

Review of the *Pantolyta* genus (Hymenoptera: Diapriidae: Pantolytini) from Russia, with description of a new species

Обзор рода *Pantolyta* (Hymenoptera: Diapriidae: Pantolytini) фауны России с описанием нового вида

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Abstract. Seven species of the genus *Pantolyta* Foerster are found to occur in Russia. One species, *P. elegans* sp. nov. from Russia (Kunashir I.) and Japan (Hokkaido I.), is described as new for science. Eight known species of *Pantolyta* are reviewed and keyed. Colour illustrations are provided to all species.

Резюме. Установлено, что семь видов рода *Pantolyta* Foerster обитают в России. Один вид – *P. elegans* sp. nov. из России (о. Кунашир) и Японии (о. Хоккайдо) – описан как новый. Даны обзор и определительный ключ для восьми известных видов *Pantolyta*. Для всех видов подготовлены цветные иллюстрации.

Key words: diapriid wasps, taxonomy, fauna, Russia, Diapriidae, Pantolytini, *Pantolyta*, new species, new records, key

Ключевые слова: диаприиды, таксономия, фауна, Россия, Diapriidae, Pantolytini, *Pantolyta*, новый вид, новые находки, определительный ключ

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Introduction

The genus *Pantolyta* Foerster, 1856 includes small (body length 1.5–2.8 mm) wasps of the Diapriidae from Belytinae subfamily. Until recently seven species of *Pantolyta* were known in the Palaearctic Region and in the whole World (Johnson, 1992; Macek, 1993), and all of them were described from the Europe: *P. atrata* (Foerster, 1861), *P. hadrosoma* Macek, 1993, *P. marginalis* (Kieffer, 1909), *P. nixonii* Macek, 1993, *P. pallida* Kieffer, 1908, *P. semirufa* Kieffer, 1908 and *P. stylata* Kieffer, 1908 (Macek, 1993).

Kozlov (1978) recorded three species of *Pantolyta* in the fauna of Russia: *P. atrata* (Europe-

an Part of Russia), *P. pallida* (European Part of Russia; Moldova) and *P. semirufa* (Russian Far East: Primorskiy Terr.). Unfortunately, all of his determinations were incorrect. Macek (1993) in his revision of the Palaearctic *Pantolyta* species proposed many new synonyms, and provided a new useful key and diagnosis for all valid species. However, the determination of the *Pantolyta* species is still problematic because the key was based on specimens collected mainly from Central Europe and variation range of the species was unknown.

The aim of this work is to review species of *Pantolyta* occurring in Russia, describe one new species, and provide a new identification key.

Material and methods

This work is based on the insect collection of the Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZIN). The data and reference collection of Jan Macek in the National Museum, Prague, Czech Republic (NMPC), and additional samples from two other museums, the National History Museum, University of Tartu, Tartu, Estonia (NHMT) and the Hungarian National History Museum, Budapest, Hungary (HNHM), were used.

Material for this study was collected in various parts of Russia and several neighboring countries by yellow pan traps and by net sweeping. The holotype of the new species is housed in the collection of NMPC, and two paratypes are housed in ZIN. Most of the non-type specimens comes from the ZIN if not stated otherwise. Morphological terminology and abbreviations follow Masner & García (2002), Yoder (2004), Naumann (1982) and Yoder et al. (2010). Measurements mostly follow Yoder (2004); measurements of venation are shown in Fig. 24. The term *verruculate tubercle* (see Fig. 13, arrow; Fig. 16, arrow; Fig. 64) is used after Yoder (2004).

New records are marked with an asterisk (*). The general distribution of species follows Nixon (1957) and Macek (1993). Species of *Pantolyta* can be recognized in the East Palaearctic fauna using the generic keys by Nixon (1957), Kozlov (1978) and Macek (1989). The differences between closely related genera *Pantolyta* and *Acropiesta* Foerster, 1856 were discussed by Macek (1998).

All colour photographs were obtained using a Leica M165 stereomicroscope equipped with a Leica DFC450 camera. Image stacking was performed with Helicon Focus 5.0.

Taxonomy

Order Hymenoptera

Family Diapriidae

Subfamily Belytinae

Tribe *Pantolytini*

Genus *Pantolyta* Foerster, 1856

Pantolyta Foerster, 1856: 128, 130, 135

Type species *Pantolyta atrata* Foerster, 1861.

Six of seven previously known Palaearctic species of *Pantolyta* (except *P. stylata*) are found to occur in Russia, and one more species is described as new to science. Three specimens were found belonging to an undescribed species. Additional distributional records are given for several neighboring countries. Biology and hosts are unknown for all here included species.

Key to Palaearctic species of *Pantolyta*

Female

1. Pterygopolymorphic species, in winged morphs radial cell open (Figs 47, 48, 56, 62) 2
 - Only macropterous species with radial cell closed (Figs 18, 24, 33, 40) 5
2. Axillar depression with verruculate tubercle (Fig. 46, arrow); antennal shelf weakly prominent, head not nasiform (Fig. 49) *P. pallida* Kieffer
 - Axillar depression without verruculate tubercle; antennal shelf distinctly prominent, head nasiform (Figs 4, 50, 58) 3
3. Eyes small, largest diameter of eye 0.5 times as long as malar space (eyes small both in micro- and macropterous specimens) *P. stylata* Kieffer
 - Eyes large, largest diameter of eye at less 0.7 times as long as malar space (eyes quite small only in micropterous specimens) 4
4. Temples in dorsal view parallel (Fig. 4)
 - *P. atrata* Foerster
 - Temples in dorsal view receding (Fig. 50)
 - *P. semirufa* Kieffer
5. Pronotal collar and pronotal shoulders smooth, epomia obsolete (Figs 38, 39); A1 with sharply pointed flange (Fig. 41, arrow)
 - *P. nixonii* Macek
 - Pronotal collar rugose, with transverse keel; pronotal shoulders angular; epomia present (Figs 13, 15, 25, 34); A1 without apical flange (Figs 21, 23, 31) 6
6. Axillar depression with verruculate tubercle (Figs 13, 16, arrows); anterior part of T2 and S2 narrower than petiole (Fig. 19) *P. elegans* sp. nov.
 - Axillar depression without verruculate tubercle; anterior part of T2 and S2 slightly wider than petiole 7
7. Genae in frontal view convex (Fig. 22); plicae strongly produced posteriorly
 - *P. hadrosoma* Macek
 - Genae in frontal view convergent (Fig. 30); plicae weakly produced posteriorly (Fig. 35)
 - *P. marginalis* (Kieffer)

