

# Descriptions of larvae of the tribe Hyperini (Coleoptera, Curculionidae): II. Mature larvae of the subgenera Antidonus, Eririnomorphus, Dapalinus and Boreohypera of the genus Hypera Germar, 1817

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**Descriptions of larvae of the tribe Hyperini (Coleoptera, Curculionidae):****II. Mature larvae of the subgenera *Antidonus*, *Eririnomorphus*,  
*Dapalinus* and *Boreohypera* of the genus *Hypera* Germar, 1817**

by Jiří Skuhrovec

**Abstract.** Descriptions of mature larvae of ten species of the subgenera *Antidonus* Bedel, 1886, *Eririnomorphus* Capiomont, 1868, *Dapalinus* Capiomont, 1868, and *Boreohypera* Korotyaev, 1999 of the genus *Hypera* Germar, 1817 are given. Larvae of *H. (Antidonus) lunata* Wollaston, 1854, *H. (Dapalinus) kayali* Skuhrovec, 2006, *H. (Dapalinus) striata* (Boheman, 1834), and *H. (Boreohypera) diversipunctata* (Schrank, 1798) are described for the first time, while larvae of *H. (Antidonus) dauci* (Olivier, 1807), *H. (Antidonus) vidua* Gené, 1837, *H. (Eririnomorphus) arundinis* (Paykull, 1792), and *H. (Dapalinus) contaminata* (Herbst, 1795) are described in detail for the first time and larvae of *H. (Antidonus) zoila* (Scopoli, 1763) and *H. (Eririnomorphus) rumicis* (Linné, 1758) are redescribed. An identification key the mature larvae of the nineteen *Hypera*-species known to date is presented.

**Key words.** Taxonomy – morphology – larva – chaetotaxy – key – Coleoptera – Curculionidae – Hyperini – *Hypera* – Palaearctic region

**Introduction**

The genus *Hypera* Germar, 1817 currently includes more than 115 Palaearctic species (SMRECZYŃSKI 1968) and 17 species from North America (TITUS 1911, CSIKI 1934, ANDERSON 2002). The last taxonomical revision was published more than 100 years ago by PETRI (1901), who divided the genus *Hypera* into 11 groups. He used the synonym *Phytonomus* Schönherr, 1826 for the genus *Hypera* in his revision. ALONSO-ZARAZAGA & LYAL (1999) recognize six subgenera of the genus *Hypera*: *Antidonus* Bedel, 1886, *Eririnomorphus* Capiomont, 1868, *Tigrinellus* Capiomont, 1868, *Dapalinus* Capiomont, 1868, *Boreohypera* Korotyaev, 1999 and *Hypera*. Later, ALONSO-ZARAZAGA & LYAL (2002) transferred the subgenus *Antidonus* to the genus *Donus* Jekel, 1865 without discussion of this nomenclatural change. Thus, the concept of *Hypera* published by ALONSO-ZARAZAGA & LYAL (1999) is accepted here.

Descriptions of the larvae of species of the subgenera *Antidonus* Bedel, 1886, *Eririnomorphus* Capiomont, 1868, *Dapalinus* Capiomont, 1868 and *Boreohypera* Korotyaev, 1999 and of the genus *Hypera* Germar, 1817 are relatively scarce, with a few exceptions (GOUREAU 1844, LABOULBÈNE 1862, ROSENHAUER 1882, TITUS 1911, ANDERSON 1948, PETERSON 1951, ZASLAVSKIJ 1959, SCHERF 1964, STREJČEK & DIECKMANN 1987, LEE & MORIMOTO 1988, DIECKMANN 1989, STEHR 1992, MAY 1994). Some papers (GOUREAU 1844, LABOULBÈNE 1862, ROSENHAUER 1882, PETERSON 1951, STREJČEK & DIECKMANN 1987, DIECKMANN 1989) include only descriptions of body coloration and size and lack precise data on the morphology and chaetotaxy. The most important papers were written by ANDERSON (1948) and ZASLAVSKIJ (1959). These include some basic characters and an identification key; they may still be used to identify larvae.

This paper provides detailed descriptions of the larvae of ten species of *Hypera* belonging to the subgenera *Antidonus* Bedel, 1886, *Eirinomorphus* Capiomont, 1868, *Dapalinus* Capiomont, 1868 and *Boreohypera* Korotyaev, 1999. Of these, *H. (Antidonus) lunata* Wollaston, 1854, *H. (Dapalinus) kayali* Skuhrovec, 2006, *H. (Dapalinus) striata* (Boheman, 1834) and *H. (Boreohypera) diversipunctata* (Schrank, 1798) are described for the first time, *H. (Antidonus) dauci* (Olivier, 1807), *H. (Antidonus) vidua* Gené, 1837, *H. (Eirinomorphus) arundinis* (Paykull, 1792) and *H. (Dapalinus) contaminata* (Herbst, 1795) are described for the first time in detail and *H. (Antidonus) zoila* (Scopoli, 1763) and *H. (Eirinomorphus) rumicis* (Linné, 1758) are redescribed. An identification key to the mature larvae of the nineteen *Hypera* species known to date is presented. This paper is the second part of the author's account of the morphology of larval Hyperinae.

### Material and methods

*Larvae examined.* This study is based on the examination of larvae collected in the field and reared to the adult stage. All adults were identified by the author. Information on the origin of the larvae and their host plants is given for each species described. Localities in the Czech and Slovak Republics include the numbers of the map squares assigned by FAUNA 2002 software and compared with PRUNER & MÍKA (1996). The larvae of all ten species were reared in a laboratory of the Department of Zoology, Charles University, Prague, during the years 2000–2005.

*Preparation.* Larvae were fixed in Pampel liquid (4 parts glacial acetic acid, 6 parts 4% formaldehyde, 15 parts 95% ethyl alcohol and 30 parts distilled water) (ŠVÁCHA & DANILEVSKY 1987). Slides were prepared as follows [for further details see MAY (1993, 1994)]: the larva was decapitated. Its head was placed in lactic acid for one or two weeks to digest the soft tissues. The mouthparts were then separated from the head capsule. All body parts were mounted in glycerine on temporary slides. All this material (slides, weevils, larvae) is deposited in the collection of the author.

*Measurements.* Material (slides and larvae) was examined under an Olympus SZ X9 binocular microscope or an Olympus BX 40 microscope. Measurements were made by means of calibrated optics.

The following characters of each specimens were measured:

- head width (HW)
- head length (HL)
- length of the body (larvae fixed in a “C”-shape were measured in segments)
- width of abdominal segment IV

Measurements 1 and 2 are presented in the descriptions of the species and in Tab. 1. As the thorax and abdomen are not sclerotized and may be affected by the fixation process, size measurements (3) and (4) are given only for comparison (Tab. 1).

*Illustrations.* Drawings were made using a drawing tube on the binocular microscope or microscope and digitally processed using Adobe Photoshop and/or Corel Draw 9.

Measurements	(1) HW			(2) HL			(3) BL		(4) BW	
Species	avg.	min.	max.	avg.	min.	max.	min.	max.	min.	max.
<i>Hypera dauci</i>	1.03	0.95	1.13	0.87	0.80	0.93	7.5	11.5	1.7	2.5
<i>Hypera lunata</i>	1.04	0.95	0.10	0.89	0.75	0.95	6.5	12.5	1.5	2.6
<i>Hypera vidua</i>	0.95	0.70	1.36	0.78	0.54	1.10	4.5	12.5	1.0	2.7
<i>Hypera zoila</i>	1.27	1.20	1.34	1.03	1.00	1.06	10.0	11.0	2.0	2.1
<i>Hypera arundinis</i>	0.97	0.92	1.00	0.80	0.78	0.84	11.0	12.0	2.1	2.6
<i>Hypera rumicis</i>	0.84	0.80	0.88	0.73	0.70	0.75	7.5	9.0	1.5	2.0
<i>Hypera contaminata</i>	0.76	0.70	0.83	0.63	0.58	0.68	6.0	10.0	1.2	1.8
<i>Hypera kayali</i>	0.84	0.80	0.90	0.75	0.70	0.80	7.5	12.5	1.5	2.6
<i>Hypera striata</i>	0.68	0.60	0.80	0.59	0.50	0.70	6.5	9.5	1.0	1.8
<i>Hypera diversipunctata</i>	0.85	-	-	0.78	-	-	9.5	-	1.7	-

**Tab. 1.** Ratio of important larval sizes: (1) HW – head width, (2) HL – head length, (3) BL – length of the body (larvae fixed in “C”-shape were measured in segments) and (4) width of abdominal segment IV. Average, minimum and maximum measurements are presented. All measurements in millimeters. These measurements are cited in the descriptions of each species.

For easy description, four types of trichoid seta are recognized (see SKUHROVEC 2005: Figs 1–4).

The apex of the mandible has three (see Figs 4, 11, 18, 25) or five lobes (see Figs 32, 39, 46, 53, 60, 67). The numbers of lobes and teeth are not the same. The last lobe does not bear a tooth; its only connection is with the incisor area of the mandible (K. Hůrka, pers. comm.).

The spiraculum on the prothorax in the drawings of the thorax (see Figs 5, 12, 19, 26, 33, 40, 47, 54, 61, 68) is in fact of mesothoracic origin, as in all other insects (MARVALDI et al. 2002, MARVALDI 2003). In the descriptions of species, this spiraculum is referred to as being on the mesothorax. Drawings of the thoracic and abdominal spiracula are schematic (see Figs 5, 6, 12, 13, 19, 20, 26, 27, 33, 34, 40, 41, 47, 48, 54, 55, 61, 62, 68, 69).

The chaetotaxy on the postdorsum of abdominal segments I–VIII is as follows: an imaginary line is assumed between *pds1* and *pds5*. The species differ from each other in the position of the setae, *pds2*–4. These may be on this line, or be shifted forwards or backwards relative to it. For abdominal segments VI–VIII, which differ from the general plan described for the remaining segments, only deviations from the general plan are mentioned.

Chaetotaxy on the pedal lobe of the thorax is as follows: two long setae (*pda1*–2) and a few minute setae (*pda*) are always present. The number of setae on the pedal lobes is variable because of the variable number of minute setae. The most frequent number of setae is presented in the descriptions. The range of variability is presented in brackets.



The minute setae on the ventral side of the mala, on the pedal lobe of the thorax, on the prodorsum and on the spiracular area of the abdominal segments I–VIII, are trichoid. More minute setae may be present in these regions. However, a scanning electron microscope would be needed for a more precise examination of these setae, so these characters are not used for identifying the species. A description of the epipharynx is omitted for the same reason. Seta *sts3* is possibly situated on the palpifer; however, this problem is not addressed here.

*Terminology.* Names and abbreviations of the setae of the mature larva follow MAY (1994) (see SKUHROVEC 2005: Figs 46–54). MAY (1994) uses this nomenclature for all the Curculionoidea, but unfortunately her nomenclature is not identical with that used for other groups of beetles (e.g. BOUSQUET & GOULET 1984 – Carabidae, ŠVÁCHA & DANILEVSKY 1987 – Cerambycidae). Even though it may be necessary to tackle this problem if comparing the nomenclature used for various groups of beetles, such a comparison is not the goal of this paper.

The species are arranged alphabetically within the respective subgenera. In the descriptions, the following information is presented: references to previous descriptions, list of material examined, detailed description of the morphology of the mature larva and a comparison with previously published data.

### **Description of the mature larvae of the genus *Hypera***

**Coloration.** Head brown, maculate or black. Dorsal surface of body mostly green with slightly whiter median stripe; ventral surface of body whitish to white-green.

**Head.** Frontal sutures distinct, slender. Frontoclypeal suture slightly concave towards centre. Two convex stemmata on each side of epicranium. Clypeus slender, anterior margin distinctly concave and pigmented. Labrum with anterior margin bearing slender median excision; lateral margins rounded; posterior margin with median projection (Fig. 1); connected with clypeus by clypeolabral membrane. Antennae monomeric, membranous, with six sensoric setae apically (BLAND 1983). Mandibles with two or four teeth apically (Figs 4, 32), subapical tooth larger than apical tooth; basal part of mandible with distinct tuberosity. Maxilla consisting of cardo, stipes, mala and two palpomeres of maxillary palpi. Cardo, stipes, mala and distal parts of palpomeres pigmented. Maxilla connected with labium, forming labiomaxillar complex. Labium consisting of postlabium, prelabium, monomeric labial palpi and ligula. Membranous prelabium divided from membranous postlabium by a sclerotized “U” shape.

**Thorax** (Fig. 5). Prothorax divided into five areas: pronotum, dorsopleural, ventropleural, pedal and mediosternal lobes. Pronotum with weakly pigmented dorsal sclerite, this sclerite subdivided into two triangular plates medially. Dorsopleural and ventropleural lobes not distinctly divided. Meso- and metathorax divided into seven areas: dorsal lobe, dorsolateral lobe, spiracular area, dorsolateral, ventrolateral, pedal and mediosternal lobes. Dorsal lobe subdivided into prodorsum and postdorsum by a diagonal groove. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned postero-dorsad.

Abdomen (Figs 6, 7). Includes ten distinct segments. Abdominal segments I–VIII divided into six areas: dorsal lobes, spiracular areas, dorsopleural, ventropleural, laterosternal and mediosternal lobes. Dorsal lobes on abdominal segments I–VII subdivided by two diagonal grooves into prodorsum, dorsum and postdorsum. Dorsum very gracile, without setae. Dorsal lobe on abdominal segment VIII subdivided by only one diagonal groove into prodorsum and postdorsum. Spiracula on abdominal segments I–VIII situated above dorsopleural lobes; with oval peritreme positioned posteriad. Abdominal segment IX divided into three areas: dorsal, pleural and sternal lobes. Abdominal segment X reduced, without setae.

