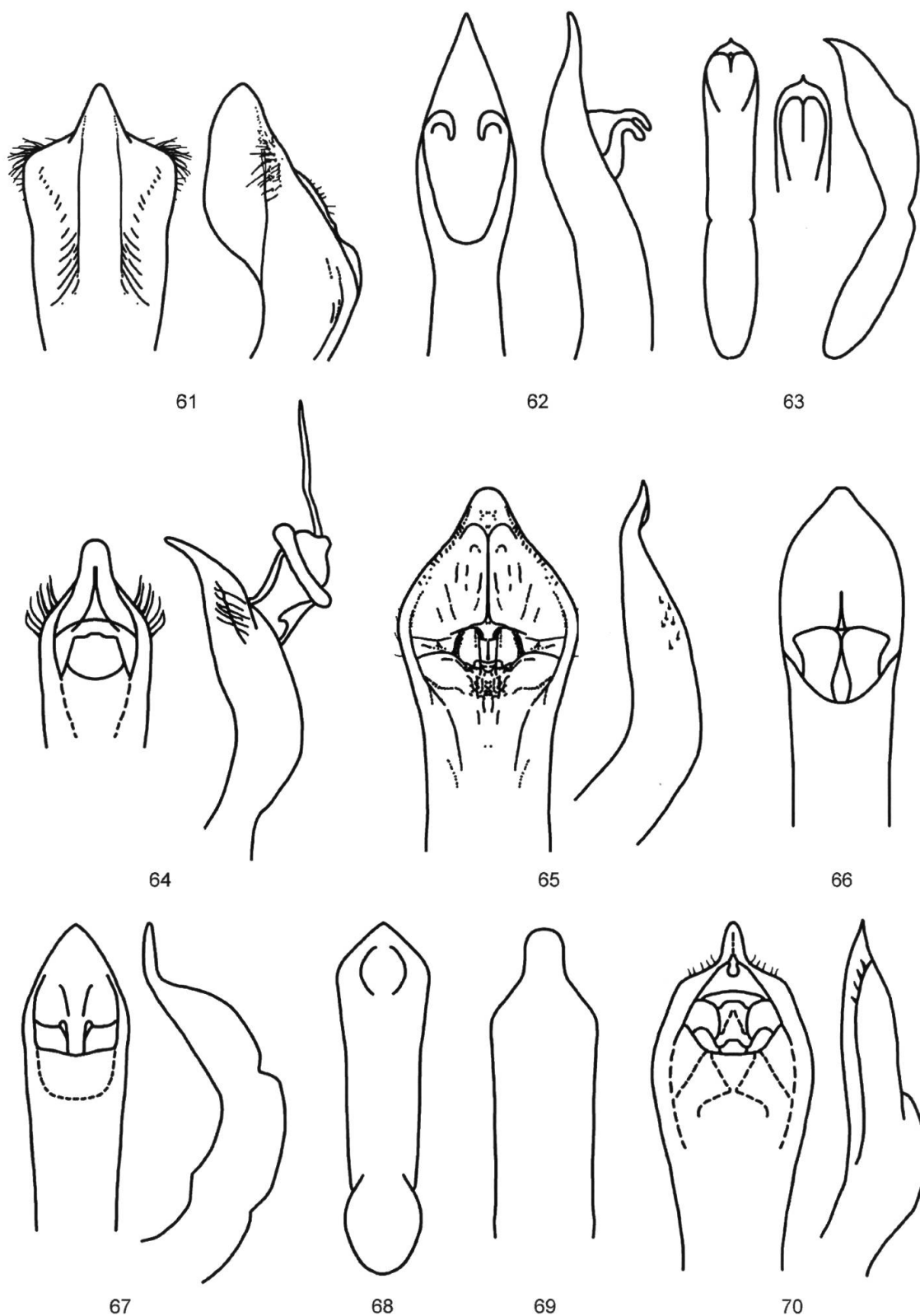
Material examined. Holotype (female): Vietnam, Tam Dao, 900m, V.1982, leg. L. Medvedev (LM). Paratypes: same locality, 4 females (LM).

Description. Fulvous, elytra a little paler than prothorax, antennae except 3 basal segments, metasternum (occasionally fulvous), tibiae and tarsi black.

