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CONTRIBUTION TO THE SIBERIAN CHRYSIDIDAE (HYMENOPTERA). PART 1

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Summary. An annotated catalogue of 138 species and three subspecies of Siberian Chrysididae, based on the materials collected by the Russian co-authors in Western and Eastern Siberia (in 2007, 2008, 2010 and 2012–2016), as well as other specimens housed at the Zoological Institute of St. Petersburg (Russia) and in private collections, is given in two issues. Totally 21 species are newly recorded from Russia and 40 from Siberia. Besides 19 species are recognized as new, eight of them are described in the first part of paper: *Euchroeus victorius* Rosa, **sp. n.**, *Pseudochrysis gengiskhan* Rosa, **sp. n.**, *Chrysis inconsueta* Rosa, **sp. n.**, *Ch. proauriceps* Rosa, **sp. n.**, *Ch. sibirica* Rosa, **sp. n.**, *Ch. pavesii* Rosa, **sp. n.**, *Philoctetes cynthiae* Rosa, **sp. n.**, *Ph. lyubae* Rosa, **sp. n.**; and eleven species will be described in the second part.

Key words: cuckoo wasps, taxonomy, new species, fauna, new records, Russia.

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Резюме. Дается аннотированный каталог 138 видов и 3 подвигов ос-блестянок Сибири (в двух выпусках), основанный на материалах, собранных российскими соавторами в Западной и Восточной Сибири в 2007, 2008, 2010 и 2012–2016 гг., а также сборах, хранящихся в Зоологическом институте, Санкт-Петербург, Россия и частных коллекциях. Всего в обеих частях для фауны России впервые указываются 21 вид, а для Сибири – 40 видов. Кроме того выявлено 19 видов новых для науки, восемь из них описаны в настоящем выпуске: *Euchroeus victorius* Rosa, **sp. n.**, *Pseudochrysis gengiskhan* Rosa, **sp. n.**, *Chrysis inconsueta* Rosa, **sp. n.**, *Ch. proauriceps* Rosa, **sp. n.**, *Ch. sibirica* Rosa, **sp. n.**, *Ch. pavesii* Rosa, **sp. n.**, *Philoctetes cynthiae* Rosa, **sp. n.**, *Ph. lyubae* Rosa, **sp. n.**, а 11 видов будут описаны во второй части.

INTRODUCTION

Chrysididae are small- to medium-sized solitary wasps, commonly known as cuckoo wasps, jewel wasps, ruby tail wasps and *осы-блестянки* or *золотые осы* in Russian. It is a cosmopolitan family including about 2.500 species in the world, subdivided into 92 genera. The hitherto known Russian species belong to two sub-families: Cleptinae, parasitoids of sawflies (Hymenoptera Symphyta) and Chrysidinae, parasitoids or cleptoparasites of solitary Hymenoptera Aculeata, with the only exception of the genus *Praestochrysis* (not yet recorded for Russia), parasitoid of Lepidoptera Limacodidae (Kimsey & Bohart, 1991).

Despite the fact that Russia, or the Russian Federation, is the largest country in the world, extending across the whole northern Asia and much of northern and eastern Europe and including a wide range of environments and landscapes, the studies on Chrysididae are surprisingly scarce: the only comprehensive catalogue dates back to Radoszkowski (1866) and the only key, limited to the European part of USSR, was compiled by Nikol'skaya (1978).

The first species described and recorded for Russia was *Chrysis grandior* (currently *Parnopes grandior*) by Pallas (1771), soon followed by the description of *Chrysis calens* (currently *Stilbum calens*) by Fabricius (1781), which is also the first record for the Siberian fauna. Recent published distributional data for Russian chrysidids are scattered and related to few provinces, especially in the European part and Urals. Chrysidids from Siberia are poorly known so far, even more because most old citations simply refer to “Siberia” as to the territory extending from the Ural Mountains, in the west, to the Pacific Ocean, in the east, thus including also the territory at present separated as Far East; sometimes to “Siberia orientalis” and “Siberia occidentalis”, without further data. These were the only available information when a type locality was indicated in a description (e.g. Mocsáry, 1889, 1890; Trautmann, 1927; Tsuneki, 1947, 1948, 1953a, b; Balthasar, 1953, 1954; Linsenmaier, 1959, 1997; Kurzenko & Lelej, 2007). Currently, Siberia includes 14 administrative regions of the Russian Federation (Fig. 1) with 9.7 millions km² (57% of Russian Federation territory) (Yurkovskaya *et al.*, 2008). Only occasional recent publications (Kizilov, 2007) report precise collecting data, whereas other on-line resources (Anichtchenko, 2002) cover a large area (Cis- and Transbaikalia), again without precise information.