Chaetotaxy. Head. Dorsum of epicranium with five setae (*des1–5*); *des1*, *des3* and *des5* positioned along frontal suture; *des2* and *des4* on lateral margin of head, setae of latter shorter than *des1*, *des3* and *des5* (Fig. 1). Both lateral setae (*les1–2*) of epicranium long, located under stemmata. Ventral setae (*ves1–2*) short, located on anterior part on ventrum of epicranium. Frons with four setae (*fs1–5*, *fs2* missing); *fs4* and *fs5* located on anterior part, *fs5* the longest, *fs1* and *fs3* the shortest (Fig. 1). Clypeus with two setae on lateral margins (*cls1–2*), labrum with three setae (*lrms1–3*) (both Fig. 1). Mandible with two short setae (*mds1–2*) on lateral margin (Fig. 4). Stipes with two long setae and one short (*sts1–3*) (Fig. 2), sometimes present minute *sts4* (Fig. 2). Mala with six or seven stout setae (*dms1–6(7)*) on dorsal side (Fig. 3) and five minute setae (*vms1–5*) on ventral side. Maxillary palpi with one minute seta (*mxps*). Postlabium with three pairs (*plbs1–3*) and prelabium with one pair of setae (*prms*). Ligula with two pairs of minute setae (*lig*) (all Fig. 2).

Thorax (Figs 5, 12, 33, 68). Bases of setae pigmented. *Prothorax*: pronotum with ten or eleven hairform or bacilliform setae (*prn1–10(11)*); dorsal margin of triangular plate with three setae (*prn1–3*), anterior margin of sclerite with four setae (*prn4–7*), posterior margin of sclerite with three setae (*prn8–10(11)*). Ventropleural lobe with two hairform setae (*vpls1–2*). Pedal lobe with four (from three to six) hairform setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining setae minute. Mediosternal lobe with one very short or minute seta (*msts*). *Meso- and metathorax*: prodorsum with one seta (*prs*), postdorsum with four setae (*pds1–4*). Dorsolateral area with two setae (*dls*), in spiracular area two or three setae (*ss*). Setae hairform to bacilliform. Dorsopleural lobe with one seta (*dpls*). Ventropleural lobe with 1 or 3 hairform setae (*vpls*), positioned above pedal lobe. Pedal lobe with four (from three to six) hairform setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining setae minute. Mediosternal lobe with one very short or minute seta (*msts*).

Abdomen. Bases of setae pigmented. *Abdominal segments I–VIII* (Figs 6, 13, 34): prodorsum with one or two setae (*prs1–2*), *prs2* minute; postdorsum with five setae (*pds1–5*). Spiracular seta (*sps1*) located postero-dorsally from spiraculum, minute *sps2–3* located antero-dorsally from spiraculum. Dorsopleural lobe with two setae (*dpls1–2*). Setae hairform or bacilliform to clubform. Ventropleural lobe with one or two hairform setae, *vpls2* minute. Laterosternal lobe with one short hairform seta (*lsts*). Mediosternal lobe with one very short hairform seta (*msts*). *Abdominal segment IX* (Figs 7, 14): dorsum with four hairform or clubform setae (*ds1–4*); *ds2–4* positioned in a line, sometimes *ds3* anterior of line joining *ds2* and *ds4*; *ds3* the longest. Pleural lobe with two or three hairform or bacilliform setae (*ps*). Sternal lobe with two hairform setae (*sts*).

### Subgenus *Antidonus* Bedel, 1886

**Differential diagnosis.** Mandible with four teeth ( $\times$  *Eririnomorphus*, *Dapalinus*, *Boreohypera* and *Hypera*) (Figs 4, 11, 18, 25). Bases of setae on thorax and abdomen not prominent and broad, but strongly pigmented ( $\times$  *Eririnomorphus*) (Figs 5–7, 12–14, 19–21, 26–28). Pronotum with ten setae (*prn1*–*10*) ( $\times$  *Eririnomorphus*) (Figs 5, 12, 19, 26). Meso- and metathorax with one *vp1s* ( $\times$  *Boreohypera*) (Figs 5, 12, 19, 26).

### Descriptions of *Antidonus* species

#### *Hypera dauci* (Olivier, 1807)

DIECKMANN 1989: 99–100.

**Material.** (16 mature larvae), collected in the field: MAROCCO mer., Moyen Atlas, 20 km NE Ifrane, 1550 m. a.s.l., 3.i.2002, Ch. Bayer leg. (16) (on *Geranium* sp.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark brown. Dorsal surface of body pale green with yellow-white median stripe.

Head. Head width 1.03 mm (0.95–1.13 mm), head length 0.87 mm (0.80–0.93 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus distinctly concave (Fig. 1) with weak pigmentation. Labrum dark brown; anterior margin with slender median excision, posterior margin with long and wide median projection (Fig. 1). Mandibles with four sharp teeth apically (Fig. 4), first tooth largest; basal part of mandible with distinct tuberosity.

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned posterio-dorsad.

Chaetotaxy. Head. Setae hairform. *Des2* minutely shorter than *des4*; *des2* about  $0.8 \times des1$ , *des3* and *des5*, of approximately equal length (Fig. 1). Both *les* long, *les1* about  $0.7 \times les2$ . Both *ves* short. *Fs1*, *fs3* and *fs4* of approximately equal length, about  $0.7 \times fs5$  (Fig. 1). Both *cls* short, *lrms1*–*3* short (Fig. 1). Both *mds* long (Fig. 4). *Sts1*–*2* long, *sts3* short, *sts4* minute (Fig. 2). *Dms1*–*6* stout (Fig. 3), *vms1*–*5* minute. *Mxps* short. *Plbs2* long, *plbs1*, *3* short; *prms* short; both *lig* minute (Fig. 2).

Thorax (Fig. 5). Bases of setae strongly pigmented, setae unpigmented. Setae long, hairform. *Prothorax*: *prn1*–*10* long, of approximately equal length. *Vpls1*–*2* of approximately equal length. Pedal lobe with six (four to six) setae (*pda*); *pda1*–*2* long, *pda2* about  $0.75 \times pda1$ ; remaining four (two to four) setae minute. *Msts* minute. *Meso- and metathorax*: *prs* and *pds1*–*4* long, of approximately equal length, *pds4* slightly shorter. Both *dls* short; *ss1*–*2* long as *dls*, *ss3* short. *Dpls* and *vp1s* as long as *ss1*–*2*. Pedal lobe with six (four to six) setae (*pda*); *pda1*–*2* long, *pda2* about  $0.75 \times pda1$ ; remaining four (two to four) setae minute. *Msts* minute.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae long, hairform. *Abdominal segments I–VIII* (Fig. 6): *prs1* long, *prs2* minute. *Pds1*, *pds3* and *pds5* approximately in line, *pds2* positioned antieriad to *pds3* and *pds4* antieriad to *pds5*; *pds1*, *pds3* and *pds5* of approximately equal length, *pds2* and *pds4* slightly shorter.

*Sps1–2* shorter than *prs*, *sps3* minute. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* short. *Lsts* long, *msts* minute. *Abdominal segment VII*: *pds2* removed from *pds4* and *pds3* from *pds5*; *pds3* very long, remaining setae about  $0.7 \times$ . *Abdominal segment VIII*: *pds2* more removed from *pds4* and *pds3* to *pds5*. *Pds3* approximately in line with *pds1* and *pds5*; *pds3* very long, remaining setae about  $0.7 \times$ . *Abdominal segment IX* (Fig. 7): *ds1–4* hairform; *ds2–4* not in line, *ds3* anterior of line joining *ds2* and *ds4*; *ds1* the longest, remaining three setae of approximately equal length. *Ps1–2* about  $0.5 \times ds1$ , *ps3* short; both *sts* long as *ps2*.

**Differential diagnosis.** *Prs* and *pds1–5* on abdominal segments I–VIII hairform ( $\times$  *H. lunata* and *H. zoila*) (Fig. 6). Meso- and metathorax with three *ss*; *ss1–2* long, *ss3* present, minute ( $\times$  *H. lunata*, *H. vidua* and *H. zoila*) (Fig. 5). *Plbs1* short ( $\times$  *H. lunata*, *H. vidua* and *H. zoila*) (Fig. 2).

**Remarks.** DIECKMANN (1989) recorded only coloration of the body and setae. His data agree with what is presented here.

### *Hypera lunata* Wollaston, 1854

**Material.** (24 mature larvae), collected in the field: GREECE mer., prov. Peloponnesse, Skala env. (Lakonia), 50 km SE of Sparti, 36 m. a.s.l., 5.iv.2005, J. Skuhrovec leg. (12); GREECE mer., prov. Peloponnesse, Kladas env. (Lakonia), 5 km NE of Sparti, 251 m. a.s.l., 8.iv.2005, J. Skuhrovec leg. (12) (all on *Geranium* sp.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark brown. Dorsal surface of body pale green with yellow-white median stripe and red/violet coloration along median stripe. Body strongly pigmented.

Head. Head width 1.04 mm (0.95–1.10 mm), head length 0.89 mm (0.75–0.95 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus markedly concave (Fig. 8) with weak pigmentation. Labrum dark brown; anterior margin with slender median excision, posterior margin with short and wide median projection (Fig. 8). Mandibles with four sharp teeth apically (Fig. 11), first tooth largest; basal part of mandible with distinct tuberosity.

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned postero-dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned postero-dorsad.

Chaetotaxy. Head. Setae hairform. *Des2* minutely shorter than *des4*; *des2* about  $0.6 \times des1$ , *des3* and *des5*, of approximately equal length (Fig. 8). Both *les* long, *les1* about  $0.7 \times les2$ . Both *ves* short. *Fs1*, *fs3* and *fs4* of approximately equal length, about  $0.7 \times fs5$  (Fig. 8). Both *cls* short, *lrms1–3* short (Fig. 8). Both *mds* long (Fig. 11). *Sts1–2* long, *sts3* short, *sts4* minute (Fig. 9). *Dms1–6* stout (Fig. 10), *vms1–5* minute. *Mxps* very short. *Plbs1–2* long, *plbs3* very short; *prms* long as *plbs3*; both *lig* minute (Fig. 9).

Thorax (Fig. 12). Bases of setae strongly pigmented, setae unpigmented. Setae bacilliform to hairform (*dpls*, *vpls*, *pda*, *msts*). *Prothorax*: *prn1–7* long, of approximately equal length; *prn8–10* shorter than setae on anterior margin of sclerite. *Vpls2* about  $0.7 \times vpls1$ . Pedal lobe with four setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining two setae minute. *Msts* minute. *Meso- and metathorax*: *prs* and *pds1–4* long,

of approximately equal length, *pds3* slightly longer. Both *dls* shorter than *prs*, setae *ss* long as *dls*. *Dpls* and *vpls* long as *prs*. Pedal lobe with four setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining two setae minute. *Msts* very short.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae bacilliform to hairform (*vpls*, *lsts*, *msts*). Abdominal segments I–VIII (Fig. 13): *pds1*, *pds3*, *pds4* and *pds5* approximately in line, *pds2* positioned anteriorad to *pds3*; *pds1*, *pds3* and *pds5* of approximately equal length, *pds2* and *pds4* slightly shorter. *Sps* shorter than *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* short. *Lsts* long, *msts* minute. Abdominal segment VII: *pds3* very long, remaining setae about  $0.7 \times$ . Abdominal segment VIII: *pds2* and *pds4* positioned more forward of line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds2* positioned more anteriorad than *pds4*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae about  $0.7 \times$ . *Dpls1* about  $0.5 \times dpls2$ . Abdominal segment IX (Fig. 14): *ds1*–4 bacilliform; *ds2*–4 not in line, *ds3* anteriorad of line joining *ds2* and *ds4*; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* long; *sts1* long, *sts2* short.

**Differential diagnosis.** *Prs* and *pds1*–5 on abdominal segments I–VIII bacilliform or clubform ( $\times$  *H. dauci* and *H. vidua*) (Fig. 13). Thoracic and abdominal setae long ( $\times$  *H. zoila*) (Figs 12, 13). *Dpls* on meso- and metathorax hairform ( $\times$  *H. zoila*) (Fig. 12). *Prms* very short ( $\times$  *H. vidua* and *H. zoila*) (Fig. 9).

### *Hypera vidua* Gené, 1837

STREJČEK & DIECKMANN 1987: Figs 1–4; DIECKMANN 1989: 99.

**Material.** (4 mature larvae), collected in the field: CZ–Bohemia bor. (5450), Ústí nad Labem env., Dubice (Doerellova vyhlídka (viewpoint)), 30.v.2002 (2), 31.v.2003 (2) J. Skuhrovec leg. (all on *Geranium sanguineum* L.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark brown. Dorsal surface of body olivaceous with yellow-white median stripe. Lobes on thoracic and abdominal segments distinct.

Head. Head width 0.95 mm (0.70–1.36 mm), head length 0.78 mm (0.54–1.10 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus distinctly concave (Fig. 15) with weak pigmentation. Labrum dark brown; anterior margin with slender median excision, posterior margin with short and wide median projection (Fig. 15). Mandibles with four sharp teeth apically (Fig. 18), second tooth largest; basal part of mandible with distinct tuberosity.

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned posteriad.

Chaetotaxy. Head. Setae hairform. *Des2* minutely shorter than *des4* short; *des1*, *des4* and *des5* of approximately equal length; *des3* about  $1.3 \times$  as long as previous three setae (Fig. 15). Both *les* long, *les1* about  $0.7 \times les2$ . Both *ves* short. *Fs1* and *fs3* the shortest, about  $0.75 \times fs4$ ; *fs4* about  $0.5 \times fs5$  (Fig. 15). Both *cls* long, *lrms1*–3 short (Fig. 15). Both *mds* long (Fig. 18). *Sts1*–3 long (Fig. 16). *Dms1*–7 stout (Fig. 17), *vms1*–5



minute. *Mxps* very short. *Plbs1*–2 long, *plbs3* short; *prms* long as *plbs2*; both *lig* minute (Fig. 16).

