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Papers Celebrating the 80th Birthday of Professor ANDRZEJ WARCHAŁOWSKI

Review of the *Anthrenus pimpinellae* species group from
Palearctic region
(Coleoptera: Dermestidae: Anthrenini)

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ABSTRACT. Three new species *Anthrenus* (*Anthrenus*) *hoberlandti* sp. n., *A. (A.) similis* sp. n. and *A. (A.) warchalowskii* sp. n. all from Iran, are described, illustrated and compared with all known taxa belong to the *Anthrenus pimpinellae* species group. Lectotype of *A. (A.) dorsatus* MULSANT et REY, 1868 is here designated. New synonymy is proposed: *Anthrenus (A.) delicatus* KIESENWETTER, 1851 (= *Anthrenus armstrongi* MROZKOWSKI, 1952 syn. n.). *A. mroczkowskii* KALÍK, 1954 stat. n., is raised to species. New faunistic records are provided for: *Anthrenus (A.) munroi* HINTON, 1943 (Macedonia); *A. (A.) delicatus* KIESENWETTER, 1851 (Andorra).

Key words: entomology, taxonomy, new species, Coleoptera, Dermestidae, *Anthrenus*, *pimpinellae* species group, Palearctic region.

INTRODUCTION

In former studies on Nearctic and Palearctic *Anthrenus* (s. str.) GEOFFROY, 1762 the present authors distinguished three informal groups: *lepidus*, *pimpinellae* and *scrophulariae* comprising different beetle taxa. The distinction of the mentioned above groups was made on the base of the dorsal patterns (BEAL 1998).

The *pimpinellae*-group is the biggest and comprises currently 18 described species. Many undescribed specimens with unclear taxonomical status still needed detailed morpho-anatomical analysis. Authors gathered representatives of almost all taxa

belonging to *pimpinellae*-group. This almost complete material permits to provide a reversionary study.

This paper is continuation of earlier study on morphological variability of *pimpinellae*-group (KADEJ 2005; KADEJ, HÁVA and KALÍK 2007), includes reversionary studies and descriptions of three new species within *pimpinellae*-group with comparative analysis of related species.

MEASUREMENTS AND METHODS

The following measurements were made:

- AFL – antennal fossa length (measured along the antennal fossa).
- BL – body length (measured from the head anterior margin to the apex of the elytra).
- BW – body width (measured between two anterolateral humeral calli).
- LMP – length of lateral margin of pronotum (measured as a distance between inferior part of pronotum and exterior angle).
- PL – pronotum length (measured from the top of the anterior margin to scutellum).
- PW – pronotum width (measured between the two posterior angles of pronotum).
- SL – sternites length (measured from the anterior margin to the apex of posterior margin).
- SW – sternites width (measured between two lateral margins in the anterior part of sternites).

The following abbreviations refer to the collection where the examined material is deposited:

- BMNH - British Museum Natural History [= The Natural History Museum], London, United Kingdom.
- EUMJ – Ehime University, College of Agriculture, Matsuyama, Japan.
- HNHM – Hungarian Natural History Museum, Budapest, Hungary.
- JHAC – Private entomological laboratory and collection Jiri HÁVA, Prague, Czech Republic.
- MK – Marcin KADEJ, Department of Biodiversity and Evolutionary Taxonomy collection, University of Wrocław, Poland.
- MiIZ - Museum and Institiut of Zoology of Polish Academy of Science, Warsaw, Poland.
- MHNL - Muséé d'Histoire Naturelle de Lyon, Lyon, France.
- MTD – Staatliches Museum für Tierkunde, Dresno, Germany.
- NMPC - National Museum, Prague, Czech Republic.
- NMW - Naturhistorisches Museum Wien, Wien, Austria.
- SMNS – Staatliches Museum für Naturkunde, Stuttgart, Germany.
- ZMUH – Zoological Museum, University of Helsinki, Finland.

All measurements are given in millimeters. The morphological structures were observed under phase contrast microscope Nikon Eclipse E 600 with drawing attachment in transparent light in glycerin. All morphological structures were put into plastic micro vials with glycerin under proper specimens. Photos were taken with the camera Nikon Coolpix 4500. In this paper, the authors also used archival photos of male genitalia, taken by Halstead in 1989-1990, in collaboration with Kalik. All these photographs were loaned from SMNS.

Type specimens were labeled with red, printed label bearing the text as follows: "HOLOTYPE/ or PARATYPE, respectively, *Anthrenus (Anthrenus) hoberlandti/ or similaris/ or warchalowskii* n. sp. M. Kadej, J. Háva, V. Kalík det. 2007".

***Anthrenus hoberlandti* n. sp.**

(Figs 1, 20, 39, 58, 76, 94, 112)

NAME DERIVATION

Named in memmoriám of Dr. Ludvík HOBERLANDT (1918-2005), well known specialist in Heteroptera.

TYPE MATERIAL

Holotype (♂): „C. Iran, Rafsanjan, 26-28.4.1973“ / „Loc. No. 181, Exped. Nat. Mus. Praha“ (NMPC).

Paratypes (8 exx.): the same data as holotype (6 NMPC, 2 JHAC); (1 ex.): Iran F. Brandt/882 (♂) (ZMUH); (1 ex.): Persia [Iran] / Tshurum [Tschorum] 27.3.36 (♀) (ZMUH); (1 ex.): C. Iran Rafsanjan 26 – 28.4.1973 (♂) (SNMS); (1 ex.): Tshurum [Tschorum] 27.3.36/Persia [Iran] / F. Brandt (♂) (SNMS).

DESCRIPTION

Body convex, covered with scales (BL: 2.75-3.05; BW: 1.9-2.0) (Figs 1, 20).

Head with big convex eyes. Frons with pseudoocelli, covered with brown scales. Antenna of both sexes brown, 11-segmented, antennal club 3-segmented, compact (Fig. 94), covered densely with light-brown pubescence. Terminal segment cylindrical, covered densely with light-brown pubescence. Antenna occupies whole cavity of antennal fossa. Antennal fossa completely open (AFL: 0.3-0.35) along lateral margin of pronotum (LMP: 0.65-0.77). Galea and lacinia as in Fig. 112.

Dorsal and ventral surface of integument dark brown, slightly punctuated, covered with dark brown, brown, white and black scales. Scales on dorsum create a characteristic pattern composed of black, white and orange patches. Pronotum (PL: 0.7-0.8; PW: 1.6-1.75), covered with black scales in central part, brown and white scales on the angles and lateral parts. Elytra covered with white, dark brown and orange scales. White scales create wide, transverse band, deeply cut near suture.

Ventral surface with grey scales except for abdominal sternites, which are covered with grey and dark brown (almost black) scales – especially anterolateral parts of sternites II-V, and in the centre of sternite V small dark brown spots (SL: 1.2-1.5; SW: 1.8-2.0) (Fig. 20).

Legs brown, covered with grey scales on dorsal surface. Tarsus with two slightly curved tarsal claws. Male genitalia as in figures 39, 58. Parameres broad, covered with short, outstanding numerous setae, with apex curved. Median lobe wide posteriorly, slightly curved with apex erect (Fig. 76).

DIFFERENTIAL DIAGNOSIS

The habitus of this new species is the most similar to the species *Anthrenus goliath* SAULCY in MULSANT et REY, 1868 and *A. pimpinellae pimpinellae* (FABRICIUS, 1775), but differs from them by structure of antennae, genitalia and patterns on elytra:

1) elytral patterns: orange scales create thin and disconnected patches under the white band, white spots on the apex of elytra absent (*A. hoberlandti* n. sp.); brown scales create thin and disconnected patches under the white band, orange scales lacking, white spots on the apex of elytra absent (*A. goliath*); brown scales create wide and compact patches under the white band, orange scales lacking, white spots on the apex of elytra present (*A. p. pimpinellae*).

2) genitalia: parameres broad, covered with short, outstanding numerous setae, with the apex curved, median lobe wide posteriorly, thin under the apex, (*A. hoberlandti* n. sp.); parameres thin, covered with short, outstanding numerous setae, with the apex curved, median lobe wide posteriorly, broad under the apex, (*A. goliath*); parameres broad, covered with long, outstanding numerous setae, with the apex curved, median lobe wide posteriorly, thin under the apex, almost erect (*A. p. pimpinellae*).

3) antennal club: cylindrical, it's length almost the same as width (*A. hoberlandti* n. sp.); oval, longer than wide (*A. goliath*); rounded, longer than wide (*A. p. pimpinellae*).

Anthrenus similaris n. sp.

(Figs 2, 21, 40, 59, 77, 95, 113)

NAME DERIVATION

From Latin word „*similis*“, which means - to be similar.

TYPE MATERIAL

Holotype (♂): „SW Iran, Ahwaz, 14.4.1977“ / „Loc. No. 289, Exped. Nat. Mus. Praha“ (NMPC).

Paratypes (14 exx.): „E Iran, 2100 m, Taftan, Tamandan, 17-18.4.1973“ / „Loc. No. 167, Exped. Nat. Mus. Praha“ (4 NMPC, 3 JHAC); (1 ex.): E Iran, Mahan, 29.4.1973“ / „Loc. No. 183 Exped. Nat. Mus. Praha“ (NMPC); (2 ex.): „Iran, Golhak, 1400 m bei Teheran, iii-v.1961, J. Klapperich leg.“ (HNHM); (2 exx.): „Iran, Darband, 2000 m bei Teheran, 17.vi.1960, J. Klapperich leg.“ (HNHM); (1 ex.): E Iran Mahan, 29.4.1973 (♂) (SMNS); (1 ex.): „Golhak, 1400 m bei Teheran, III-V.1961, leg. J. Klapperich (♂) (SNMS).

DESCRIPTION

Body convex, covered with scales (BL: 2.65-2.75; BW: 1.3-1.35) (Figs 2, 21).

Head with big convex eyes. Frons with pseudoocelli, covered with brown scales. Antenna of both sexes brown, 11-segmented, antennal club 3-segmented, compact (Fig. 95), covered densely with light-brown pubescence. Terminal segment cylindrical, covered densely with light-brown pubescence. Antenna occupies whole cavity of antennal fossa. Antennal fossa completely open (AFL: 0.2-0.3) along lateral margin of pronotum (LMP: 0.52-0.67). Galea and lacinia as in Fig. 113.

Dorsal and ventral surface of integument dark brown, slightly punctuated, covered with dark brown, brown, white, black and orange scales. Scales on dorsum create an exclusive pattern composed of dark brown, black, white and orange patches. Pronotum (PL: 0.75-0.85; PW: 1.45-1.5), covered with black scales in central part, brown and white scales on angles and lateral parts.

Elytra covered with white, dark brown, black and orange scales. White scales create narrow, transverse band, deeply cut near suture.

Ventral surface with grey scales except for abdominal sternites, which are covered with grey and dark brown (almost black) scales – especially anterolateral parts of sternites II-V and in centre of sternite V small dark brown spots (SL: 1.3-1.4; SW: 1.75-1.8) (Fig. 21).

Legs brown, covered with grey scales on dorsal surface. Tarsus with two slightly curved tarsal claws. Male genitalia as in figures 40, 59. Parameres thin, U-shaped, covered with numerous outstanding setae. Median lobe wide posteriorly, slightly curved with apex erect (Fig. 77).

DIFFERENTIAL DIAGNOSIS

The habitus of this new species is the most similar to the species *Anthrenus delicatus* KIESENWETTER, 1851 and *A. dorsatus* MULSANT et REY, 1868 but differs from them by structure of antennae, lacinia, genitalia:

1) genitalia: parameres thin and short, U-shaped, covered with short, outstanding numerous setae, median lobe shorter than length of the parameres (*A. similis* n. sp.); parameres thin and long, V-shaped, covered with short, outstanding numerous setae, median lobe almost as long as parameres (*A. delicatus*); parameres broad, covered with short, outstanding numerous setae, with the apex curved, median lobe wide posteriorly, thin under the apex, almost erect (*A. dorsatus*).

2) last antennal segment: its length near 2/3 of the length of whole antennal club (*A. similis* n. sp.); its length near 1/3 of the length of whole antennal club (*A. delicatus*; *A. dorsatus*).