To date, only 80 species and 3 subspecies of Chrysididae have been recorded from Siberia. After the present research the total number of taxa is 138 species and 3 subspecies, of which 21 species are recorded for the first time for Russia (*), 40 for Siberia and 19 new to science. We here describe eight new species, whereas other 11 will be described in the following issue of this journal.

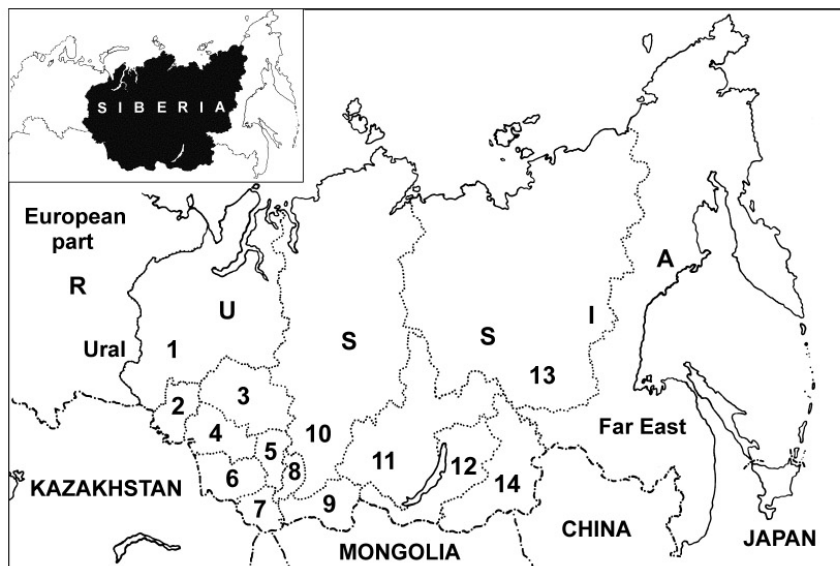


Fig. 1. Administrative map of Siberia (I–II, 1–14). I – Western Siberia: 1 – Tyumen Prov.; 2 – Omsk Prov.; 3 – Tomsk Prov.; 4 – Novosibirsk Prov.; 5 – Kemerovo Prov.; 6 – Altayskiy Terr.; 7 – Altai Republic; II – Eastern Siberia: 8 – Khakassia; 9 – Tuva Republic; 10 – Krasnoyarsk Terr., 11 – Irkutsk Prov.; 12 – Buryatia; 13 – Sakha Republic (Yakutia); 14 – Zabaikalskiy Terr.

MATERIAL AND METHODS

The results presented in these two papers are mainly based on 687 specimens collected in Siberia, mainly in the last years by Russian co-authors from the Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok. Next abbreviations are used for the collectors: AL – A.S. Lelej; MP – M.Yu. Proshchalykin; VL – V.M. Loktionov; SB – S.A. Belokobylskij. Other material has been checked from the following collections: GLA – Gian Luca Agnoli Collection, Bologna, Italy; HNHM – Magyar Természettudományi Múzeum Budapest, Hungary; IBSS – Federal Scientific Center of the Biodiversity, Vladivostok, Russia; ISEA – Institute of Systematics and Evolution of Animals, Krakow, Poland; LZM – Lund Zoological Museum, University of Lund, Sweden; MHNG – Muséum d’Histoire Naturelle, Genève, Switzerland; MMC – Mikhail Mokrousov Collection, Nizhny Novgorod, Russia; MNHN – National Natural History Museum, Paris, France; MNHU – Natural History Museum of the Humboldt-University, Berlin, Germany; MRSN – Museo Regionale di Scienze Naturali, Turin, Italy; MSNG – Museo Civico di Storia Naturale “G. Doria”, Genoa, Italy; NHMW – Naturhistorisches Museum Wien,

Vienna, Austria; NMLS – NaturMuseum, Luzern, Switserland; PRC – Paolo Rosa Collection, Milan, Italy; ZIN – Zoological Institute, St. Petersburg, Russia. Other abbreviations for the depositary Museum: EIHU – Entomology Institute, Hokkaido University, Japan; NIAS – National Institute of Agro-Environmental Sciences, Tsukuba, Ibaraki, Japan.

