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LARVAE OF SOME TROPICAL GENERA OF BUPRESTIDS (COLEOPTERA: BUPRESTIDAE)[1]

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ABSTRACT

Larvae of some tropical genera of Buprestids (Coleoptera: Buprestidae).

Larvae of 7 species belonging to 6 genera of Buprestidae were studied, described and illustrated: *Chrysodema impressicollis* Laporte & Gory, 1835, *Paracupta erythrocephala* (Montrouzier, 1860) (Chalcophorini), *Polybothris angulosa* Théry, 1905, *Dicercomorpha interrupta* Deyrolle, 1864, *Haplotrinchus inaequalis* Deyrolle, 1864, *H. embrikiellus* Obenberger, 1936 (Psilopterini) and *Melobasis* (*Dicercopygus*) *viridiauratus* Deyrolle, 1864 (Melobasini). Morphological characters were compared with those of other known genera in proper groups (tribes, subtribes). In the case of the genus *Haplotrinchus* only larva of *H. inaequalis* was described in full, for the larva of *H. embrikiellus* only the way of differential diagnosis was used since the differences between both larvae are minimal.

Key words: Coleoptera, Buprestidae, larvae, descriptions, morphology, taxonomy, tropical zone.

INTRODUCTION

Larval morphology of the family Buprestidae is still only poorly known. Only larvae of the Palaearctic Buprestids have been more or less studied and larvae of the major part of the Palaearctic genera are known (BÍLÝ, 1999). Especially larvae of entire tropical groups (genera, tribes) are still quite unknown. Larval morphology and bionomy could contribute greatly in the classification and phylogeny of the whole family or to solve some taxonomic problems. In the course of recent years we have gathered the larvae of some tropical species which are described in the present paper.

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METHODS

All larvae were collected and kept in the field in Kahle´s liquid to prevail any destruction of soft parts by rapid dessication in alcohol. In laboratory they were transferred to 75 % alcohol. For morphological and anatomical studies larvae were boiled for 15 minutes in 15 % KOH and then mounted into microslides without any staining. Morphological terminology follows that in VOLKOVITSH (1979), VOLKOVITSH & HAWKESWOOD (1987, 1990) and BÍLÝ (1994, 1999). All specimens are deposited in the National Museum, Prague and Zoological Institute, Sankt Petersburg.

SYSTEMATIC PART

CHALCOPHORINI Lacordaire, 1857

Chrysodema impressicollis Laporte & Gory, 1835 (Figs. 10-19, 61, 71)

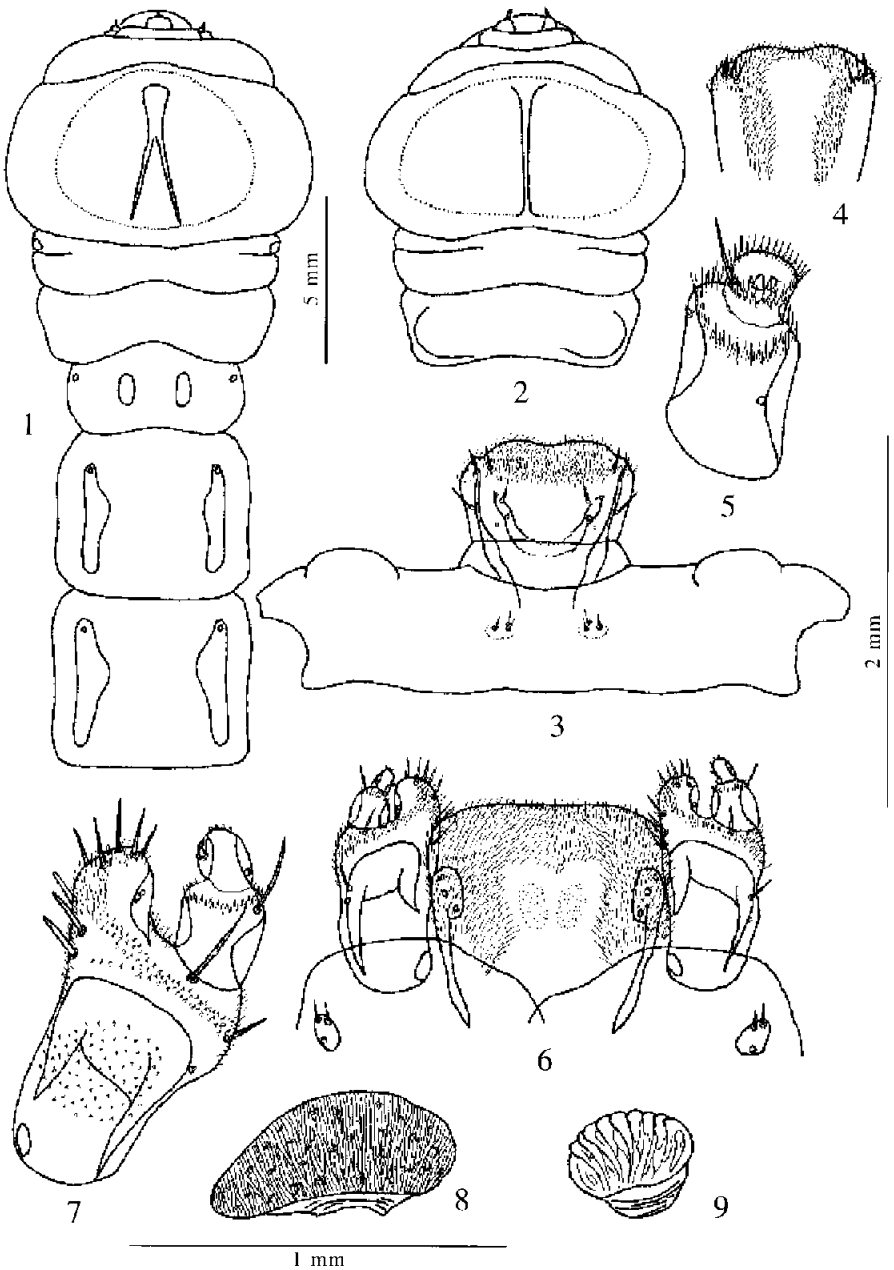
Material studied: 3 adult larvae, 4 middle-aged larvae; Indonesia, Maluku, Seram, Solea, XI. 1998, Sv. Bílý leg.; larvae taken from trunk of dead, unidentified tree.

Length of adult larva: 40.0-43.0 mm; width of prothorax: 7.3-7.5 mm.

Larva (Figs. 10, 11) cream-white, of the usual buprestid type with strongly enlarged prothorax , corresponding with the 2nd morphoecological type of buprestid larvae (BÍLÝ, 1982, 1994).

Head and mouthparts. Epistome (Fig. 12) yellow-brown with darkened anterior part, about 4.5 times as wide as long; anterior margin deeply and widely incurved between semiglobular mandibular condyles, posterior margin slightly bisinuous; lateroposterior corners sharp, obtused apically, rather strongly projecting outwards; middle part of epistome with two groups of epistomal sensillae, each group consisting of two, rather long trichosensillae and one basiconic sensilla; clypeus (Fig. 12) short, membraneous, about 5.5 times as wide as long; labrum (Fig. 12) slightly trapezoid, somewhat wider than long, its anterior margin slightly arched with well-developed anterolateral lobes; palatine sclerites well-developed, their lateral branches strongly, medial branches weakly sclerotized; medial branches bearing on each side one apical trichosensilla extending to anterior margin of labrum, and one campaniform sensilla, another isolated campaniform sensilla situated between lateral and medial branches; anterior margin of labrum (incl. anterolateral lobes) covered by narrow field of microsetae and bearing two anterolateral trichosensillae and one campaniform sensilla in each corner; another trichosensilla situated at anterior third of lateral branch of palantine sclerite; inner side of labrum (epipharynx) with two longitudinal fields of microsetae and three trichosensillae and one campaniform sensillae arranged in longitudinal line in each anterolateral corner (Fig. 13); the position of anterolateral sensillae is as follows: (1t,2c)-3t-4t/1c+2t+3t+4t (see VOLKOVITSH & HAWKESWOOD, 1994; BÍLÝ & VOLKOVITSH, 1996).

Antennae (Fig. 14) short, two-segmented; basal segment slightly shorter than wide with well-developed internal sclerites, one campaniform sensilla and crown of microspinulae on its apex, another campaniform sensilla situated on internal



Figs. 1-9. Larva of *Polybothris angulosa* Théry, 1905. Anterior part of body, dorsal view (1); thorax, ventral view (2); epistome and labrum (3); hypopharynx (4); antenna (5); labiomaxillary complex (6); maxilla (7); mesothoracic spiracle (8); abdominal spiracle (9).

side; terminal segment as wide as long, only slightly shorter than basal segment, bearing apical crown of microspinulae and one long, outer trichosensilla which is slightly longer than terminal segment itself; apical cavity of terminal segment shallow, with wide and robust sensory appendage which is as wide as long, two palmate and one tiny basiconic sensillae.

Mandibles (Fig. 71) stout, somewhat longer than wide with two apical teeth; dorsal tooth with irregular inner margin, cutting edge of mandible with two obtuse tubercles.

Hypostome relatively weakly sclerotized, pleurostomes without traces of ocelli.

Labiomaxillary complex (Figs. 15-16). Maxillar cardo (Fig. 15) with small, oval, isolate sclerite near the base of stipes bearing two relatively long trichosensillae and one campaniform sensillla; stipes (Fig. 16) with strongly sclerotized internal sclerite bearing one trichosensilla and one campaniform sensilla at inner margin and one long apical trichosensilla arising between the bases of mala and maxillary palpus; inner margin of stipes with field of microspinulae, apical part of stipes with prolonged field of microspinulae near the base of palpus maxillaris; mala (Fig. 16) stout, slightly longer than wide bearing 3 external and 5 internal thick setae, 2 long apical basiconic sensillae and one external campaniform sensilla; internal sclerite of mala small but well-sclerotized, inner margin of mala covered with dense microspinulae and microsetae; palpus maxillaris (Fig. 16) rather long, two-segmented, both segments with well-developed internal sclerites; basal segment barrel-shaped, 1.5 times as long as wide with one medial, campaniform sensilla and one long, thick apical seta which is nearly as long as palpus maxillaris; apical part of basal segment with crown of microspinulae; terminal segment 1.5 times as long as wide, nearly as long as basal segment, bearing outer campaniform sensilla, inner curved sensilla and 5-6 small, conical, apical sensillae; prementum (Fig. 15) 1.5 times as long as wide with strongly regularly rounded anterior margin; corner sclerites of prementum bearing on each side one long seta extending anterolateral margin of prementum, 5 campaniform sensillae, and a group of 4-5 microspinulae just behind a base of a long seta; anterior margin of prementum externally with dense microsetal area, posterior border of this area arcuate and reaching approx. anterior 1/4 of the length of prementum; median part of prementum with two oblique densely microspinulated zones; inner surface of labium with lateral fields of dense, brown microsetae and microspinulae, glabrous medial area between them somewhat bottle-shaped; postmentum without setae.