3) lacinia: apex of the lacinia rounded, length of the lacinia almost the same as length of the galea (*A. similis* sp. nov.); apex of the lacinia rounded, lacinia shorter than galea (*A. delicatus*); apex of the lacinia with one seta, length of the lacinia almost half of the length of the galea (*A. dorsatus*).

***Anthrenus warchalowskii* n. sp.**

(Figs 3, 22, 41, 60, 78, 96, 114, 130)

Anthrenus intermedius KALÍK (in litteris, unpublished name).

NAME DERIVATION

The species name is dedicated to the specialist of Chrysomelidae – prof. Andrzej WARCHALOWSKI (Wrocław, Poland) in his 80th birthday anniversary, close friend of a long time leader in the study of dermestid beetles – prof. Maciej MROCKOWSKI.

TYPE MATERIAL

Holotype (♂): „E Iran, 4042 m, Taftan, Tamandan, 19.4.1973“ / „Loc. No. 170, Exped. Nat. Mus. Praha“ (NMPC).

Paratypes (16 exx.): „SW Iran, Ahwaz, 14.4.1977“ / „Loc. No. 289, Exped. Nat. Mus. Praha“ (14 NMPC, 2 JHAC); (3 exx.): „SE Iran, Khash, 15-16.4.1973“ / „Loc. No. 166, Exped. Nat. Mus. Praha“ (2 NMPC, 1 JHAC); (4 exx.): „Iran [Iran] mer. occ., Kasrun 900 m, Ende IV 38.“ (MTD); (1 ex.): SW Iran, Ahwaz, 14.4.1977 (♂) (SMNS); (1 ex.): „Iran, Darband, 2000 m bei Teheran, 17.6.1960, leg. J. Klapperich.“ (♂) (SMNS).

DESCRIPTION

Body convex, covered with scales (BL: 2.1-2.5; BW: 1.45-1.7) (Figs 3, 22).

Head with big convex eyes. Frons with pseudoocelli, covered with brown scales. Antenna of both sexes brown, 11- segmented, antennal club 3-segmented, compact (Fig. 96), covered densely with light-brown pubescence. Terminal segment cylindrical, covered densely with light-brown pubescence. Antenna occupies the whole cavity of antennal fossa. Antennal fossa completely open (AFL: 0.17-0.25) along lateral margin of the pronotum (LMP: 0.45-0.6). Galea and lacinia as in Fig. 114.

Dorsal and ventral surface of integument dark brown, slightly punctuated, covered with dark brown, brown, white and black scales. Scales on the dorsum create an exclusive pattern composed of black, white and brown patches. Pronotum (PL: 0.65-0.7; PW: 1.2-1.4), covered with black scales in the central part, brown scales on the angles and lateral parts.

Elytra covered with white, brown and black scales. White scales create wide, transverse band, deeply cut near the suture.

Ventral surface with grey scales except for abdominal sternites, which are covered with grey and dark brown (almost black) scales – especially anterolateral parts of the sternites II-III and V, and in the centre of sternite V small dark brown spots (SL: 1.1-1.3; SW: 1.3-2.2) (Fig. 22).

Legs brown, covered with grey scales on dorsal surface. Tarsus with two slightly curved tarsal claws. Male genitalia as in figures 41, 60. Parameres thin, slightly curved, covered with numerous outstanding setae. Median lobe wide posteriorly, erect (Fig. 78).

DIFFERENTIAL DIAGNOSIS

The habitus of this new species the most similar to the species *Anthrenus goliath* SAULCY in MULSANT et REY, 1868 and *A. pimpinellae pimpinellae* (FABRICIUS, 1775) but differs from them by structure of antennae, lacinia, genitalia:

1) elytral patterns: two white spots near the apex of elytra unclear, create two fal-ciform patches (*A. warchalowskii* n. sp.); two white spots near the apex of elytra clear, create almost rounded patches (*A. goliath*; *A. p. pimpinellae*).

2) genitalia: parameres thin, covered with short, outstanding numerous setae, with the apex curved, (*A. warchalowskii* n. sp.); parameres thin, covered with short, outstanding numerous setae, with the apex curved but more rounded (*A. goliath*); pa-rameres broad, covered with long, outstanding numerous setae, with the apex curved (*A. pimpinellae pimpinellae*).

3) antennal club: cylindrical, it's length almost the same as width (*A. warcha-lowskii* n. sp.); oval, longer than wide (*A. goliath*); rounded, longer than wide (*A. pimpinellae*).

4) 9th abdominal sternite: rounded apex (*A. warchalowskii* n. sp.); flat apex (*A. goliath*; *A. pimpinellae pimpinellae*).

New species has also similar anatomy of genitalia to *A. delicatus* KIESENWETTER, 1851 and *A. pfefferi* KALÍK, 1954, but differs from them by patterns on elytra:

1) white band wide, narrowed in sutural vicinity, beneath the white band brown scales create disconnected patches (*A. warchalowskii* n. sp.); white band narrow, might be unbroken, beneath the band, numerous brown scales (*A. delicatus*); white band reduced, almost absent, almost whole area covered with black scales (*A. pfefferi*).

KNOWN SPECIES BELONGED TO THE „*ANTHRENUS PIMPINELLAE* SPECIES GROUP“ AND STUDIED MATERIAL

Currently the „*Anthrenus pimpinellae* species group“ contains 18 species:

***Anthrenus hoberlandti* n. sp.**

Distribution. Species known from Iran.

***Anthrenus similaris* n. sp.**

Distribution. Species known from Iran.

***Anthrenus warchalowskii* n. sp.**

Distribution. Species known from Iran.

***Anthrenus angustefasciatus* GANGLBAUER, 1904**

(Figs 4, 23, 42, 61, 79, 97, 115, 131)

Anthrenus pimpinellae var. *angustefasciatus* GANGLBAUER, 1904: 42.

Anthrenus angustefasciatus: HÁVA, 2003: 79.

Material studied. Total number of examined specimens from Mediterranean: ca. 100 exx.

Measurements. BL: 2.95-3.5; BW: 2.0-2.5; PL: 0.8-1.1; PW: 1.75-2.1; SL: 1.6; SW: 2.0-2.5; LMP: 0.7-0.8; AFL: 0.2-0.25.

Distribution. Species known from Bosnia and Herzegovina; Croatia; Czech Republic; Italy; Portugal; Spain; „Yugoslavia“; Turkey; Algeria and Morocco.

***Anthrenus delicatus* KIESENWETTER, 1851**

(Figs 5, 24, 43, 62, 80, 98, 116, 132)

Anthrenus delicatus KIESENWETTER, 1851: 579.

Anthrenus isabellinae MULSANT et REY, 1868: 15.

Anthrenus armstrongi MROCKZOWSKI, 1952: 27 **syn. n.** (Figs 6, 25, 44).

Anthrenus delicatus armstrongi: HÁVA, 2007: 57.

Type material. **Holotype** *Anthrenus armstrongi* (♂): „Yugoslavia, Stip, v.1937, R. Meyer lgt“ (MiLZ). **Paratype** *Anthrenus armstrongi* (♀): Greece, Peloponesos, Calavryta, iv.1936, Mařan et Táborský lgt” (JHAC).

Other material studied. Total number of examined specimens from Mediterranean: ca. 300 exx.

Selected material examined. “Andorra, Port d’Eualira, 1.viii.1989, R. Sciaky lgt., 1 ex., (JHAC).

Measurements. BL: 2.7-3.15; BW: 1.95-2.25; PL: 0.9-1.0; PW: 1.55-1.65; SL: 1.37-1.95; SW: 1.85-2.1; LMP: 0.5-0.75; AFL: 0.22-0.27.

Distribution. Species known from Armenia; Albania; Bosnia and Herzegovina; Bulgaria; Crete; Croatia; Cyprus; France; Greece; Italy; Macedonia; Montenegro; Portugal; Romania; Serbia; Spain; Turkey; Algeria; Egypt; Morocco; Tunisia; „Caucasus“; Iran; Israel; Jordania and Syria, new for Andorra.

***Anthrenus dorsatus* MULSANT et REY, 1868**

(Figs 7, 26, 45, 63, 81, 99, 117, 133)

Anthrenus pimpinellae var. *dorsatus* MULSANT et REY, 1868: 154.

Anthrenus dorsatus: HÁVA, 2003: 79.

Type material. **Lectotype**: „Afrique Gabillol” (MHNL); **Paralectotype**: “Afrique” (MHNL). One male specimen is designated here as lectotype, one as paralectotype.

Other material studied. Total number of examined specimens from Mediterranean: 20 exx.

Measurements. BL: 2.85-3.5; BW: 1.95-2.3; PL: 0.6-0.85; PW: 1.7-1.9; SL: 1.25-1.5; SW: 1.65-2.3; LMP: 0.5-0.6; AFL: 0.25-0.32.

Distribution. Species known from Malta; Algeria and Tunisia.

***Anthrenus flavidulus* REITTER, 1889**

(Figs 8, 27, 46, 64, 82, 100, 118, 134)

Anthrenus pimpinellae var. *flavidulus* REITTER, 1889: 23.

Material studied. Total number of examined specimens: 20 exx.

Measurements. BL: 2.0-3.15; BW: 1.45-2.2; PL: 0.65-0.9; PW: 1.25-1.85; SL: 1.05-1.45; SW: 1.5-2.1; LMP: 0.45-0.7; AFL: 0.25-0.3.

Distribution. Species known from Armenia; Turkey; „Caucasus“; Iran and Jordania.

***Anthrenus goliath* SAULCY in MULSANT et REY, 1868**

(Figs 9, 28, 47, 65, 83, 101, 119, 135)

Anthrenus goliath SAULCY in MULSANT & REY, 1868: 140.

Anthrenus szekessyi KALÍK (in litteris, unpublished name): HÁVA, 2002: 31.

Material studied. Total number of examined specimens from Mediterranean: 60.

Measurements. BL: 3.0-4.25; BW: 2.25-2.85; PL: 0.85-1.25; PW: 1.8-2.4; SL: 2.3-2.7; SW: 2.5-3.2; LMP: 0.7-0.85; AFL: 0.2-0.25.

Distribution. Species know from Austria; Bosnia; Bulgaria; Greece; Hungary; Italy; Macedonia; Montenegro; Portugal; Romania; Serbia; Spain; Turkey; Algeria; Egypt; Morocco; Tunisia and Syria.

***Anthrenus indicus* KADEJ, HÁVA et KALÍK, 2007**

(Figs 10, 29, 48, 66, 84, 102, 120)

Anthrenus indicus KADEJ, HÁVA et KALÍK, 2007: 103.

Type material. Holotype (♂): „Oesterr. Karakorum:“ [N India, Himachal Pradesh] / „Anthrenus indicus m. V. Kalík det.“ (SMNS). **Paratype** (♀): the same data as holotype (SMNS).

Measurements. BL: 3.0-3.1; BW: 1.75-1.9; PL: 0.75; PW: 1.5; SL: 1.5-1.65; SW: 1.6-1.9; LMP: 0.5-0.65; AFL: 0.25.

Distribution. Species known from N India: Himachal pradesh.

***Anthrenus latefasciatus* REITTER, 1892**

(Figs 11, 30, 49, 67, 85, 103, 121, 136)

Anthrenus pimpinellae var. *latefasciatus* REITTER, 1892: 134.

Anthrenus latefasciatus: KALÍK & OHBAYASHI, 1985: 75; HÁVA, 2003: 81.

Type material. Holotype (♀): „Margelan Reitter“ / Holotypus *Anthrenus pimpinellae* v. *latefasciatus* Reitter 1892 [label with red frame] / *pimpinellae latefasciatus* m. [label with hand writing] / coll. Reitter/ Syntypus no 1 V. Kalík det. 1985 / *Anthrenus* sp? V. Kalík det. 19 (HNHM).