We here list only the new records for Siberia, for Russia and the description of new species. The primary types of the newly described species are deposited in the ZIN; some of paratypes are deposited in the other collections.

Specimens were examined and described under the stereomicroscope Tegal SCZ; images were taken with Nikon D-80 connected to the stereomicroscope Tegal SCZ and stacked with software Combine ZP.

Morphological terminology follows Kimsey and Bohart (1991) and abbreviated in the descriptions as follows: **F1, F2, F3** – flagellomeres 1, 2, 3; **l/w** – length/width; **MOD** – mid ocellar diameter; **MS** – malar space, **OOL** – oculo-ocellar line, **P** – pedicel; **PD** – puncture diameter; **POL** – postocellar line; **S2** black spots – two black spots on metasomal sternum 2; **T1, T2, T3** – metasomal terga 1, 2, 3; **TFC** – transverse frontal carina.

Subfamily Chrysidinae

Tribe Chrysidini

Genus *Euchroeus* Latreille, 1809

Euchroeus Latreille, 1809: 409. Type species: *Chrysis purpurata* Fabricius, 1775, by monotypy.

Brugmoia Radoszkowski, 1877: 27. Type species: *Brugmoia pellucida* Radoszkowski, 1877, by monotypy.

Euchroeus victorius Rosa, sp. n.

Figs 2B, 3A–F, 4E–F

SPECIMENS EXAMINED. Holotype – ♂, **Russia**: Khakassia Rep., 20 km SW Abakan, Izykhskie Kopi, 7.VII 2014 (AL, MP, VL) [ZIN].

DIAGNOSIS. *Euchroeus victorius* sp. n. belongs to the *purpuratus* species-group (Linsenmaier, 1959). It is easily recognizable through the short, truncate teeth on the apical margin of T3 (Figs 3D, F) and the shape of the genital capsule (Figs 4E–F). In the north-African *E. doursi* Gribodo, 1875 teeth are also short, but sharp and triangular, not truncate, and the genital capsule is different (see Linsenmaier, 1959: Fig. 214). In Central Asia *E. kyrgyzicus* (Tarbinsky, 2000) also has short teeth, but they are hyaline, contrasting with the metallic coloration of T3, as in *E. eous* (Semenov, 1912), whereas apical teeth of *E. victorius* sp. n. are fully metallic, without hyaline or whitish areas. Other species known for Siberia show long apical teeth (e.g. *E. purpuratus* (Fabricius, 1787), Figs 4C–D) and different genital capsule (Figs 4G–H).

DESCRIPTION. *Male*. Body length 8.3 mm. Fore wing length 5.2 mm. OOL = 2.7 MOD; POL = 2.3 MOD; MS = 1.6 MOD; relative length of P : F1 : F2 : F3 = 1 : 1.7 : 1.4 : 1.4.

Head. Frons and vertex with small, contiguous punctures (Fig. 3A); frons moderately depressed between midocellus and TFC; TFC medially raised with median acute prominence (Fig. 3A), not observed in other species (TFC M-shaped in *E. purpuratus* (Fig. 4A), *E. orientis* (Semenov, 1910), *E. vesper* (Semenov, 1910)); only

