

Review of the eastern Palaearctic species of *Janssoniella* (Hymenoptera: Pteromalidae), with descriptions of four new species

Обзор восточнопалеарктических видов рода *Janssoniella* (Hymenoptera: Pteromalidae) с описанием четырех новых видов

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Abstract. The eastern Palaearctic species of the genus *Janssoniella* Kerrich, 1957 are reviewed. Four new species, *Janssoniella albiclava* Tselikh et Lee, **sp. nov.** and *J. kawabatai* Tselikh, **sp. nov.** (from South Korea and Japan), *J. magna* Tselikh et Lee, **sp. nov.** (from South Korea and the Russian Far East), and *J. rachini* Tselikh, **sp. nov.** (from Japan and the Russian Far East), are described and illustrated. The male of *J. notata* Kamijo, 1960 is described for the first time. *Janssoniella caudata* Kerrich, 1957 is newly recorded from eastern Siberia. An identification key to females of the six eastern Palaearctic species of *Janssoniella* is given.

Резюме. Дан обзор восточнопалеарктических видов рода *Janssoniella* Kerrich, 1957. Описаны и проиллюстрированы 4 новых вида: *Janssoniella albiclava* Tselikh et Lee, **sp. nov.** и *J. kawabatai* Tselikh, **sp. nov.** (из Южной Кореи и Японии), *J. magna* Tselikh et Lee, **sp. nov.** (из Южной Кореи и Дальнего Востока России), *J. rachini* Tselikh, **sp. nov.** (из Японии и Дальнего Востока России). Для *J. notata* Камиджо, 1960 впервые описан самец. Вид *J. caudata* Kerrich, 1957 впервые указан для Восточной Сибири. Подготовлен ключ для определения 6 восточнопалеарктических видов рода *Janssoniella*.

Key words: taxonomy, eastern Palaearctic, diagnostic key, Chalcidoidea, Pteromalidae, *Janssoniella*, new species

Ключевые слова: таксономия, Восточная Палеарктика, определительный ключ, Chalcidoidea, Pteromalidae, *Janssoniella*, новый вид

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Introduction

The small genus *Janssoniella* Kerrich, 1957 (Pteromalidae), based on the type species *Janssoniella caudata* Kerrich, 1957, was described from Sweden (type locality: “Skåne, Ringsjö”).

Kamijo (1960) described the first known eastern Palaearctic species *Janssoniella notata*, from Japan. Tselikh and Lee (Tselikh et al., 2017) also

described *J. albiclava* and *J. magna* from South Korea and the Russian Far East, but these species names were unavailable because the paper in which they were described did not meet the requirements of the Article 8.5 of the Code (ICZN, 1999) as amended in 2012 to include the works that are published only electronically. Therefore, we properly validate these names by describing the new species here and providing the relevant

information (criteria of availability) required by the ICZN.

Currently, *Janssoniella* consists of ten valid species worldwide, including the new species from the eastern Palaearctic Region that are described in this paper. Two previously known species, *J. ambigua* Graham, 1969 and *J. major* Kerrich, 1957, were recorded only from the western Palaearctic Region (Kerrich & Graham, 1957; Graham, 1969); new species, *J. albiclava* sp. nov., *J. kawabatai* sp. nov., *J. magna* sp. nov., *J. notata* Kamijo, 1960, and *J. rachini* sp. nov., have an eastern Palaearctic distribution. Two other species, *J. caudata* Kerrich, 1957 and *J. intermedia* Hedqvist, 1968, are distributed in the Holarctic Region, and *J. iskophila* Heydon, 1997 was recorded only from the Nearctic Region (Heydon, 1997).

Here I prepare a key to the known eastern Palaearctic species of *Janssoniella* based on the examination of all available types, redescribe and illustrate the previously described species for which new distribution records are provided, and describe four new species.

Material and methods

Specimens examined are kept in the Hymenoptera collections of the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZISP), Zoological Museum of the Lund University, Lund, Sweden (LUZN), Entomological Laboratory of the Hokkaido University, Sapporo, Japan (EIHU), and Department of Life Sciences of the Yeungnam University, Gyeongsan, South Korea (YNU).

Specimens were examined using an Olympus SZX12, Nikon SMZ745T and Zeiss SteREO Discovery V20 stereomicroscopes. Photographs were taken with a Canon EOS 70D digital camera mounted on an Olympus SZX10 microscope at ZISP, Digital Sight PS-Fi2 camera mounted on a Nikon SMZ745T microscope at EIHU, and Axio Cam MRc5 camera mounted on a Zeiss SteREO Discovery V20 microscope at YNU.

Morphological terminology, including that of sculpture and wing venation, follows Bouček & Rasplus (1991) and Gibson (1997). The following abbreviations are used: POL – posterior ocellar line, the minimum distance between the posterior

ocelli; OOL – ocello-ocular line, the minimum distance between a posterior ocellus and compound eye; F1–F6 – funicular segments; Mt1–Mt8 – metasomal tergites (Mt1 – petiole). The scape is measured without radicle; the pedicel is measured in the lateral view. The distance between the clypeal margin and toruli is measured from the lower margins of the toruli. The mesosoma and metasoma are measured in lateral view, the latter including the exerted part of ovipositor sheath.

Taxonomic part

Order **Hymenoptera**

Family **Pteromalidae**

Subfamily **Pteromalinae**

Genus ***Janssoniella*** Kerrich, 1957

Type species: *Janssoniella caudata* Kerrich, 1957, by original designation.

Characteristics of the genus. Occiput without carina. Anterior margin of clypeus broadly truncate or slightly arched. Tentorial pits deep. Mandibular formula 3:4. Antennal formula 11263, all anelli transverse, F1–F6 longer than broad, F1 with two–five rows of dense sensilla, clava without terminal and subterminal patch of micropilosity. Pronotum without carina, in dorsal view less than 0.5 times longer than broad; notauli complete; prepectus flat and uniformly reticulate; frenal line not close to hind margin of scutellum. Propodeum with median carina; nucha reduced. Fore wing mainly hyaline, with brownish tint or with fuscous cloud below stigma. Metasoma lanceolate, longer than combined length of head and mesosoma; petiole (Mt1) transverse.

Remarks. The differences between *Janssoniella* and the similar genus *Gastracanthus* Westwood, 1833 are given in the keys of Bouček & Rasplus (1991) and Heydon (1997).

Janssoniella albiclava Tselikh et Lee, sp. nov.
(Figs 1–9)

Janssoniella albiclava Tselikh and Lee in Tselikh et al., 2017: 15 (unavailable name).

Holotype. Female, **South Korea**, “Yeongyang-gun, Irwol-myeon, Mt. Irwol, 36°48'29"N, 129°05'25"E, 15.VII.–5.IX.2014, coll. Han” (YNU).

Paratypes. 1 female, **Japan**, “Kyushu, 13.IX.1958, coll. K. Kamijo”, “0000094537 Sys. Ent. Hokkaido Univ. Japan” (EIHU); 1 male, “Kyushu, 13.IX.1958, coll. K. Kamijo”, “0000094539 Sys. Ent. Hokkaido Univ. Japan” (EIHU); 1 female, “Honshu, Nachisan, 20.IX.1965, coll. H. Takada”, “0000094540 Sys. Ent. Hokkaido Univ. Japan” (ZISP).

Description. Female. Body length 5.40–7.50 mm; fore wing length 3.90–5.60 mm.