Male

1. Radial cell open (Figs 47, 48, 56, 62) 2
 – Radial cell closed (Figs 18, 24, 33, 40) 5
2. Axillar depression with verruculate tubercle (Fig. 46, arrow); antennal shelf weakly prominent, head not nasiform (Fig. 49); A1 short and stout, shorter than half of head width *P. pallida* Kieffer
 – Axillar depression without verruculate tubercle; antennal shelf distinctly prominent, head nasiform (Figs 4, 50, 58); A1 long and slender, distinctly longer than half of head width (Figs 5, 51) 3
3. Eyes small, largest diameter of eye at most 0.7 times as long as malar space *P. stylata* Kieffer
 – Eyes larger, largest diameter of eye at less 0.9 times as long as malar space 4
4. Temples in dorsal view parallel (Fig. 4); fore tibia incurved, with a row of long stout setae (Fig. 9); A3 rather thickened, with deep emargination (Figs 6, 8) *P. atrata* Foerster
 – Temples in dorsal view receding (Fig. 50); fore tibia straight, with homogeneous pubescence (Fig. 10); A3 slender, with shallow emargination (Fig. 54) *P. semirufa* Kieffer
5. Pronotal collar and pronotal shoulders smooth, epomia obsolete (Figs 38, 39); A1 with apical sharply pointed flange (Fig. 41, arrow) .. *P. nixonii* Macek
 – Pronotal collar rugose with transverse keel, pronotal shoulders angular, epomia present (Figs 13, 15, 25, 34); A1 without apical flange (Figs 17, 27, 32) 6
6. Axillar depression with verruculate tubercle (Figs 13, 16, arrows); anterior part of T2 and S2 narrower than petiole (Fig. 14) *P. elegans* sp. nov.
 – Axillar depression without verruculate tubercle; anterior part of T2 and S2 slightly wider than petiole 7
7. Genae in frontal view convex (Fig. 22); antennae robust, A13 2.0–2.7 times as long as wide (Fig. 28) *P. hadrosoma* Macek
 – Genae in frontal view convergent (Fig. 30); antennae slender, A13 3.3–3.7 times as long as wide (Fig. 29) *P. marginalis* (Kieffer)

Pantolyta atrata Foerster, 1861
(Figs 1–9)

Pantolyta atrata Foerster, 1861: 43.

Material examined. **Russia:** *Novgorod Prov.*, Pestovo Distr., Tychkino, 6 July 1986 and 20–25 June 1999 (V. Tobias leg.), 2 females, 4 males; *Bryansk Prov.*, 10 km W of Novozybkov, Perevoz, 1–15 July 1970 (V. Tobias leg.), 1 male; *Krasnoyarsk Terr.*, Taymyr, estuary of Maymechi River, 7 June 1970 (I. Sukacheva

& V. Zherikhin leg.), 1 male; *Buryatia*, Yeravninsky Distr., Vitim River, Baisa, 16–27 June 1997 (M. Mostovski leg.), 3 males; Vitim River, Romanovka, July 1969 (V. Zherikhin leg.), 1 male; *Yakutia*, Oymyakonsky Distr., Tomtor, 5–27 August 1990 (V. Alekseev leg.), 14 females; *Magadan Prov.*, Srednekansky Distr., 12 km N of Seymchan, 30 August 1975 (Marshakov leg.), 1 male; *Amur Prov.*, Zeya Nature Reserve, 17 August 1981 and 2 September 1981 (V. Alekseev leg.), 2 females; Khingan Nature Reserve, Kundur, 18–20 July 2003 (S. Belokobylskij leg.), 1 female.

Differential diagnosis. Pterygopolymorphic species (Figs 1, 3, 4). In winged morphs, radial cell open (Fig. 3). Antennal shelf distinctly prominent; head nasiform (Fig. 4); temples in dorsal view parallel (Fig. 4). Epomia distinct (Fig. 7). Axillar depression without verruculate tubercle. A1 in both sexes long and slender, distinctly longer than half of head width and without apical flanges (Fig. 5). Female: antennae moniliform; A5–A7 as wide as long to transverse; A8–A14 transverse (Fig. 2). Male: fore tibia incurved, with a row of long stout setae (Fig. 9); A3 rather thickened, with deep emargination (Figs 6, 8).

Variation. Pterygopolymorphic with alate to wingless morphs (Figs 1, 3); micropterous and wingless morphs with narrowed mesosoma and flattened mesoscutum (Fig. 1). Pronotal shoulders distinctly or weakly sculptured and with sharp keel; pronotal collar sculptured, with transverse keel interrupted medially or obliterated. Postmarginal vein absent to quite long. Petiole subquadrate to 1.4 times as long as wide. Female: body yellowish brown to brown; body length 2.0–2.8 mm; median propodeal keel simple or furcate; A4 slightly elongate to distinctly transverse; A5–A7 as wide as long to transverse; A13–A14 more or less broadened, 1.4–2.2 times as wide as A3. Male: body yellowish brown to dark brown; body length 1.7–2.3 mm; A3 with deep emargination and with keel extending 0.44–0.67 of segment length (Fig. 6); A4 0.56–0.76 times as long as A3.

Distribution. Czech Republic, Sweden, Poland, Germany, Russia (European Part, *East Siberia, *Far East).

***Pantolyta elegans* sp. nov.**
(Figs 10–21)

Holotype. Female, **Japan**, Hokkaido, Sapporo, 5–10 August 1989 (M. Sharkey leg.) (NMPC).



Figs 1–7. *Pantolyta atrata*. 1, female (apterous form), lateral view; 2, female, antennae; 3, female (alate form), lateral view; 4, female, head and mesosoma, dorsal view; 5, female, head, frontal view; 6, male, antenna, proximal part; 7, pronotum, anterodorsal view. Scale bars: 1, 3, 500 μ m; 2, 4–7, 200 μ m.

Paratype. Russia: Sakhalin Prov., Kunashir I., vicinity of Grozovoe, Cape Ivanovskiy, 8–15 August 2008 (Melnik leg.), 2 males (ZIN).

Description. Female (Figs 19–21). Body length 2.3 mm; fore wing length 2.0 mm; antennae length 1.5 mm.

Head black; A3–A14 and mesosoma dark brown; A1–A2, mandibles and metasoma brown; legs and palpi yellowish brown.

Head in dorsal view slightly wider than long (30 : 22), wider than mesosoma (30 : 26), bare, with a few scattered long setae. Antennal shelf

moderately projecting; head not nasiform. Temples in dorsal view receding behind (Figs 13, 19). Head in lateral view higher than long (30 : 22). Eye large; its largest diameter longer than malar space (13 : 8). Antennal shelf in frontal view with fine coriaceous sculpture below toruli. Face smooth, finely pubescent. Genae in frontal view slightly convex and converging towards mouthparts. Tentorial pits large. Mandibles bidentate (Fig. 11).