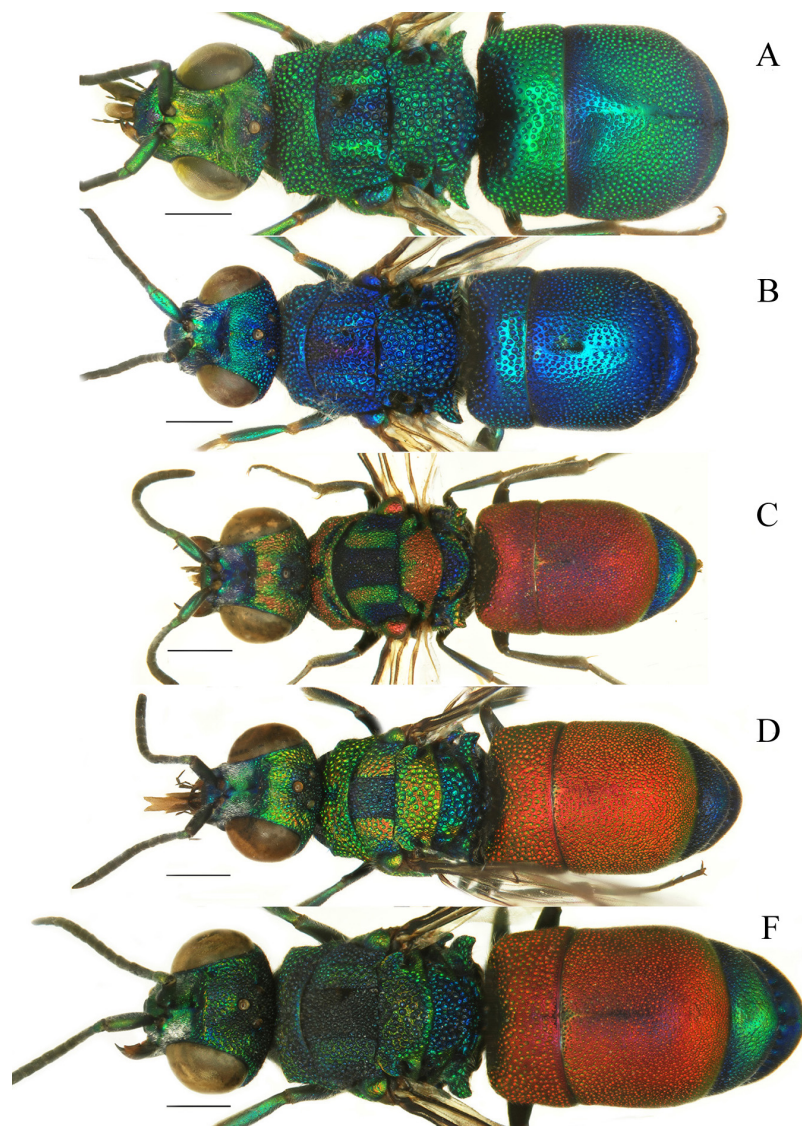


Fig. 2. Habitus, dorsal view. A – *Euchroeus purpuratus* (Fabricius); B – *E. victorius* sp. n.; C – *Pseudochrysis incrassata* (Spinola); D – *P. gengiskhan* sp. n.; E – *P. fahringeri* Trautmann. Scale bar = 1.0 mm.