Paratype (♂): Margelan Reitter [label with red frame] / Paratypus *Anthrenus pimpinellae* v. *latefasciatus* Reitter 1892 [label with hand writing] / *pimpinellae late-*

fasciatus m. / coll. Reitter / Syntypus no 2 V. Kalík det. 1985 / *Anthrenus latefasciatus* Rtt. V. Kalík det. 1985/103. Lectotypus [label with red frame] (HNHM).

Other material studied. Total number of examined specimens from central Asia: ca. 90 exx.

Measurements. BL: 3.5-3.95; BW: 1.95-2.4; PL: 0.85-1.05; PW: 1.6-2.0; SL: 1.45-2.0; SW: 1.95-2.4; LMP: 0.6-0.9; AFL: 0.2-0.3.

Distribution. Species known from Afghanistan; „Caucasus“; N China; Iran; Kazakhstan; N Korea; Kyrgyzstan; Mandzhuria; Mongolia; Syria; Tadzhikistan; Turkmenistan and Uzbekistan.

***Anthrenus mesopotamicus* HÁVA, 2001**

(Figs 12, 31, 50, 68, 86, 104, 122, 137)

Anthrenus mesopotamicus HÁVA, 2001: 65; HÁVA, 2002: 32.

Anthrenus iranicus KALÍK (in litteris, unpublished name): HÁVA, 2002: 32.

Type material. Holotype (♀): „Mesopotamia“ (NMPC). **Paratypes** (1♂, 1♀): the same data as holotype (JHAC).

Other material studied. Total number of examined specimens from Iran and Iraq: 130 exx. (named as “*iranicus*”).

Measurements. BL: 2.1-3.0; BW: 1.3-1.9; PL: 0.65-0.75; PW: 1.15-1.5; SL: 1.1-1.45; SW: 1.25-1.85; LMP: 0.37-0.5; AFL: 0.12-0.15.

Distribution. Species known from Iran; Iraq and Syria.

***Anthrenus mroczkowskii* KALÍK, 1954 stat. n.**

(Figs 13, 32, 51, 69, 87, 105, 123, 138)

Anthrenus pimpinellae var. *mroczkowskii* KALÍK, 1954: 369.

Anthrenus pimpinellae ssp. *mroczkowskii*: MROCKOWSKI, 1958: 4.

Type material. Holotype (♀): „Olympos, Graecia, 2100m. 4.VI.1937, Coll. Bartoň / Holotype / Anthr. Pimpin. V. Mroczkowskii, det. V. Kalík 1953“ (NMPC).

Paratypes (24 exx.): „Alexandropolis, Graecia, 2.V.37, Coll. Bartoň / Paratype [label with hand writing and red frame] / *Anthrenus pimpinellae* v. *mroczkowskii* m. V. Kalík det. 1953“; „Olympos, Graecia, 2100m., 4.VI.1937, Bartoň / Paratype [label with hand writing and red frame] / *Anthrenus pimpinellae* v. *mroczkowskii* m. V. Kalík det. 1953“ (2 MiZ, 10 NMPC, 2 JHAC).

Other material studied. Total number of examined specimens from Mediterranean: 80 exx.

Measurements. BL: 2.6-3.1; BW: 1.8-2.15; PL: 0.75-1.0; PW: 1.5-1.75; SL: 1.25-1.35; SW: 1.75-2.0; LMP: 0.6-0.7; AFL: 0.2-0.25.

Distribution. Known from Albania; Bosnia and Herzegovina; Bulgaria; Corsica; Crete; Croatia; Greece; Italy; Slovenia; Turkey and Algeria (intr.).

***Anthrenus munroi* HINTON, 1943**

(Figs 14, 33, 52, 70, 88, 106, 124, 139)

Anthrenus munroi HINTON, 1943: 14.

Type material. Holotype (♀): “France, Pyrénées Orientales, Port Vendres, G. C. Champion”, (BMNH).

Material studied. Total number of examined specimens from Mediterranean: 80 exx.

Selected material examined. „Mac. [Macedonia], Petrič, vi.[19]29, [A.] Pfeffer [Igt.]” \ „*Anthrenus pimpinellae* F. ?, V. Kalík det. [19]45“, 1 male, J. Háva det. (NMPC).

Measurements. BL: 2.6-3.05; BW: 1.75-2.0; PL: 0.75-0.9; PW: 1.6-1.7; SL: 1.2-1.4; SW: 1.7-2.0; LMP: 0.52-0.65; AFL: 0.25-0.3.

Distribution. Species known from Bulgaria; Corsica; Cyprus; France; Italy; Spain; Turkey; Ukraine: Crimea; Algeria; Libya; Morocco; Tunisia; Israel; Jordania; Lebanon and Syria, new for Macedonia.

***Anthrenus nipponensis* KALÍK & OHBAYASHI, 1985**

(Figs 15, 34, 53, 71, 89, 107, 125, 140)

Anthrenus nipponensis KALÍK & OHBAYASHI, 1985: 77; HÁVA, 2003: 82.

Type material. Paratypes (2 exx.): „Miura - City, 30.v.1973, N. Ohbayashi“ / „Paratype *Anthrenus* (s. str.) *nipponensis* Kalík et Ohbayashi 1985“. Material deposited in (1 ex. JHAC, 1 ex. MK).

Other material studied. Total number of examined specimens from Asia: 10 exx.

Measurements. BL: 2.8-4.0; BW: 1.9-2.5; PL: 0.85-1.1; PW: 1.5-2.2; SL: 1.3-2.4; SW: 1.85-2.55; LMP: 0.7-1.0; AFL: 0.2-0.3.

Distribution. Species known from N China; Japan; N Korea and Russia: Kitay.

***Anthrenus oceanicus* FAUVEL, 1903**

(Figs 16, 35, 54, 72, 90, 108, 126, 141)

Anthrenus oceanicus FAUVEL, 1903: 338.*Anthrenus fasciatus* HERBST, 1797: 337 (homonym).*Anthrenus fasciatus* var. *latebasalis* PIC, 1927: 66.*Anthrenus pimpinellae* var. *basifasciatus* PIC, 1935: 13.

Material studied. Total number of examined specimens: 120 exx.

Measurements. BL: 2.5-2.25; BW: 1.85-2.0; PL: 0.6-0.8; PW: 1.6-1.85; SL: 1.35-1.5; SW: 1.05-1.9; LMP: 0.6-0.7; AFL: 0.2-0.22.

Distribution. Species known from Czech Republic (intr.); England (intr.); Egypt (intr.); Congo; Mauritius; Nigeria (intr.); Hawaiian Is.; China: Guangdong; India; Indonesia: Java, Madura; Malaysia; Pakistan; Sri Lanka; Australia and New Caledonia.

Remarks. The species is distributed in Europe and Egypt only with commodities as introduced species.

***Anthrenus pfefferi* KALÍK, 1954**

(Figs 17, 36, 55, 73, 91, 109, 127, 142)

Anthrenus pimpinellae var. *pfefferi* KALÍK, 1954: 37.

Anthrenus pfefferi: HÁVA, 2003: 82; HÁVA, 2004: 83.

Type material. **Holotype** (♂): „Kalavryta, Pelop., Dr. Pfeffer“ (NMPC). **Paratype** (♂): the same data as holotype (NMPC).

Other material studied. Total number of examined specimens from Mediterranean: 30 exx.

Measurements. BL: 2.15-2.75; BW: 1.4-1.85; PL: 0.65-0.9; PW: 1.25-1.6; SL: 1.0-1.2; SW: 1.4-1.85; LMP: 0.37-0.57; AFL: 0.2-0.3.

Distribution. Species known from Crete and Greece.

***Anthrenus pimpinellae pimpinellae* (FABRICIUS, 1775)**

(Figs 18, 37, 56, 74, 92, 110, 128, 143)

Byrrhus pimpinellae FABRICIUS, 1775: 61.

Anthrenus scrophulariae FOURCROY, 1785: 27.

Anthrenus pimpinellae var. *dimidiatus* HAUSER, 1894: 23 nomen nudum.

Anthrenus pimpinellae: ÖZER, 1963: 74.

Material studied. Total number of examined specimens from Mediterranean: 150 exx.

Measurements. BL: 2.35-3.3; BW: 1.6-2.25; PL: 0.45-0.85; PW: 1.35-1.85; SL: 1.2-1.5; SW: 1.6-2.25; LMP: 0.2-0.3; AFL: 0.57-0.75.

Distribution. Nearly cosmopolitan species.

***Anthrenus pimpinellae isabellinus* KÜSTER, 1848**

(Figs 19, 38, 57, 75, 93, 111, 129, 144)

Anthrenus isabellinus KÜSTER, 1848: 38.

Anthrenus pimpinellae var. *niveus* REITTER, 1881: 88.

Anthrenus pimpinellae var. *niveipennis* J. SAHLBERG, 1903: 34.

Anthrenus pimpinellae ssp. *isabellinus*: BEAL, 1998: 302.

Anthrenus pimpinellae isabellinus: HÁVA, 2005: 342.

Material studied. Total number of examined specimens from Mediterranean: 30 exx.

Measurements. BL: 2.95-3.15; BW: 1.85-2.1; PL: 0.85-0.95; PW: 1.65-1.85; SL: 1.2-1.55; SW: 1.95-2.2; LMP: 0.7-0.8; AFL: 0.2-0.3.

Distribution. Subspecies known from France; Italy; Spain; Algeria; Morocco; Tunisia and USA (intr.).

KEY TO SPECIES AND SUBSPECIES OF *ANTHRENUS PIMPINELLAE*-GROUP

- 1(21) Parameres of genitalia broad
 2(5) White elytral band narrow
 3(4) White band narrow, usually breached (Fig. 4), lacinia (Fig. 115), sternite IX (Fig. 131), median lobe (Fig. 79)
A. angustefasciatus
- 4(3) White band create two triangles on the slopes of elytra (Fig. 13), lacinia (Fig. 123), sternite IX (Fig. 138), medial lobe (Fig. 87)
A. mroczkowskii
- 5(2) White elytral band broad
 6(7) Antennal club with very broad terminal antennomere (Fig. 106), lacinia (Fig. 124), sternite IX (Fig. 139), median lobe (Fig. 88)
A. munroi
- 7(6) Antennal club with circular terminal antennomere
 8(9) Club antennomeres small and narrow, body large 3.0-4.25 mm, lacinia (Fig. 119), sternite IX (Fig. 135), median lobe (Fig. 83)
A. goliath
- 9(8) Club antennomeres large and broad
 10(13) Lacinia short
 11(12) Body large 2.85-3.5 mm, lacinia short, narrow (Fig. 117), sternite IX (Fig. 133), median lobe (Fig. 81) N Africa
A. dorsatus
- 12(11) Body small 2.1-3.0 mm, lacinia short, broad (Fig. 122), sternite IX (Fig. 137), median lobe (Fig. 86) Middle Asia
A. mesopotamicus
- 13(10) Lacinia long
 14(15) White transverse elytral band with lateral orange striae (Fig. 8), lacinia (Fig. 118), sternite IX (Fig. 134), median lobe (Fig. 82)
A. flavidulus
- 15(14) White transverse elytral band without lateral orange striae
 16(19) Sternite IX posteriorly very narrow
 17(18) Antennomere 10 narrow (Fig. 107), lacinia (Fig. 125), median lobe (Fig. 89)
A. nipponensis
- 18(17) Antennomere 10 broad (Fig. 94), lacinia (Fig. 112), median lobe (Fig. 76)
A. hoberlandti
- 19(16) Sternite IX posteriorly broad
 20(21) First abdominal sternite with black lateral spot (Fig. 37), antenna (Fig. 110), lacinia (Fig. 128), median lobe (Fig. 92)
A. pimpinellae pimpinellae
 a(b) Elytron covered by white or grey scales (Fig. 19), lacinia (Fig. 129), sternite IX (Fig. 144)
A. pimpinellae isabellinus

b(a) Elytron covered by black scales with white bands (Figs 18, 18a), lacinia (Fig. 128), sternite IX (Fig. 143)

A. pimpinellae pimpinellae

21(20) First abdominal sternite without black lateral spot (Fig. 35), elytral white transverse band broad, antenna (Fig. 108), lacinia (Fig. 126), median lobe (Fig. 90)

A. oceanicus

21(1) Parameres of aedeagus narrow

21(23) White elytral band create two very small, triangles on the slopes of elytra, lacinia (Fig. 127), sternite IX (Fig. 142), median lobe (Fig. 91)

A. pfefferi

23(22) White elytral band reached to sutura

24(25) Sternite IX posteriorly narrow (Fig. 130), lacinia (Fig. 114), median lobe (Fig. 78)

A. warchalowskii

25(24) Sternite IX posteriorly broad

26(29) Elytra with orange lateral striae

27(28) Lacinia very narrow narrow (Fig. 116), sternite IX (Fig. 132), median lobe (Fig. 80)

A. delicatus

28(27) Lacinia very broad (Fig. 113), median lobe (Fig. 77)

A. similaris

29(26) Elytra without lateral orange striae, white band very broad

30(31) Lacinia posteriorly narrow, galea with circular tip (Fig. 121), median lobe (Fig. 85)

A. latefasciatus

31(30) Lacinia posteriorly broad, gale with triangular tip (Fig. 120), median lobe (Fig. 84)

A. indicus

REMARKS

The status of *Anthrenus pimpinellae* var. *incertus* MULSANT & REY, 1868:154 is not solved in the present article. This taxon was described from Turkey: Istanbul.