Antennae slender (Fig. 20). A3–A9 cylindrical; A10–A15 broadened in lateral view (Fig. 21).



Figs 8–10. *Pantolyta atrata* (8, 9) and *P. elegans* sp. nov. (10). 8, male, lateral view; 9, 10, male, fore tibia. Scale bars: 8, 500 μ m; 9, 10, 200 μ m.

Ratios of length to width of A1–A15 in dorsal view: A1 64 : 9; A2 19 : 8; A3 27 : 8; A4 22 : 8; A5 19 : 8; A6 19 : 8; A7 19 : 8; A8 19 : 8; A9 14 : 8; A10 14 : 10; A11 14 : 11; A12 14 : 11; A13 14 : 11; A14 14 : 12; A15 26 : 13.

Mesosoma slightly compressed, higher than wide (32 : 26), in dorsal view longer than wide (47 : 26). Pronotum bare, with sharp and strongly prominent epomia and straight sharp keel between pronotal shoulders, and with a pair of deep pits on neck (Fig. 13). Mesoscutum transverse (35 : 29), convex, with a few scattered thin setae. Notauli complete throughout and distinct. Anterior scutellar pit deepened posteriorly, rounded, about as wide as long and slightly narrower than shortest distance between notauli. Scutellum large, widened posteriorly. Axillar depression scarcely pubescent, with verriculate tubercle (Figs 13, 16, arrows). Mesopleuron scarcely pubescent, smooth, with oblique groove from anteroventral to postero-dorsal margins; its anteroventral area deepened and pubescent. Metascutellum narrow, pubescent; dorsellum distinct, with three short longitudinal keels. Propodeum transverse (11 : 6), entirely pubescent, with simple medial and one lateral keels. Posterior margin of propodeum slightly concave (Figs 14, 16, 19). Forewing with completely closed radial cell; radial cell slightly shorter than marginal vein (Fig. 18). Legs slender (Fig. 19).

Metasoma. Petiole cylindrical, longer than wide (14 : 10), with longitudinal keels, scattered

pubescence and narrow strip of setae ventrally. T2 anteriorly with five deep grooves, narrower than petiole anteriorly and gradually widened posteriorly (Fig. 19); T3–T6 narrow and bare; T7 and T8 long, strongly compressed laterally. S2 with numerous erect scattered setae; S3–S5 narrow with scattered setae; S6 distinctly elongated and compressed, with a few scattered setae.

Male. Paratype (Figs 10–18). Body length 2.3 mm. Similar to female except for following characters. Antenna filiform. A1 stout, as long as half of head width; A3 not emarginated, with keel extending to third of A3 length (Fig. 17). Ratios of length to width of A1–A5 in lateral view: 14 : 3.0; 4 : 3.0; 13 : 3.0; 13 : 2.5; 14 : 2.2. Petiole longer (17 : 10). T3–T7 narrow and bare; T8 triangular. S2 with numerous erect scattered setae; S3–S7 narrow, with a few scattered setae; S8 subtriangular, rounded apically.

Differential diagnosis. *Pantolyta elegans* sp. nov. can be distinguished from all known *Pantolyta* species by the combination of following characters: radial cell completely closed (slightly shorter than length of marginal vein; Fig. 18); head as wide as high in frontal view (Fig. 11) and distinctly transverse in dorsal view as well as not nasiform (Fig. 13); epomia sharp and distinct, pronotal collar with sharp straight transversal keel (Figs 13, 15); A1 without apical flange (Figs 11, 20, 21); axillar depression with verriculate tu-



Figs 11–18. *Pantolyta elegans* sp. nov., male (paratype). **11**, face; **12**, lateral view; **13**, head and mesosoma, dorsal view; **14**, dorsal view; **15**, head and mesosoma, lateral view; **16**, mesosoma, dorsal view; **17**, antennae, proximal part; **18**, venation. Scale bars: 12, 14, 500 μ m; 11, 13, 15–18, 200 μ m.

bercle (Figs 13, 16, arrows); anterior part of T2 and S2 narrower than petiole and gradually widened posteriorly (Figs 14, 19); in female, antennae slender and weakly clavate (Figs 20, 21); in male, antennae long and filiform (Fig. 12), with A3 not emarginated and with keel extending to third of A3 length (Fig. 17).

Distribution. Russia: Far East (Kunashir); Japan: Hokkaido.

Etymology. The species name is the Latin word “elegans” (charming, graceful).

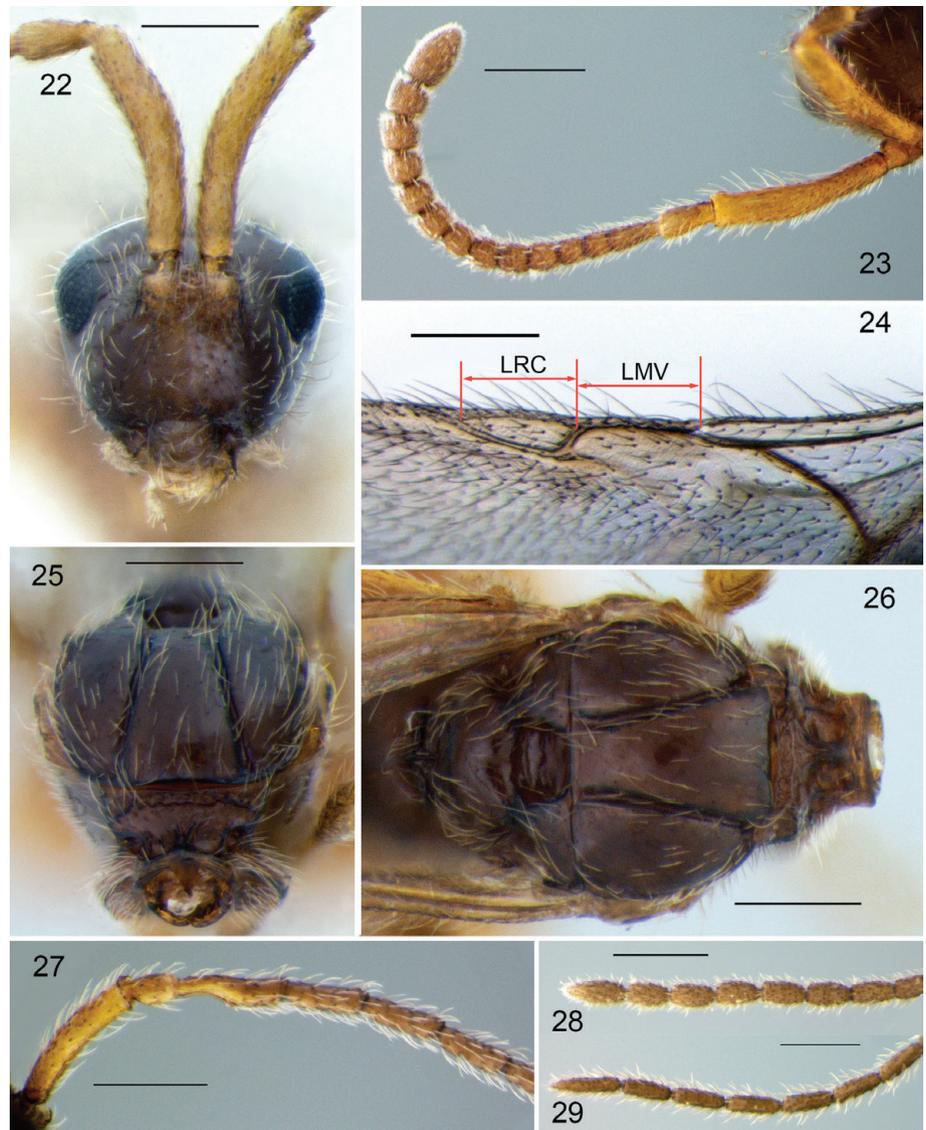
***Pantolyta hadrosoma* Macek, 1993**
(Figs 22–28)