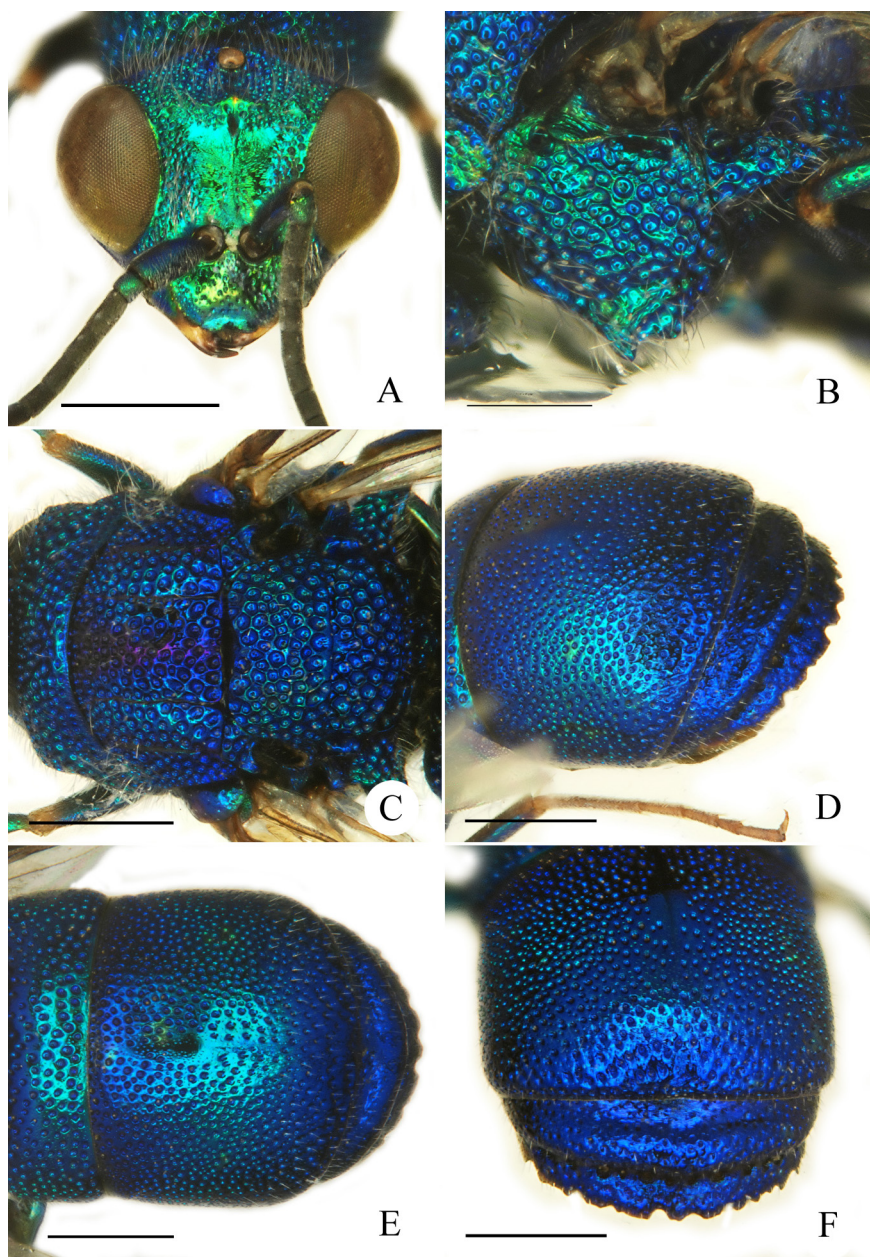


Fig. 3. *Euchroeus victorius* Rosa, sp. n., holotype ♂: A – head, frontal view; B – mesopleuron, lateral view; C – mesosoma, dorsal view; D – metasoma, dorso-lateral view; E – metasoma, dorsal view; F – metasoma, posterior view. Scale bar = 1.0 mm.

E. mongolicus Tsuneki, 1947 has a median prominence, but scapal basin is fully and densely punctate and the species is easily recognizable for the different body color. Scapal basin largely impunctate, in the upper part, for 3 MOD width, wholly polished, then weakly rugulose medially, only in the lower half also with sparse tiny punctures (medially polished only for 1 MOD width in *E. purpuratus* and *E. orientis*, fully punctured with tiny dots in *E. vesper*); scapal basin laterally with small punctures and without tiny dots; subantennal space 2.6 MOD.