DISCUSSION

Most of species within “*pimpinellae*-group” are very similar in habitus to each other but male genitalia, in combination with certain characters in particular species, provide the key to its understanding and the true assessment of species limits. Morphology of antennae, galea and lacinia, paramere shape, length of setae on them, the shape of the median lobe, and particularly the relative width of the apex of this structure and the general distribution all provide useful taxonomic characters. The further study of the

group will be connected with analysis of characters of female genitalia, especially morphology of sclerites in bursa copulatrix.

ACKNOWLEDGEMENTS

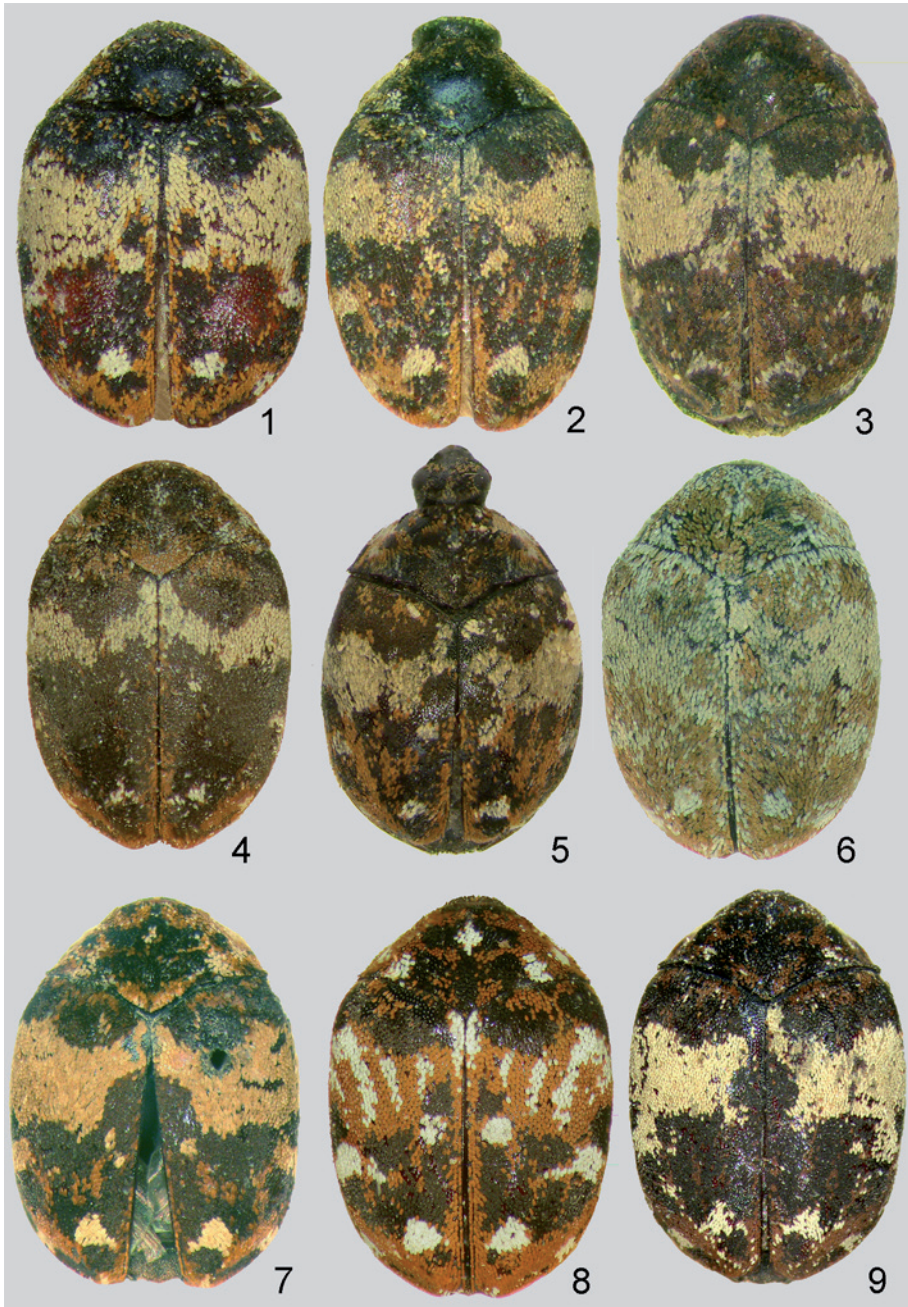
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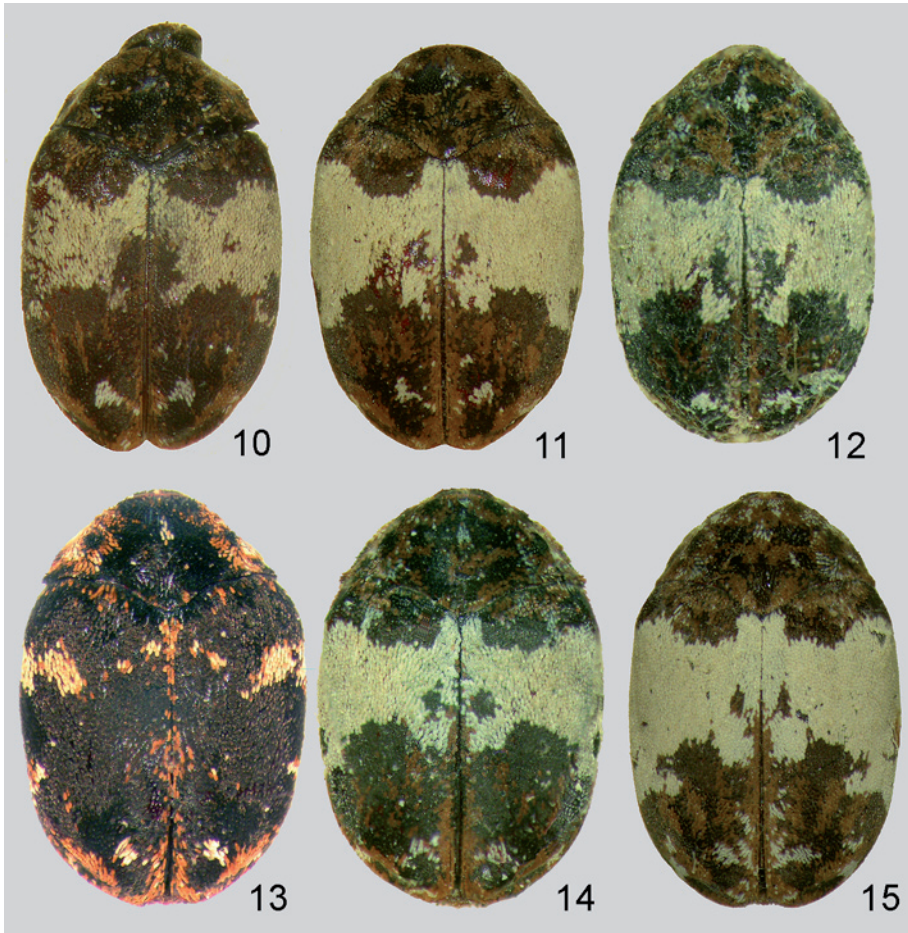
REFERENCES

- BEAL, R. S., 1998. Taxonomy and Biology of Nearctic Species of *Anthrenus* (Coleoptera: Dermestidae). *Trans. Amer. Entomol. Soc.*, **124**: 271-332.
- FABRICIUS, J. C., 1775. *Systema Entomologie, sistens Insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Flensburgi et Lipsiae: Officina Libraria Kortii, xxxii + 832 pp.
- FAUVEL, A., 1903. Faune Analytique des Coléoptères de la Nouvelle Calédonie. *Rev. Entomol., Caen*, **22**: 203-379.
- FOURCROY, A. F., 1785. *Entomologia Pariseinsis; sive Catalogus Insectorum quae in Agro Parisiensi reperiuntur; Sucundum methodum Geoffraeanam in sectiones, genera et species distributus: Cui addita sunt nomina trivalia et fere trecentae novae Species. Pars Prima. Parisiis: Aedibus Serpentinensis, viii + 1 + 231 pp.*
- GANGLBAUER L. 1904. Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französischen und italienischen Alpengebietes. Vierter Band, erste Hälfte. Dermestidae, Byrrhidae, Nosodendridae, Georyssidae, Dryopidae, Heteroceridae, Hydrophilidae. Wien: Karl Gerold's Sohn, 286 pp.
- GEOFFROY, E. L., 1762. *Histoire abrégée des Insectes qui se trouvent aux environs de Paris, dans laquelle ces animaux sont rangés suivant un ordre méthodique*. 1. Paris: Durand, xxviii + 523 pp. + 10 pl.
- HAUSER, F., 1894. Beitrag zur Coleopteren-Fauna von Transcaspien und Turkestan. Zusammengestellt unter Mitwirkung der Herrn Dr. EPPELSHEIM, ESCHERICH, FAUST, DR. VON HEYDEN, KUVERT, REITTER und WEISE. *D. Entomol. Zeitschr., Berlin*, **1894**: 17-74, 1 pl.
- HÁVA, J., 2001. *Anthrenus (Anthrenus) mesopotamicus* sp. n. (Coleoptera: Dermestidae) from Iraq. *Folia Heyrovskyana*, **9**: 65-66.
- , 2002. Five new species of Dermestidae (Coleoptera), with notes on synonymy and distribution of the family. *Acta Mus. Moraviae, Scient. Boil., Brno*, **87**: 29-40.
- , 2003. World Catalogue of the Dermestidae (Coleoptera). *Studie a Zprávy Oblastního Muzea Praha-východ* Brandýse nad Labem a Staré Boleslavi, Supplementum, **1**: 1-196 (Updated version: Dermestidae World (Coleoptera) - World Wide Web electronic publication: <http://www.dermestidae.wz.cz>).
- , 2004. Notes on Dermestidae (Coleoptera) with new synonyms and description of three new species. *Ann. Hist.-Nat. Mus. Na. Hung.*, **96**: 81-95.
- , 2005. New synonyms, lectotype designations, and new records in Dermestidae (Coleoptera: Bostrichidae). *Genus, Wrocław*, **16**: 341-347.
- , 2007. Dermestidae pp. 57, 299-320. In: LÖBL I. & SMETANA A. (eds.): *Catalogue of Palaearctic Coleoptera. Volume 4. Elateroidea, Derodontoidea, Bostrichoidea, Lymexyloidea, Cleroidea and Cucujoidea*. Stenstrup: Apollo Books, 935 pp.
- HERBST, J. F. W., 1797. *Natursystem aller bekannten in- und ausländischen Insekten, als eine Fortsetzung der von Büffonschen Naturgeschichte. Der Käfer siebenten Theil*. Berlin: J. Pauli, 346 pp., 26 pls.