Thorax (Figs. 10-11). Both pronotal and prosternal plates well-developed, covered by dark brown, dense, asterisk-shaped asperities (Fig. 19); pronotal groove inverted V-shaped, both branches narrow and straight tapering posteriorly and forming the sharp angle about 30°; area between the posterior ends of the branches without asperities and bearing a long area of microteeth; prosternal groove very narrow, glabrous, weakly sclerotized and slightly bifurcate anteriorly; mesothorax (Figs. 10-11) glabrous, short and ring-shaped with lateral folds, about 5.5 times as wide as long; mesothoracic spiracles (Fig. 17) reniform, 4.5 times as long as wide with extremely dense trabeculae; metathorax (Figs 10-11) glabrous, slightly conical, about 3 times as wide as long with wide, indistinct lateral tubercles both dorsally and ventrally. Thoracic segments ventrally with the rudiments of legs.

Abdomen (Fig. 10). First abdominal segment slightly conical and distinctly narrower than metathorax but somewhat wider than following abdominal segments; anal segment conical with vertical anal rim; segments 2-9 cylindrical, slightly longer than wide with prolonged, dorsolateral depressions; abdominal spiracles (Fig. 18)

widely reniform, twice as long as wide, of the same form like those on mesothorax but smaller.

Proventriculus (Fig. 61). Inner, dorsal wall of proventriculus glabrous medially with lateral fields of tiny tubercles bearing short setae anteriorly or short spines posteriorly; pyloric part covered by long, fine setae.

Paracupta erythrocephala (Montrouzier, 1860) (Figs 20-29, 63, 67)

Material studied: 5 adult larvae, 2 middle-aged larvae; New Caledonia, Mt. Koghi, 25.III.1999, Sv. Bílý leg.; larvae extracted from the log of dead *Montrouziera* sp. (Clusiaceae).

Length of adult larva: 56.0-58.0 mm; width of prothorax: 7.5-8.0 mm.

Larva (Figs. 20-21) cream-white, of the usual buprestid type, corresponding with the 2nd morphoecological type of buprestid larvae.

Head and mouthparts. Epistome (Fig. 22) brown, well-sclerotized, darkened anteriorly, about 5.5 times as wide as long; anterior margin widely and shallowly incurved between semiglobular mandibular condyles, posterior margin nearly straight; lateroposterior corners sharp, obtused apically, slightly projecting outwards; epistome bearing just behind its midlength two groups of epistomal sensillae, each group consisting of two short trichosensillae and one campaniform sensilla; clypeus (Fig. 22) membraneous, collar-shaped, about 3.5 times as wide as long; labrum (Fig. 22) slightly trapezoid, somewhat wider than long, moderately rounded anteriorly with distinct anterolateral lobes; entire anterior margin of labrum (incl. lobes) with narrow field of microsetae; palatine sclerite with both medial and lateral branches well defined and sclerotized; medial branches bearing short apical seta far not extending anterior margin of labrum, inner campaniform sensilla, and another one situated freely on the membrane between medial and lateral branches; each group of anterolateral sensillae consists of 3 setae and one campaniform sensilla externally and internally, the bases of internal sensillae adjacing to each other; the position of anterolateral sensillae is as follows: (1t,2c)-3t-4t/1c+(2t,3t)+4t; inner surface of labrum (epipharynx) with two longitudinal stripes of microsetae and microspinulae (Fig. 23).

Antennae (Fig. 24) two-segmented, internal sclerites of both segments well-developed; basal segment somewhat dilated anteriorly, about 1.2 times as long as wide, bearing two campaniform sensillae and crown of apical microspinulae which are somewhat prolonged at outer side of segment; terminal segment much shorter than basal one, about 1.3 times as long as wide, bearing apical crown of microspinulae and one long trichosensilla which is as long as basal antennal segment; apical cavity of terminal segment shallow with conical sensory appendage, two palmate and one basiconic sensillae.

Mandibles (Fig. 67) robust, nearly black, triangular with two small, apical teeth; cutting edge with small and obtuse basal tubercle and small, sharp tooth near the base of apical teeth.

Hypostome moderately sclerotized, pleurostomes without traces of ocelli.

Labiomaxillary complex (Figs. 25-26). Maxillar cardo (Fig. 25) with small, oval, isolated sclerite near base of stipes bearing two trichosensillae and one campaniform sensilla; stipes (Fig. 26) with well-sclerotized internal sclerite bearing one short trichosensilla and one campaniform sensilla externally; apical part of stipes with one long seta as long as basal segment of maxillary palpus, the field of microspinulae near base of palpus maxillaris, and group of microsetae on

lateroanterior margin; mala (Fig. 26) robust, somewhat longer than wide with well developed internal sclerite; apical part and inner margin of mala with field of long microsetae which continues as far as to basal third of stipes; apical part of mala with 3 external and 5 internal long and thick setae, 2 long apical basiconic and one external campaniform sensillae; palpus maxillaris (Fig. 26) two-segmented, rather long with well-developed internal sclerites in both segments; basal segment nearly twice as long as wide with one external campaniform sensilla at base, one relatively short seta at anterolateral part, and with apical crown of long microspinulae; terminal segment distinctly shorter than basal one, 1.5 times as long as wide bearing one outer campaniform sensilla, inner curved sensilla and approx. 8 apical, small sensory cones; prementum (Fig. 25) prolonged, about 1.5 times as long as wide with rounded anterior and lateral margins; corner sclerites of prementum well-developed with one very short trichosensilla and 5 campaniform sensillae each, without groups of microspinulae; median part of prementum with two oblique areas of dense microspinulae; anterior margin and lateral sides of labium with dense, brown microsetae and microspinulae; postmentum without setae.

Thorax (Figs. 20-21). Pronotal and prosternal plates well-developed, completely covered by dark brown, asterisk-shaped asperities (Fig. 29); pronotal groove inverted V-shaped, both branches narrow and straight forming angle about 20°, area between their ends completely covered with asperities, without any trace of microteeth; prosternal groove very narrow, weakly sclerotized and slightly bifurcate anteriorly; mesothorax (Figs. 20-21) glabrous, ring-shaped, about 4 times as wide as long; mesothoracic spiracles (Fig. 27) very prolonged, reniform, 6 times as long as wide with extremely dense trabeculae; metathorax (Figs 20, 21) glabrous, distinctly wider than mesothorax, about 4 times as wide as long; ventral side with well-developed, large, lateral tubercles and rudiments of legs.

Abdomen (Fig. 20). First abdominal segment conical, twice as wide as long and somewhat wider than following segments; anal segment conical with vertical anal rim; segments 2-9 cylindrical, distinctly longer than wide with longitudinal, dorsolateral depressions; abdominal spiracles (Fig. 28) shortly reniform, twice as long as wide, of the same type like mesothoracic ones.

Proventriculus (Fig. 63). Inner, dorsal wall of proventriculus with glabrous medial part; lateroposterior parts of dorsal wall with small, weakly sclerotized tubercles bearing apical, very small asperities; pyloric part covered by long, hair-like microspinulae.

PSILOPTERINI Lacordaire, 1857

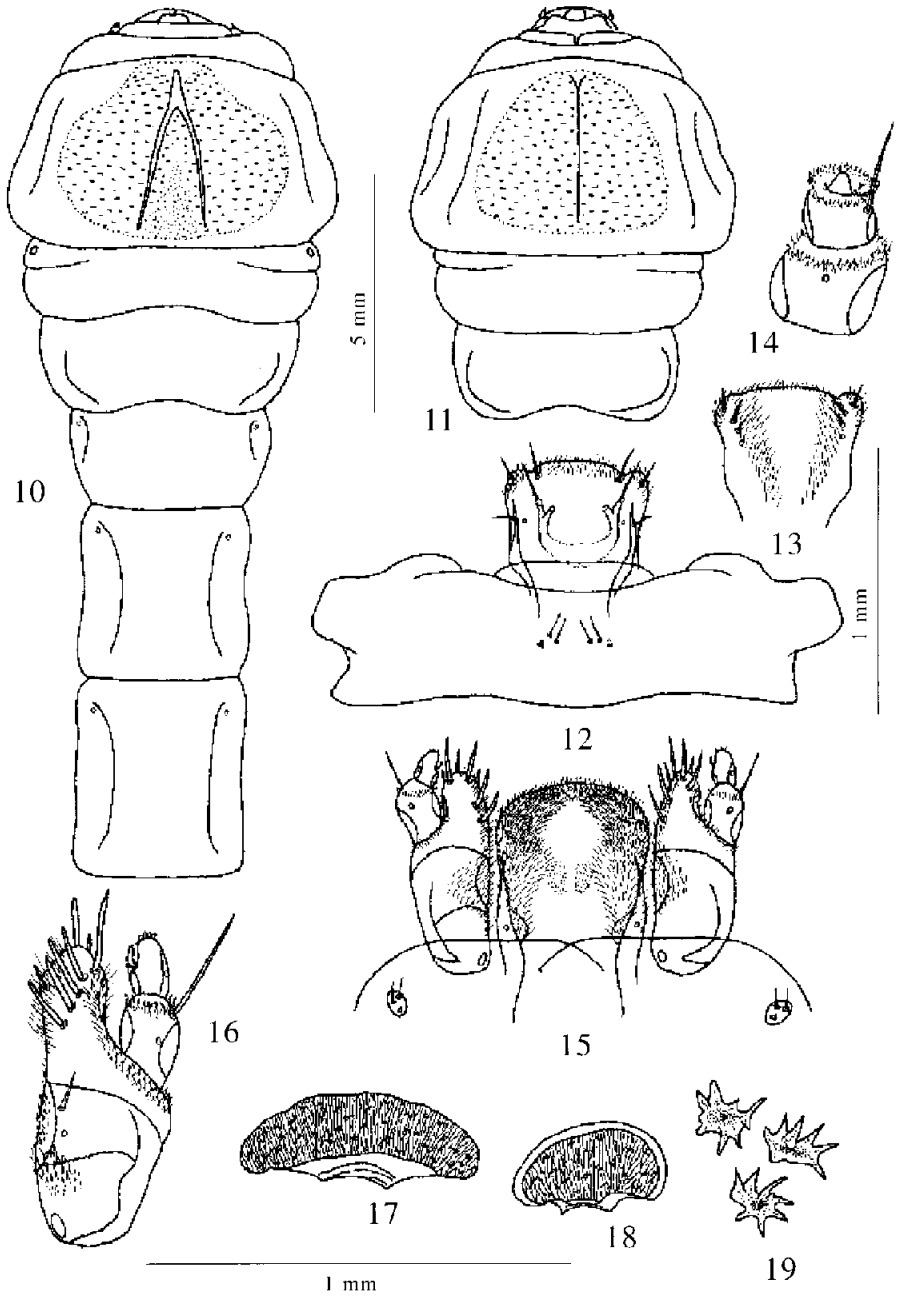
Polybothris angulosa Théry, 1905 (Figs 1-9, 60, 67)