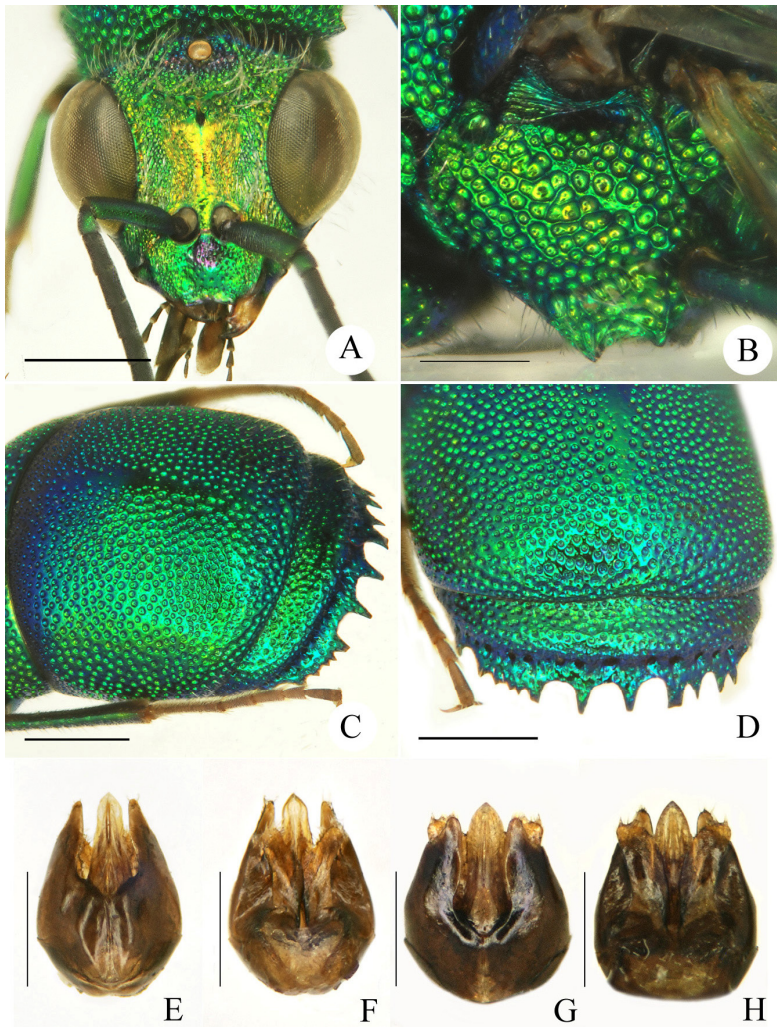


Fig. 4. A–D, G, H – *Euchroeus purpuratus* (Fabricius), Khakassia Rep.: A – head, frontal view; B – mesopleuron, lateral view; C – mesosoma, dorsal view; D – metasoma, posterolateral view; G – genital capsule, dorsal view; H – genital capsule, ventral view; E, F – *E. victorius* Rosa, sp. n. E – genital capsule, dorsal view; F – genital capsule, ventral view. Scale bar = 1.0 mm.

Mesosoma. Mesoscutum with punctures increasing in size towards posterior margin, with narrow, polished interspaces, 0.1–0.3 PD apart (Fig. 3C); with smaller punctures toward tegulae. Tegulae mostly impunctate or with shallow, ill-defined punctures. Notauli and parapsidal furrow complete. Mesoscutellum antero-medially impunctate, elsewhere with deep, large, foveate-reticulate punctures (Fig. 3C). Metascutellum with large foveate-reticulate punctures. Mesopleuron with large episternal sulcus (Fig. 3B) subtended by the anterior large, acute tooth; posterior tooth short and blunted.

Metasoma. T1 with small- to medium-sized punctures (0.3–0.5 MOD), sparse, 0.5–1.0 PD apart, with micropunctate interspaces. T2 with smaller punctures and micropunctate interspaces; T2 dorso-median line impunctate and with tiny dots on its lateral margins (Fig. 3E); punctures on posterior margin rugulose; T3 with small and shallow punctures; T3 with large pre-pit swelling and pit-row with large, round and deep pits (0.5–1.0 MOD); posterior margin with numerous irregular and apically truncate, short teeth (Figs 3D, F). Genital capsule Figs 4E–F.

Coloration. Body blue to deep blue, with greenish reflections on face, mesopleuron and legs; tegulae blue; tarsi yellowish. Mandible medially yellowish; scape and pedicel metallic green, flagellum black. Forewings slightly brownish.

Vestiture. Whitish setae on head, 1.4 MOD long, dense on vertex; face with shorter (about 1 MOD), appressed silvery setae along eye margin; mesosoma with sparse whitish setae, about 1 MOD long; metasoma with short (0.5 MOD) and erect setae.

Female. Unknown.

DISTRIBUTION. Russia (Khakassia Rep.).

ETYMOLOGY. The specific epithet *victorius* (masculine noun in apposition) is dedicated to Vittorio Rosa (1940–1999), Italian entomologist and father of the first author, to whom he transmitted the interest for Chrysididae.

***Euchroeus mongolicus* Tsuneki, 1947**

Euchroeus purpuratus f. *mongolicus* Tsuneki, 1947: 54. Holotype – ♀; China: Inner Mongolia: Apaka [NIAS].

SPECIMENS EXAMINED. **Russia**: Buryatia Rep., Ulan-Ude, 21.VI 2014, 1 ♀ (A. Filippov) [GLA].

DISTRIBUTION. *Russia (Buryatia Rep.); Mongolia, China.

REMARKS. *Euchroeus par* (Semenov, 1967) is possibly a junior synonym of *E. mongolicus* Tsuneki. Type examination of the latter is anyway necessary to proceed with the synonymization.

Genus *Pseudochrysis* Semenov, 1891

Pseudochrysis Semenov, 1891: 444. Type species: *Chrysura humboldti* Dahlbom, 1845, by subsequent designation of Semenov, 1892.