Head dark metallic blue-green with diffuse coppery lustre. Antenna with scape and clava yellow, pedicel dark brown, flagellum black. Mesosoma dark metallic green with diffuse coppery and violaceous lustre. All coxae basally metallic green, apically yellowish-brown, femora, tibiae and tarsi yellow, last segment of tarsus yellowish-brown. Fore wing with brownish tint, venation yellowish-brown. Metasoma with Mt2 basally metallic green, apically yellowish-brown, Mt3 yellowish-brown, other tergites dark brown; ovipositor sheath black.

Sculpture of head dorsally weakly reticulate, clypeus smooth and shining, malar space alutaceous. Pronotum alutaceous; mesoscutum reticulate; axilla and scutellum finely reticulate; frenal area irregularly reticulate; lateral areas of propodeum alutaceous, but part near median carina smooth. Metasoma smooth and shining.

Head in dorsal view 2.20–2.30 times as broad as long and 1.20–1.33 times as broad as mesoscutum; in front view 1.36–1.40 times broader than high. POL 1.20–1.30 times OOL. Eye height 1.30 times eye length and 3.25–3.47 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.67–0.82 times distance between antennal toruli and median ocellus. Antenna with scape 0.60–0.70 times as long as eye height and 0.75–0.90 times as long as eye length; pedicel 1.40–1.43 times as long as broad and 0.34–0.38 times as long as F1; combined length of pedicel and flagellum 1.70–1.85 times breadth of head; flagellum almost filiform; all anelli transverse; F1 3.25–3.60 times as long as broad, with four rows of dense sensilla; F2–F6 longer than broad.

Mesosoma 1.94–2.03 times as long as broad. Scutellum 1.13–1.20 times as long as broad. Propodeum medially 0.25–0.30 times as long as scutellum, median carina complete and straight, nucha absent.

Fore wing 2.90–3.30 times as long as maximum width; basal cell entirely pilose; speculum closed; costal cell with two complete rows of setae; marginal vein 0.70–0.78 times as long as postmarginal vein and 2.10–2.25 times as long as stigmal vein.

Metasoma lanceolate, 2.10–2.30 times as long as mesosoma and 1.60–1.80 times as long as mesosoma and head; Mt8 2.60–3.60 times longer than maximum width; ovipositor sheath 0.50–0.57 times length of Mt8.

Male. Body length 2.55 mm; fore wing length 2.30 mm. Antenna with scape yellowish-brown, pedicel and flagellum dark brown. Fore coxa metallic green with diffuse coppery lustre, mid and hind coxae brown with diffuse violaceous lustre. Metasoma with Mt2–Mt8 brown.

Sculpture of head dorsally, mesoscutum, scutellum and axilla reticulate. Lateral areas of propodeum finely reticulate.

Head in dorsal view 1.4 times as broad as mesoscutum. Eye height 1.25 times eye length and 4.00 times as long as malar space. Antenna with scape 0.55 times as long as eye height and 0.68 times as long as eye length; pedicel 1.16 times as long as broad and 0.41 times as long as F1; F1 1.08 times as long as broad. Propodeum medially 0.44 times as long as scutellum. Marginal vein of fore wing about 0.86 times as long as postmarginal vein and 2.38 times as long as stigmal vein. Metasoma about as long as mesosoma and 0.73 times as long as mesosoma and head.

Otherwise similar to female.

Comparative diagnosis. This species is similar to *J. magna* and *J. rachini* in having the fore wing with brownish tint and without fuscous cloud below stigma, propodeum medially 0.20–0.30 times as long as scutellum, metasoma with Mt8 2.60–5.60 times longer than maximum width. However, *J. albiclava* has the antennal clava yellow (*vs* darker, dark brown or black), basal cell of fore wing entirely pilose (*vs* pilose apically), sculpture of frenal area irregularly reticulate, lateral areas of propodeum alutaceous, part near median carina smooth (*vs* finely reticulate), Mt2 basally metallic green, apically yellowish-brown, Mt3 yellowish-brown (*vs* dark metallic green).

Etymology. The name is derived from the Latin “albus”, meaning “light coloured”, and “clava”,

meaning “club”, referring to the distinctive light coloured antennal clava.

Distribution. South Korea, Japan.

Biology. Unknown.

***Janssoniella caudata* Kerrich, 1957**
(Figs 10–16)

Janssoniella caudata Kerrich in Kerrich & Graham, 1957: 304–305, 306; holotype, female (LUZN, examined).

Type material examined. Holotype. Female, Sweden, “SWEDEN, Skåne, Ringsjö, female, coll. C.G. Thomson” (LUZN).

Additional material examined. Russia, Irkutsk Prov., Listvyanka Vill., Great Baikal Trail, 51°51'37"N, 104°56'24"E, 25–26.VII.2019, coll. E. Tselikh, 2 females; *Sakhalin Prov.,* Yuzhno-Sakhalinsk Town, 30.VI.1983, coll. V. Kostyukov, 1 female; Kunashir Island, Alekhino Vill., 13–14.V.1973, coll. I. Kerzhner, 1 female (all in ZISP).

Distribution. United Kingdom, Sweden, Germany, Czech Republic, Russia, Canada, USA.

Biology. Primary parasitoid of *Ceracis thoracicornis* (Ziegler, 1845) and *Cis* sp. (Coleoptera: Cidae) and possibly secondary parasitoid of *Eubazus (Aliolus) tomoxiae* (Rohwer, 1915) (Hymenoptera: Braconidae) (Heydon, 1997).

Comparative diagnosis. This species is similar to *J. kawabatai* in having the fore wing hyaline and body length 2.10–4.60 mm. However, *J. caudata* has the basal cell of fore wing bare or with three setae (*vs* pilose apically), costal cell with one complete row of setae (*vs* two complete rows), F1 with two rows of dense sensilla (*vs* three rows), head in dorsal view distinctly emarginate (*vs* shallowly emarginate).

Remarks. The characters of the eastern Palaearctic specimens of this species fully match those of the European (Kerrich & Graham, 1957) and North American specimens (Heydon, 1997).

***Janssoniella kawabatai* Tselikh, sp. nov.**
(Figs 17–24)

Holotype. Female, South Korea, “Danyanggun Cheondongri, Mt. Sobaek bakbusa (M. T.), 1.X.–14.XI.2005” (collector unknown) (ZISP).

Paratype. 1 female, Japan, “Japan, Yuwan, Amami-oshima, 1.V.1959, coll. K. Kamijo, female”, “0000094535 Sys. Ent Hokkaido Univ. Japan” (EIHU).

Description. Female. Body length 4.50–4.60 mm; fore wing length 3.00–3.10 mm.

Head dark metallic green with diffuse coppery lustre. Antenna with scape and pedicel yellowish-brown, flagellum and clava brown. Mesosoma metallic blue-green with diffuse coppery lustre. Fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown, femur, tibia and tarsus yellow, last segment of tarsus yellowish-brown. Fore wing hyaline, venation yellowish-brown. Metasoma with Mt2 metallic green, Mt3–Mt8 brown with diffuse coppery or violaceous lustre; ovipositor sheath black.