Pantolyta hadrosoma Macek, 1993: 48.

Material examined. **Greece:** Thessaloniki Prov., Larissas, slopes NE – Mt. Kissavos (Ossa), SW–Stomio (250 m), 13 April 2006 (S. Vit leg.), 1 female (NMPC). **Lithuania:** vicinity of Vilnius, 17 June 1971 (V. Tobias leg.), 2 females, 3 males. **Estonia:** Kannapeeksi, 58.9865°N, 22.652°E, YPT, 20 June 2016 (V. Soon leg.), 1 female (NHMT); Uhmardu, 58.6151°N, 26.7807°E, YPT, 7 July 2017 (V. Soon



Figs 19–21. *Pantolyta elegans* sp. nov., female (holotype). **19**, dorsal view; **20**, antenna, dorsal view; **21**, antenna, lateral view. Scale bars: 19, 500 μ m; 20, 21, 200 μ m.



Figs 22–29. *Pantolyta hadrosoma* (22–28) and *P. marginalis* (29). **22**, female, face; **23**, female, antenna, lateral view; **24**, venation (LRC – length of radial cell, LMV – length of marginal vein); **25**, mesosoma, anterodorsal view; **26**, mesosoma, dorsal view; **27**, male, antenna, proximal part; **28**, **29**, male, antenna, distal part. Scale bar: 200 μ m.

leg.), 1 male (NHMT). **Russia:** *Murmansk Prov.*, Khibiny Station, 9 August 1928 (Cheburova leg.), 1 male; *Moscow*, Bitsa Park, 23 June 1993 (V. Kolyada leg.), 1 male; *Kirov Prov.*, Bolsheromanovo, 3–12 August 1994 (V. Kolyada leg.), 2 females, 5 males; *Altay Republic*, vicinity of Tigirek, 5 July 2005 (A. Reshchikov leg.), 1 female, 1 male; *Khabarovsk Terr.*, Udyl' Lake, 29–31 August 1970 (D. Kasparyan leg.), 2 females, 5 males; *Sakhalin Prov.*, Shakhalin I., Aniva Distr., 9 September 1991 (Basarukina leg.), 1 female; Kunashir I., vicinity of Grozovoe, Cape Ivanovskiy, 8–15 August 2008 (Melnik leg.), 2 females. **Georgia:** Bakuriani, 13 July 1958 (Lyao Din-Si leg.), 1 female.

Differential diagnosis. Macropterous species with radial cell closed. Antennal shelf distinctly prominent; head nasiform; genae in frontal view convex (Fig. 22). Pronotal collar sculptured; pronotal shoulders angular; epomia present (Figs 25, 26). Axillar depression without verruculate tubercle. A1 distinctly longer than half of head width, without apical flanges (Figs 23, 27). Female antennae robust, with apical segments slightly transverse in dorsal view (Fig. 23). Male antennae also robust, with A13 2.0–2.7 times as long as wide (Fig. 28).

Variation. Female yellowish brown to brown; body length 2.1–2.6 mm; A4–A9 cylindrical,

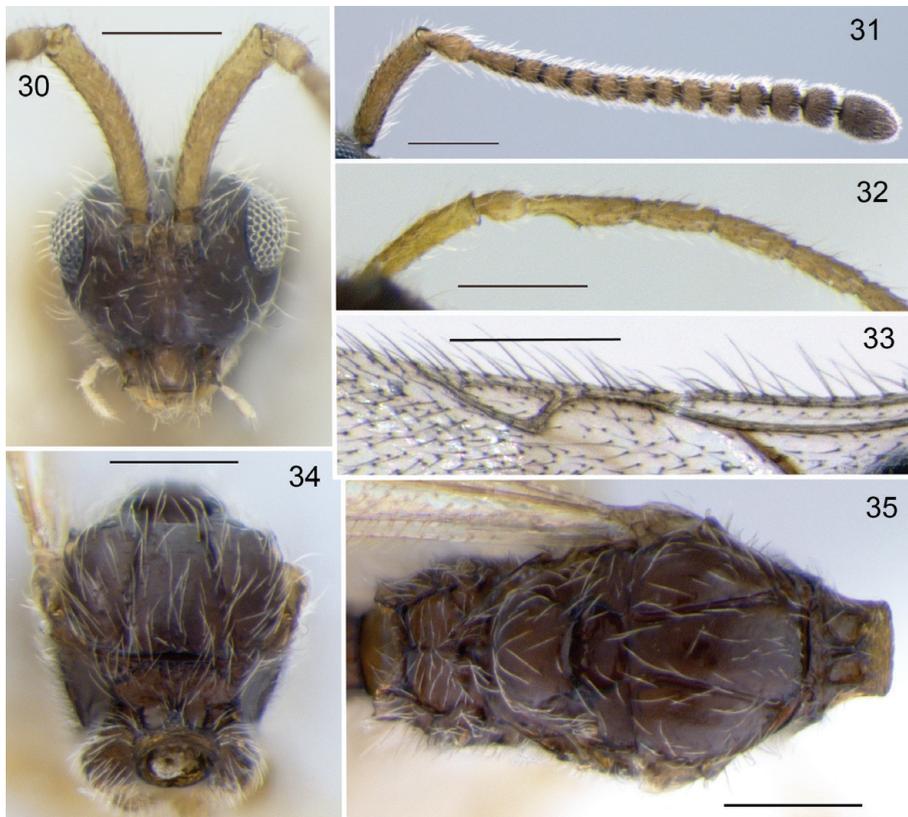
elongate to subquadrate; A10–A14 cylindrical, subquadrate to moderately transverse; radial cell 0.89–1.25 times as long as marginal vein; pronotal collar with keel sometimes interrupted medially; petiole slightly transverse to quadrate, with posterior margin deeply or weakly concave. Male yellowish brown to dark brown; body length 1.5–2.2 mm; A4–A13 more or less slender, 2.25–3.67 times as long as wide; petiole subquadrate to 1.1 times as long as wide, with posterior margin in dorsal view slightly concave to straight.