Material studied: 2 adult larvae, 3 middle-aged larvae; Madagascar, Zazafotsy, 29.XII.1999, M. Ivie leg.; ex *Ziziphus* sp.

Length of adult larva: 51.0–57.0 mm; width of prothorax 10.0–10.5 mm.

Larva belongs to the usual buprestid type with strongly dilated prothorax (Figs. 1-2), corresponding with the 2nd morphoecological type of buprestid larvae.

Head and mouthparts. Epistome (Fig. 3) dark brown, well-sclerotized, about 6.5 times as wide as long; anterior margin deeply bisinuous between semiglobular mandibular condyles, posterior margin slightly trisinuous; lateroposterior angles



Figs. 10-19. Larva of *Chrysodema impressicollis* Laporte & Gory, 1835. Anterior part of body, dorsal view (10); thorax, ventral view (11); epistome and labrum (12); hypopharynx (13); antenna (14); labiomaxillary complex (15); maxilla (16); mesothoracic spiracle (17); abdominal spiracle (18); asperities of pronotal and prosternal plates (19).

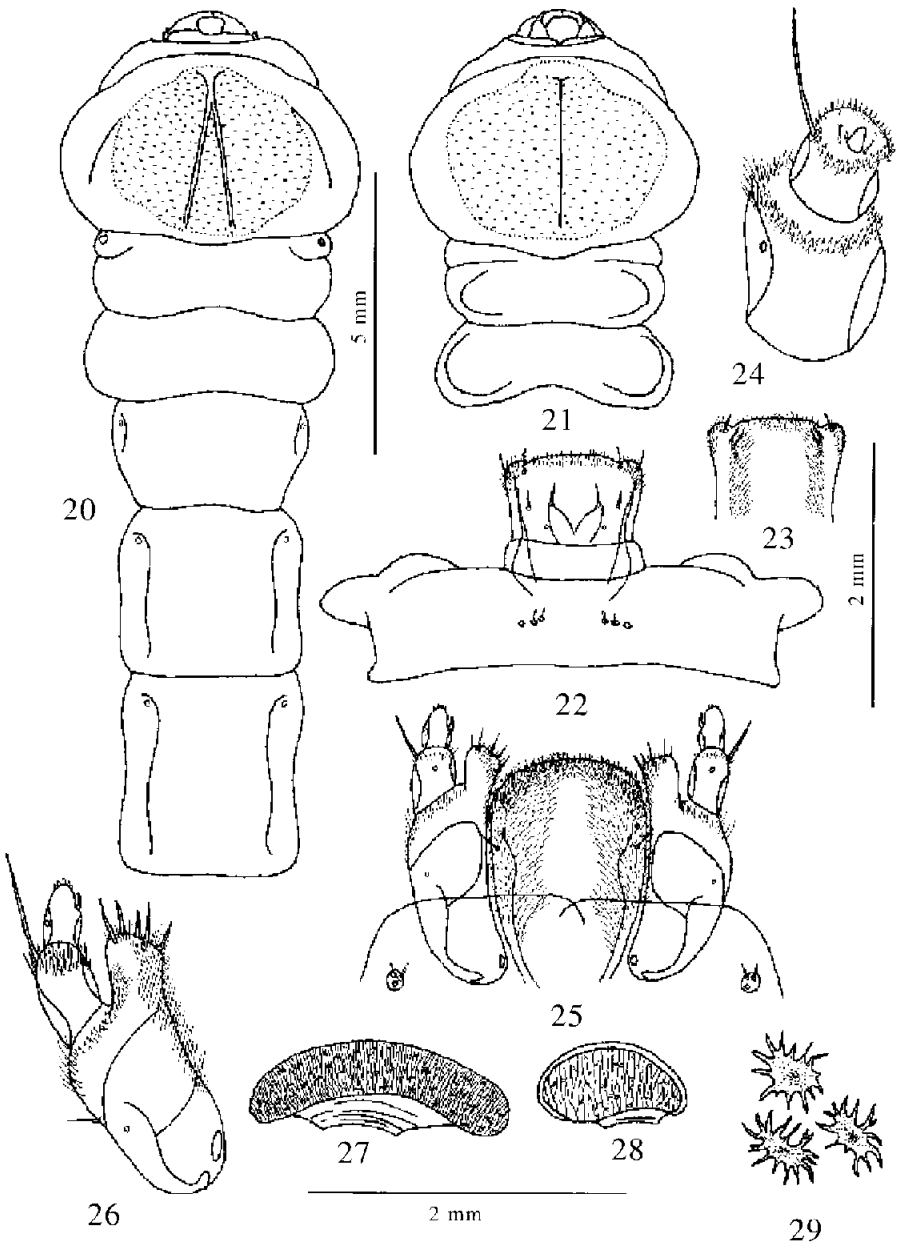
obtuse-angled, slightly projecting outwards; epistome bearing two groups of short epistomal trichosensillae positioned in shallow depressions near epistomal midlength (Fig. 3), all sensillae of the same length. Clypeus (Fig. 3) membraneous, collar-shaped, about 3.5 times as wide as long. Labrum (Fig. 3) slightly trapezoid, narrowed posteriorly, its anterior margin distinctly bisinuous with well-developed lateral lobes; entire anterior margin covered by short, dense, yellow-brown microsetae and microspinulae, posterior border of microsetal area forming zig-zag line extending about 1/3 of the length of labrum; palatine sclerites with both lateral and medial branches well defined and sclerotized though medial ones slightly reduced; each of medial branches bearing one terminal seta and one campaniform sensilla, another medial campaniform sensilla situated between lateral and medial branches on each side; each lateral branch bearing 3 anterolateral trichosensillae (two apical and one medial) and 1 campaniform sensalla externally, and 3 trichosensillae with fused bases and one campaniform sensilla internally; the position of anterolateral sensillae is as follows: (1t,2c)+3t-4t/1c+(2t,3t,4t). Inner side of labrum (epipharynx) with two prolonged fields of microsetae and microspinulae which are fluently connected with microsetal areas on dorsal side and lateral lobes of labrum (Fig. 4).

Antennae (Fig. 5) two-segmented, situated in deep lateral incisions of epistome; basal segment cylindrical, about 1.8 times as long as wide, strongly sclerotized and nearly 3 times as long as terminal segment; basal segment bears one large, campaniform sensilla near its midlength, another one internally near the apex and crown of microsetae and microspinulae on apical margin; terminal antennal segment short, ring-shaped with apical crown of sharp microspinulae and one long trichosensilla on outer margin; internal sclerites of terminal segment weakly developed; apical cavity with small, conical sensory appendage, two palmate sensillae and one basiconic sensilla.

Mandibles (Fig. 68) black, well-sclerotized, nearly triangular and slightly longer than wide; cutting edge with two obtuse tubercles, apex of mandibles with two slightly incurved teeth.

Hypostome relatively weakly sclerotized, pleurostomes without any traces of ocelli.

Labiomaxillary complex (Figs. 6-7). Cardo (Fig. 6) membranous with nearly rounded, isolated sclerite bearing two trichosensillae and one campaniform sensilla; stipes (Fig. 7) with well-sclerotized internal sclerite bearing small, external campaniform sensilla and short seta; another long seta almost as long as basal segment of maxillary palpus arises behind its base; inner part of stipes with microspinulae along entire internal margin and a wide microspinulated area at the base; apical part of stipes with crown of microspinules extending from external seta to base of mala; mala (Fig. 7) stout, slightly longer than wide with 3 thick setae and 2 basiconic sensillae apically and 5 thick setae internally; internal sclerite of mala well-developed with one campaniform sensilla; apical part and inner margin of mala covered with microsetae; palpus maxillaris (Fig. 7) two-segmented, basal segment slightly longer than wide with well developed internal sclerite, apical crown of microspinulae and long outer seta which is as long as basal segment; terminal segment distinctly shorter than basal one, its internal sclerite well-developed bearing outer campaniform sensilla and inner curved sensilla; apex of terminal segment with 7-8 small, conical sensillae; prementum (Fig. 6) transverse with widely rounded anterolateral corners and well-developed corner sclerites of prementum; each sclerite bearing 1 short trichosensilla reaching the posterior border of anterior microsetal area and 5 campaniform sensillae; external surface of prementum with a wide



Figs. 20-29. Larva of *Paracupta erythrocephala* Montrouzier, 1860. Anterior part of body, dorsal view (20); thorax, ventral view (21); epistome and labrum (22); hypopharynx (23); antenna (24); labiomaxillary complex (25); maxilla (26); mesothoracic spiracle (27); abdominal spiracle (28); asperities of pronotal and prosternal plates (29).

microsetal area along anterior margin, the posterior border of this area zig-zaged in shape reaching about 1/3 of the length of prementum and almost touching the anterior margins of two median microspinulated areas separated from it by narrow glabrous space; lateral and anterior parts of labium internally (hypopharynx) covered with dense, yellow-brown trichosensillae and microspinulae; postmentum without setae.