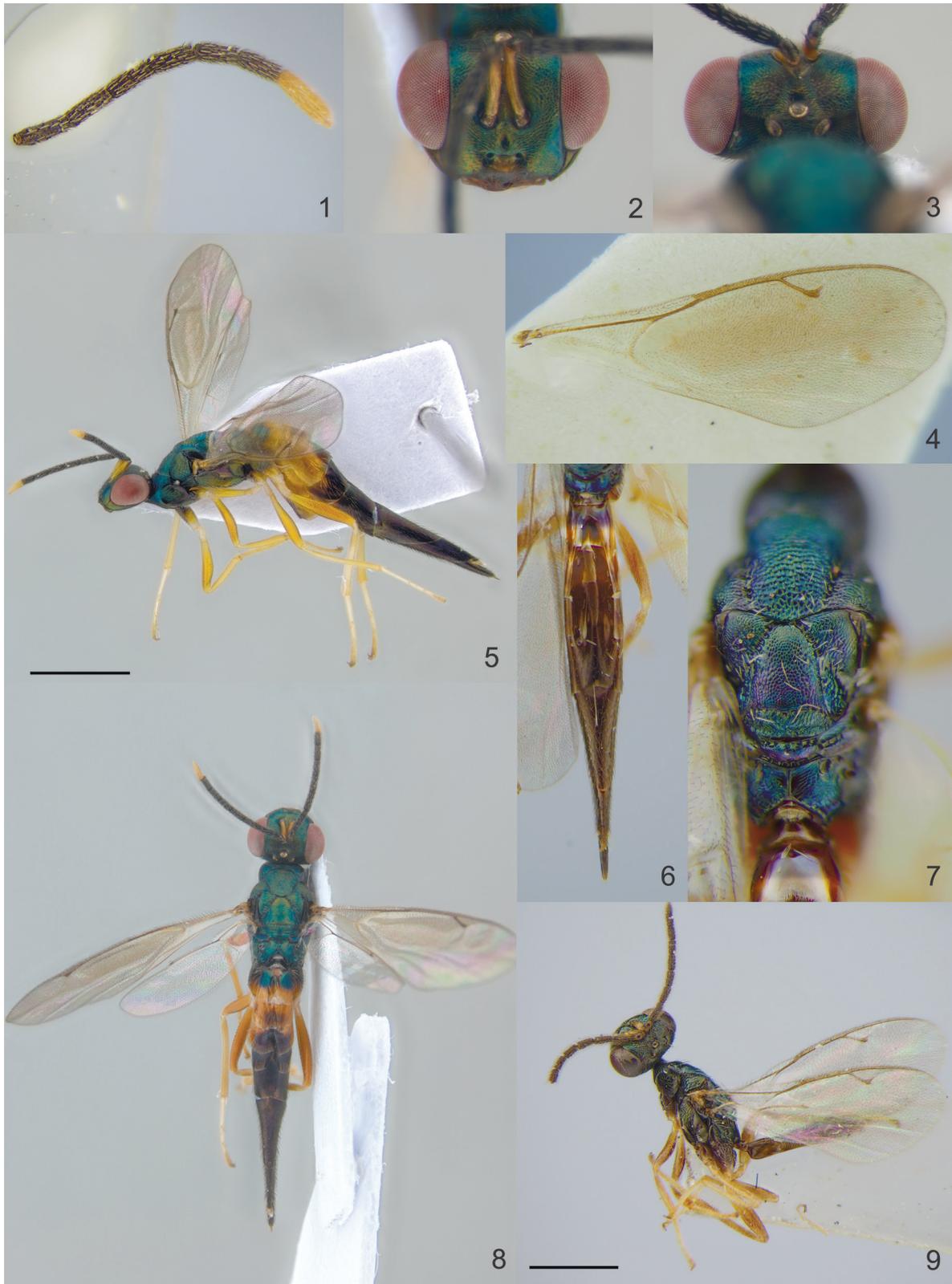
Sculpture of head dorsally reticulate, clypeus smooth and shining, malar space weakly reticulate. Pronotum, mesoscutum and frenal area reticulate, axilla and scutellum finely reticulate, lateral areas of propodeum weakly reticulate. Metasoma weakly alutaceous or smooth and shining.

Head in dorsal view 2.25–2.40 times as broad as long and 1.33–1.38 times as broad as mesoscutum; in frontal view 1.30 times broader than high. POL 1.10–1.22 times OOL. Eye height 1.27–1.30 times eye length and 2.85–3.10 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.72 times distance between antennal toruli and median ocellus. Antenna with scape 0.63–0.70 times as long as eye height and 0.91 times as long as eye length; pedicel 1.45–1.59 times as long as broad and 0.40 times as long as F1; combined length of pedicel and flagellum 1.70–1.80 times breadth of head; flagellum almost filiform; all anelli transverse; F1 2.83–2.85 times as long as broad, with three rows of dense sensilla; F2–F6 longer than broad.

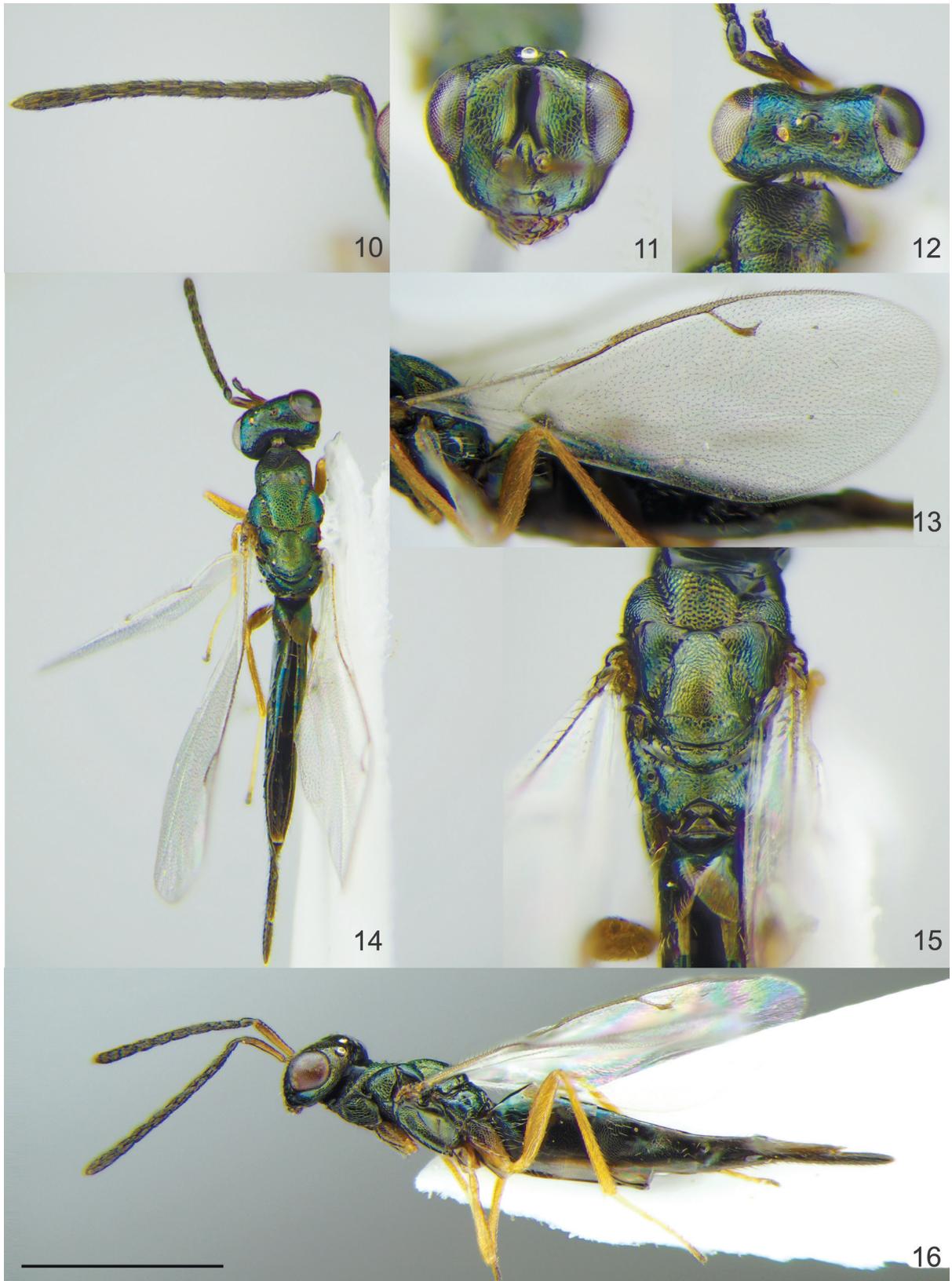
Mesosoma 2.0 times as long as broad. Scutellum 1.20–1.26 times as long as broad. Propodeum medially 0.33–0.35 times as long as scutellum; median carina complete and straight; nucha absent.