Head punctate on frons and clypeus; frons with deep central groove, 2.5 times broader than transverse diameter of eye. Third antennal segment short and cylindrical, 4th elongate, widening to apex, but much smaller than 5th, segments 5–10 lightly serrate, as long as wide, triangular, with rounded exterior angles. Prothorax 2.2 times as wide as long, with side margin quite broadly expanded, especially beyond centre, and bent upwards, hind angles broadly rounded and not elevated, surface almost entirely impunctate. Scutellum triangular, impunctate. Elytra very finely and confusedly punctate. Pygidium covered by elytra, with truncate apex. Propleurae bare. Spermatheca Fig. 44.

Length of body 4.8–5.3 mm.

Differential diagnosis. See key. Further, this species resembles the female of *Tituboea paviei* Lefèvre, 1890, which was once described as *Cyaniris bicoloripes* Pic, 1933, but differs in fulvous head and absence of pubescent triangle on propleurae.



Figs 61–70. Aedeagus (d- dorsal, v- ventral, l- lateral): 61 – *S. maharashtra* Kantner et Bezděk, v, l; 62 – *S. minutissima* Lopatin, d, l; 63 – *S. spenceri* Kimoto et Gressitt, d, l and extreme apex; 64 – *S. mapellii* Takizawa, d, l; 65 – *S. kejvali* Kantner et Bezděk, d, l; 66 – *S. divisa* Jacoby, v; 67 – *S. montana* L. Medvedev, d, l; 68 – *S. daklaka* sp.nov., v; 69 – *S. divisomima* sp.nov., v; 70 – *S. insulana* L. Medvedev, d, l.

***Smaragdina divisomima* sp.nov.**

Material examined. Holotype (male): NW Thailand, Mae Hong Son, Bon Huoi Po, 1600m, 9–16.V.1991, leg. P. Pacholátko (NHMB).

Paratypes: same locality and date, 1 male (LM), 1 female (NHMB).

Description. Fulvous, antennae except 4 basal segments and tarsi black, in female also apices of tibiae, metasternum and apex of abdomen strongly darkened.

Clypeus and vertex impunctate, frons finely punctate, with deep central groove, 1.5 times as wide as transverse diameter of eye in male, about 2 times in female. Antennal segment 3 short and cylindrical, 4 distinctly widening to apex, about as long as wide, but much smaller than 5 (Fig. 1); segments 5–10 distinctly serrate, about 1.5 times as wide as long, triangular with rounded exterior angles. Prothorax twice as wide as long, side margins not widened, hind angles broadly rounded, surface impunctate. Scutellum triangular, impunctate. Elytra finely punctate, especially in apical half. Pygidium covered by elytra, its apex truncate in both sexes. Propleurae bare. Aedeagus Fig. 69

Length of body 4.4–4.8 mm.

Differential diagnosis. Near *S. divisa* (Jacoby, 1889), differs in small 4th antennal segment, colour of elytra and form of aedeagus.

***Smaragdina constrictifrons* sp.nov.**

Material examined. Holotype (male): NW Thailand, Mae Hong Son, Huai Sua Tao, 11–17.V.1992, leg. L. Dembický (NHMB).

Paratypes: same locality and date, 1 male (LM), 1 female (NHMB),– Thailand, Chiang Dao, 19°24'N, 98°55'E, 600m, 10–16.V.1991, leg. D. Král, 1 female (LM).

Description. Body fulvous, only antennal segments 4–11 black.

Clypeus and vertex impunctate, frons finely punctate, with small central groove, 0.7 times as wide as transverse diameter of eye in male, as wide as eye in female. Antennal segment 3 short and cylindrical, segments 4–11 strongly serrate, triangular with acute exterior angle, segment 4 only a little smaller than 5 (Fig. 2). Prothorax twice as wide as long, side margins not widened, hind angles broadly rounded, surface with a few microscopic punctures or impunctate. Scutellum triangular, impunctate. Elytra with moderately strong and dense punctures, confused. Pygidium covered by elytra, rounded (male) or truncate (female) at apex. Propleurae bare. Aedeagus with apical process toothed on each side, underside roof-like (Fig. 71).