Pseudospinolia Linsenmaier, 1951: 31. Type species: *Chrysis uniformis* Dahlbom, 1854 [= *Pseudospinolia uniformis* (Dahlbom, 1854)], by original designation.

***Pseudochrysis gengiskhan* Rosa, sp. n.**

Figs 2D, 5A–F, 7F, 8A, D, G

SPECIMENS EXAMINED. Holotype – ♀, **Mongolia**: Övörkhangay, 137 km NE Aravaykheer, 47°20'N 103°40.5'E, 1250 m, 26.VII 2004 (J. Halada) [ZIN]. Allotype – ♂, Mongolia, SE, 200 km SSE Baruun-Urt Moltsoy Els, 1250m, 27.VII 2007 (M. Kadlecová) [ZIN]. Paratypes: Mongolia, Övörkhangay, 137 km NE Aravaykheer, 47°20'N 103°40.5'E, 1250m, 26.VII 2004, 3♀ (J. Halada) [PRC]. **Russia**: Tuva Rep., 20 km SSW Erzin, Tore-Khol' Lake, 3.VII.2013, 1 ♀ (VL, MP); 13 km SW Samagaltai, Dyttyg-Khem River, 10.VII 2013, 1 ♀ (VL, MP); 25 km SE Erzin, Tes-Khem River, 5.VII 2013, 1 ♀ (VL, MP) [IBSS].

DIAGNOSIS. *Pseudochrysis gengiskhan* sp. n. is closely related to *P. incrassata* (Spinola, 1838), but females can be easily separated for: subantennal space elongate (2 MOD) (Fig. 5A) (vs. short subantennal space, 1.4 MOD in *P. incrassata* (Fig. 7A)); malar space long (1 MOD) (vs. short, 0.7 MOD); TFC raised and sharp, medially straight (vs. weakly raised and irregular); pronotum without two basolateral depressions contrasting in color (Fig. 5B) (vs. pronotum with two markedly blue basolateral depressions contrasting with the rest of pronotal color (Fig. 7B)); punctuation on mesosoma deep with large punctures, 1 PD apart, and micropunctate interspaces (Fig. 2D) (vs. punctures more or less of the same size, contiguous; larger on pronotal basolateral depressions; mesoscutum with punctures of two sizes, contiguous and without intervals); T2 with distinct double punctuation, with larger punctures widely separated (1–2 PD apart) and with small punctures in the interspaces: these small punctures become denser and contiguous on lateral and posterior margins (Fig. 5D) (vs. punctuation on metasoma even, with dense and contiguous punctures (Fig. 7C)). Male has punctuation and coloration similar to female (darker on mesosoma in *P. incrassata*) and can be separated also for: elongate subantennal space and shape of genital capsule (Fig. 7F). *P. gengiskhan* sp. n. can be separated from *P. fahringeri* Trautmann, 1926 by the smaller dimensions (less than 10 mm) (*P. fahringeri* usually exceeds 10 mm); mesosoma with greenish-golden reflections, excluding the median lobe of mesoscutum (Fig. 2D) (vs. dark blue mesosoma (Fig. 2E)); T3 apical margin after the pit row very short (vs. distinctly more extended (Fig. 6E)); shape of male genital capsule (Fig. 7F) and female internal urites (Figs 8B, E, H).

DESCRIPTION. Body length 9–10 mm. Fore wing length 4.8–5.1 mm. *Female*. OOL = 2.6 MOD; POL = 2.1 MOD; MS = 0.7 MOD; relative length of P : F1 : F2 : F3 = 1.0 : 1.8 : 1.0 : 0.8.

Head. Vertex with large, deep and contiguous punctures; vertex moderately depressed between midocellus and TFC, with punctures aligned and partially confluent into longitudinal grooves (Fig 2D); TFC raised and partially polished; punctures below TFC large, elongate (Fig. 5A); scapal basin medially polished in the upper half, transversally microridged in the lower one: median area (1 MOD width) with thin wrinkles; laterally with even, dense, contiguous tiny punctures; subantennal space 2.0 MOD.