Thorax (Fig. 19). Bases of setae strongly pigmented, setae unpigmented. Setae long, hairform. *Prothorax*: *prn1* and *prn3* of approximately equal length; *prn4*–7 long, of approximately equal length; *prn8*–10 shorter than setae on anterior margin of sclerite. *Vpls2* about  $0.7 \times vpls1$ . Pedal lobe with five (four to six) setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining three (two to four) setae minute. *Msts* minute. *Meso- and metathorax*: *prs* and *pds1*–4 long, of approximately equal length, *pds3* slightly longer. Both *dls* as long as *prs*, setae *ss* short. *Dpls* and *vpls* long. Pedal lobe with five (four to six) setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining three (two to four) setae minute. *Msts* very short.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae long, hairform. *Abdominal segments I–VIII* (Fig. 20): *pds1*–5 approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds1*, *pds3* and *pds5* of approximately equal length, *pds3* slightly longer; *pds2* and *pds4* about  $0.7 \times$ . *Sps* shorter than *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* long, *msts* minute. *Abdominal segment VII*: *pds3* very long, remaining setae about  $0.7 \times$ . *Abdominal segment VIII*: *pds2* and *pds4* positioned more anteriad of line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae about  $0.7 \times$ . *Dpls1* about  $0.5 \times dpls2$ . *Abdominal segment IX* (Fig. 21): *ds1*–4 hairform; *ds2*–4 not in line, *ds3* forward of line joining *ds2* and *ds4*; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* long; *sts1* very long, *sts2* short.

**Differential diagnosis.** *Prs* and *pds1*–5 on abdominal segments I–VIII hairform ( $\times$  *H. lunata* and *H. zoila*) (Fig. 20). *Meso- and metathorax* with two *ss*; *ss1*–2 long, *ss3* absent ( $\times$  *H. dauci* and *H. zoila*) (Fig. 19). *Plbs1* long ( $\times$  *H. dauci*) (Fig. 16).

**Remarks.** DIECKMANN (1989) mentioned only the coloration of the body and setae; his data agree with what is presented here. STREJČEK & DIECKMANN (1987) gave a larval figure and mentioned that the mandibles have only two teeth. This does not agree with the data presented here. All specimens examined have four teeth on mandibles. Before pupation, wear could well occur to larval teeth, eventually leaving a depleted number.

### *Hypera zoila* (Scopoli, 1763)

TITUS 1911: 403; ANDERSON 1948: 27–29, Figs 7, 9, 22; PETERSON 1951: 124, Figs C20 C, C21 D–F; MILLER 1956: 572–573; SCHERF 1964: 179–180, Fig. 335; DIECKMANN 1989: 99; STEHR 1992: Figs 34 863 a–d; MAY 1993: 65, Figs 581–590.

**Material.** (2 mature larvae), collected in the field: CZ–Bohemia bor. (5450), Ústí nad Labem env., Malé Žernoseky, 26.v.2001, J. Skuhrovec leg. (1) (on *Medicago sativa* L.); CZ–Bohemia bor.-occ. (5548), Louny env., vrch Milá, 30.iv.2000, J. Skuhrovec leg. (1) (on *Trifolium pratense* L.)

**Description of mature larva.** Coloration. Head pale brown maculate with dark spots close to stemmata. Dorsal surface of body pale yellow-green with white median stripe and red coloration along median stripe. Body strongly pigmented.

Head. Head width 1.27 mm (1.20–1.34 mm), head length 1.03 mm (1.00–1.06 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of

clypeus weakly concave (Fig. 22) with weak pigmentation. Labrum dark brown; anterior margin with deep median excision, posterior margin with short and wide median projection (Fig. 22). Mandibles with four apically rounded teeth (Fig. 25), third tooth largest; first two slightly smaller.

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned posteriad.

Chaetotaxy. Head. Setae hairform. *Des2* short, about  $0.6 \times des4$ ; *des4* about  $0.5 \times$  remaining three setae (*des1*, *des3*, *des5*) (Fig. 22). Both *les* long, *les1* about  $0.7 \times les2$ . Both *ves* short. *Fs1* and *fs3* the shortest, about  $0.7 \times fs4$ ; *fs4* about  $0.5 \times fs5$  (Fig. 22). Both *cls* long, *lrms1*–*3* long (Fig. 22). Both *mds* short (Fig. 25). *Sts1*–*3* long (Fig. 23). *Dms1*–*7* stout (Fig. 24), *vms1*–*5* minute. *Mxps* short. *Plbs1*–*2* long, *plbs3* short; *prms* long as *plbs2*; both *lig* minute (Fig. 23).

Thorax (Fig. 26). Bases of setae strongly pigmented, setae unpigmented. Setae short, bacilliform to hairform (*prn*, *vpls*, *pda*, *msts*). Prothorax: *prn2*, 6 long; remaining setae short, of approximately equal length. *Vpls1* about  $0.7 \times vpls2$ . Pedal lobe with four (three to five) setae (*pda*); *pda1*–*2* long, *pda2* about  $0.75 \times pda1$ ; remaining two (one to three) setae minute. *Msts* minute. Meso- and metathorax: *prs* and *pds1*–*4* of approximately equal length, *pds3* slightly longer than remaining setae. Both *dls* and both *ss* of approximately equal length as *prs*, *dpls* and *vpls* long. Pedal lobe with four (three to five) setae (*pda*); *pda1*–*2* long, *pda2* about  $0.75 \times pda1$ ; remaining two (one to three) setae minute. *Msts* minute.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae short, clubform to bacilliform or hairform (*vpls*, *lsts*, *msts*). Abdominal segments I–VIII (Fig. 27): *pds1*–*5* approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds3* the longest, remaining setae about  $0.8 \times$ . *Sps* shorter than *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* short, *msts* minute. Abdominal segment VII: *pds3* very long, remaining setae about  $0.5 \times$ . Abdominal segment VIII: *pds2* and *pds4* positioned more anteriad of line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae about  $0.3 \times$ . Abdominal segment IX (Fig. 28): *ds1*–*4* bacilliform; *ds2*–*4* in line; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* bacilliform, short. Both *sts* hairform; *sts1* very short, *sts2* minute.

**Differential diagnosis.** *Prs* and *pds1*–*5* on abdominal segments I–VIII bacilliform or clubform ( $\times$  *H. dauci* and *H. vidua*) (Fig. 27). Thoracic and abdominal setae very short ( $\times$  *H. dauci*, *H. lunata* and *H. vidua*) (Figs 26, 27). *Dpls* on meso- and metathorax bacilliform ( $\times$  *H. dauci*, *H. lunata* and *H. vidua*) (Fig. 26). *Prms* long ( $\times$  *H. lunata*) (Fig. 23).

**Remarks.** Head width recorded in the literature (L4: 1.14–1.25 mm; ANDERSON 1948, PETERSON 1951, SCHERF 1964, MAY 1993) agrees with measurements presented in this paper (Tab. 1). Body length presented in the literature (L4: 8–15 mm; TITUS 1911, MILLER 1956, SCHERF 1964, STEHR 1992) is identical with data presented here. SCHERF



(1964) incorrectly records the dorsum of epicarnium with three setae (*des1*, *des3*, *des4*) and frons with two setae (*fs1*, *fs2*). MAY (1993) incorrectly records that *fs3* is absent. STEHR (1992) emphasized that larva has four teeth on mandible and not just the two occurring in other *Hypera* larvae.

### Subgenus *Eririnomorphus* Capiomont, 1868

**Differential diagnosis.** Mandible with two teeth ( $\times$  *Antidonus*) (Figs 32, 39). Bases of setae on thorax and abdomen prominent and broad, and strongly pigmented ( $\times$  *Antidonus*, *Dapalinus*, *Boreohypera* and *Hypera*) (Figs 33–35, 40–42). Pronotum with eleven setae (*prn1*–*11*) ( $\times$  *Antidonus*, *Dapalinus*, *Boreohypera* and *Hypera*) (Figs 33, 40). Meso- and metathorax with one *vpls* ( $\times$  *Boreohypera*) (Figs 33, 40).

### Descriptions of *Eririnomorphus* species

#### *Hypera arundinis* (Paykull, 1792)

ROSENHAUER 1882: 137–138; ANDERSON 1948: 27–29, Fig. 5; ZASLAVSKIJ 1959: 215–218, Figs 7 A, B; DIECKMANN 1989: 100.

**Material.** (11 mature larvae), collected in the field: POLAND centr., Bydgoszcz, Osowiec–Twierdza, 24.vii.1996, M. Wanat leg. (11) (on *Sium latifolium* L.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark. Dorsal and ventral side of body yellow-green to grey-green. Body strongly pigmented. Lobes on thoracic and abdominal segments distinct.

Head. Head width 0.97 mm (0.92–1.00 mm), head length 0.80 mm (0.78–0.84 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus markedly concave (Fig. 29) with weak pigmentation. Labrum black; anterior margin with slender median excision, posterior margin with short and wide median projection (Fig. 29). Mandibles with two sharp teeth apically (Fig. 32).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned posterio-dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned posteriad. Around spiracula with distinct tuberosity.

Chaetotaxy. Head. Setae hairform. *Des1*–*5* broken and not examined (Fig. 29). Both *les* long, of approximately equal length. Both *ves* short. *Fs1*–*5* broken and not examined (Fig. 29). Both *cls* long, *lrms1*–*3* long (Fig. 29). Both *mds* short (Fig. 32). *Sts1*–*2* long, *sts3* short (Fig. 30). *Dms1*–*6* stout (Fig. 31), *vms1*–*5* minute. *Mxps* very short. *Plbs1*–*2* long, *plbs3* short; *prms* longer than *plbs3*; both *lig* very short (Fig. 30).

Thorax (Fig. 33). Bases of setae prominent and broad with tuberosity, strongly pigmented. Setae unpigmented, short, hairform. *Prothorax*: *prn2*, *4*, *5* and *7* long; *prn6* minute; *prn8*–*11* shorter than setae on anterior margin of sclerite. *Vpls2* about 0.5  $\times$  *vpls1*. Pedal lobe with five (four to six) setae (*pda*); *pda1*–*2* long, *pda2* about 0.75  $\times$  *pda1*; remaining three (two to four) setae minute. *Msts* minute. *Meso- and metathorax*:

*prs* and *pds1*–4 of approximately equal length. Both *dls* short, *ss1*–3 short, *ss4* minute, *dpls* and *vpls* long. Pedal lobe with five (four to six) setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining three (two to four) setae minute. *Msts* minute.

Abdomen. Bases of setae prominent and broad with tuberosity, strongly pigmented. Setae unpigmented, short, hairform. *Abdominal segments I–VIII* (Fig. 34): *pds1*–5 in line and of approximately equal length. *Sps1* long as *prs1*; *prs2* and *sps2*–3 minute. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* very short, *msts* minute. *Abdominal segment VII*: *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds3* the longest, remaining setae about  $0.5 \times pds3$ . *Abdominal segment VIII*: *pds2* and *pds4* positioned more anteriad of line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae of approximately equal length. *Dpls1* slightly shorter than *dpls2*. *Abdominal segment IX* (Fig. 35): *ds1*–4 hairform; *ds2*–4 in line; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* long; *sts1* very short, *sts2* minute.

**Differential diagnosis.** Thoracic and abdominal setae short ( $\times$  *H. rumicis*) (Figs 33–35). Meso- and metathorax with three short setae (*ss1*–3) ( $\times$  *H. rumicis*) (Fig 33). Dorsal and ventral side of body yellow-green to grey-green ( $\times$  *H. rumicis*).

**Remarks.** Head width recorded in the literature (L4: 0.84–1.00 mm; ANDERSON 1948, ZASLAVSKIJ 1959) agrees with measurements presented in this paper (Tab. 1). DIECKMANN (1989) recorded only coloration of the body and setae; his data agree with what is presented here.

### *Hypera rumicis* (Linné, 1758)

GOUREAU 1844: 49–59; ANDERSON 1948: 29, 31, Figs 4, 6, 15; ZASLAVSKIJ 1959: 215–218, Fig. 6 V, G; SCHERF 1964: 176–177, Figs 324–329; DIECKMANN 1989: 100.

**Material.** (2 mature larvae), collected in the field: CZ–Bohemia centr. (5952); Praha – Chodov (meadow near Miličovský les Forest), 20.vi.2004 (2), J. Skuhrovec leg. (all on *Rumex hydrolapathum* Huds.).

**Description of mature larva.** Coloration. Head black. Dorsal surface of body dark brown with median pale brown stripe. Ventral side of thorax dark brown, ventral side of abdomen yellow. Body strongly pigmented superficially. Lobes on thoracic and abdominal segments distinct.

Head. Head width 0.84 mm (0.80–0.88 mm), head length 0.73 mm (0.70–0.75 mm) (Tab. 1). Frontal sutures distinct, slender. Anterior margin of clypeus distinctly concave (Fig. 36) with strong pigmentation. Labrum black; anterior margin with deep median excision, posterior margin with short and wide median projection (Fig. 36). Mandibles with two sharp teeth apically (Fig. 39).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned postero-dorsad.

Chaetotaxy. Head. Setae hairform. *Des4* the shortest, *des4* about  $0.6 \times des2$ , *des2* about  $0.4 \times des1$ , *des3* and *des5* (Fig. 36). Both *les* long, of approximately equal length.

Both *ves* short. *Fs1* the shortest, about  $0.5 \times fs3$ ; *fs3* about  $0.5 \times fs4$ ; *fs4* about  $0.6 \times fs5$  (Fig. 36). Both *cls* short, *lrms1–3* short (Fig. 36). Both *mds* very short (Fig. 39). *Sts1–2* long, *sts3* short (Fig. 37). *Dms1–6* stout (Fig. 38), *vms1–5* minute. *Mxps* very short. *Plbs2* long, *plbs1*, 3 short; *prms* long as *plbs3*; both *lig* minute (Fig. 37).