Fore wing 2.63–2.75 times as long as maximum width; basal cell pilose apically; speculum closed; costal cell with two complete rows of setae; marginal vein 0.78–0.86 times as long as postmarginal vein and 2.26–2.50 times as long as stigmal vein.

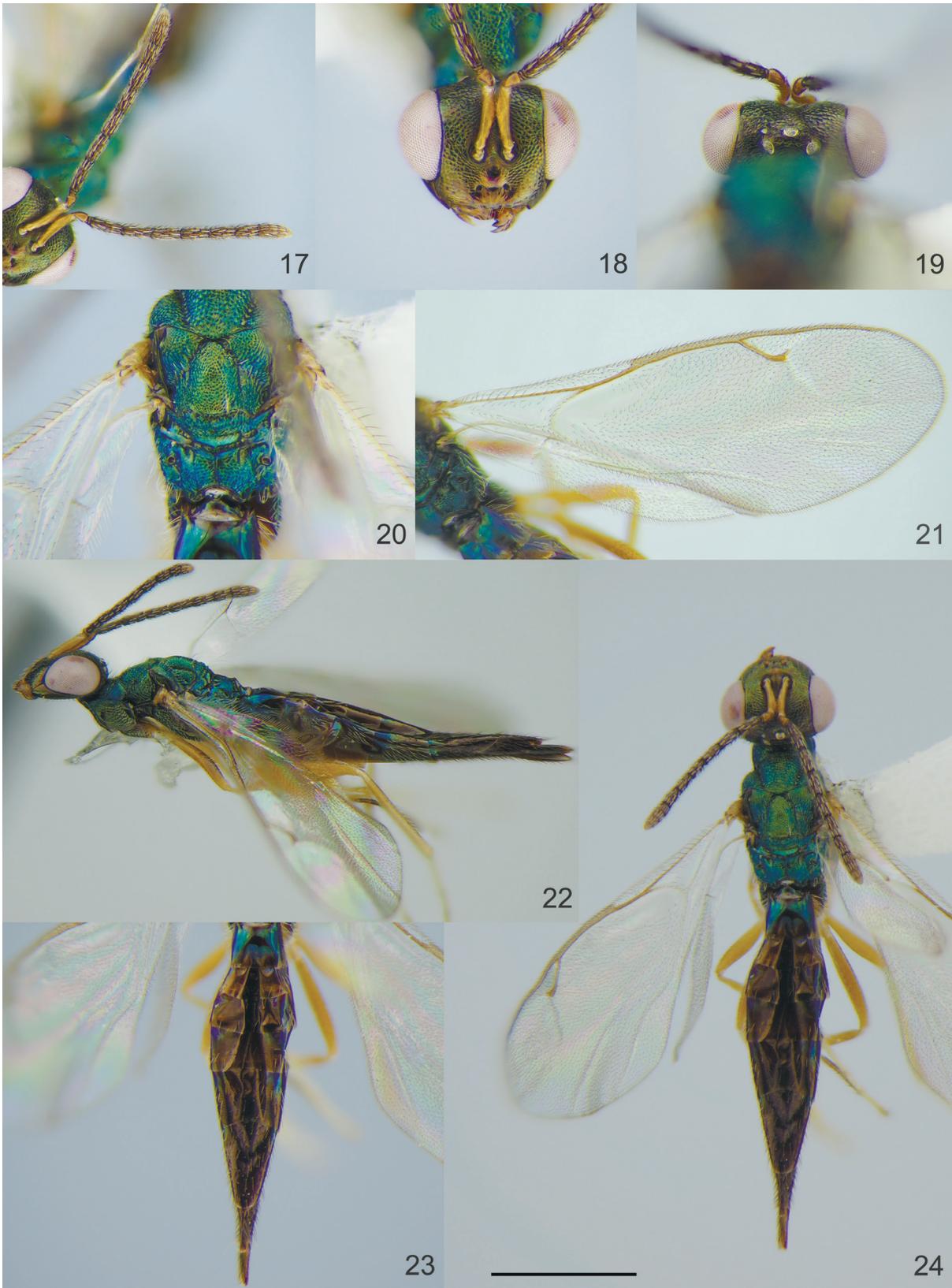
Metasoma lanceolate, 2.20–2.26 times as long as mesosoma and 1.50–1.57 times as long as mesosoma and head; Mt8 2.0–3.0 times longer than its maximum width; ovipositor sheath 0.55–0.70 times length of Mt8.



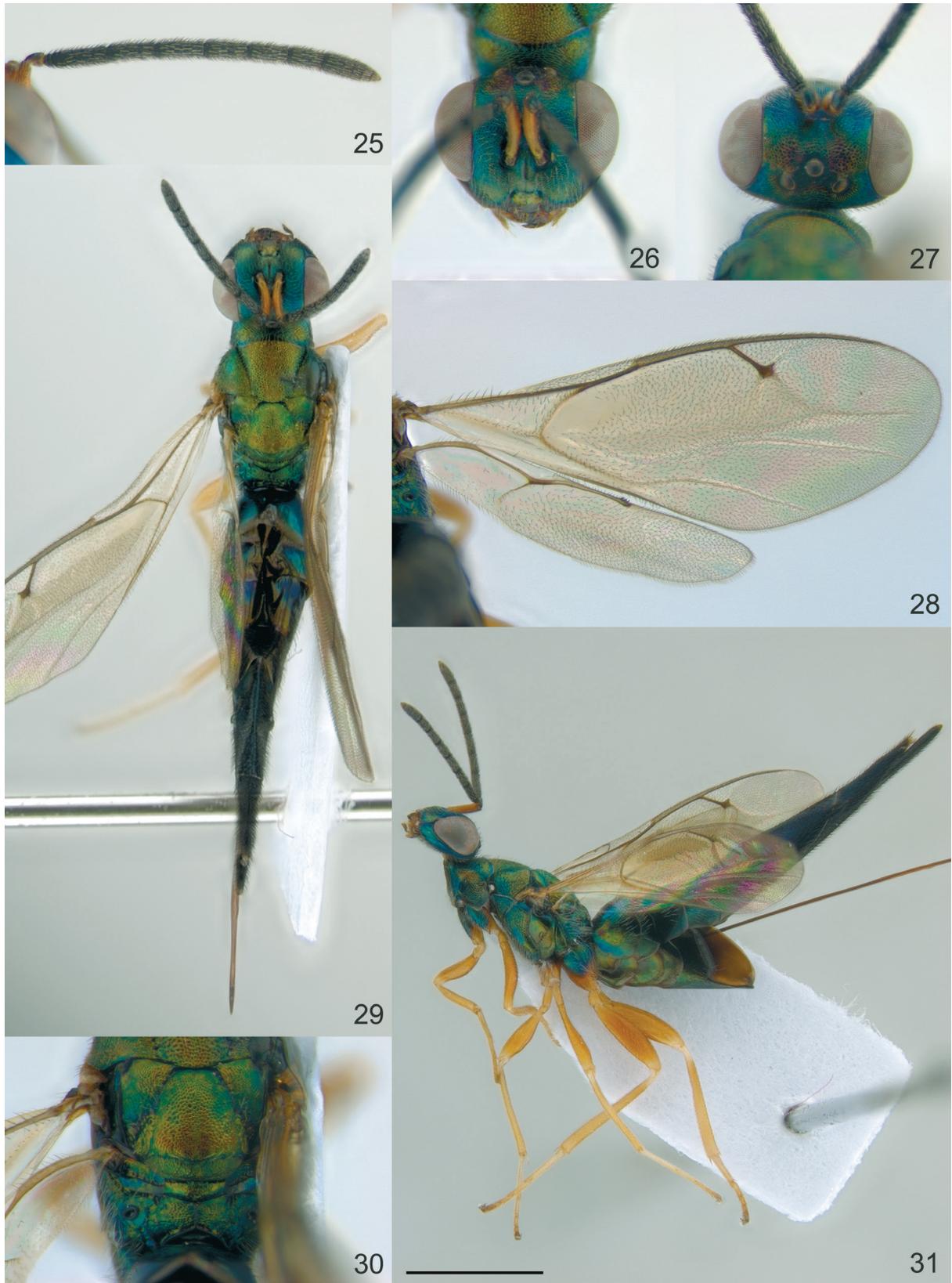
Figs 1–9. *Janssoniella albiclava* Tselikh et Lee, **sp. nov.** 1–3, 5, 8, holotype, female; 4, 6, 7, paratype, female; 9, paratype, male. 1, antenna; 2, head, frontal view; 3, head, dorsal view; 4, fore wing; 5, 9, habitus, lateral view; 6, metasoma, dorsal view; 7, scutellum and propodeum, dorsal view; 8, habitus, dorsal view. Scale bars: 1.9 mm (5); 0.85 mm (9).