Thorax (Figs. 1-2). Both pronotal and prosternal plates covered with dense microteeth changing along the grooves into small, rounded, sclerotized asperities forming fontain groups at anterior parts of grooves; these asperities bordered entire pronotal groove and its branches and only anterior part of prosternal groove; pronotal and prosternal grooves weakly sclerotized, yellow-brown; both branches of pronotal groove straight forming sharp angle about 35°, their common, anterior part slightly enlarged anteriorly, as long as two thirds of each branch; prosternal groove long, narrow, slightly enlarged anteriorly; mesothorax (Figs 1, 2) short, glabrous with lateral folds; mesothoracic spiracles (Fig. 8) of the multiphorous type, large, irregularly reniform, about twice as wide as long with extremely dense trabeculae; metathorax (Figs. 1-2) glabrous, slightly conical with two large tubercles on ventral side. Thoracic segments ventrally with rudiments of legs.

Abdomen (Fig. 1). Abdomen 10-segmented, anal segment conical with vertical anal rim; first abdominal segment short and narrow, regularly ring-shaped, twice as wide as long with two small, dorsal depressions; segments 2-9 slightly longer than wide, cylindrical with deep, prolonged dorsolateral depressions which bear abdominal spiracles in their anterior corners (Fig. 1); abdominal spiracles (Fig. 9) shortly reniform, about twice as long as wide; they differ from mesothoracic spiracles only by shape, size and sparser trabeculae.

Proventriculus (Fig. 60). Inner, dorsal wall of proventriculus covered in anterior part by weakly sclerotized asperities, posterior part glabrous; inner wall near pylorus covered by short, tiny spines.

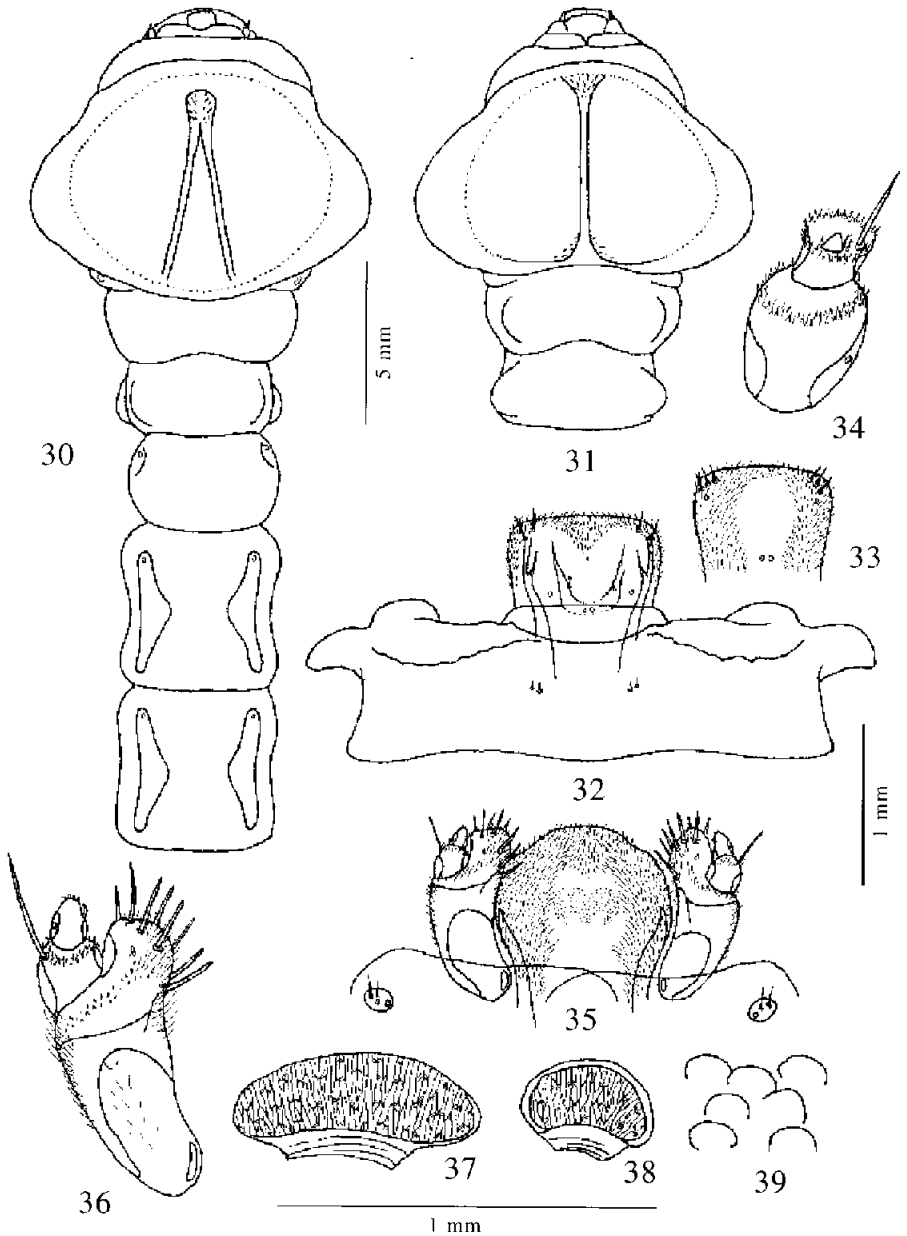
Dicercomorpha interrupta Deyrolle, 1864 (Figs 30-39, 62, 66)

Material studied: 3 adult larvae; Indonesia, Maluku, Seram, Wahai, XI.1998, Sv. Bílý leg; larvae extracted from dead, nearly rotten trunk of unidentified tree.

Length of adult larva: 53.0-56.0 mm; width of prothorax: 10.0-10.5 mm.

Larva (Figs. 30-31) cream-white with markedly enlarged prothorax, corresponding with the 2nd morphoecological type of buprestid larvae.

Head and mouthparts. Epistome (Fig. 32) well-sclerotized, brown with darkened anterior margin, about 5 times as wide as long; anterior margin bisinuous between semiglobular mandibular condyles and with irregular, nearly serrate submarginal carinas on each side; lateroposterior corners angulately obtuse, slightly projecting outwards; epistome bearing two groups of epistomal sensillae positioned in deep depressions, each group consisting of two short trichosensillae and one inconspicuous campaniform sensilla; clypeus (Fig. 32) membranous, collar-shaped, about 4 times as wide as long; labrum (Fig. 32) trapezoid with slightly arcuate anterior margin and widely rounded anterolateral corners not forming lobes; lateral sides of labrum slightly converging posteriorly; both medial and lateral branches of palatine sclerite well-developed and sclerotized; each of medial branches with a short apical seta nearly reaching the posterior border of anterior microsetal area, campaniform sensilla near the middle of branch length and another one between medial and lateral branches; anterolateral groups of sensillae on each side consists of 3 trichosensillae



Figs. 30-39. Larva of *Dicercomorpha interrupta* Deyrolle, 1864. Anterior part of body, dorsal view (30); thorax, ventral view (31); epistome and labrum (32); hypopharynx (33); antenna (34); labiomaxillary complex (35); maxilla (36); mesothoracic spiracle (37); abdominal spiracle (38); asperities of anterior parts of pronotal and prosternal grooves (39).

and 1 campaniform sensilla externally and 3 trichosensillae with closely positioned or fused bases and one campaniform sensilla internally; the position of anterolateral sensillae is as follows: (1t,2c)+3t-4t/1c+(2t,3t)+4t. Additionally, internal surface of labrum (epipharinx) bears two big and strongly sclerotized at their bases basiconic sensillae (Figs. 32-33); these sensilae sit on membrane showing no connection to any sclerite; anterior margin and anterolateral corners of labrum covered with dense, brownish microspinulae forming triangular area extending posteriorly below the bases of medial setae; inner surface of labrum (epipharynx) also with dense, brownish microspinulae except for glabrous, median part (Fig. 33).