Thorax (Fig. 40). Bases of setae prominent and broad with tuberosity, strongly pigmented. Setae unpigmented, long, hairform. Prothorax: *prn2*, 4–7, 11 long; *prn1*, 8 short. Both *vpls* short, of approximately equal length. Pedal lobe with five (three to five) setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining three (one to three) setae minute. *Msts* minute. Meso- and metathorax: *prs* and *pds1–4* of approximately equal length. Both *dls* long, both *ss* long, *dpls* and *vpls* long. Pedal lobe with five (three to five) setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining three (one to three) setae minute. *Msts* minute.

Abdomen. Bases of setae prominent and broad with tuberosity, strongly pigmented. Setae unpigmented, long, hairform. Abdominal segments I–VIII (Fig. 41): *pds1–5* approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds2* and *pds4* the shortest, remaining setae of approximately equal length. *Sps* long as *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* short, *msts* minute. Abdominal segment VII: *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad. Abdominal segment VIII: *pds2* and *pds4* positioned more anteriad of line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae of approximately equal length. *Dpls1* slightly shorter than *dpls2*. Abdominal segment IX (Fig. 42): *ds1–4* hairform; *ds2–4* in line; *ds3* the longest, remaining three setae of approximately equal length. *Ps1* long, *ps2* very short; *sts1* very short, *sts2* minute.

**Differential diagnosis.** Thoracic and abdominal setae long ( $\times$  *H. arundinis*) (Figs 40–42). Meso- and metathorax with two long setae (*ss1–2*) ( $\times$  *H. arundinis*) (Fig 40). Dorsal surface of body dark brown with median pale brown stripe; ventral surface of thorax dark brown, ventral surface of abdomen yellow ( $\times$  *H. arundinis*).

**Remarks.** Head width recorded in the literature (L4: 0.80–0.85 mm; ANDERSON 1948, ZASLAVSKIJ 1959) agrees with measurements presented in this paper (Tab. 1). SCHERF (1964) presented a detailed description of the immature stages with clear and accessible drawings. However, the head width he recorded is different from that presented here. DIECKMANN (1989) recorded only coloration of the body and setae; his data agree with what is presented here.

### Subgenus *Dapalinus* Capiomont, 1868

**Differential diagnosis.** Mandible with two teeth ( $\times$  *Antidonus*) (Figs 46, 53, 60). Bases of setae on thorax and abdomen not prominent and broad, but strongly pigmented ( $\times$  *Eirinomorphus*) (Figs 47–49, 54–56, 61–63). Pronotum with ten setae (*prn1–10*) ( $\times$  *Eirinomorphus*) (Figs 47, 54, 61). Meso- and metathorax with one *vpls* ( $\times$  *Boreohypera*) (Figs 47, 54, 61). Differences between subgenera *Dapalinus* and *Hypera* not observed.

## Descriptions of *Dapalinus* species

### *Hypera contaminata* (Herbst, 1795)

DIECKMANN 1989: 100.

**Material.** (23 mature larvae), collected in the field: CZ–Bohemia bor.-occ. (5548), Louny env., vrch Milá, 8.vi.2004, J. Skuhrovec leg. (23) (on *Lathyrus tuberosus* L.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark. Dorsal surface of body pale green to grey-green with white median stripe and short white stripes parallel with median stripe. Body strongly pigmented; granulation more apparent dorsally than ventrally. Lobes on thoracic and abdominal segments distinct.

Head. Head width 0.76 mm (0.70–0.83 mm), head length 0.63 mm (0.58–0.68 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus distinctly concave (Fig. 43) with weak pigmentation. Labrum black; slender anterior margin with deep median excision, posterior margin with short and wide median projection (Fig. 43). Mandibles with two sharp teeth apically (Fig. 46).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned postero-dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned postero-dorsad.

Chaetotaxy. Head. Setae hairform. *Des2* and *des4* short, about  $0.3 \times des1$  and *des3*, *des5* minutely shorter than *des1* and *des3* (Fig. 43). Both *les* long, of approximately equal length. Both *ves* short. *Fs1* the shortest, less than  $0.5 \times fs3$  and *fs4*, *fs4* minutely longer than *fs3*; *fs4* about  $0.6 \times fs5$  (Fig. 43). Both *cls* short, *lrms1–3* short (Fig. 43). Both *mds* very short (Fig. 46). *Sts1–2* long, *sts3* short (Fig. 44). *Dms1–6* stout (Fig. 45), *vms1–5* minute. *Mxps* short. *Plbs1*, 3 short, *plbs2* long; *prms* shorter than *plbs3*; both *lig* minute (Fig. 44).

Thorax (Fig. 47). Bases of setae strongly pigmented, setae unpigmented. Setae short, bacilliform to hairform (*prn1–8*, *dpls*, *vpls*, *pda*, *msts*). Prothorax: *prn1–7* of approximately equal length; *prn8* shortest, *prn9–10* bacilliform. *Vpls2* about  $0.4 \times vpls1$ . Pedal lobe with four setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining two setae minute. *Msts* minute. Meso- and metathorax: *pds1–4* about  $0.5 \times prs$ , *pds3* on metathorax  $2 \times prs$ . Both *dls* short, both *ss* short, *dpls* and *vpls* long. Pedal lobe with four setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining two setae minute. *Msts* minute.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae short, bacilliform to hairform (*dpls*, *vpls*, *lsts*, *msts*). Abdominal segments I–VIII (Fig. 48): *pds1–5* approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds2* and *pds4* the shortest, remaining setae of approximately equal length. *Sps1* long as *prs*, *sps2* minute. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* short, *msts* minute. Abdominal segment VII: *pds3* very long. Abdominal segment VIII: *pds2* and *pds4* positioned more anteriad from line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* long, remaining setae about  $0.5 \times$ .

*Dpls1* slightly shorter than *dpls2*. Abdominal segment IX (Fig. 49): *ds1*–2, 4 bacilliform, *ds3* hairform; *ds2*–4 in line; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* long; *ps1* bacilliform, *ps2* hairform. Both *sts* hairform; *sts1* very short, *sts2* minute.

**Differential diagnosis.** *Prs* and *pds1*–5 on abdominal segments I–VIII bacilliform, clubform or dippleform ( $\times$  *H. arator*, *H. jucunda* and *H. viciae*) (Fig. 48). *Pds2* on abdominal segments I–VII short, longer than  $0.5 \times pds3$  ( $\times$  *H. nigrirostris* and *H. venusta*) (Fig. 48). *Pds3* on metathorax more than twice as long as additional *pds* ( $\times$  *H. kayali* and *H. postica*) (Fig. 47). Majority of *prn1*–10 hairform ( $\times$  *H. denominanda*) (Fig. 47). Setae on thorax and abdomen unpigmented ( $\times$  *H. striata* and *H. suspiciosa*). *Fs1*–5 and *des1*–5 hairform ( $\times$  *H. plantaginis*) (Fig. 43).

**Remarks.** DIECKMANN (1989) recorded only coloration of the body and setae; his data agree with what is presented here.

### *Hypera kayali* Skuhrovec, 2006

SKUHROVEC 2006: 21–22.

**Material.** (4 mature larvae), collected in the field: SYRIA occ., province Tartus, Mashtal'helu env. (3 km East), 2.iv.2001, J. Skuhrovec leg. (4) (all on *Vicia palaestina* Boiss.).

**Description of mature larva.** Coloration. Head orange, posterior margins of epicranium dark. Dorsal surface of body pale green with white median stripe and short white stripes parallel with median stripe.

Head. Head width 0.84 mm (0.80–0.90 mm), head length 0.75 mm (0.70–0.80 mm) (Tab. 1). Frontal sutures distinct, slender, anteriorly more indistinct. Anterior margin of clypeus markedly concave (Fig. 50) with weak pigmentation. Labrum black; anterior margin with slender median excision, posterior margin with short and wide median projection (Fig. 50). Mandibles with two rounded teeth apically (Fig. 53).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; with oval peritrema positioned posteriad.

Chaetotaxy. Head. Setae hairform. *Des2* and *des4* short, about  $0.5 \times des1$  and *des3*, *des5* minutely shorter than *des1* and *des3* (Fig. 50). Both *les* long, *les1* about  $0.75 \times les2$ . Both *ves* short. *Fs1* and *fs3* the shortest, less than  $0.4 \times fs4$ ; *fs4* about  $0.7 \times fs5$  (Fig. 50). Both *cls* short, *lrms1*–3 longer than *cls* (Fig. 50). Both *mds* short (Fig. 53). *Sts1*–2 long, *sts3* short (Fig. 51). *Dms1*–6 stout (Fig. 52), *vms1*–5 minute. *Mxps* very short. *Plbs* broken and not examined; *prms* long; both *lig* minute (Fig. 51).

Thorax (Fig. 54). Bases of setae strongly pigmented, setae pigmented. Setae short, bacilliform or hairform (*prn*, *dpls*, *vppls*, *pda*, *msts*). Prothorax: *prn1* and *prn3* short; *prn4*–7 of approximately equal length; *prn8*–10 shorter than setae on anterior margin of sclerite. *Vppls2* about  $0.7 \times vppls1$ . Pedal lobe with three setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining seta minute. *Msts* minute. Meso- and metathorax: *prs* and *pds1*–4 of approximately equal length. Both *dls* short, both *ss* short, *dpls* and *vppls* short.



Pedal lobe with three setae (*pda*); *pda1*–2 long, *pda2* about  $0.75 \times pda1$ ; remaining seta minute. *Msts* minute.

Abdomen. Bases of setae strongly pigmented, setae pigmented. Setae short, bacilliform or hairform (*vpls*, *lsts*, *msts*). *Abdominal segments I–VIII* (Fig. 55): *pds1*–5 not in line, *pds2* and *pds4* positioned anteriad, *pds3* slightly posteriad; setae of approximately equal length. *Sps* shorter than *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* very short, *msts* minute. *Abdominal segment VII*: *pds3* very long. *Abdominal segment VIII*: *pds2* and *pds4* positioned more anteriad from line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* very long, remaining setae about  $0.5 \times$ . *Dpls1* slightly shorter than *dpls2*. *Abdominal segment IX* (Fig. 56): *ds1*–4 hairform; *ds2*–4 in line; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* long; *sts1* short, *sts2* minute.

**Differential diagnosis.** *Prs* and *pds1*–5 on abdominal segments I–VIII bacilliform, clubform or dippleform ( $\times$  *H. arator*, *H. jucunda* and *H. viciae*) (Fig. 55). *Pds2* on abdominal segments I–VII short, longer than  $0.5 \times pds3$  ( $\times$  *H. nigrirostris* and *H. venusta*) (Fig. 55). *Pds3* on metathorax less than twice as long as additional *pds* ( $\times$  *H. contaminata*) (Fig. 55). *Dpls* and *vpls* on meso- and metathorax hairform ( $\times$  *H. postica*) (Fig. 54). Majority of *prn1*–10 hairform ( $\times$  *H. denominanda*) (Fig. 54). Setae on thorax and abdomen unpigmented ( $\times$  *H. striata* and *H. suspiciosa*). *Fs1*–5 and *des1*–5 hairform ( $\times$  *H. plantaginis*) (Fig. 50).

**Remarks.** SKUHROVEC (2006) recorded only coloration of the body; the data agree with what is presented here.

### *Hypera striata* (Boheman, 1834)

**Material.** (3 mature larvae), collected in the field: SLOVAKIA mer. (7677), Čajkov env., vill. Rybník, 25.v.2002, J. Skuhrovec leg. (3) (all on agg. *Vicia sativa* L.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark. Dorsal surface of body yellow to brown with pale green lobes.

Head. Head width 0.68 mm (0.60–0.80 mm), head length 0.59 mm (0.50–0.70 mm) (Tab. 1). Frontal sutures distinct, slender. Anterior margin of clypeus distinctly concave (Fig. 57) with pigmentation. Labrum darkly pigmented; anterior margin with slender median excision, posterior margin with short and wide median projection (Fig. 57). Mandibles with two sharp teeth apically (Fig. 60).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; oval peritrema positioned posteriad.

Chaetotaxy. Head. Setae hairform. *Des2* and *des4* short, about  $0.5 \times des1$ , *des3* and *des5* minutely shorter than *des1* (Fig. 57). Both *les* long, of approximately equal length. Both *ves* short. *Fs1* and *fs3* shortest, about  $0.5 \times fs4$ ; *fs4* about  $0.5 \times fs5$  (Fig. 57). Both *cls* short, *lrms1*–3 short (Fig. 57). Both *mds* very short (Fig. 60). *Sts1*–2 long, *sts3* short

(Fig. 58). *Dms1–6* stout (Fig. 59), *vms1–5* minute. *Mxps* very short. *Plbs1–2* long, *plbs3* short; *prms* twice longer than *plbs3*; both *lig* minute (Fig. 58).

Thorax (Fig. 61). Bases of setae strongly pigmented, setae pigmented. Setae short, clubform to bacilliform and hairform (*prn*, *dpls*, *vpls*, *pda*, *msts*). Prothorax: *prn2* and *prn6* long; remaining setae of approximately equal length. *Vpls2* about  $0.3 \times vpls1$ . Pedal lobe with four (four to five) setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining two (two to three) setae minute. *Msts* minute. Meso- and metathorax: *prs* and *pds1–4* of approximately equal length. Both *dls* short, both *ss* short, *dpls* and *vpls* long. Pedal lobe with four (four to five) setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining two (two to three) setae minute. *Msts* minute.

Abdomen. Bases of setae strongly pigmented, setae pigmented. Setae short, bacilliform and hairform (*vpls*, *lsts*, *msts*). Abdominal segments I–VIII (Fig. 62): *pds1–5* approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds2* and *pds4* shortest, remaining setae of approximately equal length. *Sps* shorter than *prs*. Both *dpls* of approximately equal length. *Vpls2* long, *vpls1* minute. *Lsts* short, *msts* minute. Abdominal segment VII: *pds3* very long, hairform. Abdominal segment VIII: *pds2* and *pds4* positioned more anteriad from line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* long, remaining setae about  $0.3 \times$ . *Dpls1* slightly shorter than *dpls2*. Abdominal segment IX (Fig. 63): *ds1–4* hairform; *ds2–4* in line; *ds3* longest, remaining three setae of approximately equal length. Both *ps* long; *ps1* bacilliform, *ps2* hairform. Both *sts* hairform; *sts1* very short, *sts2* minute.