Figs 10–16. *Janssoniella caudata* Kerrich, 1957, female. **10**, antenna; **11**, head, frontal view; **12**, head, dorsal view; **13**, fore wing; **14**, habitus, dorsal view; **15**, scutellum and propodeum, dorsal view; **16**, habitus lateral view. Scale bar: 1.9 mm (16).



Figs 17–24. *Janssoniella kawabatai* Tselikh, **sp. nov.**, holotype, female. **17**, antenna; **18**, head, frontal view; **19**, head, dorsal view; **20**, scutellum and propodeum, dorsal view; **21**, fore wing; **22**, habitus, lateral view; **23**, metasoma, dorsal view; **24**, habitus, dorsal view. Scale bar: 1.1 mm (24).



Figs 25–31. *Janssoniella magna* Tselikh et Lee, **sp. nov.**, holotype, female. **25**, antenna; **26**, head, frontal view; **27**, head, dorsal view; **28**, fore wing; **29**, habitus, dorsal view; **30**, scutellum and propodeum, dorsal view; **31**, habitus, lateral view. Scale bar: 1.9 mm (31).

Male. Unknown.

Comparative diagnosis. This species is similar to *J. caudata* in having the fore wing hyaline and body length 2.10–4.60 mm. However, *J. kawabatai* has the basal cell of fore wing pilose apically (*vs* bare or with three setae), costal cell with two complete rows of setae (*vs* one complete row), F1 with three rows of dense sensilla (*vs* two rows), head in dorsal view shallowly emarginate (*vs* distinctly emarginate). *Janssoniella kawabatai* is also similar to Holarctic *J. intermedia* in having the fore wing hyaline, costal cell with two complete rows of setae, F1 with three rows of dense sensilla, and the head in dorsal view shallowly emarginate. However, *J. kawabatai* has the basal cell pilose apically (*vs* bare), marginal vein 2.26–2.50 times as long as stigmal vein (*vs* 1.80–2.0 times), fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown (*vs* all coxae with orange tint).

Etymology. The species is named in honour of the famous Japanese writer, Yasunari Kawabata.

Distribution. South Korea, Japan.

Biology. Unknown.

***Janssoniella magna* Tselikh et Lee, sp. nov.**
(Figs 25–31)

Janssoniella magna Tselikh and Lee in Tselikh et al., 2017: 15–17 (unavailable name).

Holotype. Female, **South Korea**, “Pocheon-si, Soheur-eup, Jikdong-ri 51-7, Korea National Arboretum, 37°45′01″N, 127°08′34″E, 29.VIII.–14.X.2013, coll. I. Kim” (YNU).

Paratype. Female, **Russia**, *Primorskiy Terr.*, Ekaterinovka Vill., 24.VIII.2001, coll. S. Belokobylskij (ZISP).

Description. Female. Body length 7.50–8.40 mm; fore wing length 4.70–5.30 mm.

Head and mesosoma dark metallic blue-green with diffuse coppery lustre. Antenna with scape metallic green in upper part and yellowish-brown in lower part, pedicel brown, flagellum and clava black. Fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown, femur, tibia, and tarsus yellow, last segment of tarsus yellowish-brown. Fore wing with brownish tint, venation brown. Metasoma dark metallic blue-green with diffuse coppery lustre; ovipositor sheath black.

Sculpture of head dorsally reticulate, clypeus weakly alutaceous and shining, malar space finely reticulate. Pronotum alutaceous and finely reticulate in lateral parts, mesoscutum, axilla, scutellum, frenal area and lateral areas of propodeum finely reticulate. Metasoma weakly alutaceous or smooth and shining.

Head in dorsal view 2.05–2.10 times as broad as long and 1.02–1.06 times as broad as mesoscutum; in frontal view 1.20–1.30 times broader than high. POL 1.35–1.55 times OOL. Eye height 1.35–1.40 times eye length and 3.0–3.1 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.60–0.73 times distance between antennal toruli and median ocellus. Antenna with scape 0.66–0.70 times as long as eye height and 0.90 times as long as eye length; pedicel 1.45–1.55 times as long as broad and 0.36–0.4 times as long as F1; combined length of pedicel and flagellum 1.80–1.85 times breadth of head; flagellum almost filiform; all anelli transverse; F1 3.55–3.66 times as long as broad, with four–five rows of dense sensilla; F2–F6 longer than broad.

Mesosoma 1.65–1.80 times as long as broad. Scutellum 1.10–1.25 times as long as broad. Propodeum medially 0.25 times as long as scutellum; median carina complete and straight, nucha absent.

Fore wing 2.80–3.10 times as long as maximum width; basal cell pilose apically; speculum closed; costal cell with three complete rows of setae; marginal vein 0.60–0.70 times as long as postmarginal vein and 1.86–2.00 times as long as stigmal vein.

Metasoma lanceolate, 2.70–2.80 times as long as mesosoma and 1.80–2.00 times as long as mesosoma and head; Mt8 4.6–5.6 times longer than maximum width; ovipositor sheath 0.30–0.43 times length of Mt8.

Male. Unknown.

Comparative diagnosis. This species is similar to *J. rachini* in having the antennal clava darker, dark brown or black, basal cell pilose apically, sculpture of frenal area and lateral areas of propodeum finely reticulate, Mt2 and Mt3 dark metallic green. However, *J. magna* has the eye height 3.00–3.10 times as long as malar space (*vs* 2.13–2.25 times), antennal scape entirely yellowish-brown (*vs* yellowish-brown basally and metallic green apically),

F1 3.55–3.66 times as long as broad (*vs* 2.35–2.65 times), metasoma 2.70–2.80 times longer than mesosoma (*vs* 2.15–2.25 times), Mt8 4.60–5.60 times longer than maximum width (*vs* 2.60–3.80 times), fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown (*vs* all coxae metallic green).