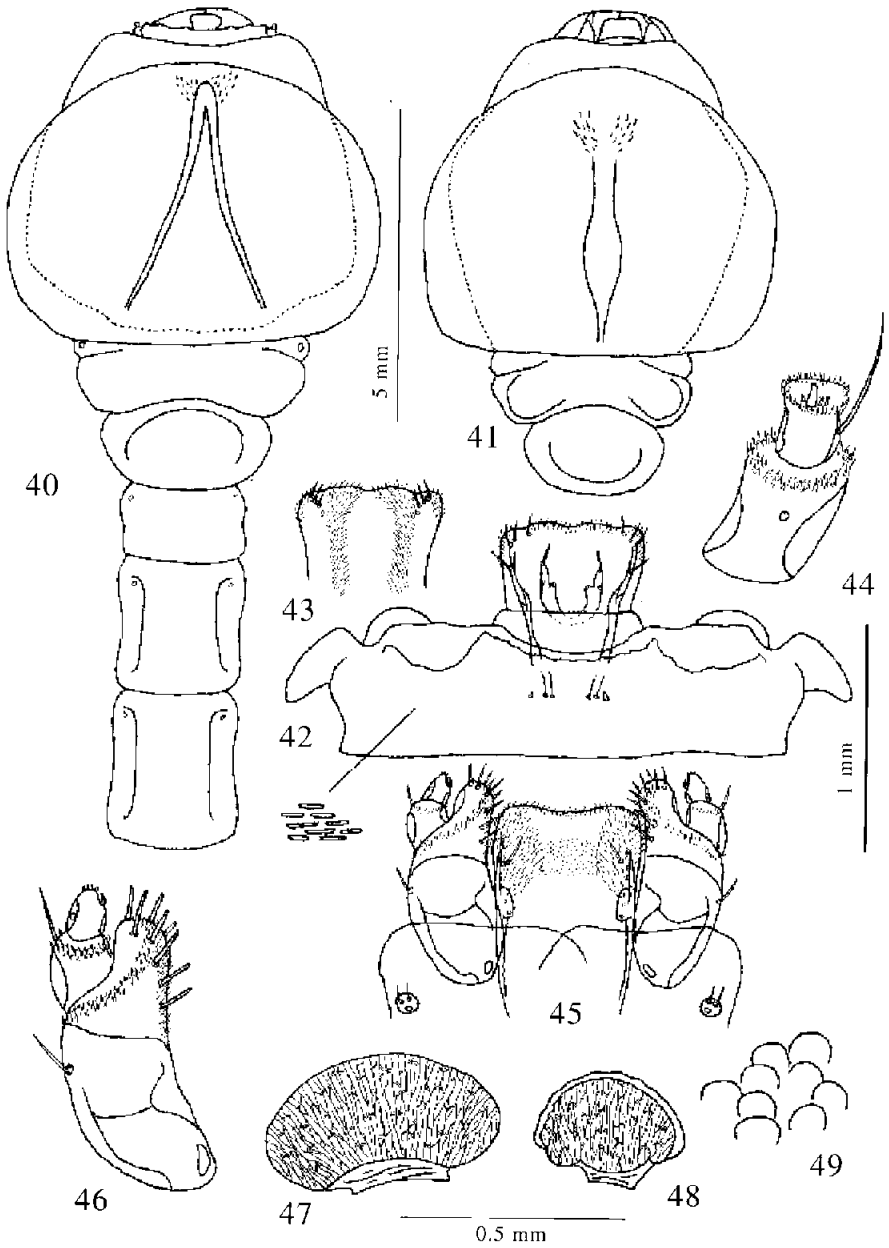
Antennae (Fig. 34) short, two-segmented, both segments with well-developed internal sclerites; basal segment suboval, about as long as wide with one campaniform sensilla externally and another one internally, and apical crown of microspinulae; terminal segment much shorter than the basal one, about 1.5 times as wide as long bearing apical crown of microspinulae and one long and thick trichosensilla which is 1.5 times as long as terminal segment; apical cavity of terminal segment with very wide, conical sensory appendage which is as wide as long and with one basiconic and two palmate sensillae.

Mandibles (Fig. 66) very sclerotized, black, nearly triangular with two simple apical teeth; cutting edge simply convex.

Hypostome well-sclerotized, brown, pleurostomes without traces of ocelli.

Labiomaxillary complex (Figs. 35-36). Maxillar cardo (Fig. 35) with relatively big, oval, isolate sclerite bearing two trichosensillae and one campaniform sensilla; stipes (Fig. 36) somewhat conical with well-sclerotized internal sclerite; outer margin of stipes covered by fine microspinulae and bearing one short trichosensilla and one campaniform sensilla; apical part of stipes with row of microspinules near base of mala and palpus maxillaris and one long trichosensilla just behind the base of palpus; mala (Fig. 36) wide and stout, distinctly wider than long with well-developed internal sclerite; mala with 3 thick and long setae and 2 basiconic sensillae apically, and with 5 thick setae internally; palpus maxillaris (Fig. 36) short, two-segmented, internal sclerites of both segments well-developed; basal segment suboval, as wide as long with apical crown of microspinulae and one long and thick, outer seta which is as long as palpus maxillaris; terminal segment conical, slightly longer than wide with one outer campaniform sensilla, inner curved sensilla and with several small, apical sensory cones; prementum (Fig. 35) oval, anterior margin with microsetal area, its posterior border zig-zaged in shape extending about 1/3 of the length of prementum and separated by glabrous space from single, irregular in shape, median microspinulated area; each corner sclerite of prementum bears short seta not extending the posterior border of anterior microsetal zone, and 5 campaniform sensillae; labium internally (hypopharynx) covered with dense, brownish microspinulae and fine microsetae except for glabrous medial part; postmentum without setae.

Thorax (Figs. 30-31). Prothoracic plates well-developed but weakly sclerotized and completely covered by dense microspinulae; pronotal groove wide, inverted V-shaped, both branches nearly straight forming angle about 30°; anterior, common part of both branches with fine, brown asperities (Fig. 39); prosternal groove rather wide, moderately sclerotized, slightly bifurcate both anteriorly and posteriorly; anterior part of groove with small, brown asperities (Fig. 39), the same asperities situated also along the posterior, bifurcate part of prosternal groove; mesothorax (Figs. 30-31) slightly conical, about 3-4 times as wide as long, ventral side with two, wide tubercles; mesothoracic spiracles (Fig. 37) reniform, about 3.5 times as



Figs. 40-49. Larva of *Haplotrinchus inaequalis* Deyrolle, 1864. Anterior part of body, dorsal view (40); thorax, ventral view (41); epistome and labrum (42); hypopharynx (43); antenna (44); labiomaxillary complex (45); maxilla (46); mesothoracic spiracle (47); abdominal spiracle (48); asperities of anterior parts of pronotal and prosternal grooves (49).

long as wide with dense trabeculae; metathorax (Figs. 30-31) ring-shaped, about 2.5 times as wide as long, slightly narrower than mesothorax; ventral side of metathorax with large, wide tubercles projecting beyond outline of metathorax.

Abdomen (Fig. 30). First abdominal segment nearly spherical, about 1.5 times as wide as long, anal sternite conical with vertical anal rim; segments 2-9 cylindrical with deep, dorsolateral, longitudinal depressions; abdominal spiracles widely reniform, 1.5 times as long as wide with dense trabeculae (Fig. 38).

Proventriculus (Fig. 62). Inner, dorsal wall of proventriculus covered with small, dense tubercles bearing small, apical spines, medioposterior part of proventriculus glabrous; pyloric part of proventriculus with a group of hair-like microsetae and small microspinulae.

Haplotrinchus inaequalis Deyrolle, 1864 (Figs 40-49, 64, 69)

Material studied: 4 adult larvae; Indonesia, Maluku, Seram, Solea, XI.1998, Sv. Bílý leg.; all larvae were taken from cut trunk of *Barringtonia* sp. (Fagaceae). Development of young larvae takes place under bark of dying trees. Middle-aged larvae continue their tunelling into sapwood and their pupal chambres are situated in superficial part of sapwood, just under the bark.

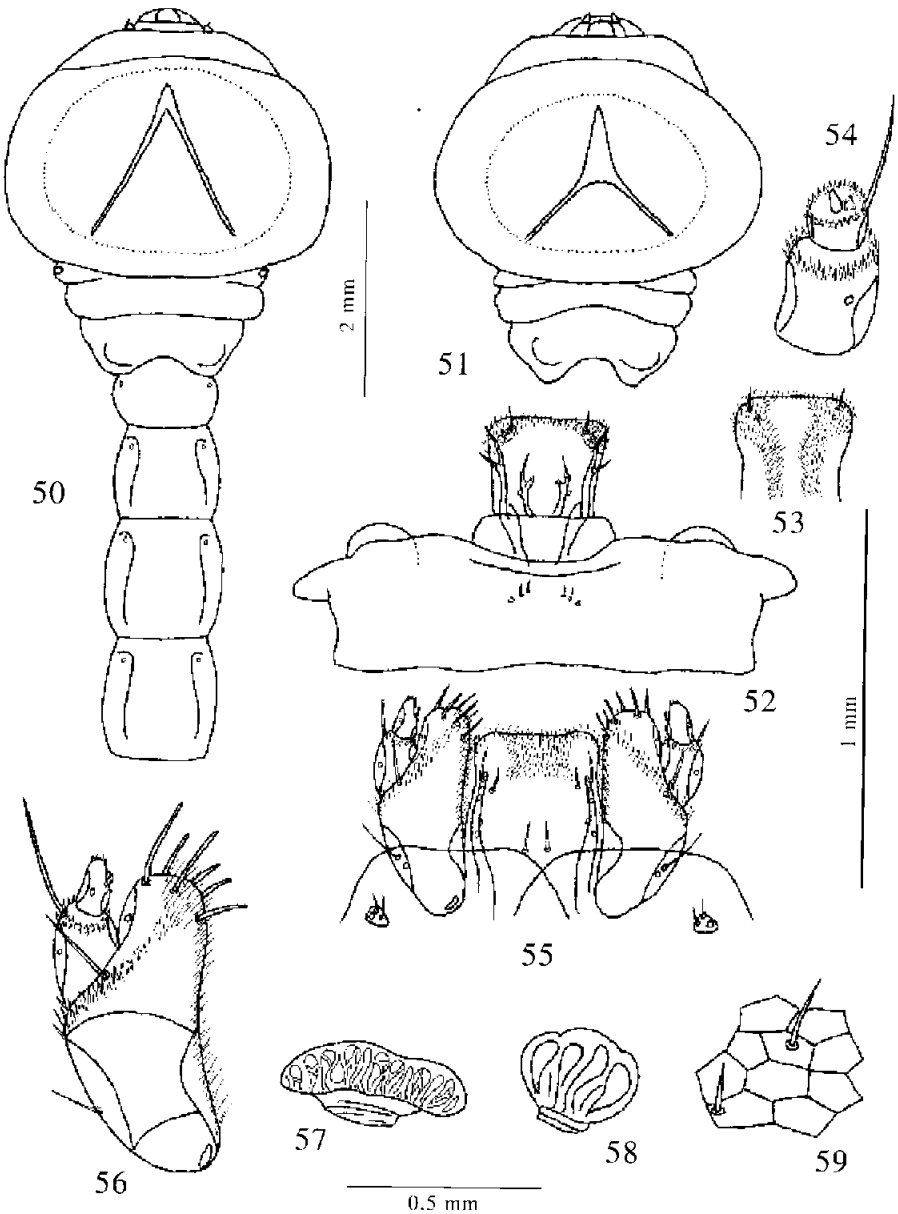
Length of adult larva: 18.0-21.0 mm; width of prothorax: 5.0-6.1 mm.

Larva (Figs. 40-41) cream-white with conspicuously enlarged prothorax, corresponding with the 2nd morphoecological type of buprestid larvae.