**Differential diagnosis.** *Prs* and *pds1–5* on abdominal segments I–VIII bacilliform, clubform or dippleform ( $\times$  *H. arator*, *H. jucunda* and *H. viciae*) (Fig. 62). *Pds2* on abdominal segments I–VII short, longer than  $0.5 \times pds3$  ( $\times$  *H. nigrirostris* and *H. venusta*) (Fig. 62). Setae on thorax and abdomen pigmented ( $\times$  *H. contaminata*, *H. denominanda*, *H. plantaginis* and *H. postica*).

### Subgenus *Boreohypera* Korotyaev, 1999

**Differential diagnosis.** Mandible with two teeth ( $\times$  *Antidonus*) (Fig. 67). Bases of setae on thorax and abdomen not prominent and broad, but strongly pigmented ( $\times$  *Eirinomorphus*) (Fig. 68–70). Pronotum with ten setae (*prn1–10*) ( $\times$  *Eirinomorphus*) (Fig. 68). Meso- and metathorax with three *vpls*; *vpls1* short, *vpls2–3* minute ( $\times$  *Antidonus*, *Eirinomorphus*, *Dapalinus* and *Hypera*) (Fig. 68).

### Descriptions of *Boreohypera* species

#### *Hypera diversipunctata* (Schrank, 1798)

**Material.** (1 mature larva), collected in the field: CZ–Bohemia or. (5855); Králický Sněžník Mts., 7 km N of Velká Morava (meadow), 23.vi.2004 (1) (on *Cerastium arvense* L.).

**Description of mature larva.** Coloration. Head orange, posterior and lateral margins of epicranium dark. Dorsal surface of body yellow.



Head. Head width 0.85 mm, head length 0.78 mm (Tab. 1). Frontal sutures distinct, slender, anteriorly almost indistinct. Anterior margin of clypeus distinctly concave (Fig. 64) with weak pigmentation. Labrum dark brown; slender anterior margin with deep median excision, posterior margin with short and wide median projection (Fig. 64). Mandibles with two sharp teeth apically (Fig. 67).

Thorax. Spiracular area of mesothorax with one spiraculum; oval peritremas positioned dorsad.

Abdomen. Spiracula on abdominal segments I–VIII located above dorsopleural lobes; oval peritreme positioned postero-dorsad.

Chaetotaxy. Head. Setae hairform. *Des2* and *des4* short, about  $0.5 \times des1$  and *des3*, *des5* minutely longer than *des1* and *des3* (Fig. 64). Both *les* long, of approximately equal length. Both *ves* short. *Fs1* and *fs3* shortest, less than  $0.7 \times fs4$ ; *fs4* about  $0.7 \times fs5$  (Fig. 64). Both *cls* short, *lrms1–3* short (Fig. 64). Both *mds* short (Fig. 67). *Sts1–2* long, *sts3* short (Fig. 65). *Dms1–6* stout (Fig. 66), *vms1–5* minute. *Mxps* very short. *Plbs2* long, *plbs1*, 3 about  $0.5 \times plbs2$ ; *prms* short; both *lig* minute (Fig. 65).

Thorax (Fig. 68). Bases of setae strongly pigmented, setae unpigmented. Setae short, clubform to bacilliform or hairform (*vp1s*, *pda*, *mst*s). *Prothorax*: *prn1* and *prn3* very short; *prn4–5*, 7 of approximately equal length, *prn6* the longest; *prn8–10* shorter than setae on anterior margin of sclerite. *Vp1s2* about  $0.4 \times vp1s1$ . Pedal lobe with five setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining three setae minute. *Mst*s minute. *Meso- and metathorax*: *prs* and *pds1–4* of approximately equal length. Both *dls* very short, both *ss* very short. *Dpls* short, *vp1s1* short, *vp1s2–3* minute. Pedal lobe with five setae (*pda*); *pda1–2* long, *pda2* about  $0.75 \times pda1$ ; remaining three setae minute. *Mst*s minute.

Abdomen. Bases of setae strongly pigmented, setae unpigmented. Setae short, clubform to bacilliform or hairform (*vp1s1*, *lst*s, *mst*s). *Abdominal segments I–VIII* (Fig. 69): *pds1–5* approximately in line, *pds2* and *pds4* positioned slightly anteriad, *pds3* slightly posteriad; *pds2* and *pds4* the shortest, remaining setae of approximately equal length. *Sps* long as *prs*. Both *dpls* of approximately equal length. *Vp1s2* short, *vp1s1* minute. *Lst*s short, *mst*s minute. *Abdominal segment VII*: *pds3* longer than remaining setae. *Abdominal segment VIII*: *pds2* and *pds4* positioned more anteriad from line joining *pds1* and *pds5* than on abdominal segments I–VII, *pds4* positioned more anteriad than *pds2*; *pds1*, *pds3* and *pds5* approximately in line; *pds3* long, remaining setae about  $0.5 \times$ . *Dpls1* slightly shorter than *dpls2*. *Abdominal segment IX* (Fig. 70): *ds1–4* clubform to bacilliform; *ds2–4* not in line, *ds3* anteriad of line joining *ds2* and *ds4*; *ds3* the longest, remaining three setae of approximately equal length. Both *ps* short; *sts1* very short, *sts2* minute.

#### Key to the mature larvae of the genus *Hypera*

- 1(8) Mandible with four teeth (Figs 4, 11, 18, 25). ..... (subgenus *Antidonus* Bedel, 1886)
- 2(5) *Prs* and *pds1–5* on abdominal segments I–VIII hairform (Figs 6, 20).

- 3(4) Meso- and metathorax with two *ss*; *ss1*–2 long, *ss3* absent (Fig. 19). *Plbs1* long (Fig. 16). ..... ***H. vidua* Gené, 1837**
- 4(3) Meso- and metathorax with three *ss*; *ss1*–2 long, *ss3* present, minute (Fig. 5). *Plbs1* short (Fig. 2). ..... ***H. dauci* (Olivier, 1807)**
- 5(2) *Prs* and *pds1*–5 on abdominal segments I–VIII bacilliform or clubform (Figs 13, 27).
- 6(7) Thoracic and abdominal setae long (Figs 12, 13). *Dpls* on meso- and metathorax hairform (Fig. 12). *Prms* very short (Fig. 9). ..... ***H. lunata* Wollaston, 1837**
- 7(6) Thoracic and abdominal setae very short (Figs 26, 27). *Dpls* on meso- and metathorax bacilliform (Fig. 26). *Prms* long (Fig. 23). ..... ***H. zoila* (Scopoli, 1763)**
- 8(1) Mandible with two teeth (Figs 32, 39, 46, 53, 60, 67; SKUHROVEC 2005: Figs 10, 19, 28, 37, 46, 52, 64, 73, 82).
- 9(12) Bases of setae on thorax and abdomen prominent and broad with tuberosity, and strongly pigmented (Figs 33–35, 40–42). Pronotum with eleven setae (*prn1*–11) (Figs 33, 40). ..... **(subgenus *Eirinomorphus* Capiomont, 1868)**
- 10(11) Thoracic and abdominal setae short (Figs 33–35). Meso- and metathorax with three short setae (*ss1*–3) (Fig. 33). Dorsal and ventral surfaces of body yellow-green to grey-green. ..... ***H. arundinis* (Paykull, 1792)**
- 11(10) Thoracic and abdominal setae long (Figs 40–42). Meso- and metathorax with two long setae (*ss1*–2) (Fig. 40). Dorsal surface of body dark brown with median pale brown stripe; ventral surface of thorax dark brown, ventral surface of abdomen yellow. ... ***H. rumicis* (Linné, 1758)**
- 12(9) Bases of setae on thorax and abdomen not prominent and broad, but strongly pigmented (Figs 47–49, 54–56, 61–63, 68–70; SKUHROVEC 2005: Figs 11–13, 20–22, 29–31, 38–40, 47–49, 56–58, 65–67, 74–76, 83–85). Pronotum with ten setae (*prn1*–10) (Figs 47, 54, 61, 68; SKUHROVEC 2005: Figs 11, 20, 29, 38, 47, 56, 65, 74, 83).
- 13(18) *Prs* and *pds1*–5 on abdominal segments I–VIII hairform (SKUHROVEC 2005: Figs 12, 30, 84).
- 14(15) *Prs* and *pds1*–5 on abdominal segments I–VIII short (SKUHROVEC 2005: Fig. 84). *Fs1* and *fs3* shorter than  $0.33 \times fs4$  (SKUHROVEC 2005: Fig. 77). ..... ***H. viciae* (Gyllenhal, 1813)**
- 15(14) *Prs* and *pds1*–5 on abdominal segments I–VIII long (SKUHROVEC 2005: Figs 12, 30). *Fs1* and *fs3* longer than  $0.5 \times fs4$  (SKUHROVEC 2005: Figs 5, 23).

- 16(17) Bases of setae on thorax and abdomen distinctly enlarged (SKUHROVEC 2005: Figs 11–13) ..... ***H. arator* (Linné, 1758)**
- 17(16) Bases of setae on thorax and abdomen small, not distinctly enlarged (SKUHROVEC 2005: Figs 29–31) ..... ***H. jucunda* (Capiomont, 1868)**
- 18(13) *Prs* and *pds1–5* on abdominal segments I–VIII bacilliform, clubform or dippleform (Figs 48, 55, 62, 69; SKUHROVEC 2005: Figs 21, 39, 48, 57, 66, 75).
- 19(20) Meso- and metathorax with three *vpls*; *vpls1* short, *vpls2–3* minute (Fig. 68). ..... ***H. diversipunctata* (Schränk, 1798)**
- 20(19) Meso- and metathorax with one *vpls* (Figs 47, 54, 61; SKUHROVEC 2005: Figs 20, 38, 47, 56, 65, 74).
- 21(24) *Pds2* on abdominal segments I–VII very short, shorter than  $0.5 \times pds3$  (SKUHROVEC 2005: Figs 39, 75).
- 22(23) *Prs* and *pds1–5* on abdominal segments I–VIII very short (SKUHROVEC 2005: Fig. 39), *ds1–4* on abdominal segment IX dippleform, except of *ds3* (SKUHROVEC 2005: Fig. 40) ..... ***H. nigrirostris* (Fabricius, 1775)**
- 23(22) *Prs* and *pds1–5* on abdominal segments I–VIII short (SKUHROVEC 2005: Fig. 75), *ds1–4* on abdominal segment IX hairform (SKUHROVEC 2005: Fig. 76). ..... ***H. venusta* (Fabricius, 1781)**
- 24(21) *Pds2* on abdominal segments I–VII short, longer than  $0.5 \times pds3$  (Figs 48, 55, 62; SKUHROVEC 2005: Figs 21, 48, 53, 66).
- 25(28) Setae on thorax and abdomen pigmented.
- 26(27) *Des2* about  $0.7 \times des3$  and *des5* (SKUHROVEC 2005: Fig. 63); *plbs2* of approximately the same length as *plbs1* (SKUHROVEC 2005: Fig. 61). ....  
..... ***H. suspiciosa* (Herbst, 1795)**
- 27(26) *Des2* about  $0.5 \times des3$  and *des5* (Fig. 57); *plbs2* twice longer than *plbs1* (Fig. 58). ..... ***H. striata* (Boheman, 1834)**
- 28(25) Setae on thorax and abdomen unpigmented.
- 29(36) *Fs1–5* (Figs 43, 50; SKUHROVEC 2005: Figs 14, 50) and *des1–5* (Figs 43, 50; SKUHROVEC 2005: Figs 18, 51) hairform; *prs* and *pds1–5* on abdominal segments I–VIII slender, softly bacilliform (Figs 48, 55; SKUHROVEC 2005: Figs 21, 57).
- 30(31) All *prn1–10* bacilliform to clubform (SKUHROVEC 2005: Fig. 20). .....  
..... ***H. denominanda* (Capiomont, 1868)**
- 31(30) Majority of *prn1–10* hairform (Figs 47, 54; SKUHROVEC 2005: Fig. 56).
- 32(33) *Pds3* on metathorax more than twice longer than additional *pds* (Fig. 47). ..... ***H. contaminata* (Herbst, 1795)**

- 33(32) *Pds3* on metathorax less than twice as long as additional *pds* (Fig. 54; SKUHROVEC 2005: Fig. 56).
- 34(35) *Dpls* and *vppls* on meso- and metathorax hairform (Fig. 54). ..... *H. kayali* Skuhrovec, 2006
- 35(34) *Dpls* on meso- and metathorax bacilliform and *vppls* on meso- and metathorax hairform to bacilliform (SKUHROVEC 2005: Fig. 56). ..... *H. postica* (Gyllenhal, 1813)
- 36(29) *Fs1–4* (SKUHROVEC 2005: Fig. 41) and *des1–5* (SKUHROVEC 2005: Fig. 45) bacilliform to clubform, *fs5* hairform (SKUHROVEC 2005: Fig. 41); *prs* and *pds1–5* on abdominal segments I–VIII clubform (SKUHROVEC 2005: Fig. 48). ..... *H. plantaginis* (De Geer, 1775)