Etymology. The name is derived from the Latin “magnus”, meaning “great”, referring to the large size of this species.

Distribution. South Korea, Russia (Far East).

Biology. Unknown.

***Janssoniella notata* Kamijo, 1960**
(Figs 32–39)

Janssoniella notata Kamijo, 1960: 101; holotype, female (EIHU, examined).

Material examined. Holotype. Female, **Japan**, “Sapporo, Hokkaido, 30.V.1956, coll. K. Kamijo” (EIHU).

Paratype. 1 female, **Japan**, “Sapporo, Hokkaido, 7.VII.1952, coll. T. Tomioka” (EIHU).

Additional material examined. Japan, “Hokkaido, Sapporo, 21.V.1967, coll. K. Kusig.[emati] male”, “0000094541 Sys. Ent. Hokkaido Univ. Japan”, “*Janssoniella notata*, male, det. K. Kamijo 1987”, 1 male; “Japan, Hokkaido, Maruyama, Sapporo, 18.VII.1993, coll. E. Ikeda female”, “0000094532 Sys. Ent. Hokkaido Univ. Japan”, 1 female (all in EIHU).

Description. Female. Body length 4.60–6.20 mm; fore wing length 3.10–3.60 mm.

Head and mesosoma dark metallic green-blue with diffuse coppery lustre. Antenna with scape yellowish-brown, pedicel brown, flagellum and clava dark brown or black. All coxae metallic green; femur brown, tibia and tarsus yellow, last segment of tarsus yellowish-brown. Fore wing with light brownish tint and with fuscous cloud below stigma, venation yellowish-brown. Metasoma with Mt2 metallic green, Mt3–Mt8 brown with diffuse coppery and violaceous lustre; ovipositor sheath black.

Sculpture of head dorsally reticulate, clypeus weakly alutaceous, malar space weakly reticulate. Pronotum, mesoscutum and axilla reticulate, scutellum, frenal area and lateral areas of propodeum finely reticulate. Metasoma weakly alutaceous or smooth and shining.

Head in dorsal view 1.85–2.00 times as broad as long and 1.12–1.20 times as broad as mesoscu-

tum; in frontal view 1.20–1.26 times broader than high. POL 1.45–1.52 times OOL. Eye height 1.30–1.35 times eye length and 2.30–2.50 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.58–0.70 times distance between antennal toruli and median ocellus. Antenna with scape 0.60–0.70 times as long as eye height and 0.90–1.00 times as long as eye length; pedicel 1.50–1.70 times as long as broad and 0.42–0.50 times as long as F1; combined length of pedicel and flagellum 1.60–1.77 times breadth of head; flagellum almost filiform; all anelli transverse; F1 2.60–3.00 times as long as broad, with three–four rows of dense sensilla; F2–F6 longer than broad.

Mesosoma 1.76–2.00 times as long as broad. Scutellum 1.20–1.30 times as long as broad. Propodeum medially about 0.38–0.40 times as long as scutellum; median carina complete and straight; nucha absent.

Fore wing 2.53–2.60 times as long as maximum width; basal cell pilose apically; speculum closed; costal cell with two complete rows setae; marginal vein 0.80–0.85 times as long as postmarginal vein and 1.70–1.88 times as long as stigmal vein.

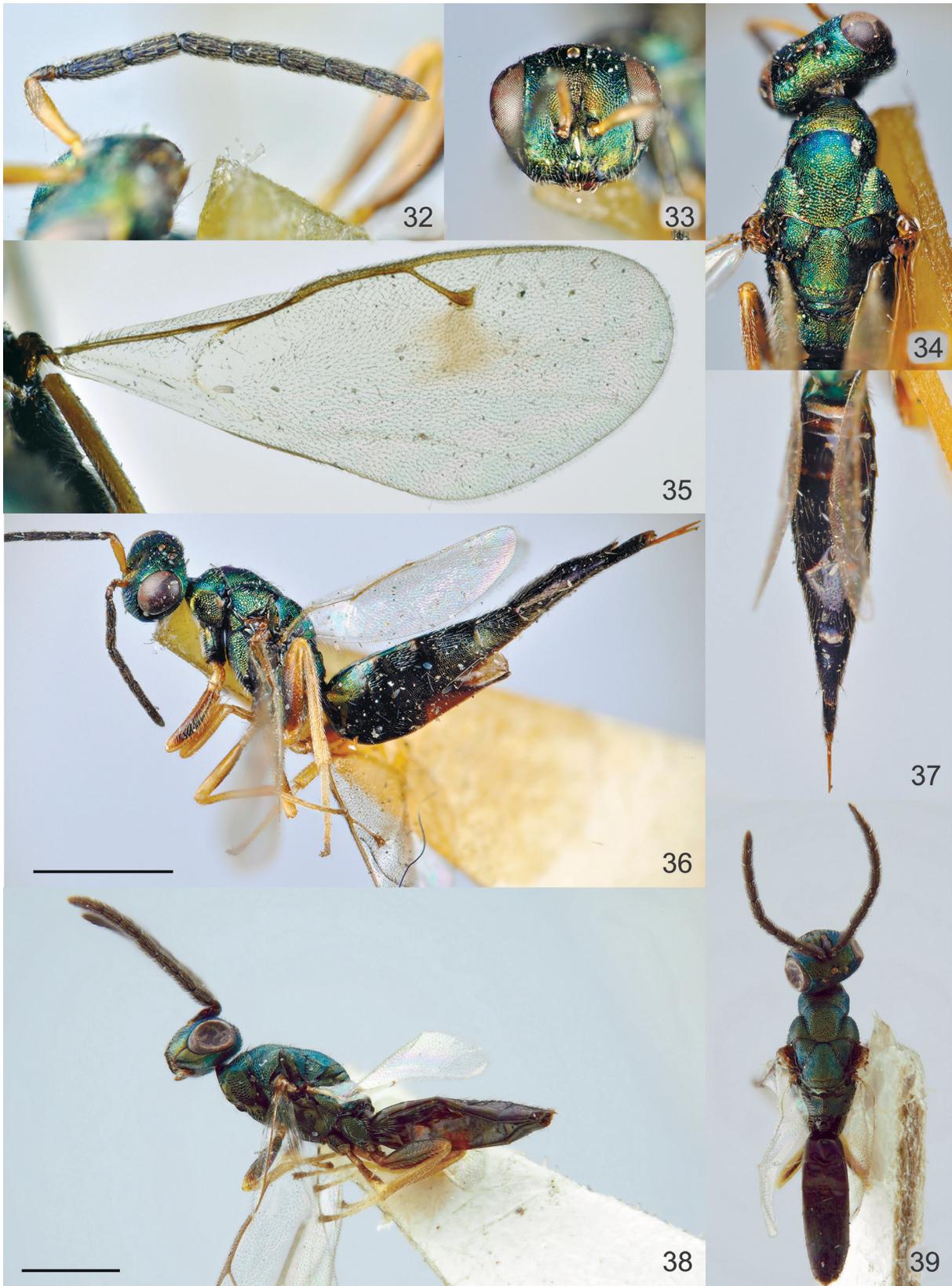
Metasoma lanceolate, 2.10–2.15 times as long as mesosoma and 1.60–1.66 times as long as mesosoma and head; Mt8 1.76–1.85 times longer than maximum width; ovipositor sheath 0.43–0.63 times length of Mt8.

Male. Body length 3.40 mm; fore wing length 2.40 mm.