Head and mouthparts. Epistopme (Fig. 42) robust, about 6 times as wide as long, yellow-brown, moderately sclerotized; anterior margin darkened, deeply incurved in middle with well-developed, serrate and bisinuous submarginal carina; anteroposterior corners nearly rectangular, not projecting outwards, sculpture of epistome consisting of fine, microscopic and transversely very widened asperities (Fig. 42); epistome bearing two groups of epistomal sensillae in anterior 1/2, each of them consisting of two, rather long trichosensillae and one basiconic sensilla; clypeus (Fig. 42) membranous, collar-shaped, 4 times as wide as long; labrum (Fig. 42) slightly trapezoid, nearly bisinuous anteriorly with weakly delimited anterolateral lobes; palatine sclerite well-developed, lateral branches thin, almost straight; medial branches of palatine sclerite poorly sclerotized, each with a long apical seta extending anterior margin of labrum, and with 2 campaniform sensillae; anterolateral groups of sensillae on each side consist of 3 long trichosensillae and 1 campaniform sensilla externally and 3 adjacing though separated from each other trichosensillae and 1 campaniform sensilla internally; the position of anterolateral sensillae is as follows: (1t,2c)-3t-4t/1c+2t+3t+4t; only anterior margin and anterolateral lobes with microspinulae; inner surface of labrum (epipharynx) with two longitudinal fields of microspinulae (Fig. 43).

Antennae (Fig. 44) rather long, two-segmented, internal sclerites of both segments well-developed; basal segment cylindrical, 1.5 times as long as wide bearing one campaniform sensilla externally, another one internally, and apical crown of microspinulae; terminal segment cylindrical, 1.3 times as long as wide, distinctly shorter than basal one, bearing apical crown of microspinulae and one long and thick trichosensilla which is as long as basal segment; apical cavity of terminal segment with long sensory appendage, two palmate sensillae and one small basiconic sensilla.

Mandibles (Fig. 69) well-sclerotized, dark brown, nearly triangular with two rather small, apical teeth, each of them with small, inner tooth; cutting edge slightly bisinuous, outer mandibular margin finely serrate near mandibular condyle.



Figs. 50-59. Larva of *Melobasis* (*Dicercopygus*) *viridiauratus* Deyrolle, 1864. Anterior part of body, dorsal view (50); thorax, ventral view (51); epistome and labrum (52); hypopharynx (53); antenna (54); labiomaxillary complex (55); maxilla (56); mesothoracic spiracle (57); abdominal spiracle (58); sculpture of pronotal and prosternal plates (59).

Hypostome moderately sclerotized, pleurostomes without traces of ocelli.

Labiomaxillary complex (Figs. 45-46). Cardo (Fig. 45) with small, oval sclerite near base of stipes bearing two trichosensillae and one campaniform sensilla; stipes (Fig. 46) with well-developed internal sclerite, one short thick trichosensilla and one campaniform sensilla on outer margin; apical part of stipes with one long trichosensilla behind the base of maxillar palpus which is as long as maxillar palpus itself and a row of microspinulae reaching apical part of mala; mala (Fig. 46) stout, as wide as long with 8 long, thick setae and 2 basiconic sensillae on its apex and inner margin; palpus maxillaris (Fig. 46) two-segmented, internal sclerites of both segments well-developed; basal segments subcylindrical, slightly longer than wide with apical crown of microspinulae and one long, outer seta of the same length as basal segment; terminal segment slightly conical with outer campaniform sensilla, inner curved sensilla and with several, apical sensory cones; prementum (Fig. 45) slightly trapezoidal, its anterior margin slightly incurved; corner sclerites of prementum well-sclerotized, each with long trichosensilla extending anterior margin of median microspiculated area and with 5 campaniform sensillae; anterior margin narrowly bordered with row of microspinulae; median part of prementum with very large single microspinulated area; labium internally with two lateral longitudinal microsetal zones; postmentum without setae.

Thorax (Figs. 40-41). Prothorax conspicuously enlarged, pronotal and prosternal plates well-developed but nearly unsclerotized, completely covered by microteeth; pronotal groove inverted V-shaped, both branches slightly bent outwards, weakly sclerotized, forming angle about 35°; apical part of pronotal groove surrounded by well-sclerotized asperities (Figs. 40, 49); prosternal groove wide, incomplete, reaching only anterior third of prosternal plate and enlarged in posterior half; anterior end of prosternal groove with cluster of small, well-sclerotized asperities (Figs. 41, 49); mesothorax (Figs. 40-41) shortly conical, 4.5-5.0 times as wide as long with two large, ventral tubercles; mesothoracic spiracles reniform, twice as long as wide with dense trabeculae (Fig. 47); metathorax (Figs. 40-41) suboval, transverse, twice as wide as long.

Abdomen (Fig. 40). First abdominal segment short, ring-shaped, as wide as following segments, anal sternite conical with vertical anal rim; segments 2-9 cylindrical, 1.5-2.0 times as long as wide with rather deep, dorsolateral depressions; abdominal spiracles (Fig. 48) suboval, 1.5 times as long as wide with dense trabeculae.

Proventriculus (Fig. 64). Inner, dorsal wall of proventriculus with irregular field of small, dense tubercles bearing one long and 1-3 short spines; pyloric part of proventriculus with a field of fine, hair-like setae.

Haplotrinchus embrikiellus Obenberger, 1936

Material studied: 8 middle-aged larvae; Indonesia, Maluku, Seram, Solea, II.1997, Sv. Bílý leg.; larvae were taken from sapwood of dead branch of *Barringtonia* sp. (Fagaceae); the life history of larvae of *H. embrikiellus* is identical with that of *H. inaequalis* (see above).

Length of middle-aged larva: 12.0-15.0 mm; width of prothorax: 3.5-3.8 mm.

Having compared larvae of *H. embrikiellus* and *H. inaequalis* we failed to find any substantial difference. The only characters differentiating both species are as follow: branches of pronotal groove are more bent outwards and fields of asperities around anterior end of both pronotal and prosternal grooves are much smaller (sometimes composed only of a few asperities) in *H. embrikiellus*.

MELOBASINI Bílý, 2000

Melobasis (Dicercopygus) viridiauratus Deyrolle, 1864 (Figs 50-59, 65, 70)

Material studied: 2 adult larvae; Indonesia, Maluku, Seram, Solea, XI.1998, Sv. Bílý leg.; both larvae were taken from under the bark of branch (diameter 2-4 cm) of unidentified, dead tree.

Length of adult larva: 13.5-14.0 mm; width of prothorax: 2.9 mm.

Larva (Figs. 50-51) white with very enlarged prothorax, corresponding with the 2nd morphoecological type of buprestid larvae.

Head and mouthparts. Epistome (Fig. 52) rather robust, yellow-brown, about 5 times as wide as long with moderately incurved anterior margin; posterior margin very slightly bisinuous, lateroposterior corners blunt, nearly rectangular, not projecting outwards; epistome bearing two groups of epistomal sensillae at anterior 1/4 of its length, each group consisting of two trichosensillae and one basiconic sensilla; anterior part of epistome with short, submarginal carina; clypeus (Fig. 52) membraneous, collar-shaped, about 3 times as wide as long; labrum (Fig. 52) nearly rectangular with straight anterior margin and moderately rounded anterolateral corners; palatine sclerite of labrum with poorly defined and sclerotized medial branches and well-developed and sclerotized lateral branches; medial group of sensillae on each side consists of short apical trichosensilla not extending posterior border of anterior microspinulated area, and 2 campaniform sensillae sitting almost at the same level posteriorly the midlength of the labrum; anterolateral group of sensillae on each side consists of two trichosensillae and one campaniform sensilla between them arising from fused and strongly sclerotized bases forming distinct additional sclerite like in *Melobasis vertebralis* (VOLKOVITSH & HAWKESWOOD, 1994, Fig. 5, as), and one sharp trichosensilla situated at anterior 1/4 of lateral branches of palatine sclerite externally, and 1 blunt trichosensilla and 1 campaniform sensilla at anterolateral corners internally; the position of anterolateral sensillae is as follows: (1t,2c,3t)-4t/1c+2t. Labrum externally with narrow area of dense microsetae along anterior margin and zones of microsetae and microspinulae at anterolateral corners; labrum internally (epipharynx) with two wide longitudinal zones of microspinulae.

Antennae (Fig. 54) two-segmented, internal sclerites of both segments well-developed; basal segment cylindrical, 1.5 times as long as wide, bearing one campaniform sensilla externally, another one internally, and apical crown of microspinulae; terminal segment very stout, ring-shaped, 1.5 times as wide as long, bearing apical crown of microspinulae and long, outer seta which is as long as entire antenna; apical cavity of terminal segment with sensory appendage and two palmate sensillae.

Mandibles (Fig. 70) dark brown, well-sclerotized, nearly triangular with simple dorsal and bifurcate ventral, apical teeth; cutting edge simply convex.

Hypostome weakly sclerotized, pleurostomes without traces of ocelli.

Labiomaxillary complex (Figs. 55-56). Cardo (Fig. 55) with small, reduced, poorly sclerotized, nearly triangular, isolate sclerite near base of stipes, bearing two trichosensillae and one campaniform sensilla; stipes (Fig. 56) with well-developed internal sclerite and one, rather long trichosensilla and one campaniform sensilla on outer margin; inner margin covered by fine microsetae, apical part of stipes with stripe of microspinulae reaching apical part of mala, and a long trichosensilla as long as maxillar palpus; mala (Fig. 56) very robust, as wide as long, bearing 7 long and thick, apical and internal setae and 2 apical basiconic

sensillae; internal sclerite of mala well-developed bearing one campaniform sensilla; apical part of inner margin of mala with fine microspinulae; palpus maxillaris (Fig. 56) two-segmented, internal sclerites of both segments well-developed; basal segment subconical, 1.3 times as long as wide, bearing apical crown of microspinulae, one long, outer seta which is as long as palpus maxillaris, and one outer campaniform sensilla; terminal segment conical, nearly twice as long as wide, bearing outer campaniform sensilla, inner curved sensilla and several small, apical sensory cones; prementum (Fig. 55) longer than wide, its anterior margin very slightly incurved, lateral margins bisinuous; corner sclerites of prementum well-developed, each bearing one long trichosensilla almost reaching anterior margin of prementum and 5 campaniform sensillae; anterior margin of prementum with triangular, sharply widened posteriorly field of microspinulae and microsetae; postmentum with two long setae.