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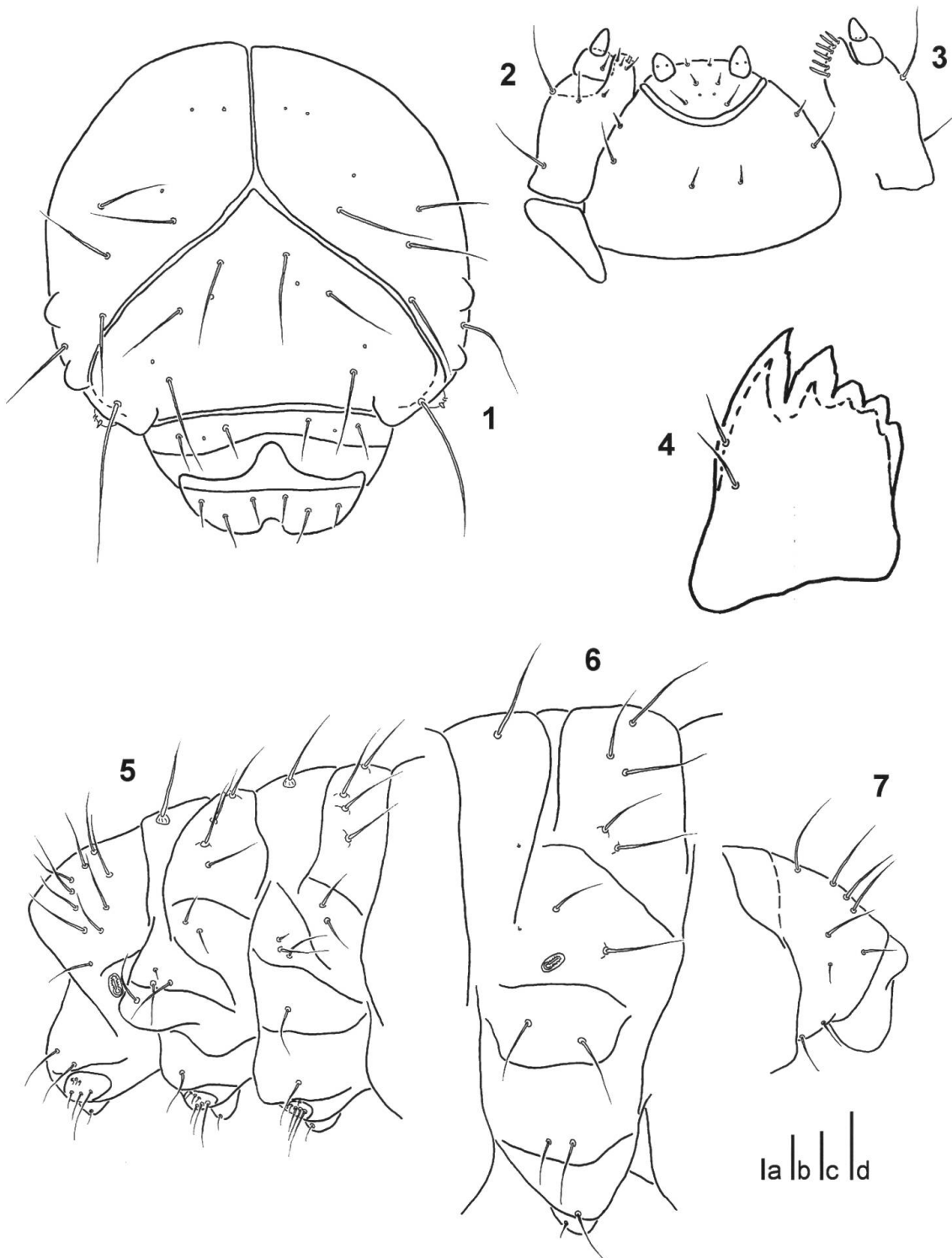
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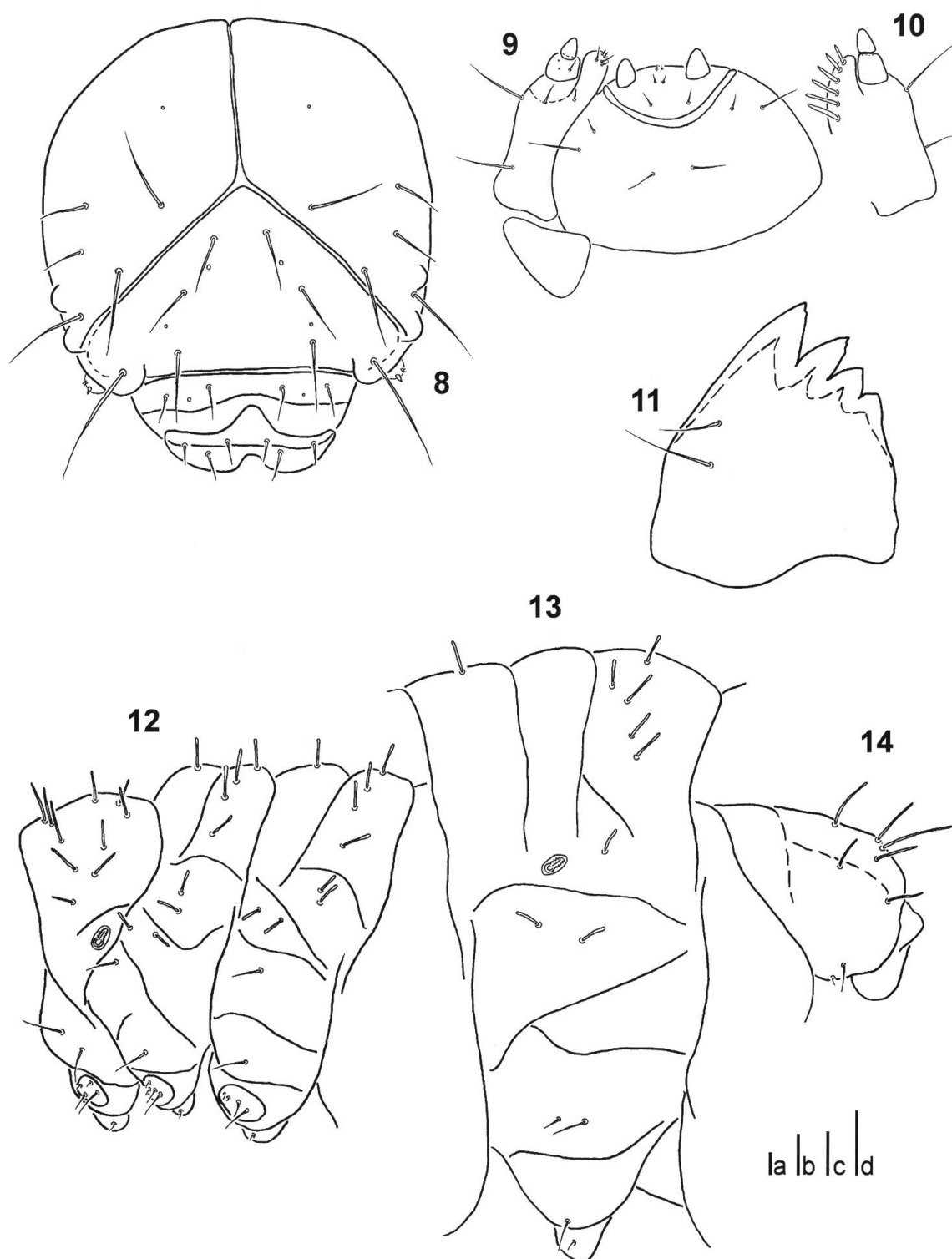
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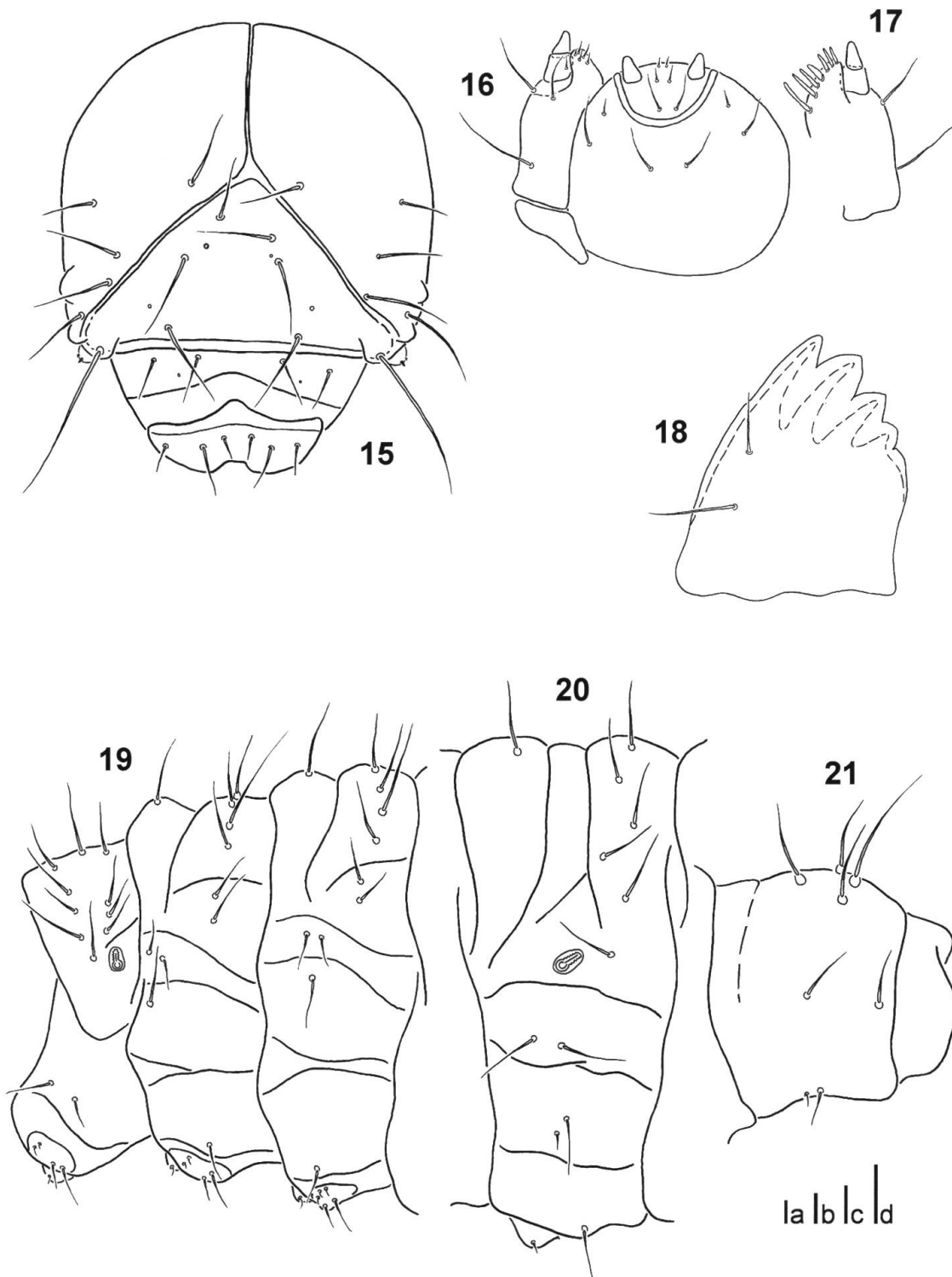


**Figs 1–7.** *Hypera dauci*: (1) head, (2) labium and maxilla, (3) maxilla, (4) mandible, (5) thorax, (6) abdominal segment IV, (7) abdominal segment IX; Figs 1, 3–4 dorsal view, Fig. 2 ventral view and Figs 5–7 lateral view. Scale bar 0.1 mm: a – Figs 5–7; b – Fig. 1; c – Figs 2–3; d – Fig. 4.

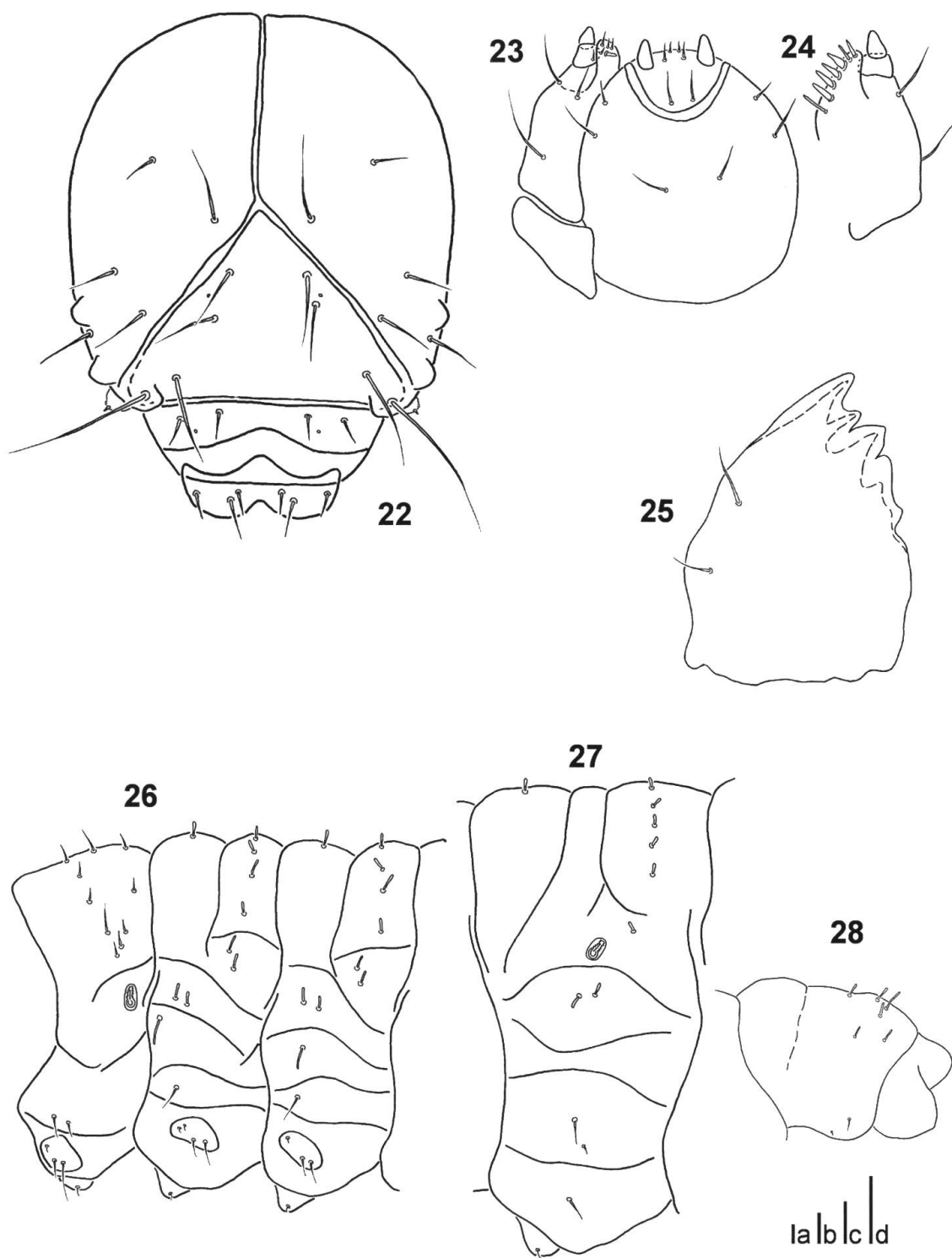


**Figs 8–14.** *Hypera lunata*: (8) head, (9) labium and maxilla, (10) maxilla, (11) mandible, (12) thorax, (13) abdominal segment IV, (14) abdominal segment IX; Figs 8, 10–11 dorsal view, Fig. 9 ventral view and Figs 12–14 lateral view. Scale bar 0.1 mm: a – Figs 12–14; b – Fig. 8; c – Figs 9–10; d – Fig. 11.