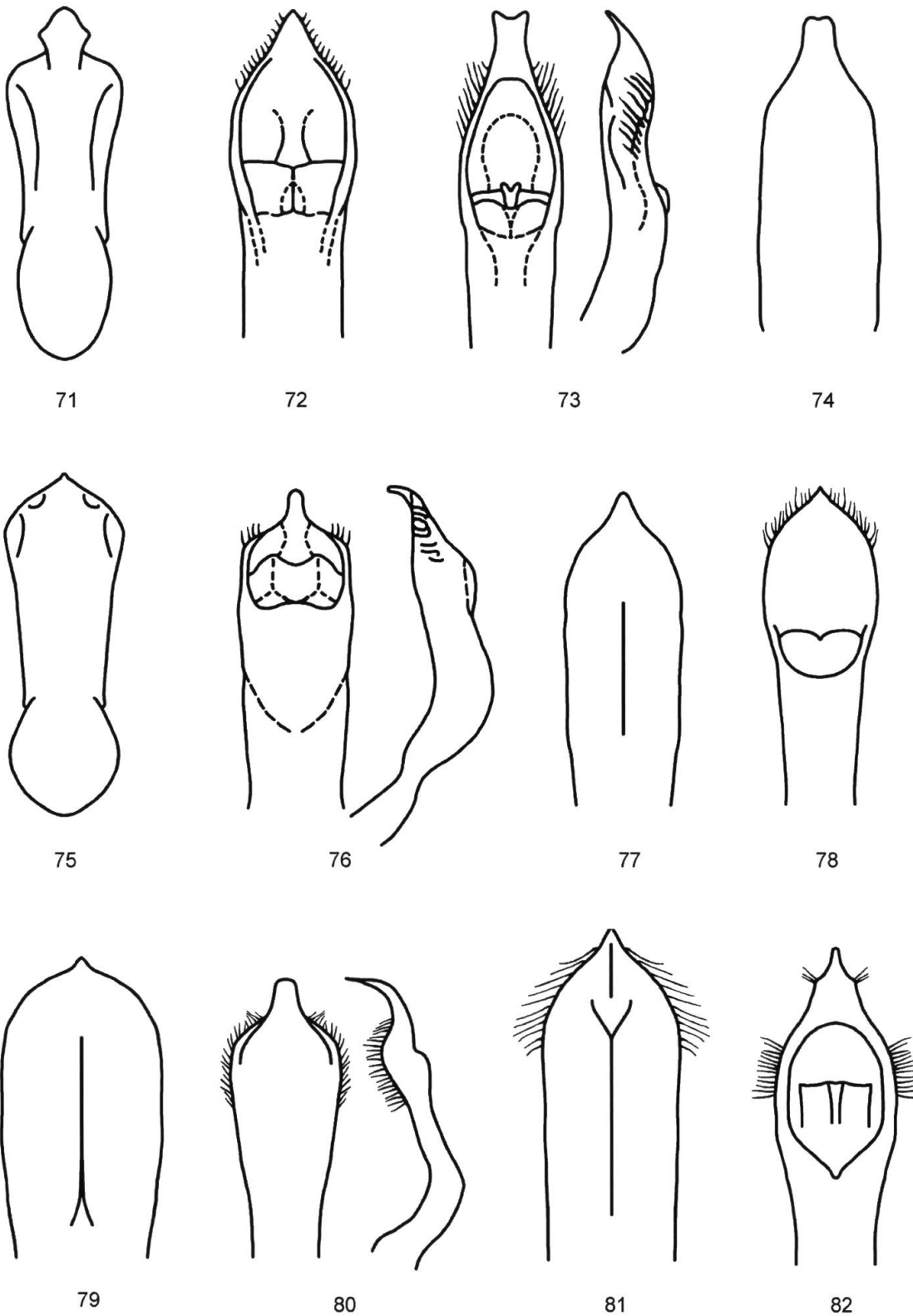
Length of body 5.0–6.0 mm.

Differential diagnosis. Near *S. divisa* (Jacoby, 1889), differs in narrow frons, colour of elytra and very specific form of aedeagus. *S. oculata* L. Medvedev, 1988 is also very similar to this species, but has a different form of aedeagus.

***Smaragdina pakistanica* sp.nov.**

Material examined. Holotype (male): Pakistan, Punjab, Changa Manga forest, 70 km S. of Lahore, 19–21.VIII.1998, leg. L. Černý (LM).