Thorax (Figs. 50-51). Prothorax very widened, nearly oval, both pronotal and prosternal plates not sclerotized and weakly delimited; both pronotal and prosternal plates with fine, pentagonal and hexagonal microsculpture (Fig. 59); pronotal groove only slightly sclerotized, inverted V-shaped, both branches very narrow and slightly bent outwards forming angle about 50°; prosternal groove weakly sclerotized, 3-armed, nearly asterisk-shaped, anterior arm enlarged; posterior arms forming angle nearly 90°; mesothorax (Figs. 50-51) short, ring-shaped, about 5 times as wide as long; mesothoracic spiracles (Fig. 57) irregularly reniform, 4 times as long as wide with rather sparse trabeculae; metathorax (Figs. 50-51) conical, 3.5 times as wide as long with dorsal and ventral pair of tubercles; posterior margin of metathorax deeply incurved.

Abdomen (Fig. 50). First abdominal segment nearly spherical, much narrower than metathorax or following abdominal segments; anal segment conical with vertical anal rim; segments 2-9 subcylindrical, about 1.5 times as long as wide, each with dorsolateral, prolonged depressions; abdominal spiracles (Fig. 58) irregularly oval, nearly as long as wide, only with few trabeculae.

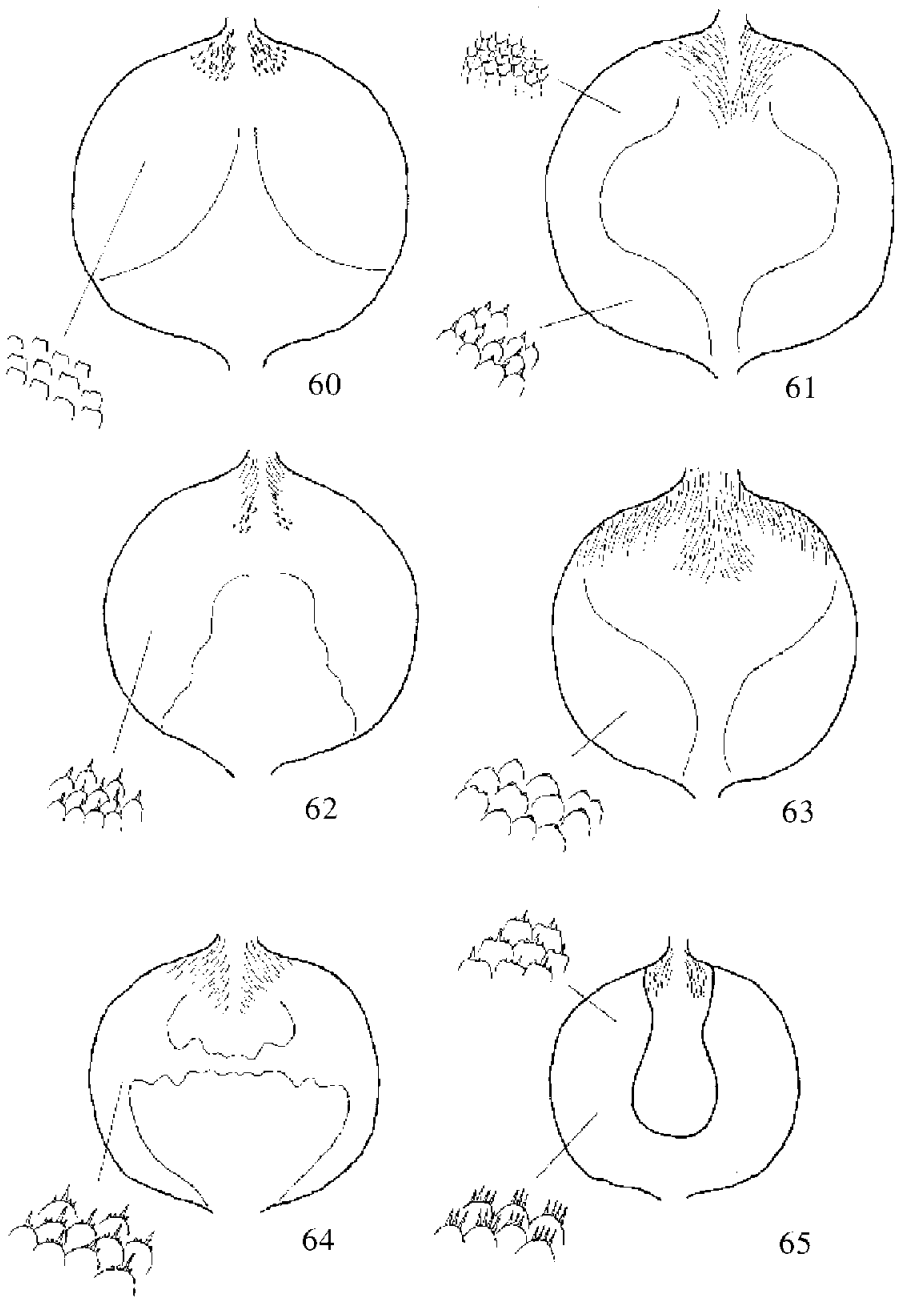
Proventriculus (Fig. 65). Inner, dorsal wall of proventriculus covered by dense tubercles bearing various types of spines (see Fig. 65); only narrow, medial part glabrous, pyloric part with long and fine, hair-like microsetae.

DISCUSSION

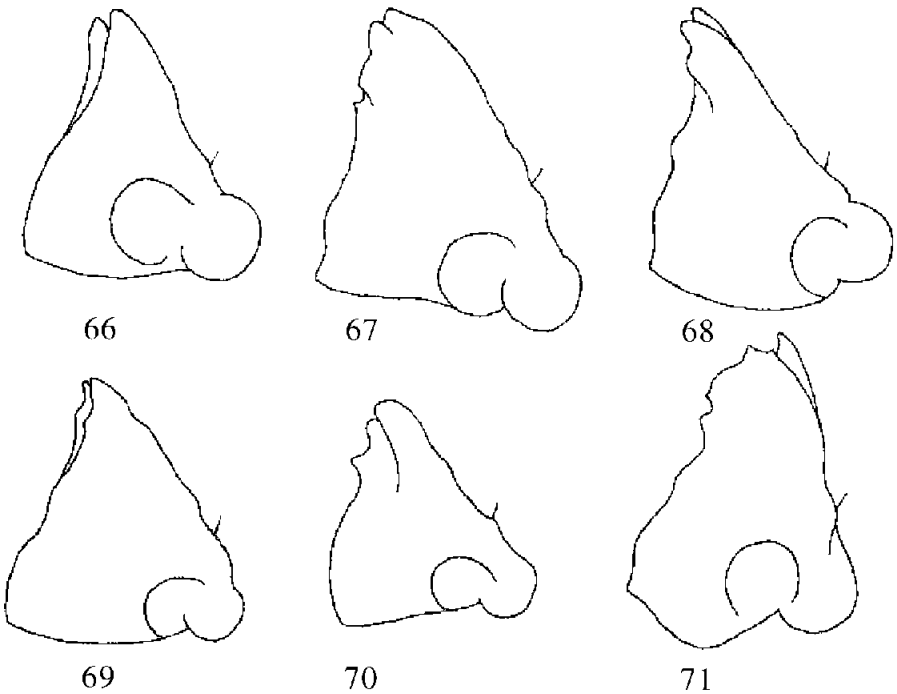
In order to compare the larvae under study with those of the same or closely related taxa, the larvae of following species were examined: Chalcophorini: *Chrysodema lewisii* Saunders, 1873, *Cyphogastra bruijni* Landsberg, 1880, *Chalcophora mariana* (Linnaeus, 1758); Psilopterini: *Capnodis miliaris* (Klug, 1829), *Dicerca (Dicerca) alni* (Fischer, 1823), *D. (Argante) moesta* (Fabricius, 1793); Poecilonotini: *Poecilonota variolosa* (Paykull, 1799), *Scintillatrix (Scintillatrix) rutilans* (Fabricius, 1777), *S. (S.) mirifica* (Mulsant, 1855); Melobasini: *Melobasis (Melobasis) vertebralis* Carter, 1923.

Chalcophorini

According to traditional concept of buprestid classification (BELLAMY, 1985), both *Chrysodema* Laporte & Gory, 1835 and *Paracupta* Deyrolle, 1864 belong to



Figs. 60-65. Sculpture of inner, dorsal wall of proventriculus. *Polybothris angulosa* Théry, 1905 (60); *Chrysodema impressicollis* Laporte & Gory, 1835 (61); *Dicercomorpha interrupta* Deyrolle, 1864 (62); *Paracupta erythrocephala* Montrouzier, 1860 (63); *Haplotrinchus inaequalis* Deyrolle, 1864 (64); *Melobasis* (*Dicercopygus*) *viridiauratus* Deyrolle, 1864 (65).



Figs. 66-71. Mandibles. *Dicercomorpha interrupta* Deyrolle, 1864 (66); *Paracupta erythrocephala* Montrouzier, 1860 (67); *Polybothris angulosa* Théry, 1905 (68); *Haplotrinchus inaequalis* Deyrolle, 1864 (69); *Melobasis* (*Dicercopygus*) *viridiauratus* Deyrolle, 1864 (70); *Chrysodema impressicollis* Laporte & Gory, 1835 (71).

the tribe Chalcophorini Lacordaire, 1857 of Chalcophorinae; later HOLYNSKI (1993) transferred *Paracupta* to substribe Chrysochroina Laporte, 1835 belonging to the tribe Buprestini Leach, 1815 of Buprestinae while *Chrysodema* was attributed to subtribe Chalcophorina Lacordaire, 1857 of the same tribe. Being avoided the discussion about the placement of these genera to Buprestini, it may be noted that we failed to find any distinct differences in larval characters neither between these genera nor among them and other studied chalcophorine genera *Chalcophora* Dejean, 1833 whose larvae are known and sufficiently described (BÍLÝ, 1984, 1999) and *Cyphogastra* Deyrolle, 1864 (the latter also was transferred by Holynski to Chrysochroina); in the same time there are important differences between the larvae of chalcophorine and psilopterine genera (see below).