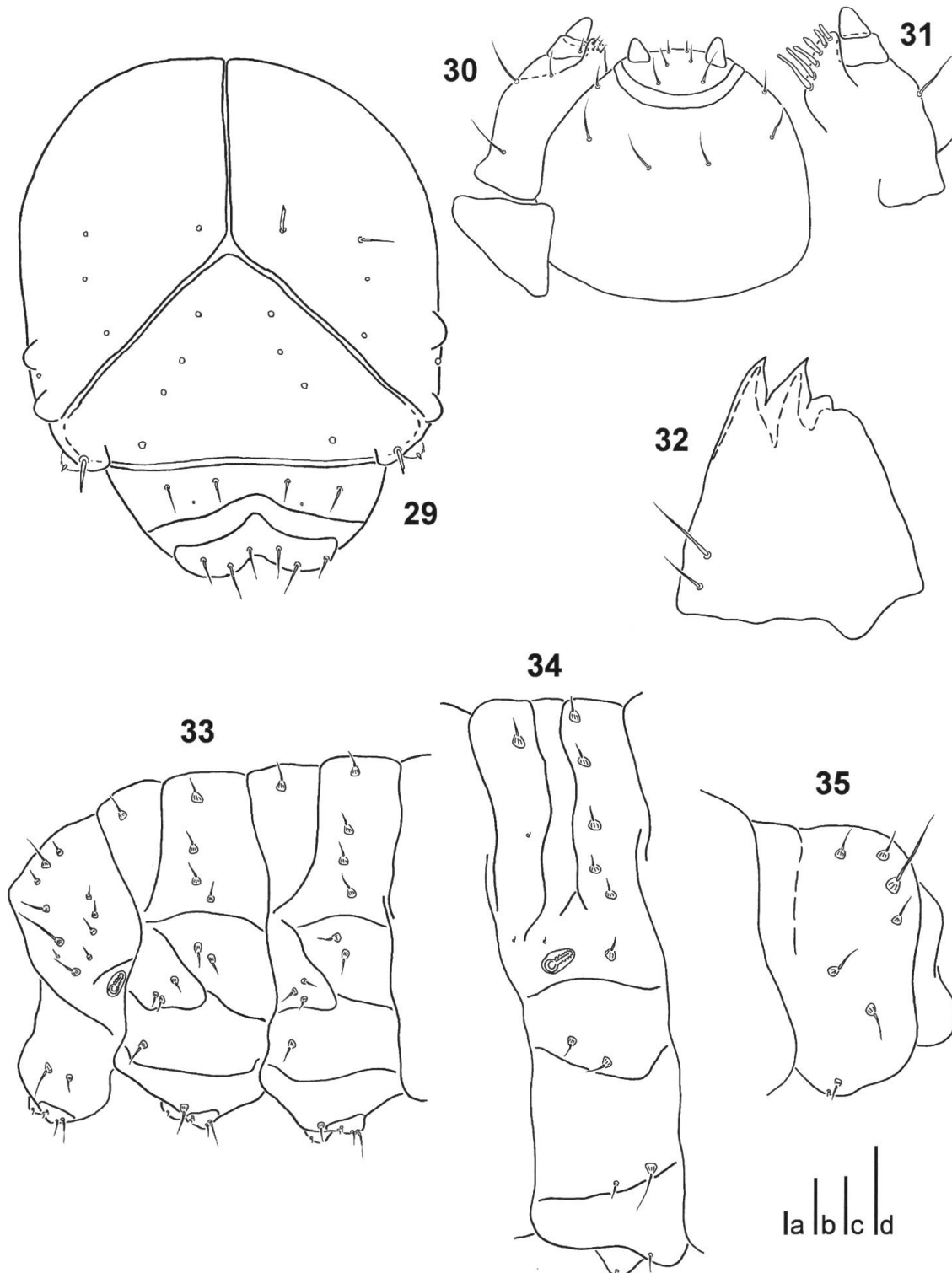




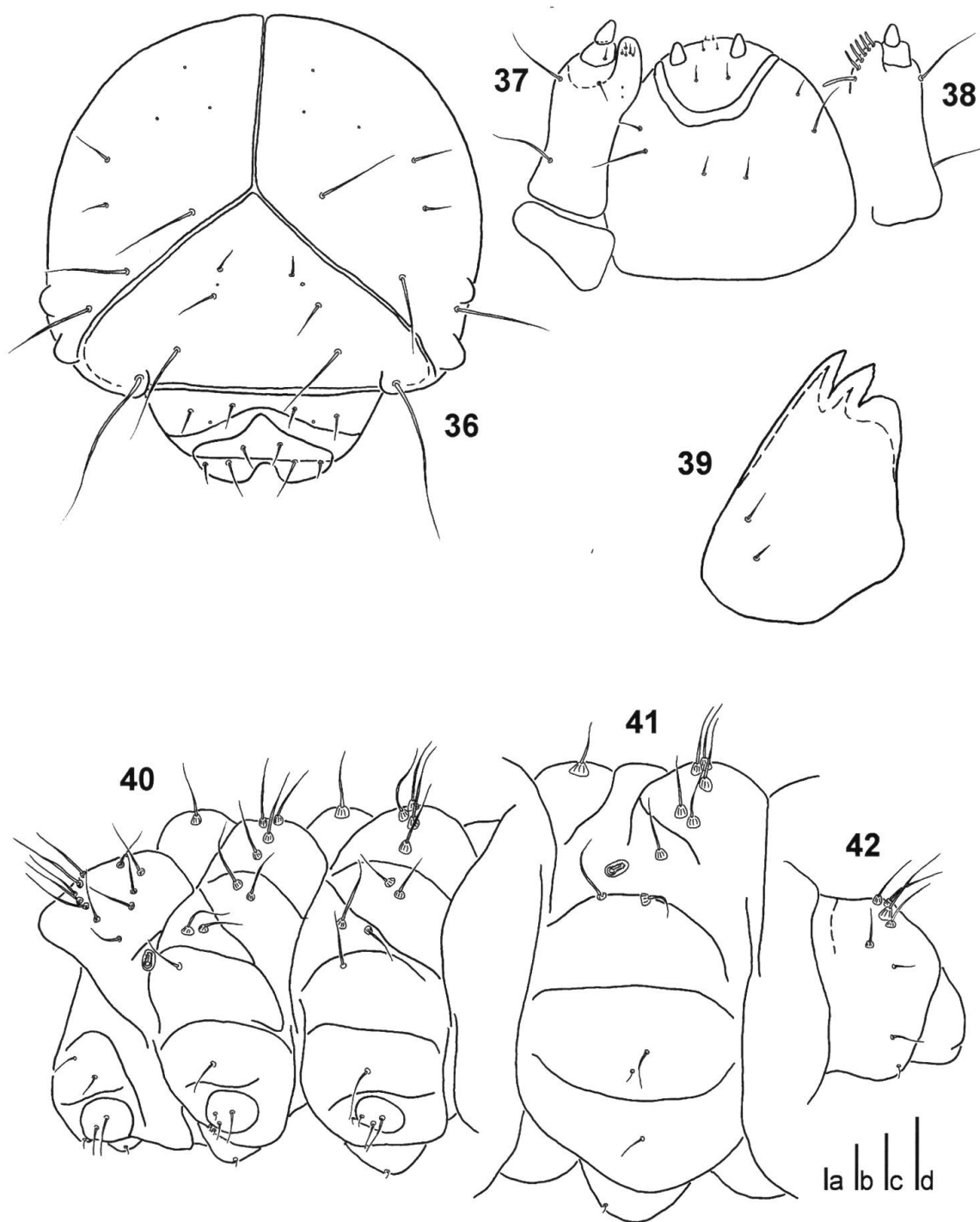
**Figs 15–21.** *Hypera vidua*: (15) head, (16) labium and maxilla, (17) maxilla, (18) mandible, (19) thorax, (20) abdominal segment IV, (21) abdominal segment IX; Figs 15, 17–18 dorsal view, Fig. 16 ventral view and Figs 19–21 lateral view. Scale bar 0.1 mm: a – Figs 19–21; b – Fig. 15; c – Figs 16–17; d – Fig. 18.



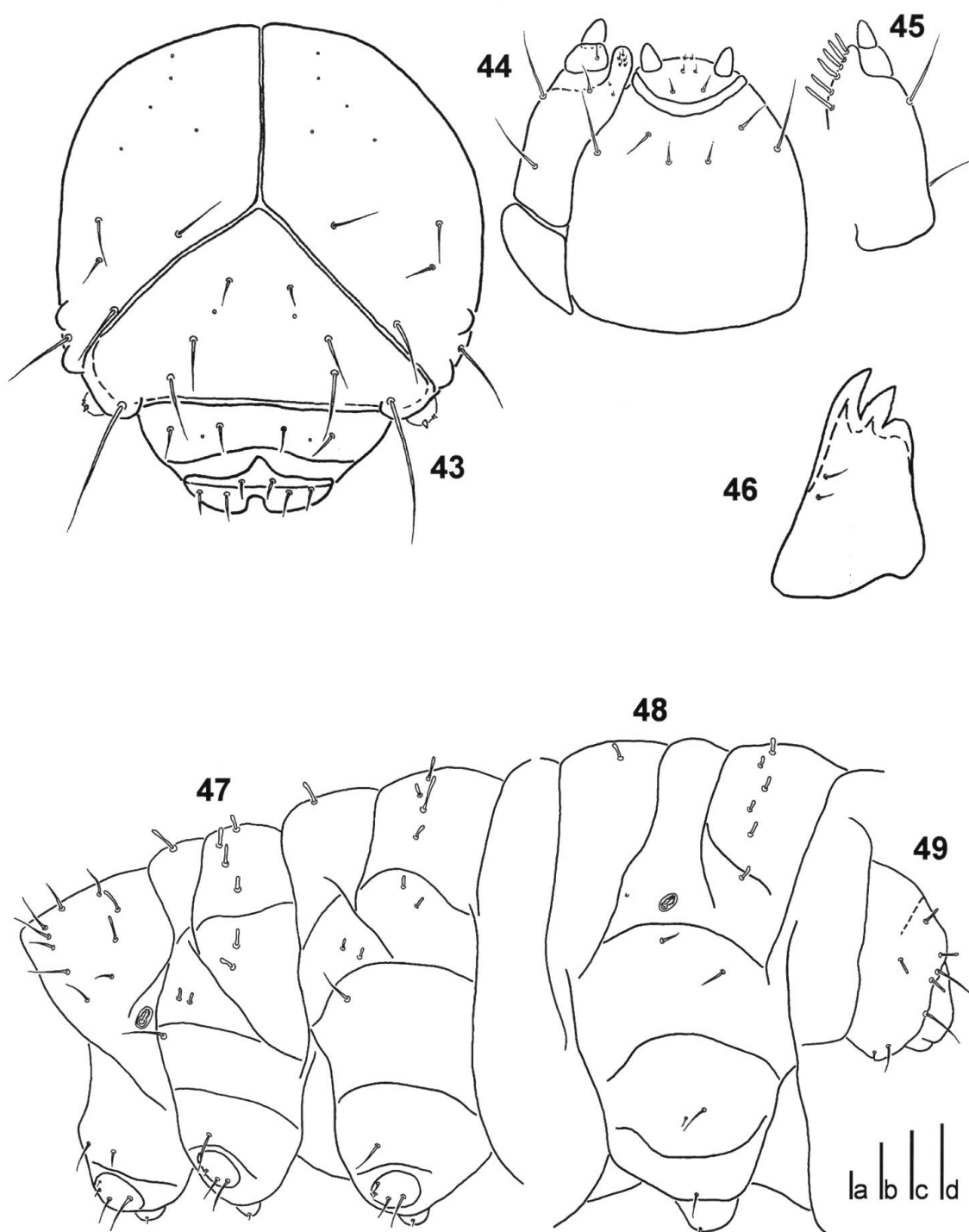
**Figs 22–28.** *Hypera zoila*: (22) head, (23) labium and maxilla, (24) maxilla, (25) mandible, (26) thorax, (27) abdominal segment IV, (28) abdominal segment IX; Figs 22, 24–25 dorsal view, Fig. 23 ventral view and Figs 26–28 lateral view. Scale bar 0.1 mm: a – Figs 26–28; b – Fig. 22; c – Figs 23–24; d – Fig. 25.