Paratypes: same locality and date, 2 males, 8 females (JB).



Figs 71–82. Aedeagus (d- dorsal, v- ventral, l- lateral): 71 – *S. constrictifrons* sp.nov., v; 72 – *S. divisoides* L. Medvedev, d; 73 – *S. diversiceps* Pic, d, l; 74 – *S. pacholatkoii* L. Medvedev, v; 75 – *S. pakistanica* sp.nov., v; 76 – *S. fulvitaris* L. Medvedev, d, l; 77 – *S. sprecheri* L. Medvedev, v; 78 – *S. nigriscutis* L. Medvedev, d; 79 – *S. regalini* L. Medvedev et Kantner, v; 80 – *S. sikhima* Jacoby, v, l; 81 – *S. megalayana* L. Medvedev et Kantner, v; 82 – *S. oculata* L. Medvedev, d.

Description. Entirely fulvous including antennae, elytra fulvous or with poorly delimited black patch before apex near side margin, sometimes prolonged towards the front or with additional dark patch in basal area, or black with fulvous apex, or entirely black.

Body robust, parallel-sided. Head impunctate, anterior margin of clypeus emarginated in deeply triangular fashion, frons very broad, more than twice as wide as transverse diameter of eye, with 3 shallow impressions. Antennae lightly serrate, segment 4 shorter and narrower than 5, segments 5–10 elongate triangular, somewhat longer than wide. Prothorax 1.75 times as wide as long, broadest beyond centre, feebly narrowing towards the front, side margins arcuate, fore- and hind angles broadly rounded, surface impunctate. Scutellum triangular, impunctate. Elytra 1.35 times as long as wide, surface impunctate. Pygidium covered by elytra. Segment 1 of fore-tarsus moderately widened. Aedeagus with acute triangular apex and central ridge on basal half of underside (Fig. 75). Length of male 6.0–6.7 mm, of female 5.7–6.7 mm.

Differential diagnosis. This species is near *S. longicornis* (Jacoby, 1897) and *S. laevipennis* (Jacoby, 1908), but differs in having head and prothorax of male not enlarged, prothorax not wider than base of elytra, colour of elytra very variable, from entirely fulvous to entirely black, and aedeagus of other form.

Smaragdina bisbipunctata sp.nov.

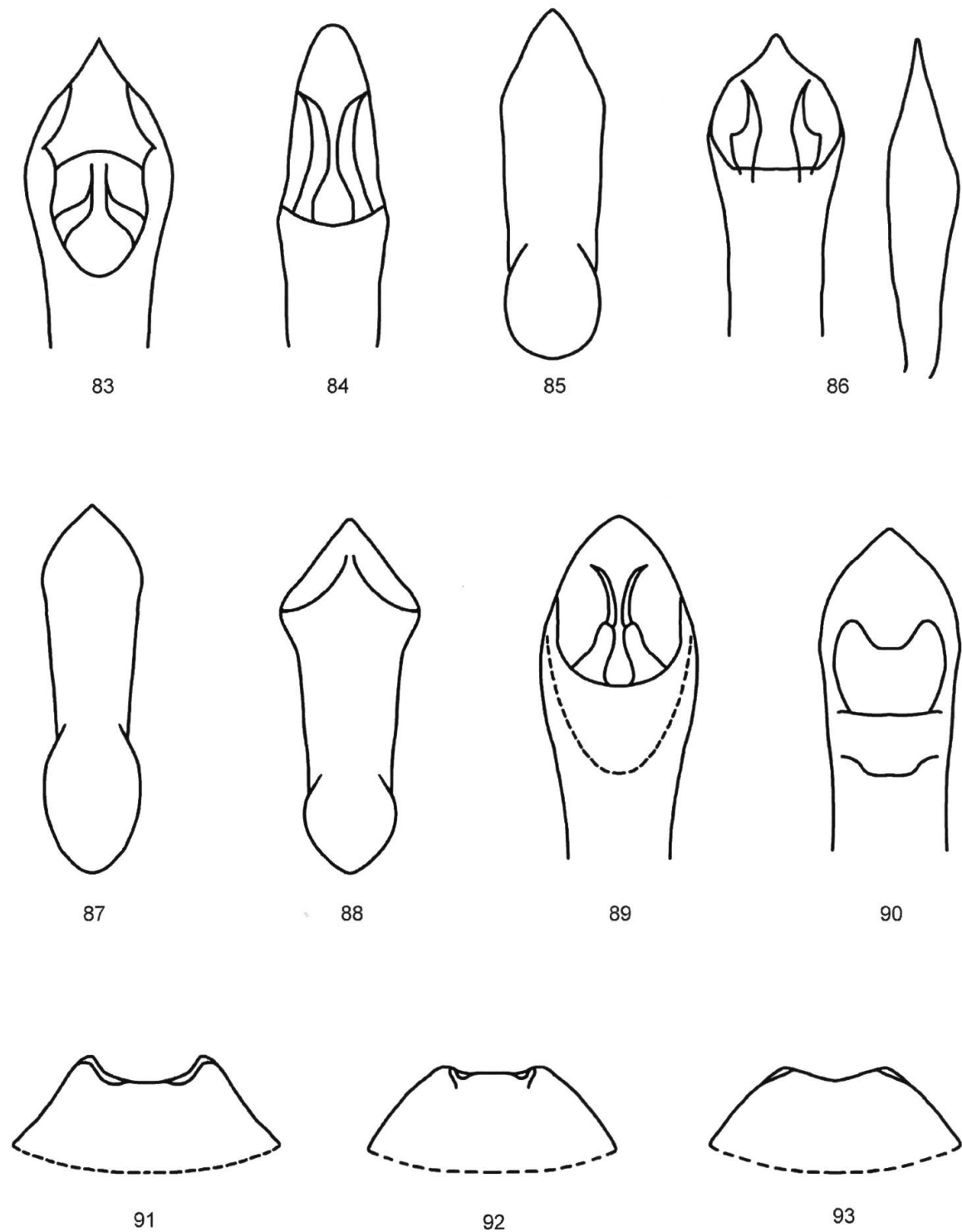
Material examined. Holotype (male): Myanmar, Mandalay, 2.XI.1978, leg. L. Medvedev (LM).