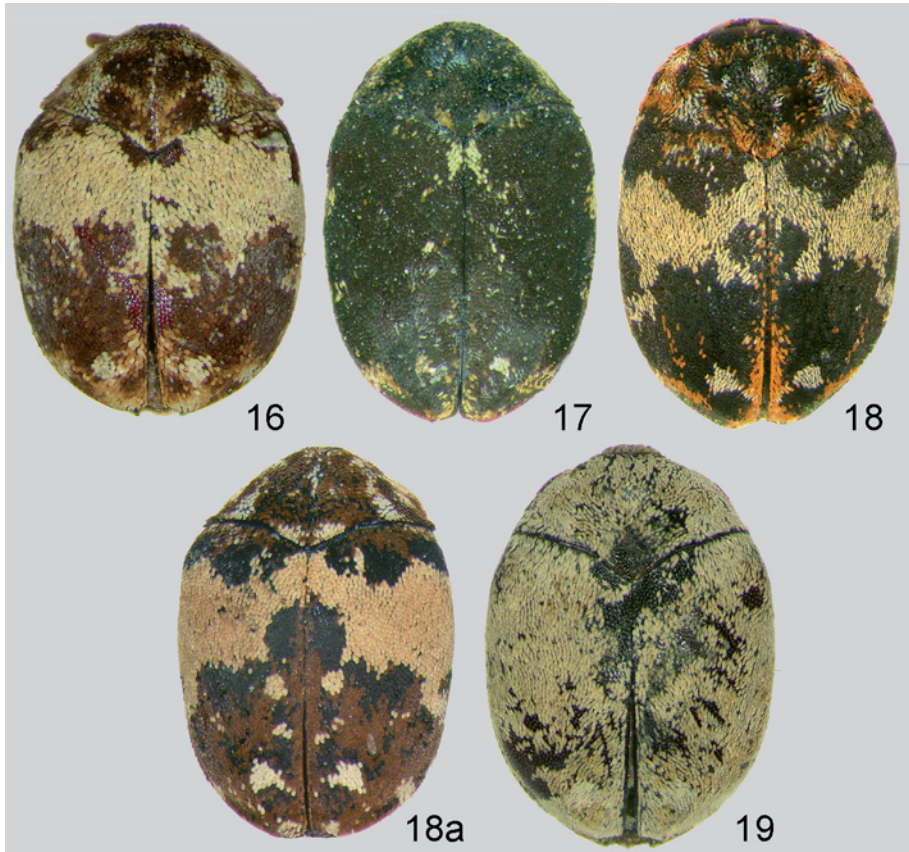
- HINTON, H. E., 1943. Description and figure a new *Anthrenus* (Col., Dermestidae). Ent. Monthly Mag., **79**: 14-16.
- KADEJ, M., 2005. Morphological variability of *pimpinellae*-group (Coleoptera: Dermestidae: *Anthrenus*) with a key to identification. Part 1. Pol. Pismo Entomol., **74**: 117-135.
- KADEJ, M., HÁVA, J., & KALÍK, V., 2007. A new species and a new synonym of *Anthrenus* GEOFFROY, 1762 (Coleoptera: Dermestidae) from Palaearctic region, Studies and reports of District Museum Prague-East, Taxonomical Series, **3** (1-2): 101-108.
- KALÍK, V., 1954. New and interesting Dermestidae (Coleoptera). Ann. Mag. Nat. Hist., (12) **7**: 367-370.
- KALÍK, V., & OHBAYASHI, N., 1985. *Anthrenus nipponensis*, a new Dermestid Beetle (Coleoptera, Dermestidae) from Japan, Korea and China. Elytra, Tokyo, **13**: 75-79.
- KIESENWETTER, E. A. H., 1851. Énumération des Coléoptères trouvés dans le midi de la France et en Catalogne. (Ile Partie 1). Ann. Soc. Ent. France, **9**: 577-656.
- KÜSTER, H. C., 1848. Die Käfer Europa's. Nach der Natur beschrieben. XIII Heft. Nürnberg: BAUER & RASPE, 100 sheets, 3 pls.
- MROCKOWSKI, M., 1952. Contribution to the knowledge of the Dermestidae with description of a new species and a new subspecies (Coleoptera). Ann. Mus. Zool. Polon., **15**: 25-32.
- , 1958. Dermestidae (Coleoptera) collected in Bulgaria by members of the staff on the Zoological Institute of the Polish Academy of Sciences in the years 1950 and 1956. Fragm. Faun., **8**: 1-9.
- MULSANT, E., & REY, C., 1868. Histoire Naturelle des Coléoptères de France. Tribu des Scuticolles. Paris: F. Savy, 186 pp., 3 pls. [reprint from Ann. Soc. Linn. Lyon (N. S.), **15**: 1-188, 3 pls.]
- ÖZER, M., 1963. *Anthrenus pimpinellae* Fabricius'in morfoloji re biyolojisi üzerinde arastirmalar. Ankara Üniversitesi Ziraat Fakültesi Yilligi, **13**: 73-78 (in Turkish, English summary).
- PIC, M., 1927. Fauna sumatrensis. (Beitrag Nr. 34). Byrrhidae, Dermestidae, Anobiidae (Coleoptera). Suppl. Entomol., Berlin-Dahlem **15**: 65-66.
- , 1935. Nouveaux Coléoptères de l'Île Maurice. Bull. Soc. Entomol. France, **40**: 12-14.
- REITTER, E., 1881. Bestimmungs-Tabellen der europäischen Coleopteren. III Heft. I. Auflage. Enthaltend die Familien: Scaphidiidae, Lathridiidae und Dermestidae. Verh. Kaiser.h-König. Zool.-Bot. Ges. Wien, **30**: 41-94.
- , 1889. Neue Coleopteren aus Europa, den angrenzenden Ländern und Sibirien, mit Bemerkungen über bekannte Arten. Sechster Theil. D. Entomol. Zeitschr., **1889**: 17-44.
- , 1892. Sechster Beitrag zur Coleopteren-Fauna des Russischen Reiches. Wiener Entomol. Ztg., **11**: 133-136.
- SAHLBERG, J. R., 1903. Coleoptera mediterranea et rosso-asiatica nova et minus cognita, maxima ex parte itineribus annis 1895-1896 et 1898-1899 collecta. Öfv. Finska Vetens.-Soc. Förhandl., Helsingfors **45**, No. 10, 40 pp.



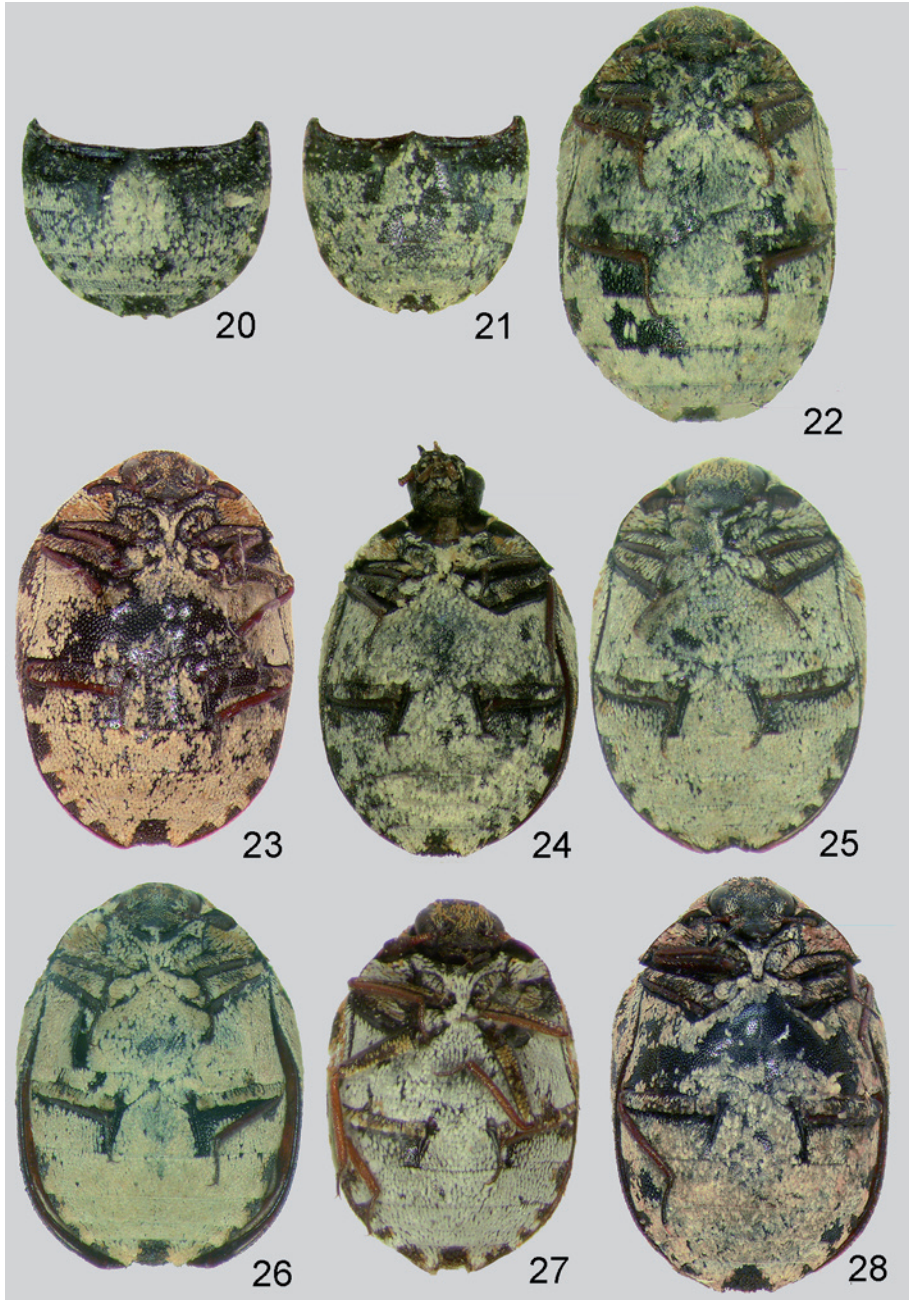
1-9. Habitus (dorsal aspect): 1 – *Anthrenus hoberlandti*; 2 – *A. similis* sp. n.; 3 – *A. warchalowskii* sp. n.; 4 – *A. angustefasciatus*; 5 – *A. delicatus*; 6 – *A. armstrongi*; 7 – *A. dorsatus*; 8 – *A. flavidulus*; 9 – *A. goliath*



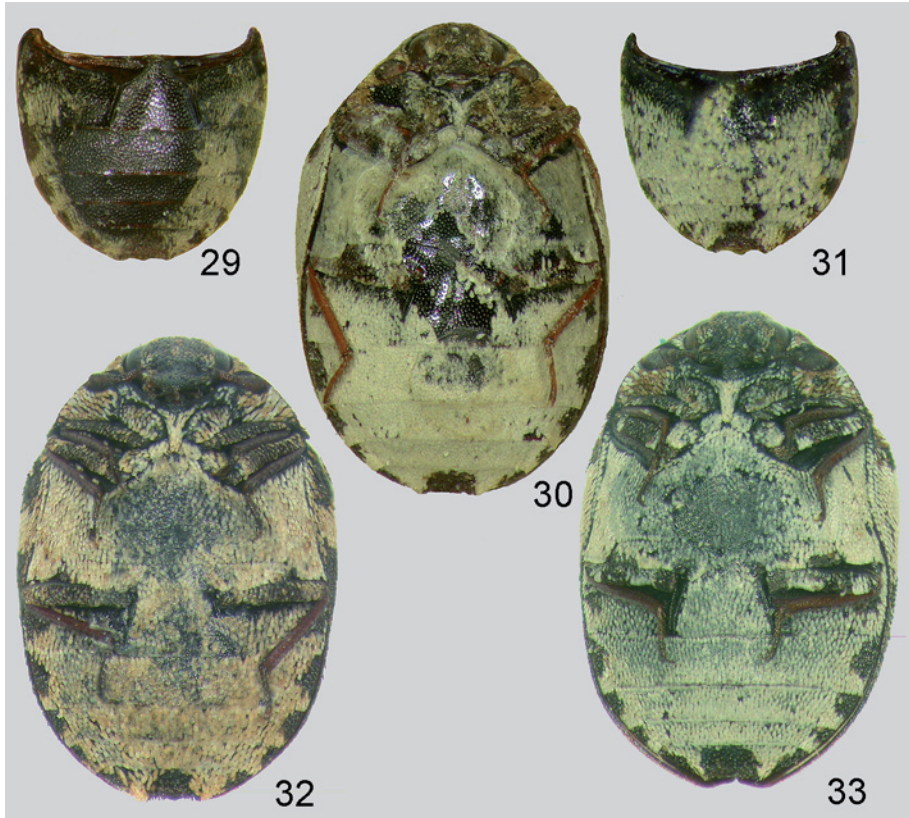
10-15. Habitus (dorsal aspect): 10 – *A. indicus*; 11 – *A. latefasciatus*; 12 – *A. mesopotamicus*; 13 – *A. mroczkowskii*; 14 – *A. munroi*; 15 – *A. nipponensis*