The main diagnostic characters among the larvae of *Chrysodema*, *Paracupta*, and *Chalcophora* are shown in Table 1. Sharing the same general chalcophorine features, larvae of all studied genera demonstrate some unimportant differences in the shape, proportions, and sclerotization of individual segments and sclerites: the shape of microsetal areas on the mouthparts as well as the length and disposition of setae and sensillae; the shape, sclerotization and trabecular composition of spiracles, the armament of proventriculus, etc. Only *Chrysodema* larvae (two species) differ from other studied chalcophorine genera in the presence of microteeth area between the ends of pronotal groove branches (Fig. 10). However, having studied only a

Table 1. Comparision of main taxonomic characters among larvae of chalcophorine genera *Chrysodema*, *Paracupta*, and *Chalcophora*.

Character	*Chrysodema*	*Paracupta*	*Chalcophora*
Palatine sclerite of labrum	Medial branches reduced and poorly sclerotized; medial apical seta extending anterior margin of labrum (Fig.12)	Medial branches well defined and sclerotized; medial apical seta short, far not extending anterior margin of labrum (Fig. 22)	Medial branches reduced and poorly sclerotized; medial apical seta short, far not extending anterior margin of labrum
Isolated sclerite of cardo	Bearing 2 setae and 1 campaniform sensilla (Fig. 15)	Bearing 2 setae and 1-2 campaniform sensillae (Fig. 25)	Bearing 2 setae and 4-5 campaniform sensillae
Anterior margin of prementum	Evenly rounded (Fig. 15)	Evenly rounded (Fig. 25)	Nearly straight
Posterior border of microsetal zone along anterior margin of prementum	At anterior 1/4 of premental length (Fig. 15)	At less than anterior 1/4 of premental length (Fig. 25)	Just behind anterior margin
Corner sclerites of prementum	With long seta extending anterolateral margin of prementum and a group of a few microspinulae just behind the base of seta (Fig. 15)	With short seta far not extending anterior margin of prementum, without microspinulae (Fig. 25)	With short seta far not extending anterior margin of prementum, without microspinulae
Pronotal groove branches	Forming the angle about 30°, clearly curved (Fig. 10)	Forming the angle about 20°, nearly straight (Fig. 21)	Forming the angle about 30°, slightly curved
Area between ends of pronotal grooves	With a zone lacking asperities and covered with microteeth (Fig. 10)	Completely covered with asperities, without microteeth (Fig. 20)	Completely covered with asperities, without microteeth

single or few larvae of such large genera like *Chrysodema* or *Chalcophora* it is impossible to suggest whether these differences can serve to distinguish genera or they fluctuate on specific level. At least, based on larval characters no differences between Chalcophorini(-na) and Chrysochroini(-na) were found so far and all studied genera are very closely related. These conclusions are supported by the examination of adult antennal structures (VOLKOVITSH, unpublished data).

Psilopterini

In accordance with BELLAMY (1985) the genus *Polybothris* Dejean, 1833 belongs to the tribe Psilopterini Lacordaire, 1857 (Chalcophorinae) while *Dicercomorpha* Deyrolle, 1864 and *Haplotrinchus* Kerremans, 1903 together with *Dicerca* Eschscholtz, 1829, *Poecilonota* Eschscholtz, 1829, and *Scintillatrix* Obenberger, 1956 are attributed to the tribe Dicercini Kerremans, 1893 (Buprestinae). HOLYNSKI (1993) transferred all these genera except for *Haplotrinchus* to the subtribe Psilopterina Lacordaire, 1857 of the tribe Buprestini and separated *Haplotrinchus* into a separate subtribe Haplotrinchina Holynski ,1993. Larval characters of above mentioned and other known psilopterine genera *Perotis* Dejean, 1833, *Capnodis* Eschscholtz, 1829 and *Cyphosoma* Mannerheim, 1837 partly support this opinion though there are some differences in larval characters among these genera and *Poecilonota* and *Scintillatrix* (Table 2) confirmed by adult antennal characters (VOLKOVITSH, unpublished date). Larval structures of other listed taxa

Table 2. Comparision of main taxonomic characters among larvae of psilopterine genera *Polybothris*, *Dicercomorpha*, *Haplotrinchus*, *Dicerca*, *Poecilonota*, and *Scintillatrix*.

Character	*Polybothris*	*Dicercomorpha*	*Haplotrinchus*	*Dicerca*	*Poecilonota*, *Scintillatrix*
Labrum, inner surface between microspinulated zones	Glabrous	Bearing two basiconic sensillae with strongly sclerotized bases (Fig. 32, 33)	Glabrous	Glabrous	Glabrous
Labrum, medial apical setae	Not extending posterior border of anterior microspinulated area (Fig. 3)	Extending posterior border of anterior microspinulated area (Fig. 32)	Extending anterior margin of labrum (Fig. 42)	Long but not extending anterior margin of labrum	Extending posterior border of anterior microspinulated area
Labrum, microspinulated area along anterior margin	Wide, extending posteriorly about anterior 1/3 of the length of labrum (Fig. 3)	Wide, triangular, extending posteriorly below the bases of apical medial setae (Fig. 32)	Narrow, along anterior margin (Fig. 42)	Narrow, triangular, not extending posteriorly the bases of apical medial setae	Narrow, along anterior margin
Prementum externally, median part	With 2 separated microspinulated zones (Fig. 6)	With single large microspinulated zone (Fig. 35)	With single large microspinulated zone (Fig. 45)	With 2 separated microspinulated zones	With 2 separated or single, large microspinulated zones
Prothoracic grooves, fontaine structure at anterior part	Present	Present	Present	Present	Absent
Prosternal groove, shape	Subparallel (Fig. 2)	Subparallel (Fig. 31)	Sharply broadened at posterior half of prosternum (Fig. 41)	Subparallel	Subparallel
Prosternal groove, asperities	Bordered with inconspicuous asperities only at anterior part and the base	Completely bordered with distinct asperities	Completely bordered with distinct asperities	Completely bordered with inconspicuous asperities	Bordered with inconspicuous asperities or without any asperities

agree with general morphology (chaetotaxy of labrum and labium, type of spiracles, vestiture of thoracic plates, shape of epistome, antennae and mandibles) of psilopterine genera with *Haplotrinchus* demonstrating most derivating states (the most remarkable difference is enormously enlarged prothorax of *Haplotrinchus* resembling somewhat the situation in Chrysobothrini and also the form of prosternal groove which is rather unusual) and deserving to be separated into distinct subtribe but belonging to the tribe Psilopterini. *Dicercomorpha* also demonstrates some peculiar state, at the first place the presence of large basiconic sensillae on inner surface of labrum (though the same sensillae were found in *Capnodis* larva). The taxonomic position of *Poecilonota* and *Scintillatrix* which were separated by ALEXEEV & BEBKA (1970) into the tribe Poecilonotini needs further investigation.

All studied psilopterine larvae differ greatly from chalcoporine larvae (*Chrysodema*, *Paracupta*, *Chalcophora*, *Cyphogastra*) among other characters in having prothoracic plates completely covered with microteeth instead of asterisk-

Table 3. Comparison of main taxonomic characters between larvae of *Melobasis (Dicercopygus) aureoviridis* Deyrolle and *M. (Melobasis) vertebralis* Carter.

Character	*M. (D.) aureoviridis* Deyrolle	*M. (M.) vertebralis* Carter*
Epistomal sensillae	Positioned superficially at anterior 1/4 of the length of epistome (Fig. 52)	Positioned inside a shallow depression just behind the midlength of epistome (Fig. 5)
Setae of corner sclerites of prementum	Long, almost reaching the anterior margin of prementum (Fig. 55)	Short, not reaching the anterior 1/3 of the length of prementum (Fig. 6)
Pronotal plates	Glabrous, without asperities (Figs. 50, 51)	Bearing large, transverse, strongly sclerotized asperities along the grooves (Figs. 9-12)
Pronotal groove, posterior branches	Straight, widely diverging just behind their common part forming an angle about 50° (Fig. 50)	Distinctly curved, subparallel at anterior half of pronotal length, then diverging forming an angle about 45° (Figs. 9, 11)
Prosternal groove, posterior branches	Thin and long, about as long as common part of the groove (Fig. 51)	Thick and short, about a half of the length of common part of the groove (Figs. 10, 12)

* Figures according to Volkovitsh & Hawkeswood (1994).

like asperities and different configuration and origin of asperities surrounded prothoracic grooves. It may be concluded that these generic groups belong to different evolutionary lineages of buprestoid taxa what is also supported by adult antennal morphology (VOLKOVITSH, unpublished data).

MELOBASINI

The genus *Melobasis* Laporte & Gory, 1837 was placed by BÍLÝ (2000) together with the genus *Montrouziereta* Obenberger, 1923 to the separate tribe Melobasini Bílý, 2000. Only larva of *Melobasis* (*Melobasis*) *vertebralis* Carter, 1923 was described from this group (VOLKOVITSH & HAWKESWOOD, 1994) and its diagnosis and comparison with other related and non-related taxa was presented. Larva of *M. (Dicercopygus) viridiauratus* almost completely fits to description and diagnosis of *M. vertebralis* with only a few differences (Table 3), also inner sculpture of proventriculus is quite different as well as the shape of mesothoracic spiracles. The main differences between these species are the complete lack of prothoracic asperities and different shape of both pronotal and prosternal grooves in larvae of *M. (Dicercopygus) viridiauratus*, however it is not quite clear whether these distinctions are characteristic of different subgenera or only species of *Melobasis*. Much more important fact is that larval characters of *Melobasis*, the structure of prosternal grooves and the presence of additional sclerite resulting from the fusing of the bases of three external anterolateral sensillae on labrum in the first place, support its separation in the distinct tribe (BÍLÝ, 2000).

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