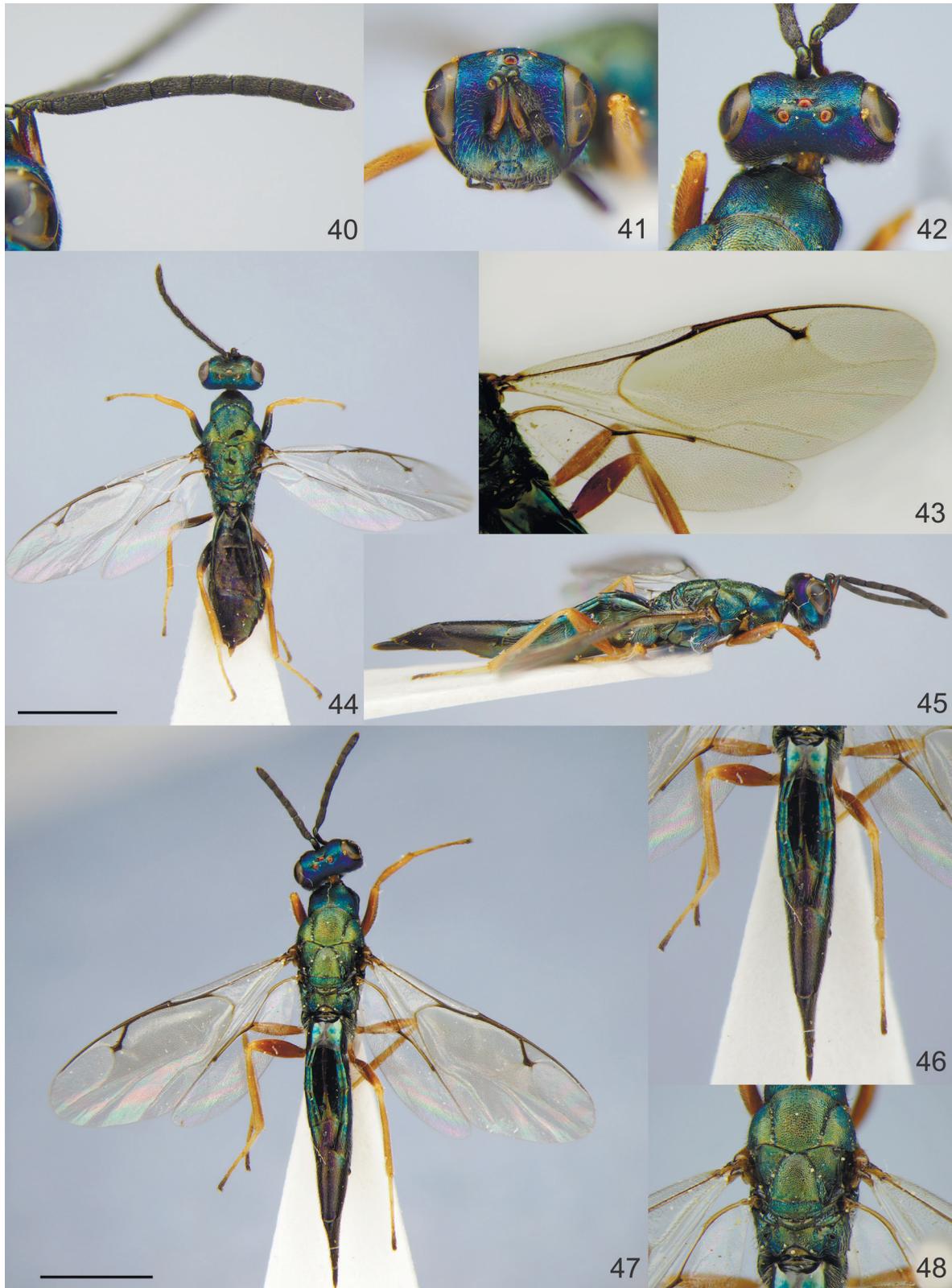
Head, mesosoma and metasoma dark metallic green with diffuse coppery lustre. Antenna with scape and pedicel dark metallic green, flagellum and clava dark brown. All femora metallic-green. Fore wing with light brownish tint and without fuscous cloud below stigma, venation yellowish-brown.

Sculpture of clypeus weakly alutaceous and shining, malar space alutaceous. Pronotum, mesoscutum and lateral areas of propodeum reticulate, scutellum and axilla finely reticulate.

POL 1.62 times OOL. Distance between antennal toruli and lower margin of clypeus 0.80 times distance between antennal toruli and median ocellus. Antenna with scape 0.67 times as long as eye height and 0.87 times as long as eye length; pedicel 1.30 times as long as broad; combined



Figs 32–39. *Janssoniella notata* Kamijo, 1960. **32–37**, female, paratype; **38, 39**, male. **32**, antenna; **33**, head, frontal view; **34**, head and mesosoma, dorsal view; **35**, fore wing; **36**, habitus, lateral view; **37**, metasoma, dorsal view; **38**, habitus, lateral view; **39**, habitus, dorsal view. Scale bars: 1.4 mm (36); 0.85 mm (38).



Figs 40–48. *Janssoniella rachini* Tselikh, **sp. nov.** 40–43, 45–48, holotype, female; 44, paratype, male. 40, antenna; 41, head, frontal view; 42, head, dorsal view; 43, fore wing; 44, habitus, dorsal view; 45, habitus, lateral view; 46, metasoma, dorsal view; 47, habitus, dorsal view; 48, scutellum and propodeum, dorsal view. Scale bars: 1.65 mm (44); 2.3 mm (47).

length of pedicel and flagellum 2.13 times breadth of head. Fore wing 2.40 times as long as maximum width. Metasoma 1.23 times as long as mesosoma and 0.92 times as long as mesosoma and head.

Otherwise similar to female.

Comparative diagnosis. *Janssoniella notata* along with those of known eastern Palaearctic congeneric species (*J. albiclava*, *J. magna* and *J. rachini*) has a largest body size and the fore wing with a brownish tint. However, *J. notata* has the fore wing with light brownish tint and with fuscous cloud below stigma (*vs* brownish tint and without fuscous cloud below stigma), propodeum medially 0.38–0.40 times as long as scutellum (*vs* 0.20–0.30 times), metasoma with Mt8 1.76–1.85 times longer than maximum width (*vs* 2.60–5.60).

Distribution. Japan.

Biology. Unknown.

Janssoniella rachini Tselikh, sp. nov.

(Figs 40–48)

Holotype. Female, **Japan**, “*Ehime Pref.*, Odamiyama Keikoku (800 m alt.), 27.V.1994, coll. E. Yamamoto, female”, “0000094534 Sys. Ent. Hokkaido Univ. Japan” (EIHU).

Paratype. 1 female, **Russia**, *Sakhalin Prov.*, Sokol Vill., 7–9.VII.2011, coll. D. Rachin (ZISP); 1 female, **Japan**, “*Chiba Pref.*, Ichinomiya-Machi, 18.IV.2004, coll. K. Kubo, female”, “0000094533 Sys. Ent. Hokkaido Univ. Japan” (EIHU), “*Janssoniella* sp. Kamijo”; 1 male, “Japan, *Kanagawa Pref.*, Yokohama, 14.IV.2001, coll. K. Kubo, male”, “0000094536 Sys. Ent. Hokkaido Univ. Japan”, “*Janssoniella* sp. Kamijo” (EIHU).

Description. Female. Body length 6.30–9.20 mm; fore wing length 4.10–5.60 mm.