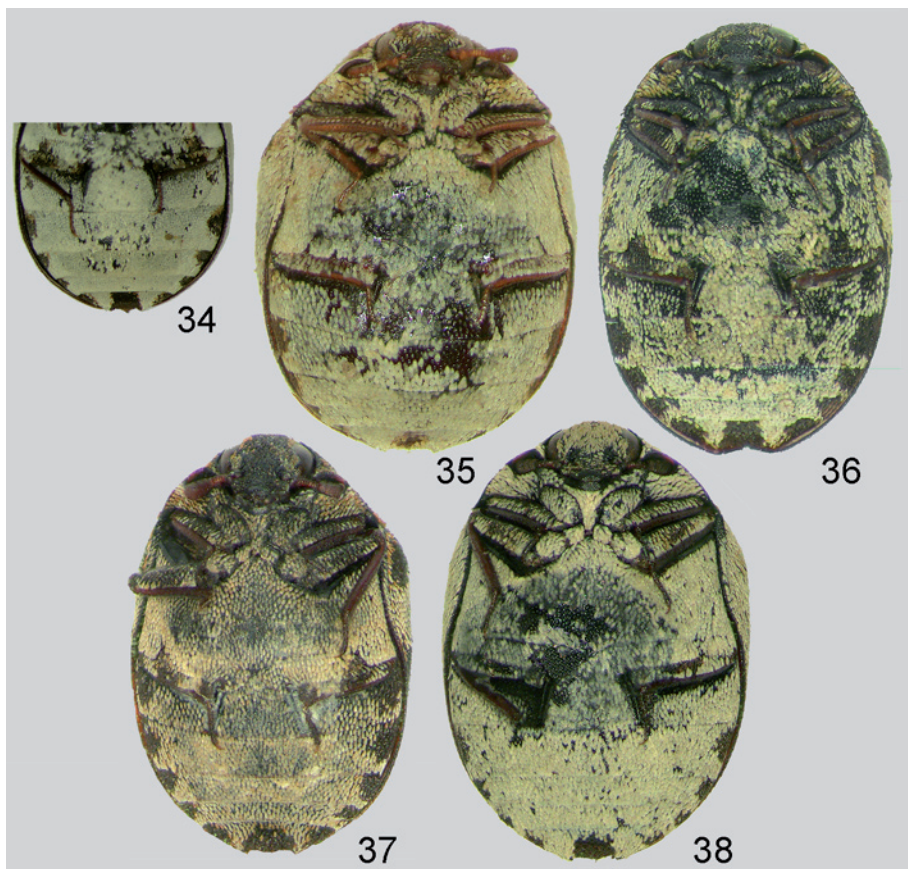
16-19. Habitus (dorsal aspect): 16 – *A. oceanicus*; 17 – *A. pfefferi*; 18, 18a – *A. pimpinellae pimpinellae*; 19 – *A. p. isabellinus*



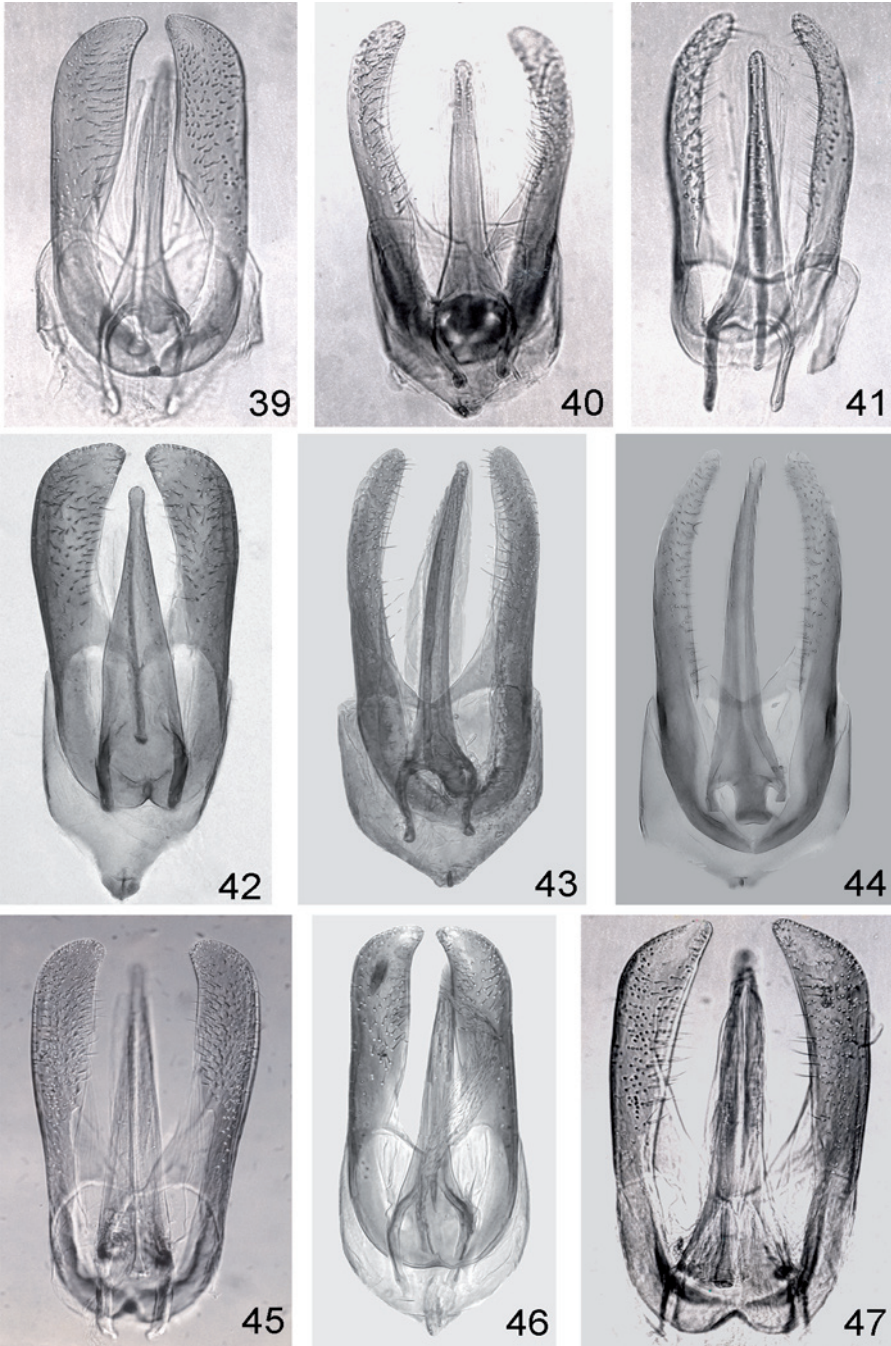
20-28. Habitus (ventral aspect) or respectively sternites: 20 – *Anthrenus hoberlandti*; 21 – *A. similis*; 22 – *A. warchalowskii*; 23 – *A. angustefasciatus*; 24 – *A. delicatus*; 25 – *A. armstrongi*; 26 – *A. dorsatus*; 27 – *A. flavidulus*; 28 – *A. goliath*



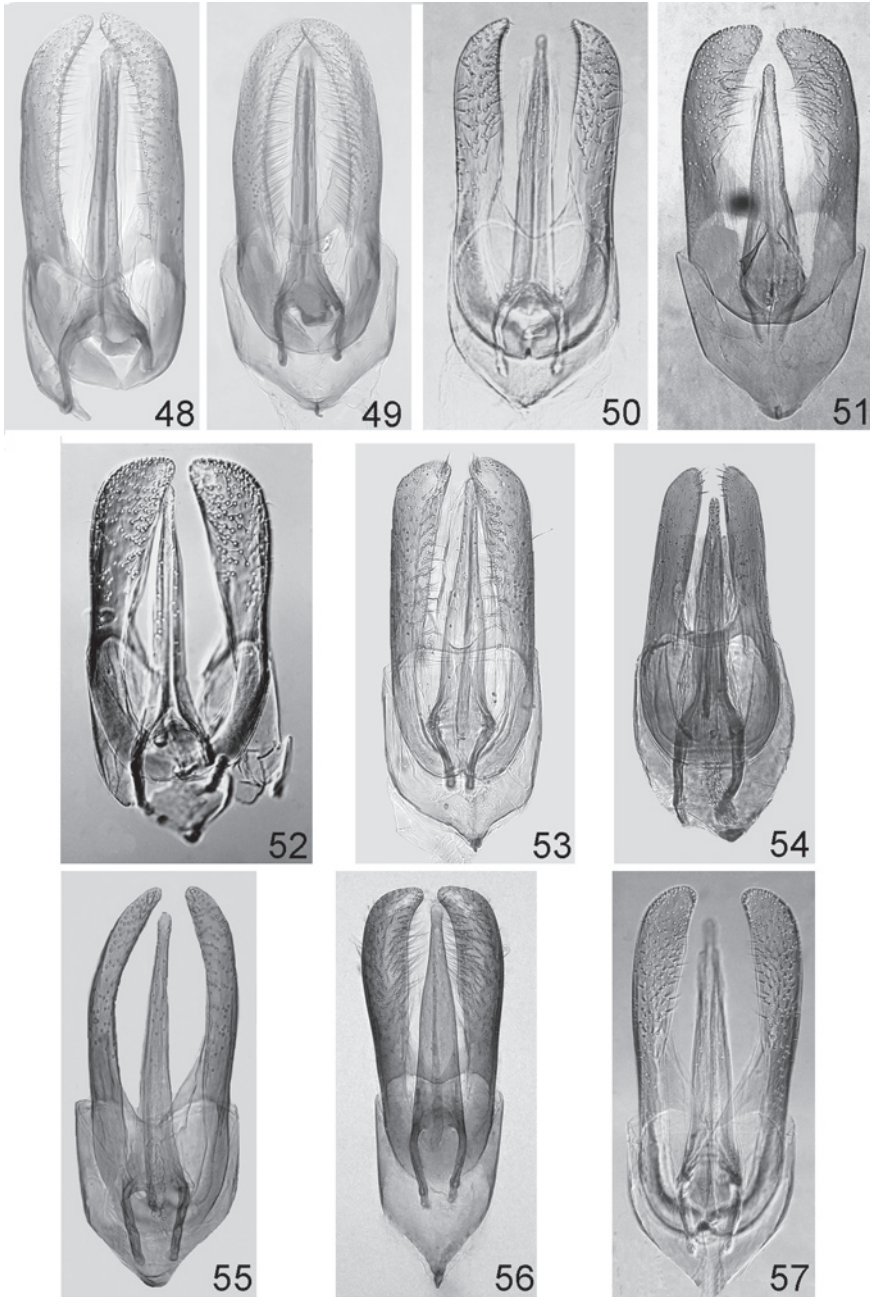
29-33. Habitus (ventral aspect) or respectively sternites: *A. indicus*; 30 – *A. latefasciatus*; 31 – *A. mesopotamicus*; 32 – *A. mroczkowskii*; 33 – *A. munroi*;