Description. Fulvous, antennae black with fulvous basal segment, each elytron with two dark piceous spots beyond centre, before apical slope (Fig. 39).

Body narrow, parallel-sided. Head impunctate, evenly convex, without grooves, anterior margin of clypeus mildly concave, frons broad, about 2.5 times as wide as transverse diameter of eye. Antennae very lightly serrate, segment 4 widening to apex, but much smaller than 5, segments 5–10 more or less quadrangular, mildly transverse or almost as long as wide. Prothorax 1.7 times as wide as long, broadest before base, with slightly rounded side margins and broadly rounded hind angles, surface impunctate. Scutellum triangular with rounded apex, impunctate. Elytra 1.45 times as long as wide, widening a little towards the rear, with regular rows of punctures, less distinct on apical slope, interspaces flat, rather narrow, with microscopic punctures. Aedeagus with acute triangular apex, evenly convex on underside (Fig. 87).

Length of body 3.0 mm.

Differential diagnosis. I can compare this species only with *S. minuta* (Jacoby, 1908) from southern India, but it differs in other proportions of antennal segments and also spotted elytra.



Figs 83–93. 83–90. Aedeagus (d- dorsal, v- ventral, l- lateral): 83, *S. flavovariegata* L. Medvedev, d; 84, *S. regularis* L. Medvedev, d; 85, *S. striatipennis* Jacoby, v; 86, *S. laosensis* Kimoto et Gressitt, d, l; 87, *S. bisbipunctata* sp.nov., v; 88, *S. malaccana* sp.nov., v; 89, *S. chrysomeloides* Lacordaire, d; 90, *S. chrysomeloides rufocapitis* L. Medvedev, d. 91–93. Apex of female pygidium: 91, *S. coomani* Pic; 92, *S. divisa* Jacoby; 93, *S. divisoides* L. Medvedev.

***Smaragdina malaccana* sp.nov.**

Material examined. Holotype (male): Malacca (LM).