Distribution. Germany, Sweden, *Greece, Czech Republic, Hungary, Poland (Macek, 1993), *Lithuania, *Estonia, *Russia (European Part, Far East), *Georgia.

***Pantolyta marginalis* (Kieffer, 1909)**
(Figs 29–35)

Acropiasta marginalis Kieffer, 1909: 586.

Material examined. **Estonia:** Paluküla 58.2571°N, 26.9326°E, YPT, 15 June 2017 (V. Soon leg.), 1 male (NHMT). **Russia:** *Crimea*, Bakhchisaray Distr., 1 km S of Sel'bukhra Mt., 14 June 1995 (V. Kolyada leg.), 2 males; *Novgorod Prov.*, Spasskoe, Vetluga River, 7



Figs 30–35. *Pantolyta marginalis*. **30**, female, face; **31**, female, antenna; **32**, male, antenna, proximal part; **33**, venation; **34**, mesosoma, anterodorsal view; **35**, mesosoma, dorsal view. Scale bar: 200 μ m.

August 1929 (S. Pokrovskiy leg.), 1 female; *Samara Prov.*, Kinel' Distr., vicinity of Krasnaya-Samarka, 28 June and 3 July 2009 (V. Chemyreva leg.), 11 females, 2 males; *Jewish Autonomous Region*, Malyy Khingan Mts., Dichun River, 8–14 July 1979 (V. Alekseev leg.), 4 females; *Primorskiy Terr.*, Partizansk Distr., Molchanovka, 18 June – 1 July 1972 (M. Kozlov leg.), 1 female. **Moldova:** Ungen Distr., Korneshty, 20 June 1975 (S. Kononova leg.), 1 female. **Japan:** Honshu, *Iwate Pref.*, Iwaizumi, Hitsutori, 800 m, 11–17 August 1991 (Smetana leg.), 1 female, 5 males (NMPC).

Differential diagnosis. Macropterous species with radial cell closed. Radial cell 0.43–0.81 times as long as marginal vein. Genae in frontal view convergent (Fig. 30). Sculpture of pronotal collar and pronotal shoulders variable. Axillar depression without verruculate tubercle. A1 in both sexes distinctly longer than half of head width, without apical flange (Figs 30–32). Male antennae slender; A13 3.3–3.7 times as long as wide (Fig. 29). Female antennae very variable.

Variation. Body length 1.5–2.2 mm. Stigmal and postmarginal veins convergent at acute or right angle. Petiole with posterior margin slightly concave to straight. Sculpture of pronotum very variable: keel medially absent to distinctly present, epomia sharp to obsolete. Basal striation of T2 fine

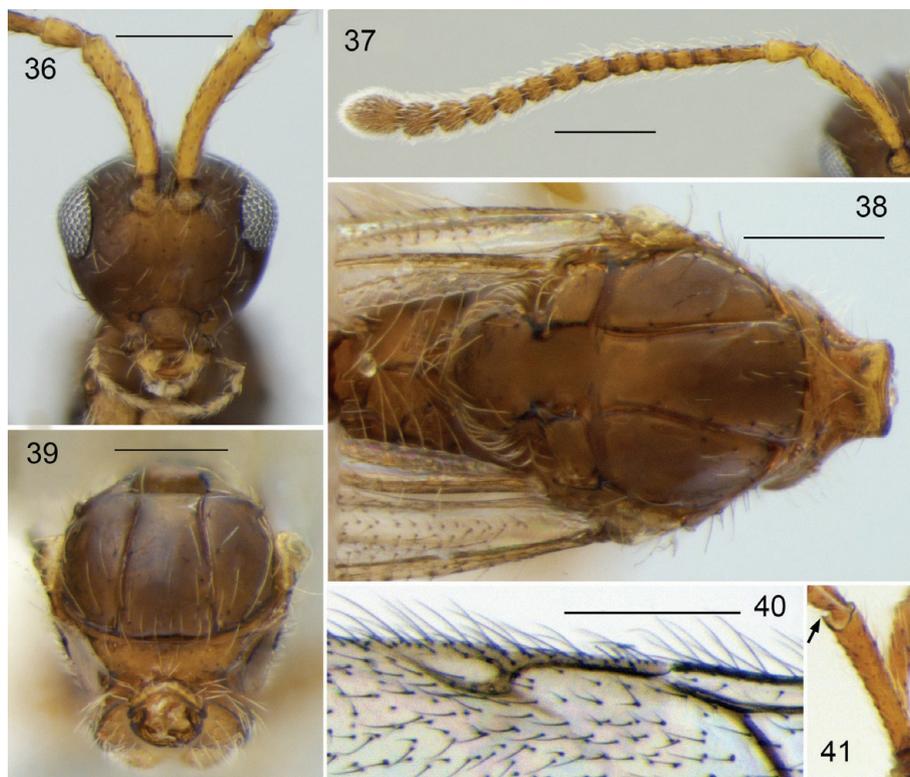
to strong. Female petiole as long as wide to slightly elongate. Female A4–A14 very variable in proportions: A4–A9 elongate and cylindrical to as long as wide and subglobular; A10 subquadrate to weakly transverse; A11–A14 distinctly to slightly transverse. Male antennae yellow to brown; propodeum with plicae weakly to distinctly produced posteriorly; petiole 1.3–1.4 times as long as wide.

Distribution. Germany, Sweden, Czech Republic, Poland (Macek, 1993), *Estonia, *Moldova, *Russia (European Part, Far East), Japan.