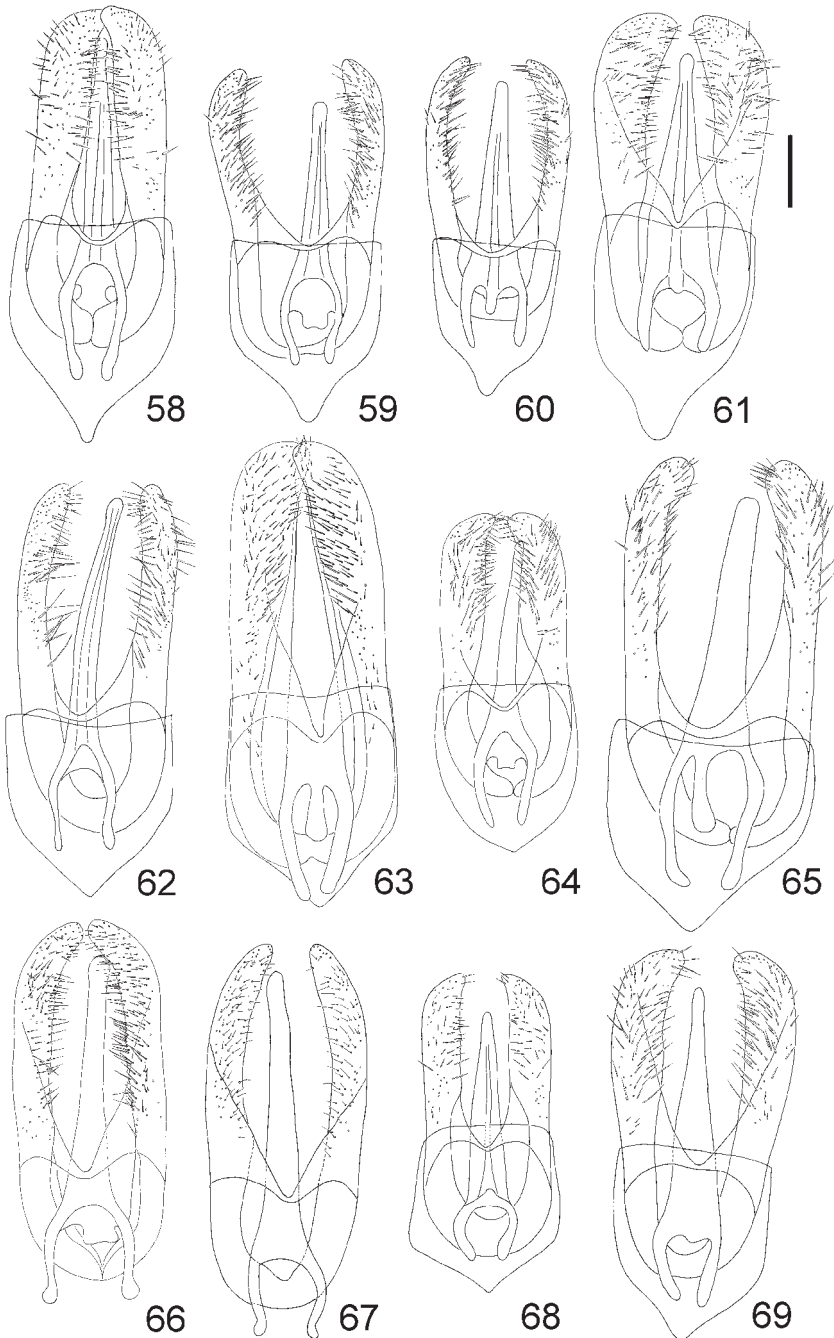
34-38. Habitus (ventral aspect) or respectively sternites: *A. nipponensis*; 35 – *A. oceanicus*; 36 – *A. pfefferi*; 37 – *A. pimpinellae pimpinellae*; 38 – *A. p. isabellinus*



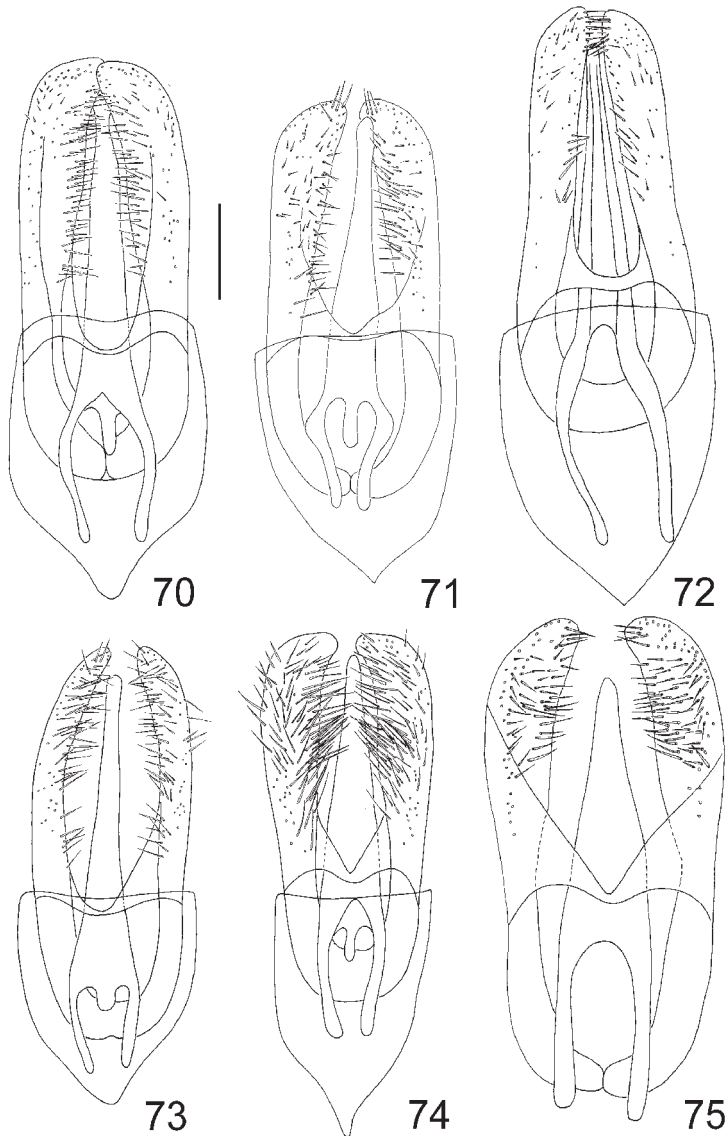
39-47. Male genitalia: 39 – *Anthrenus hoberlandti*; 40 – *A. similaris*; 41 – *A. warchalowskii*; 42 – *A. angustefasciatus*; 43 – *A. delicatus*; 44 – *A. armstrongi*; 45 – *A. dorsatus*; 46 – *A. flavidulus*; 47 – *A. goliath*;



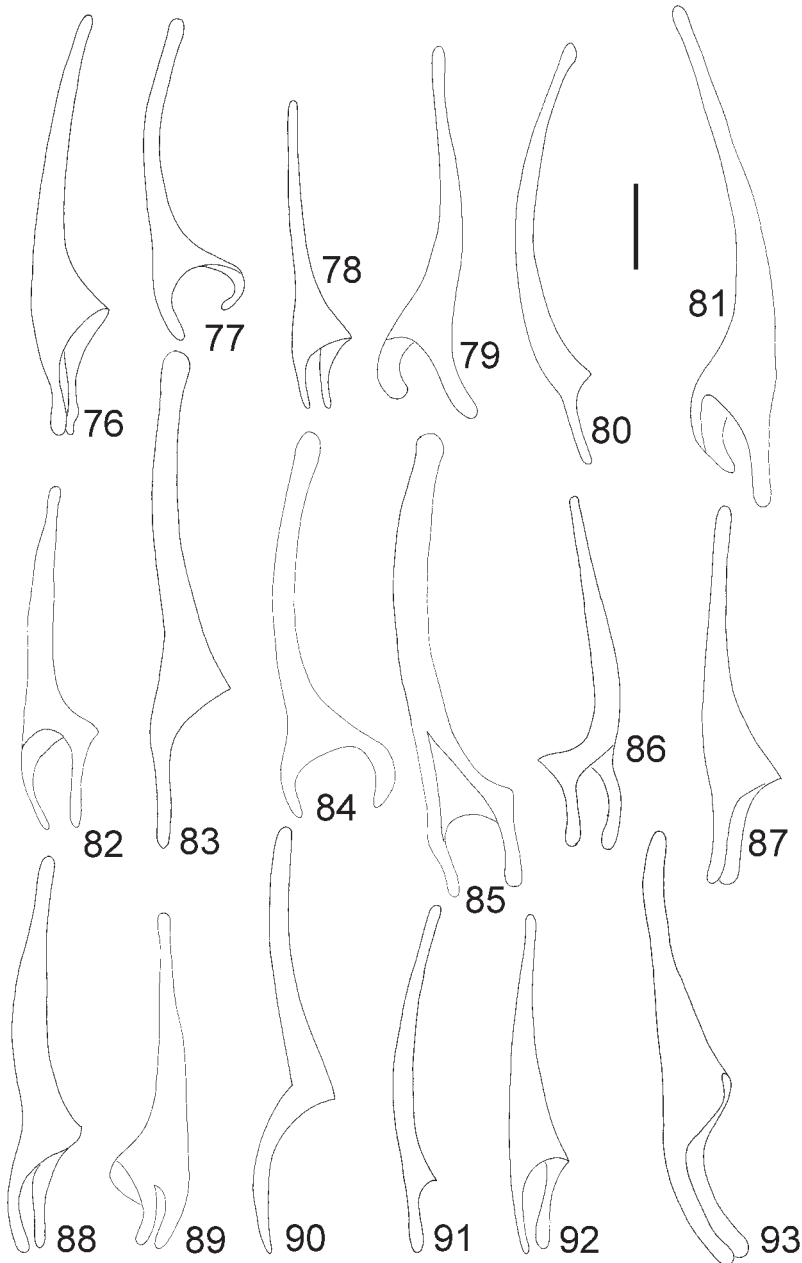
48-57. Male genitalia: 48 – *A. indicus*; 49 – *A. latefasciatus* 2; 50 – *A. mesopotamicus*; 51 – *A. mroczkowskii*;
 52 – *A. munroi*; 53 – *A. nipponensis*; 54 – *A. oceanicus*; 55 – *A. pfefferi*; 56 – *A. pimpinellae pimpinellae*;
 57 – *A. p. isabellinus*