Description. Fulvous, antennae black except for 3 basal segments. Body narrow, elongate, widening a little towards the rear. Head impunctate, anterior margin of clypeus mildly concave, frons with central impression, slightly widening towards the rear, about twice as wide as transverse diameter of eye. Antennae distinctly serrate, segment 4 triangular, but much smaller than 5, segments 5–10 more or less subquadrangular, distinctly transverse. Prothorax 1.1 times as wide as long, broadest at base and narrowing towards the front, with almost straight side margins and broadly rounded hind angles, surface impunctate, with arcuate impression at base before scutellum. Scutellum large, triangular and impunctate. Elytra 1.6 times as long as wide, with regular rows of punctures, very slight and almost imperceptible in apical third. Pygidium covered by elytra. Aedeagus (Fig. 88) evenly convex on underside.

Length of body 2.8 mm.

Differential diagnosis. Near *S. minuta* (Jacoby, 1908), but antennal segment 4 small and underside fulvous.

***Smaragdina discoidalis* (Pic, 1932)**

Remarks. I once synonymized this species with *S. crucipennis* Jacoby, 1908 (MEDVEDEV 1995). Both species are definitely very alike, but differ in pattern of upperside. I now consider it is better to accept Pic's species as independent until a male is found. *S. crucipennis* Jacoby has all elytral margins black, while in *S. discoidalis* Pic the black margins are distinctly interrupted on the suture and possibly at the sides (KIMOTO & GRESSITT 1981).

***Physosmaragdina motschulskyi* L. Medvedev, 1992 (comb.nov.)**

Remarks. This species, described as *Smaragdina*, I transfer to the genus *Physosmaragdina* L. Medvedev 1971, because the hind angles of the prothorax in this species are obtuse, at the least, and elevated.

***Aetheomorpha apicata* L. Medvedev, 1988**

Smaragdina nigroapicalis Lopatin, 2005 **syn.nov.**

Remarks. I have not seen this species, which has been compared with "*Smaragdina flavobasalis* Jacoby and *S. terminalis* Lefèvre". This comparison appears a little strange, because both are large species, and the first is now in the genus *Aetheodactyla* Lacordaire, 1848 and the second belongs to *Aetheodactyla* or *Physosmaragdina* L. Medvedev, 1971. However, it is clear from the original description that this is a new synonym of *Aetheomorpha apicata* L. Medvedev, 1988, quite common in Nepal and northern India.

***Smaragdina signaticollis* (Redtenbacher, 1844)**

Remarks. Unclear species described as the female, but I am almost sure that it belongs to genus *Miochira* Lacordaire, 1848 and is possibly identical with *M. nepalica* L. Medvedev, 1998.

***Smaragdina terminalis* (Lefèvre, 1883)**

Remarks. Unclear and very briefly described species, but very possibly belonging to *Aetheodactyla* Lacordaire, 1848 or to *Physosmaragdina* L. Medvedev, 1971.

Species not included in the key**Species described by I. Lopatin (2003)*****Smaragdina kimotoi* Lopatin, 2003**

Remarks. This is a fulvous species with black antennae (except for the basal segments), tarsi and partly underside. The author compares this species only with *S. divisa* Jacoby, and indicates that the two species differ in the form of aedeagi. Figures for these aedeagi are given, but these illustrations raise some questions. For *S. divisa* Jacoby, author used figure 21 from a 1981 publication by KIMOTO & GRESSITT. This, however, appeared in quite inappropriate proportions: the original figure is 3.55 times as long as wide at the broadest place, while the same part in Lopatin's figure appears only 2.3 times as long. The figure therefore looks enormously broad. This may have occurred in the process of copying or printing.

The aedeagus of the new species has a quite broad and parallel-sided apical process and differs clearly from the actual *S. divisa* Jacoby, but is much more alike at the aedeagus of *S. diversiceps* Pic from same region, apart from a broader apical process. It may be, however, that the proportions in this figure are also distorted, as in the preceding case.

***Smaragdina murzini* Lopatin, 2003**

Remarks. This is a fulvous species with a very narrow black stripe on the lateral and sutural margins of the elytra, and antennae (except for two basal segments), fore-tibiae and tarsi piceous. The figure of the aedeagus in dorsal view looks very strange, and the underside of the aedeagus appears to be rather complicated in lateral view. Nothing is said about the epipleurae or pygidium.

I have not seen a type of this species, but some of its characters are not typical for *Smaragdina*. According to the author, "this species differs well from fulvous species of South East Asia with different colour of upperside and form of aedeagus". Very possibly this species belongs to the genus *Aetheomorpha*.