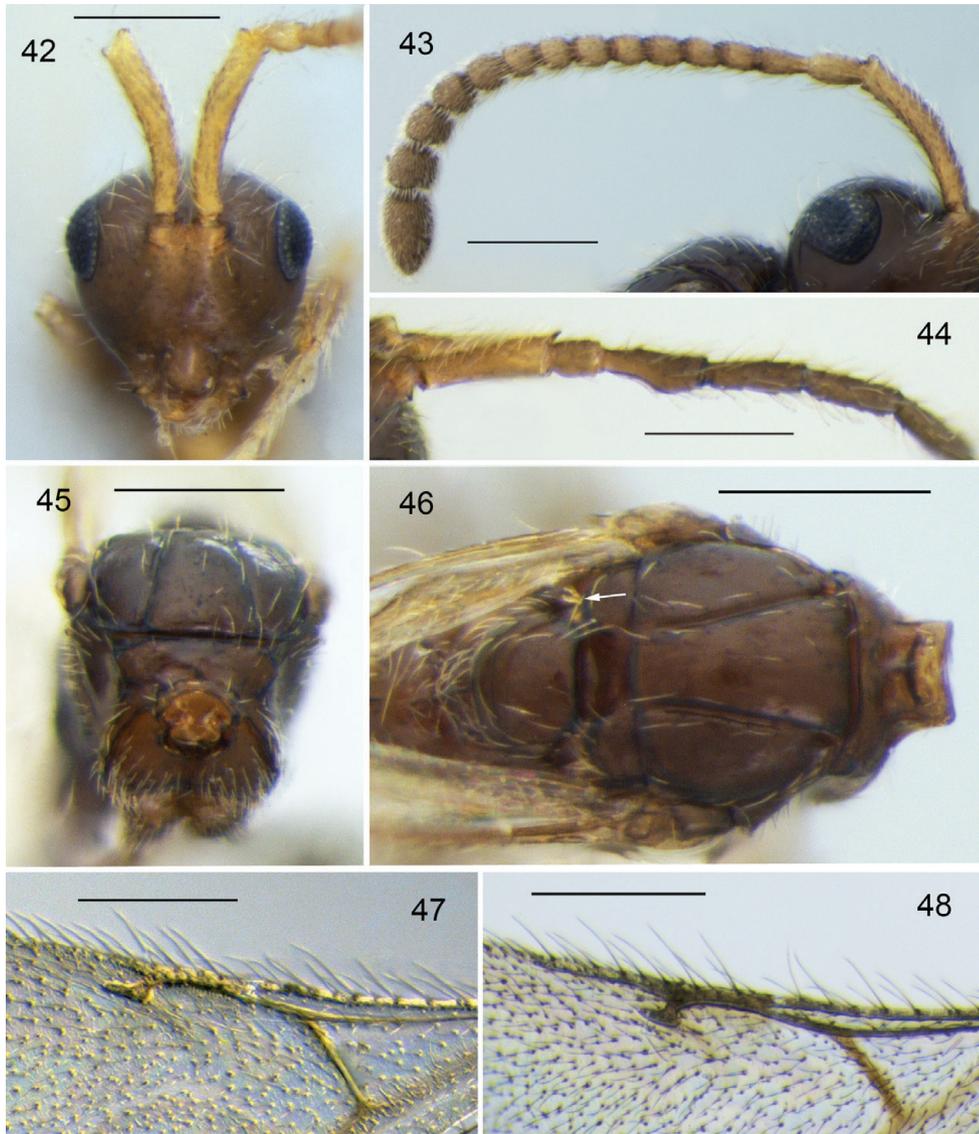
***Pantolyta nixonii* Macek, 1993**
(Figs 36–41)

Pantolyta nixonii Macek, 1993: 46.

Material examined. **Russia:** *Leningrad Prov.*, vicinity of St Petersburg, 15 August 1954 (V. Tryapitsyn leg.), 1 female; Sosnovo, 2 June 1973 (D. Kasparyan leg.), 1 male; *Moscow Prov.*, Malakhovka, 1 and 26 August 1994 (M. Mostovski leg.), 2 males; Moscow, Krylatskoe, Rublevskiy forest, 1–15 June 2004 (V. Kolyada leg.), 1 female; Domodedovo Station, 26 May 1988 (V. Kolyada leg.), 1 female; *Khabarovsk Terr.*, Udyl' Lake, 29–31 August 1970 (D. Kasparyan leg.), 1 male. **Azerbaijan:** Lankaran, 22–26 April and 3–7 May 1971 (V. Tobias leg.), 1 female, 1 male.



Figs 36–41. *Pantolyta nixonii*. **36**, female, face; **37**, female, antenna; **38**, mesosoma, dorsal view; **39**, mesosoma, anterodorsal view; **40**, venation; **41**, male, A1. Scale bar: 200 μ m.



Figs 42–48. *Pantolyta pallida*. 42, female, face; 43, female, antenna; 44, male, antenna, proximal part; 45, mesosoma, anterodorsal view; 46, mesosoma, dorsal view; 47, 48, venation. Scale bar: 200 μ m.

Differential diagnosis. Macropterous species with radial cell closed. Antennal shelf slightly prominent; head not nasiform. Pronotal collar and pronotal shoulders smooth; epomia obsolete (Figs 38, 39). A1 in both sexes longer than half of head width, with apical flanges (Figs 36, 41). Axillar depression without verruculate tubercle.

Variation. Body length 1.5–2.0 mm. Radial cell 0.12–0.64 times as long as marginal vein. Medial propodeal keel simple or bifurcated. Male A3–A14 with pubescence slightly shorter to slightly longer than width of antennomeres.