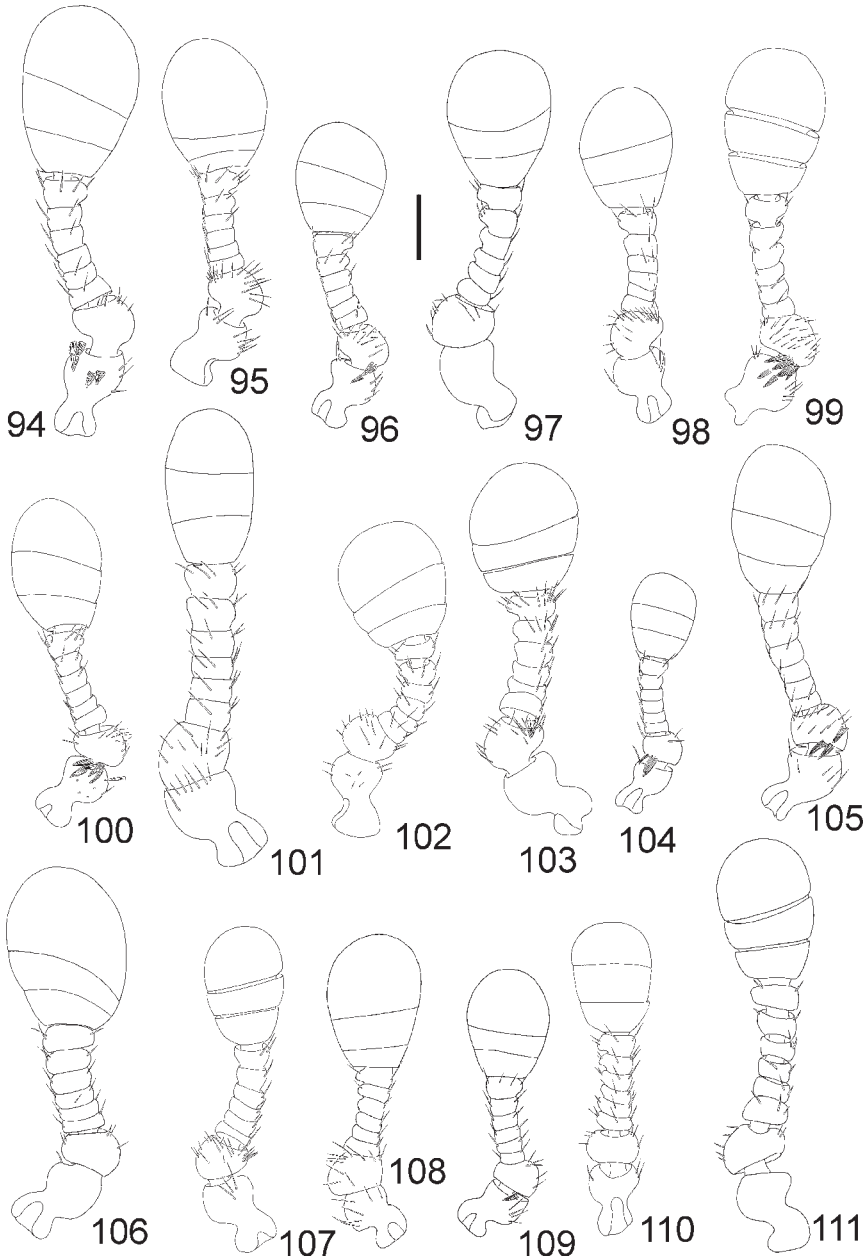
58-69. Male genitalia: 58 – *Anthrenus hoberlandti*; 59 – *A. similaris*; 60 – *A. warchalowskii*; 61 – *A. angustefasciatus*; 62 – *A. delicatus*; 63 – *A. dorsatus*; 64 – *A. flavidulus*; 65 – *A. goliath*; 66 – *A. indicus*; 67 – *A. latefasciatus*; 68 – *A. mesopotamicus*; 69 – *A. mroczkowskii*



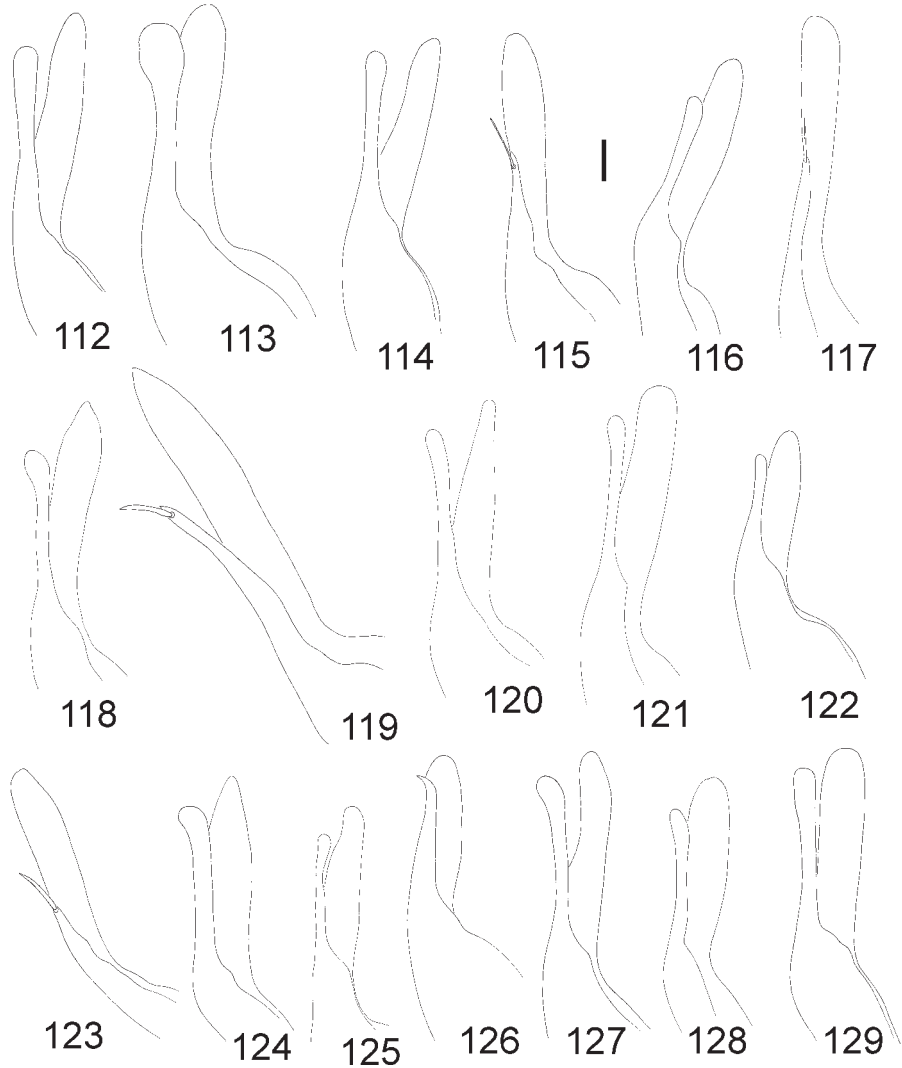
70-75. Male genitalia: 70 – *A. munroi*; 71 – *A. nipponensis*; 72 – *A. oceanicus*; 73 – *A. pfefferi*; 74 – *A. pimpinellae pimpinellae*; 75 – *A. p. isabellinus*. Scale bar 0.1 mm



76-93. Median lobe: 76 – *Anthrenus hoberlandti*; 77 – *A. similaris*; 78 – *A. warchalowskii*; 79 – *A. angustefasciatus*; 80 – *A. delicatus*; 81 – *A. dorsatus*; 82 – *A. flavidulus*; 83 – *A. goliath*; 84 – *A. indicus*; 85 – *A. latefasciatus*; 86 – *A. mesopotamicus*; 87 – *A. mroczkowskii*; 88 – *A. munroi*; 89 – *A. nipponensis*; 90 – *A. oceanicus*; 91 – *A. pfefferi*; 92 – *A. pimpinellae pimpinellae*; 93 – *A. p. isabellinus*. Scale bar 0.1 mm

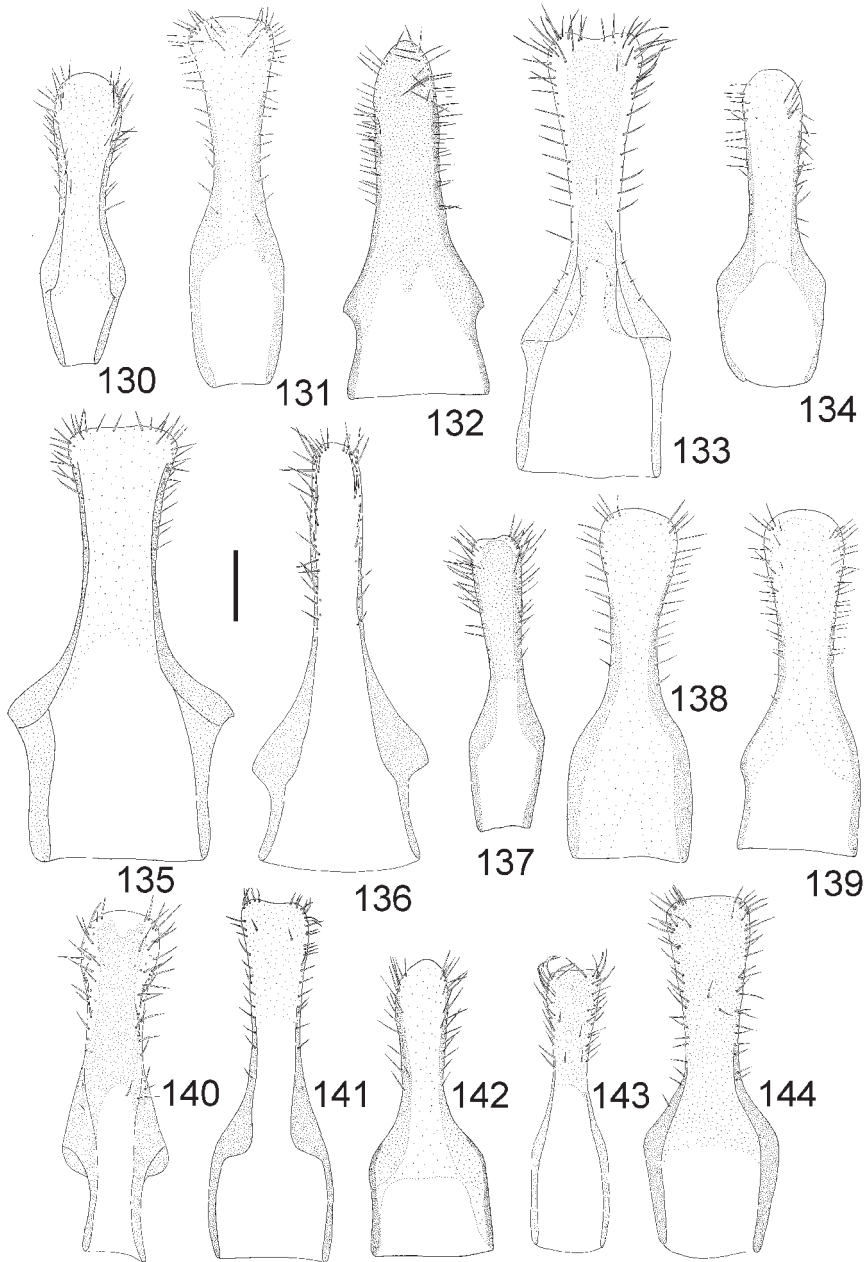


94-111. Male antennae: 94 – *Anthrenus hoberlandti*; 95 – *A. similis*; 96 – *A. warchalowskii*; 97 – *A. angustefasciatus*; 98 – *A. delicatus*; 99 – *A. dorsatus*; 100 – *A. flavidulus*; 101 – *A. goliath*; 102 – *A. indicus*; 103 – *A. latefasciatus*; 104 – *A. mesopotamicus*; 105 – *A. mroczkowskii*; 106 – *A. munroi*; 107 – *A. nipponensis*; 108 – *A. oceanicus*; 109 – *A. pfefferi*; 110 – *A. pimpinellae pimpinellae*; 111 – *A. p. isabellinus*. Scale bar 0.01 mm



112-129. Galea and lacinia: 112 – *Anthrenus hoberlandti*; 113 – *A. similis*; 114 – *A. warchalowskii*; 115 – *A. angustefasciatus*; 116 – *A. delicatus*; 117 – *A. dorsatus*; 118 – *A. flavidulus*; 119 – *A. goliath*; 120 – *A. indicus*; 121 – *A. latefasciatus*; 122 – *A. mesopotamicus*; 123 – *A. mroczkowskii*; 124 – *A. munroi*; 125 – *A. nipponensis*; 126 – *A. oceanicus*; 127 – *A. pfefferi*; 128 – *A. pimpinellae pimpinellae*; 129 – *A. p. isabellinus*.

Scale bar 0.03 mm



130-144. Abdominal sternites IX: 130 – *A. warchalowskii*; 131 – *A. angustefasciatus*; 132 – *A. delicatus*; 133 – *A. dorsatus*; 134 – *A. flavidulus*; 135 – *A. goliath*; 136 – *A. latefasciatus*; 137 – *A. mesopotamicus*; 138 – *A. mroczkowskii*; 139 – *A. munroi*; 140 – *A. nipponensis*; 141 – *A. oceanicus*; 142 – *A. pfefferi*; 143 – *A. pimpinellae pimpinellae*; 144 – *A. p. isabellinus*. Scale bar 0.1 mm