Head dark metallic blue-green with diffuse violaceous lustre. Antenna with scape yellowish-brown basally and metallic green apically, pedicel metallic green, flagellum and clava dark brown or black. mesosoma dark metallic green with diffuse coppery lustre. All coxae metallic green, femora yellowish-brown, tibiae and tarsi yellow, last segment of tarsus yellowish-brown. Fore wing with brownish tint, venation brown. Metasoma with Mt2–Mt6 dark metallic green with diffuse coppery lustre, Mt7–Mt8 brown with diffuse coppery or violaceous lustre; ovipositor sheath black.

Sculpture of head dorsally and malar space finely reticulate, clypeus weakly alutaceous and

shining. Pronotum alutaceous and finely reticulate in lateral parts; mesoscutum, axilla, scutellum, frenal area and lateral areas of propodeum finely reticulate. Metasoma weakly alutaceous or smooth and shining.

Head in dorsal view 1.80–1.90 times as broad as long and 1.05–1.10 times as broad as mesoscutum; in frontal view 1.17–1.29 times broader than high. POL 1.10–1.30 times OOL. Eye height 1.40–1.43 times eye length and 2.13–2.25 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.75–0.86 times distance between antennal toruli and median ocellus. Antenna with scape 0.65–0.70 times as long as eye height and as long as eye length; pedicel 1.35–1.60 times as long as broad and 0.33 times as long as F1; combined length of pedicel and flagellum 1.60–1.70 times breadth of head; flagellum almost filiform; all anelli transverse; F1 2.35–2.65 times as long as broad, with four–five rows of dense sensilla; F2–F6 longer than broad.

Mesosoma 1.87–2.00 times as long as broad. Scutellum 1.2–1.23 times as long as broad. Propodeum medially 0.20–0.27 times as long as scutellum; median carina complete and straight; nucha absent.

Fore wing 2.80–2.85 times as long as maximum width; basal cell pilose apically; speculum closed; costal cell with three–four complete rows of setae; marginal vein 0.63–0.67 times as long as postmarginal vein and 1.66–1.78 times as long as stigmal vein.

Metasoma lanceolate, 2.15–2.25 times as long as mesosoma and 1.70–1.80 times as long as mesosoma and head; Mt8 2.60–3.80 times longer than maximum width; ovipositor sheath 0.4 times length of Mt8.

Male. Body length 5.00 mm; fore wing length 4.00 mm.

Antenna with scape and pedicel metallic green. Fore femur metallic green, mid and hind femur brown. Metasoma with Mt2 dark metallic green, Mt3–Mt8 brown with diffuse coppery and violaceous lustre.

Eye height 2.83 times as long as malar space. Pedicel 1.20 times as long as broad and 0.30 times as long as F1; combined length of pedicel and flagellum 1.94 times breadth of head. Propodeum medially 0.35 times as long as scutellum. Fore

wing 2.50 times as long as maximum width; basal cell pilose. Metasoma lanceolate, 1.20 times as long as mesosoma and 0.89 times as long as mesosoma and head.

Otherwise similar to female.

Comparative diagnosis. This species is similar to *J. magna* in having the antennal clava darker, dark brown or black, basal cell pilose apically, sculpture of frenal area and lateral areas of propodeum finely reticulate, Mt2 and Mt3 dark metallic green. However, *J. rachini* has the eye height 2.13–2.25 times as long as malar space (*vs* 3.00–3.10 times), antennal scape yellowish-brown basally and metallic green apically (*vs* entirely yellowish-brown), F1 2.35–2.65 times as long as broad (*vs* 3.55–3.66 times), metasoma 2.15–2.25 times as long as mesosoma (*vs* 2.70–2.80 times), Mt8 2.60–3.80 times longer than maximum width (*vs* 4.60–5.60 times), all coxae metallic green (*vs* fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown). *Janssoniella rachini* is also similar to the European *J. ambigua* in having the combined length of pedicel and flagellum about 1.60 times breadth of head, and a short propodeum which is medially 0.20–0.30 times as long as scutellum. However, *J. rachini* has the basal cell pilose apically (*vs* bare), F1 with four–five rows of dense sensilla (*vs* two), and the head in dorsal view shallowly emarginate (*vs* distinctly emarginate). *Janssoniella ambigua* has the basal cell bare, F1 with two rows of dense sensilla, head in dorsal view distinctly emarginate (Graham, 1969).

Etymology. Named in honour of the collector of numerous hymenopterous insects, including a paratype of this species, Daniil V. Rachin.

Distribution. Russian Far East, Japan.

Biology. Unknown.

Remarks. The specimen from Sakhalin Prov. was previously misidentified as *J. ambigua* Graham, 1969 (Tselikh, 2016).

Key to the eastern Palaearctic species of *Janssoniella* (females)

1. Fore wing hyaline (Figs 13, 21). Body length 2.10–4.60 mm 2
- Fore wing with brownish tint or at least with fuscous cloud below stigma (Figs 4, 28, 35, 43). Body length 4.60–9.20 mm 3

2. Basal cell of fore wing bare or with three setae; costal cell with one complete row of setae (Fig. 13). F1 with two rows of dense sensilla (Fig. 10). Head in dorsal view distinctly emarginate (Fig. 12) *Janssoniella caudata* Kerrich
- Basal cell of fore wing pilose apically; costal cell with two complete rows of setae (Fig. 21). F1 with three rows of dense sensilla (Fig. 17). Head in dorsal view shallowly emarginate (Fig. 19) *Janssoniella kawabatai* Tselikh **sp. nov.**
3. Fore wing with light brownish tint and with fuscous cloud below stigma (Fig. 35). Propodeum medially 0.38–0.40 times as long as scutellum (Fig. 34). Metasoma with Mt8 1.76–1.85 times longer than maximum width (Fig. 37) *Janssoniella notata* Kamijo
- Fore wing with brownish tint and without fuscous cloud below stigma (Figs 4, 28, 43). Propodeum medially 0.20–0.30 times as long as scutellum (Figs 7, 30, 48). Metasoma with Mt8 2.60–5.60 times longer than maximum width (Figs 6, 46) 4
4. Antennal clava yellow (Fig. 1). Basal cell of fore wing entirely pilose (Fig. 4). Sculpture of frenal area irregularly reticulate, lateral areas of propodeum alutaceous, but part near median carina smooth (Fig. 7). Mt2 basally metallic green, apically yellowish-brown; Mt3 yellowish-brown (Figs 5, 8) ... *Janssoniella albiclava* Tselikh et Lee, **sp. nov.**
- Antennal clava darker, dark brown or black (Figs 25, 40). Basal cell pilose apically (Figs 28, 43). Sculpture of frenal area and lateral areas of propodeum finely reticulate (Figs 30, 48). Mt2 and Mt3 dark metallic green (Figs 29, 31, 45, 47) ... 5
5. Eye height 3.00–3.10 times as long as malar space. Antennal scape entirely yellowish-brown (Figs 26, 29). F1 3.55–3.66 times as long as broad (Fig. 25). Metasoma 2.70–2.80 times longer than mesosoma. Mt8 4.60–5.60 times longer than maximum width. Fore and hind coxae metallic green basally and yellowish-brown apically, mid coxa yellowish-brown (Fig. 31) *Janssoniella magna* Tselikh et Lee, **sp. nov.**
- Eye height 2.13–2.25 times as long as malar space. Antennal scape yellowish-brown basally and metallic green apically (Fig. 41). F1 2.35–2.65 times as long as broad (Fig. 40). Metasoma 2.15–2.25 times as long as mesosoma. Mt8 2.60–3.80 times longer than maximum width (Fig. 46). All coxae metallic green *Janssoniella rachini* Tselikh, **sp. nov.**

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