Species described by M. Pic from India

- Cyaniris atropyga* Pic, 1941
C. diversesignata Pic, 1946
C. latemedionotata Pic, 1946
C. piceifrons Pic, 1941
C. reductelineata Pic, 1946
C. salemensis Pic, 1946
C. trimaculaticeps Pic, 1946

All these seven species were very briefly described and quite unclear; it is very possible that some of them could belong to another genus or to be aberrations of other species. I have not been able to find types of these species in the Pic collection.

Species described as *Smaragdina* (*Gynandrophthalma*, *Cyaniris*) and removed to other genera

- Genus *Tituboea* Lacordaire, 1848
bicoloripes (Pic, 1933)
- Genus *Diapromorpha* Lacordaire, 1848
bohemani (Jacoby, 1908)
sexmaculata (Jacoby, 1895)
- Genus *Aetheomorpha* Lacordaire, 1848
assamensis (Jacoby, 1908)
atrocincta (Pic, 1932)
cochinchinensis Lefèvre, 1889
(= *birmanica* Jacoby, 1892)
decemnotata (Jacoby, 1892)
(= *bavayi* Pic, 1932)
fuscicornis (Lacordaire, 1848)
(= *cribellata* Jacoby, 1908)
(= *quadripunctata* Jacoby, 1887)
(= *lacordairei* Jacoby, 1895)
(= *dambullensis* Weise, 1903)
(= *nalandensis* Weise, 1903)
malayana (Baly, 1865)
(= *unijuncta* Pic, 1927)
(= *arcuatecincta* Pic, 1943)
nagaensis (Jacoby, 1908)
nigropicta (Lefèvre, 1891)
(= *cincta* Weise, 1903)
(= *nigropygidialis* Pic, 1946)
(= *rufobasalis* Pic, 1943)
(= *rufosignata* Pic, 1943)
(= *diversenotata* Pic, 1943)
(= *submarginata* Pic, 1943)
(= *plurisignata* Pic, 1943)
ornatula (Baly, 1865)
pictipennis (Jacoby, 1892)
semipunctata (Duvivier, 1891)
sexmaculata (Jacoby, 1889)
(= *burmanica* Jacoby, 1908)
sodalis (Lacordaire, 1848)

- Genus *Clytra* Laicharting, 1781
coerulea (Jacoby, 1892)
- Genus *Ceroclytra* L. Medvedev, 1962
cornuta (Jacoby, 1895)
- Genus *Coptocephala* Chevrolat, 1937
opacipennis (Jacoby, 1903)
- Genus *Aetheodactyla* Lacordaire, 1848
wallardiensis (Jacoby, 1908)
flavobasalis (Jacoby, 1908)
- Genus *Miochira* Lacordaire, 1848
thibetana Pic, 1927
(= *disjuncta*) Pic, 1927
(= *subcincta*) Pic, 1927
(= *trinotaticollis*) Pic, 1927
(= *bistrimaculata*) Pic, 1927
- Genus *Aetheantha* LM, 1988
higuchii Kimoto et Takizawa, 1981
- Genus *Physosmaragdina* L. Medvedev, 1971
atriceps (Pic, 1927)
(= *rufithorax* Pic, 1927)
crassipes (Duvivier, 1891)
dunaipurensis (Takizawa, 1990)
fabrei (Lefèvre, 1883)
nigrifrons (Hope, 1842)
(= *japonica* Baly, 1873)
(= *immaculata* Heiden, 1887)
(= *mandarina* Weise, 1889)
(= *atrobasalis* Pic, 1932)
(= *formosana* Chujo, 1934)
(= *coreana* Kolbe, 1886)
(= *kiotensis* Pic, 1927)
(= *atripes* Pic, 1927)
(= *submarginata* Pic, 1927)
(= *basidisjuncta* Pic, 1934)
(= *latereducta* Pic, 1934)
tonkinensis (Lefèvre, 1891)
(= *apicalis* Lefèvre, 1893)
(= *mungphuensis* Jacoby, 1908)
(= *brancuccii* L. Medvedev, 1988)
(= *subdivisa* Jacoby, 1908)
wittmeri (L. Medvedev, 1970)
- Genus *Ceratobasis* Lacordaire, 1848
vinula (Weise, 1903)
(= *ceylonica* Jacoby, 1908)

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