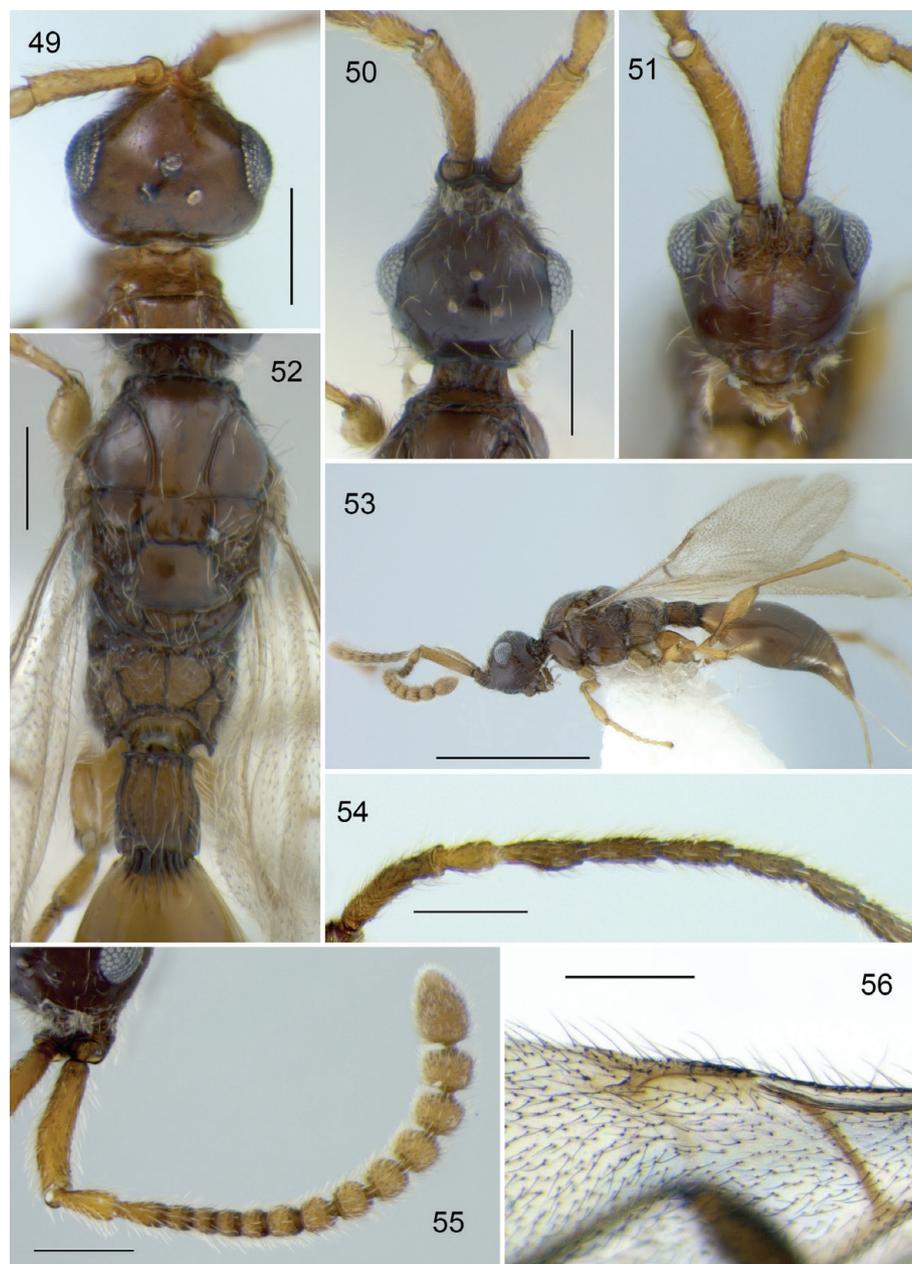
Distribution. Germany, Sweden, Czech Republic, Hungary, Poland (Macek, 1993), *Russia (European Part, Far East), *Azerbaijan.

***Pantolyta pallida* Kieffer, 1908**

(Figs 42–49)

Pantolyta pallida Kieffer, 1908: 430.

Material examined. **Ukraine:** Zakarpatskaya Prov., Rakhov Distr., Golovach, 28–29 July 1972 (S. Kononova leg.), 2 females. **Russia:** Kirov Prov., Bolshero-manovo, 4–19 August 1994 (V. Kolyada leg.), 1 female, 3 males; Moscow Prov., Orekhovo-Zuevo Distr., Ozherepki, 3 September 1974 (V. Alekseev leg.), 1 male; Vladimir Prov., Petushinskiy Distr., Ostrovishchi, 16 June 1971 (V. Alekseev leg.), 1 male; Altay Republic, Kosh-Agach, 1 July 1964 (M. Kozlov leg.), 1 female; Krasnoyarsk Terr., Evenkia, Stolbovaya River, Central Siberian Nature Reserve, 26 July 2003 (A. Kuvaev leg.), 1 female; Yakutia, Oymyakonsky Distr., Tomtor,



Figs 49–56. *Pantolyta pallida* (49) and *P. semirufa* (50–56). **49, 50,** female, head, dorsal view. **51,** female, head, frontal view; **52,** mesosoma and petiole, dorsal view; **53,** female, lateral view; **54,** male, antenna, proximal part; **55,** female, antenna; **56,** venation. Scale bars: 49–52, 54–56, 200 μ m; 53, 1.0 mm.

8–27 August 1990 (V. Alekseev leg.), 2 males; *Buryatia*, Selenginskiy Distr., Temnik River, vicinity of Selanduma, 25 June 1971 (D. Kasparyan leg.), 1 female; *Primorskiy Terr.*, Lazo Nature Reserve, 43°15'17"N, 134°07'59", YPT, 5–25 July 2005 (K. Makarov leg.), 1 female, 2 male; Lazo Nature Reserve, 10–14 August 2010 (E. Tselikh leg.), 1 male; Ussuriysk Nature Reserve, 26–30 July 1972 (M. Kozlov leg.), 1 male. **Georgia**, Kintrishi Nature Reserve, 14–15 May 1973 (V. Tobias leg.), 1 male. **Armenia:** Erevan, 16 May 1971 (D. Kasparyan leg.), 8 females, 2 males. **Kazakhstan:** South Kazakhstan, sands of Al'kakula-kum, 1 May 1968 (D. Kasparyan leg.), 1 female, 1 male. **Turkmeni-**

stan: 24 km SW of Ashgabat, 21 Apr. 1980 (Storozheva leg.), 1 female. **Tajikistan**, Pamir Mts., Sarikol Range, 27–30 July 1965 (V. Tobias leg.), 1 female, 6 males. **Mongolia**, 10 km N from Erdenet, 7 October 1975 (V. Sugonyaev leg.), 1 male. **North Korea:** Mt. Pektusan, netting in grasses, 18–20 July 1977 (Dely & Draskovits leg.), 2 males (HNHM). **South Korea:** Mt. Pektusan Jirisan, Hamyang-gun, Macheon-Myon, Samjeong-Li, 700 m, 35°20'55"N, 127°38'21"E, MT, 24 August – 15 September 2003 (collector unknown), 2 female, 3 males; Chungnam, Keumsan, Posoksa, MT, 8–29 September 2002 (collector unknown), 1 female, 1 male; Chungbuk, Yeongdong-gun, Sangchon-Myon,



Figs 57–63. *Pantolyta stylata*. **57**, female, face; **58**, head and mesosoma, dorsal view; **59**, female, antenna; **60**, mesosoma, anterodorsal view; **61**, male, antenna, proximal part; **62**, venation; **63**, male, lateral view. Scale bars: 57–62, 200 μ m; 63, 1 mm.