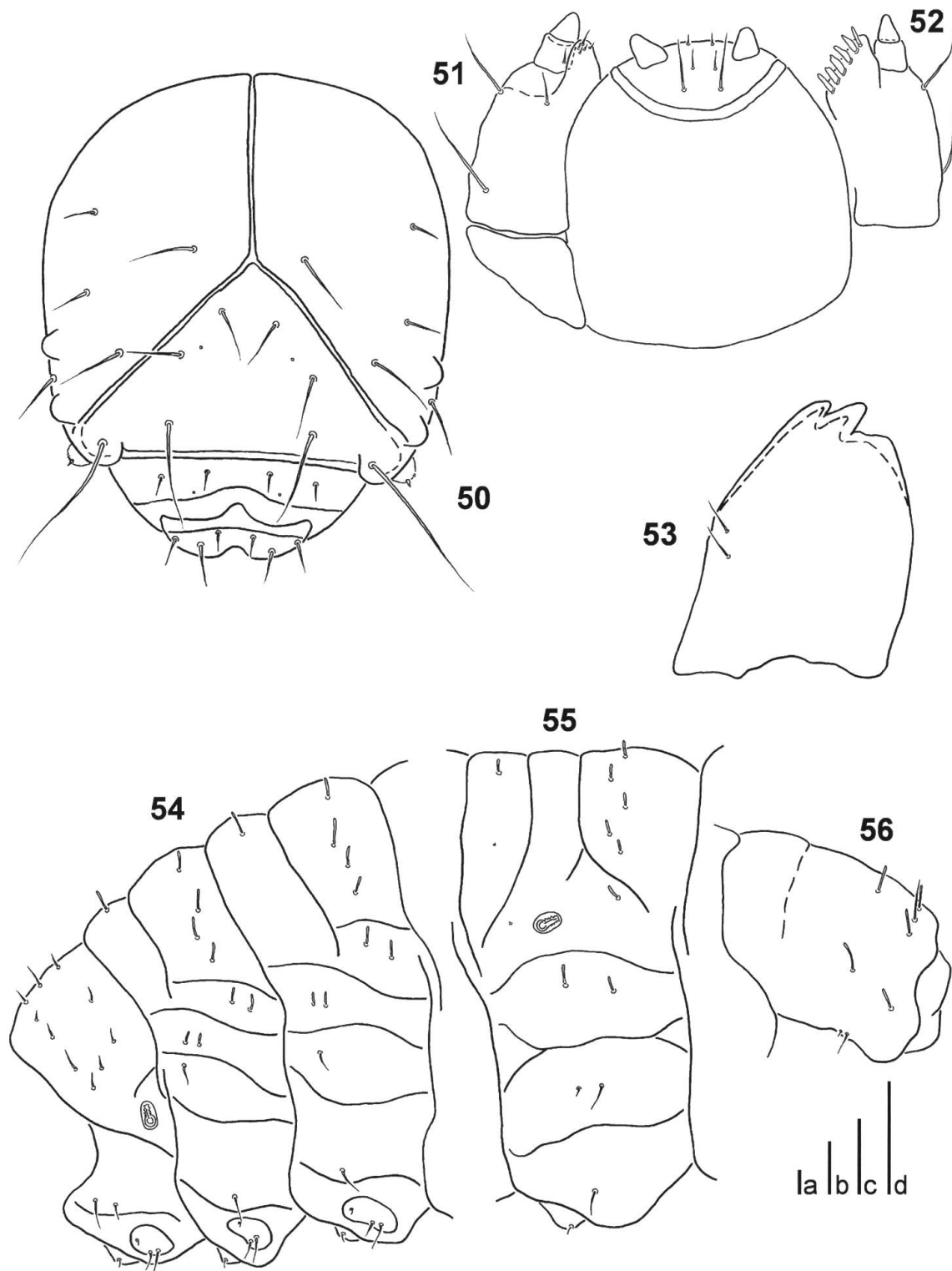
**Figs 29–35.** *Hypera arundinis*: (29) head, (30) labium and maxilla, (31) maxilla, (32) mandible, (33) thorax, (34) abdominal segment IV, (35) abdominal segment IX; Figs 29, 31–32 dorsal view, Fig. 30 ventral view and Figs 33–35 lateral view. Scale bar 0.1 mm: a – Figs 33–35; b – Fig. 30–31; c – Figs 29; d – Fig. 32.



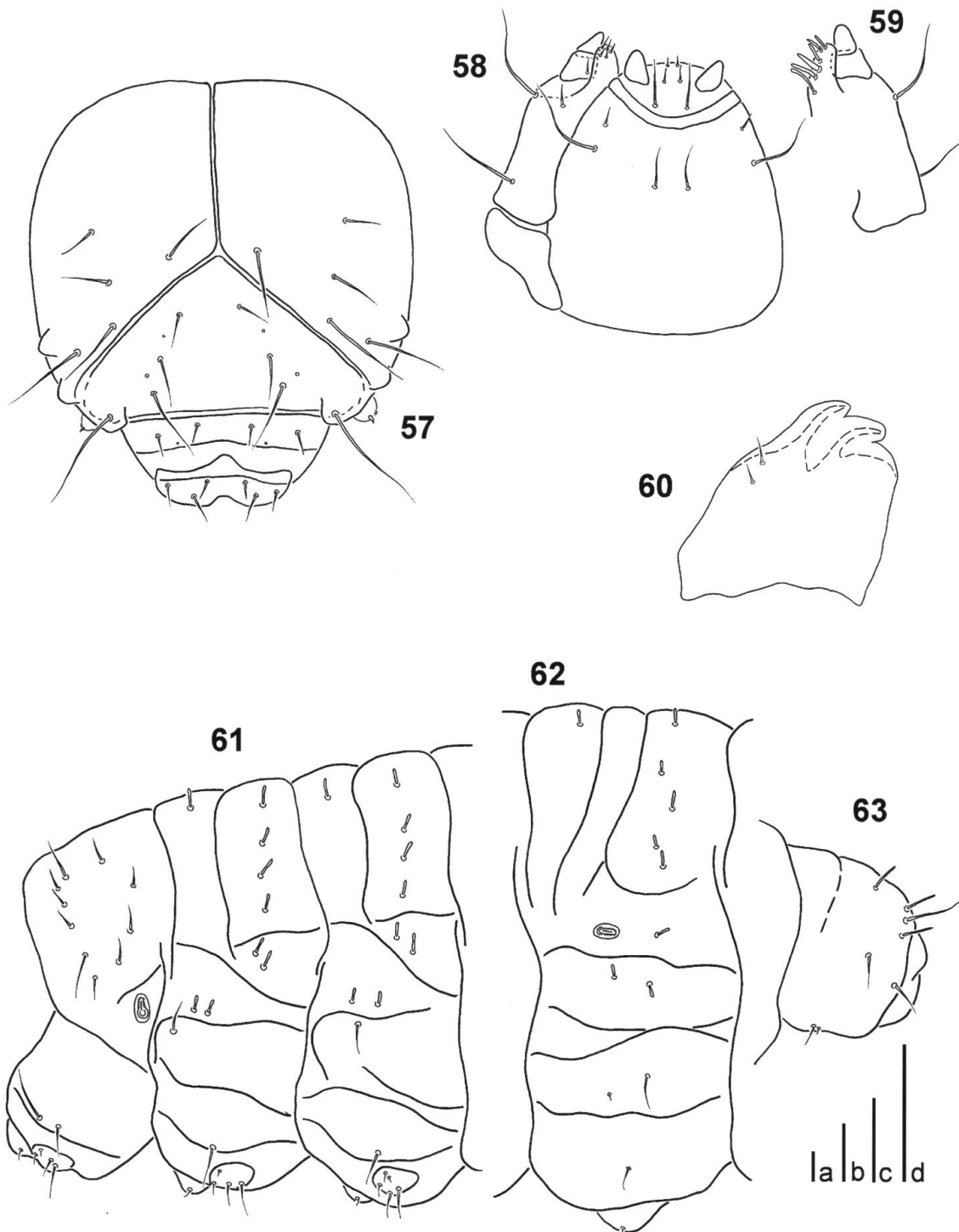
**Figs 36–42.** *Hypera rumicis*: (36) head, (37) labium and maxilla, (38) maxilla, (39) mandible, (40) thorax, (41) abdominal segment IV, (42) abdominal segment IX; Figs 36, 38–39 dorsal view, Fig. 37 ventral view and Figs 40–42 lateral view. Scale bar 0.1 mm: a – Figs 40–42; b – Fig. 36; c – Figs 37–38; d – Fig. 39.



**Figs 43–49.** *Hypera contaminata*: (43) head, (44) labium and maxilla, (45) maxilla, (46) mandible, (47) thorax, (48) abdominal segment IV, (49) abdominal segment IX; Figs 43, 45–46 dorsal view, Fig. 44 ventral view and Figs 47–49 lateral view. Scale bar 0.1 mm: a – Figs 47–49; b – Fig. 43; c – Figs 44–45; d – Fig. 46.

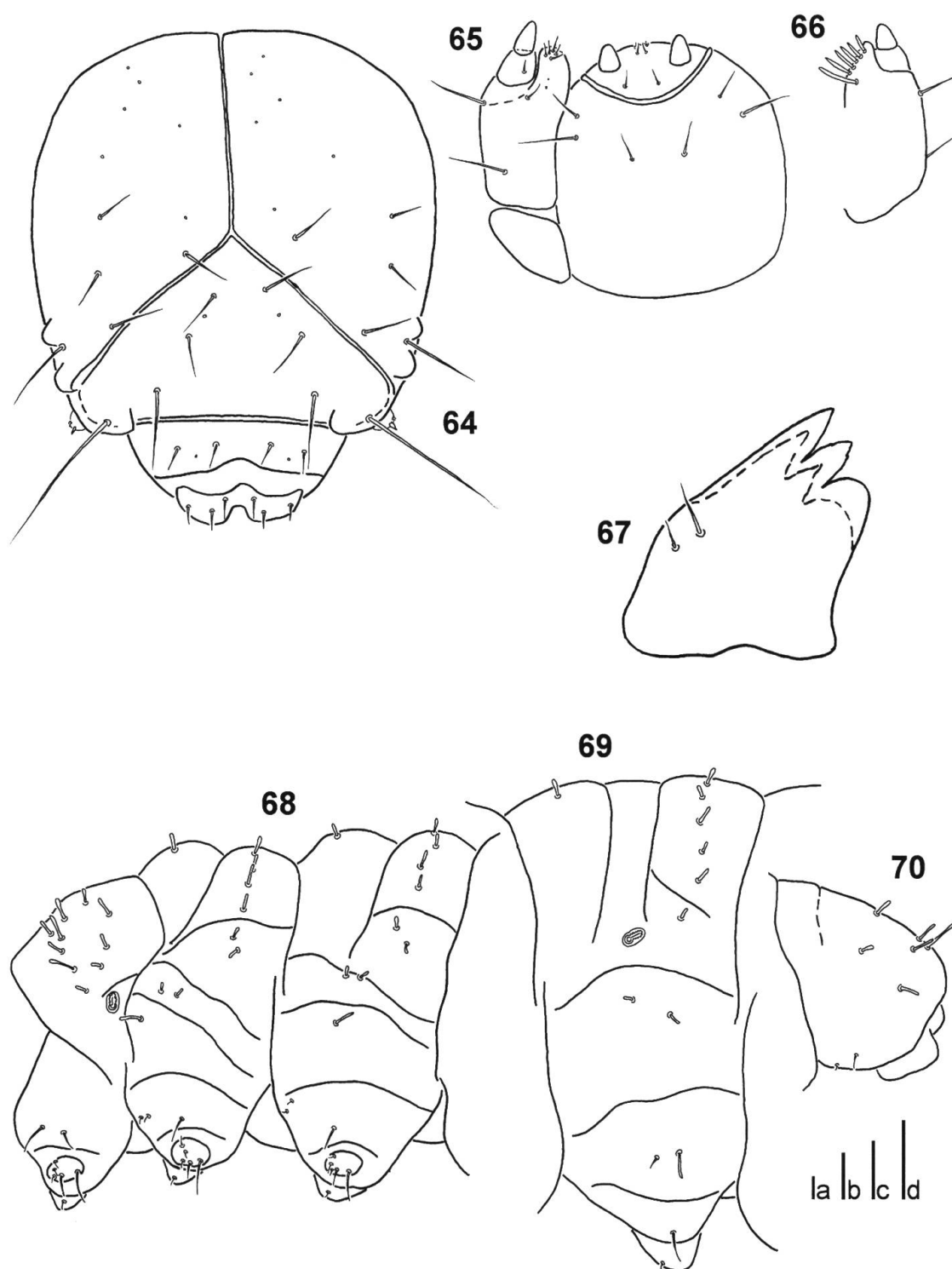


**Figs 50–56.** *Hypera kayali*: (50) head, (51) labium and maxilla, (52) maxilla, (53) mandible, (54) thorax, (55) abdominal segment IV, (56) abdominal segment IX; Figs 50, 52–53 dorsal view, Fig. 51 ventral view and Figs 54–56 lateral view. Scale bar 0.1 mm: a – Figs 54–56; b – Fig. 50; c – Figs 51–52; d – Fig. 53.



**Figs 57–63.** *Hypera striata*: (57) head, (58) labium and maxilla, (59) maxilla, (60) mandible, (61) thorax, (62) abdominal segment IV, (63) abdominal segment IX; Figs 57, 59–60 dorsal view, Fig. 58 ventral view and Figs 61–63 lateral view. Scale bar 0.1 mm: a – Figs 61–63; b – Fig. 57; c – Figs 58–59; d – Fig. 60.





**Figs 64–70.** *Hypera diversipunctata*: (64) head, (65) labium and maxilla, (66) maxilla, (67) mandible, (68) thorax, (69) abdominal segment IV, (70) abdominal segment IX; Figs 64, 66–67 dorsal view, Fig. 65 ventral view and Figs 68–70 lateral view. Scale bar 0.1 mm: a – Figs 68–70; b – Fig. 64; c – Figs 65–66; d – Fig. 67.