Mulhan Valley, Gojadong, MT, 4 August – 24 September 2002 (collector unknown), 2 males. **Japan:** Honshu I., *Ibaraki Pref.*, Tsuchiura, forest, 24–31 July, 19 September – 2 October, 2–16 October and 23 October – 18 November 1989 (M. Sharkey leg.), 7 males (NMPC); Mt. Tsukuba, 24 April – 4 May, 16–21 May and 8–15 June 1989 (M. Sharkey), 2 females, 5 males (NMPC); *Aichi Pref.*, Obara, 23–29 July and 6–12 September 1990 (K. Yamagishi), 3 males (NMPC); Toyone, 1300 m, Mt. Chousu, 16 July 1992 (K. Yamagishi), 1 male (NMPC); Shitara, Uradani, 900 m, 23 May – 3 June 1994 (K. Yamagishi), 2 males (NMPC); *Iwate Pref.*, Iwaizumi, Hitsutori, 800 m, 11–17 August 1991 (A. Smetana leg.), 2 males (NMPC); Kyushu I., *Kitakyushu Pref.*, 12–20 May 1984 (V. Sugonjaev leg.), 1 male; *Fukuoka Pref.*, Tachibana, YPT, 24 June and 21 July 1979 (K. Yamagishi leg.), 4 males (NMPC).

Differential diagnosis. Pterygopolymorphic species. In winged morphs, radial cell open (Figs 47, 48). Antennal shelf weakly prominent; head not nasiform. Sculpture of pronotal collar and pronotal shoulders variable. Axillar depression with verruculate tubercle (Fig. 46, arrow). A1 in both sexes with apical flanges (Figs 42–44). Female: antennae slender; A3–A10 elongate to as wide as long but never transverse (Fig. 43). Male: antennae also slender but A1 shorter than half of head width (Figs 44, 49).

Variation. Body length 1.3–1.8 mm; entirely dark brown to yellowish brown. Postmarginal vein absent to very long (Figs 47, 48); basal vein sclerotized to nebulous. Genae in frontal view

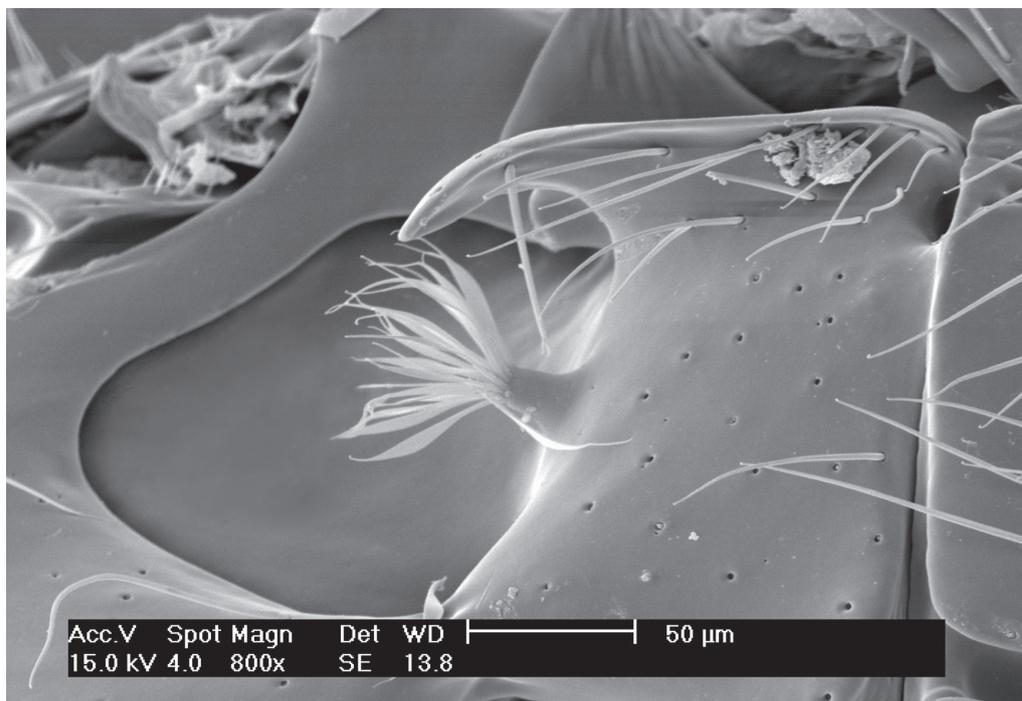


Fig. 64. *Aclista* sp. Axillar depression with verruculate tubercle.

more or less convex. Head in dorsal view as wide as mesosoma to distinctly wider. Dorsal area of propodeum bare to faintly pubescent.

Distribution. England, Germany, Sweden, Czech Republic, Hungary, Poland, *Ukraine, Russia (European part, *Altay, *East Siberia, *Far East), *Georgia, *Armenia, *Kazakhstan, *Turkmenistan, *Tajikistan, *Mongolia, *North Korea, *South Korea, *Japan.

Pantolyta semirufa Kieffer, 1908
(Figs 50–56)

Pantolyta semirufa Kieffer, 1908: 432.

Material examined. **Russia:** Amur Prov., Zeya NP, 8 July 1978 (V. Alekseev leg.), 1 male; Khabarovsk Terr., Udył' Lake, 29–31 August 1970 (D. Kasparyan leg.), 3 males.

Differential diagnosis. Macropterous species with radial cell open (Fig. 56). Antennal shelf distinctly prominent; head nasiform (Fig. 50); temples in dorsal view receding (Fig. 50). Pronotal collar rugose with transverse keel; pronotal shoulders angular; epomia present (Fig. 50). Axillar depression without verruculate tubercle. A1 in both sexes longer than half of head width, without apical flange (Fig. 51); A3 in male slender, with shallow emargination (Fig. 54).

Variation. Stigmal vein 1.5–3.0 times longer than width of marginal vein. Antennal shelf in frontal view between toruli sculptured (Fig. 51) to smooth.

Distribution. Austria, Czech Republic, Poland, Russia (Far East), Canada.

Pantolyta stylata Kieffer, 1908
(Figs 57–63)

Pantolyta stylata Kieffer, 1908: 433.

This species has not been found in the examined material from Russia. Photographs of *P. stylata* were taken from the reference specimens from Czech Republic.

Differential diagnosis. Pterygopolymorphic species. In winged morphs, radial cell open (Fig. 62). Antennal shelf distinctly prominent; head nasiform (Fig. 58). Pronotal collar rugose, with transverse keel; pronotal shoulders angular; epomia present (Figs 58, 60). Axillar depression without verruculate tubercle. Male and female antennae slender (Figs 59, 63); A1 in both sexes longer than half of head width, without apical flanges (Figs 57, 61).

Distribution. England, Germany, Czech Republic, Hungary, Poland.

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