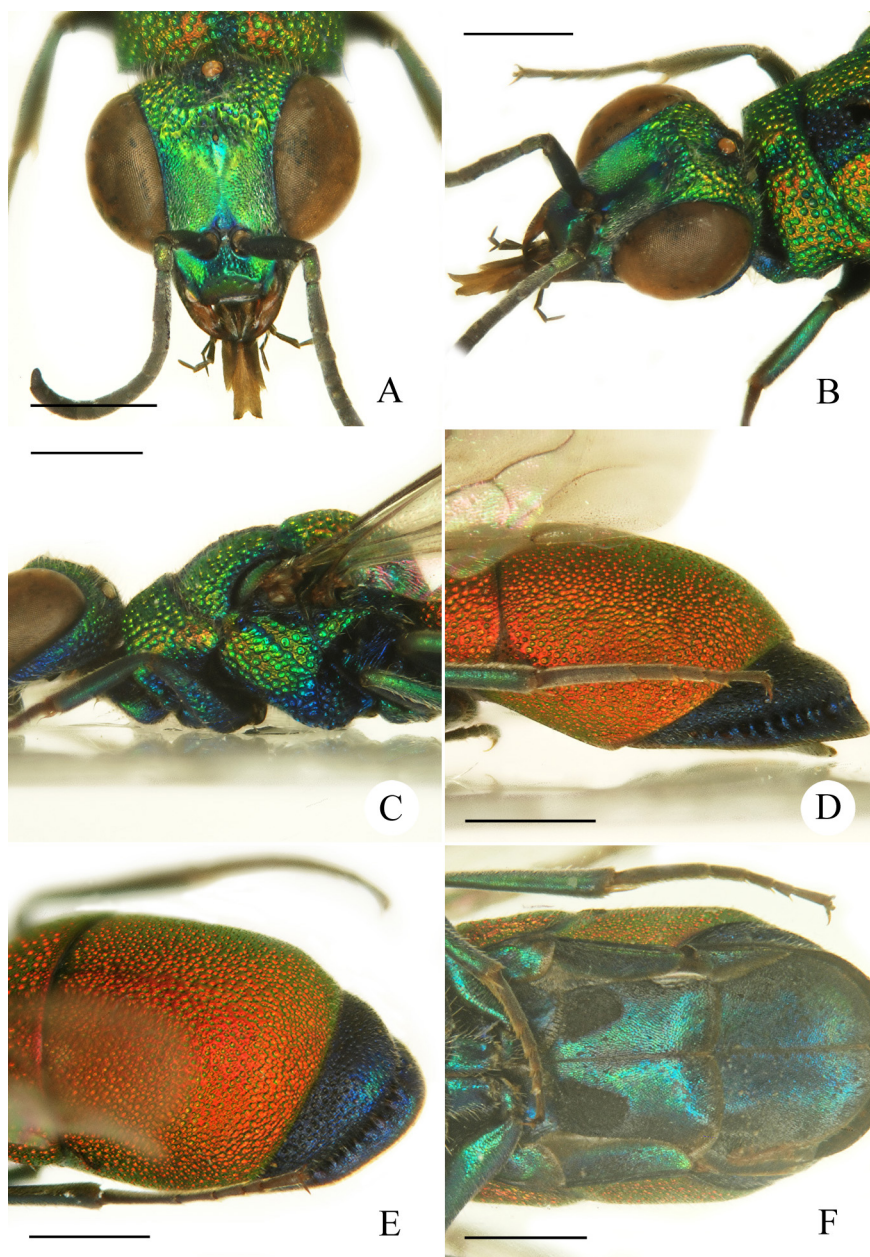


Fig. 5. *Pseudochrysis gengiskhan* Rosa, sp. n., holotype ♀: A – head, frontal view; B – head, dorso-lateral view; C – mesosoma, lateral view; D – metasoma, lateral view; E – metasoma, dorso-lateral view; F – metasoma, ventral view. Scale bar = 1.0 mm.

Mesosoma. Pronotal groove broad and deep, almost reaching 4/5 of pronotal length (Fig. 5B); pronotal punctuation with deep and irregularly distributed round punctures; interspaces densely micropunctate; mesoscutum with even, deep and interspaced punctures, up to 1 PD apart, with barely micropunctate interspaces; mesoscutellum with similar punctuation, but larger punctures; parapsidal furrow not clearly visible; metascutellum with deep and broad foveate punctures. Mesopleuron with large episternal sulcus, formed by elongate and foveate punctures partially fused.

Metasoma. Punctuation on T1 double, with tiny punctures on interspaces between larger punctures (Fig. 2D) (larger punctures 0.3–0.5 MOD, 0.5–1.0 PD apart); T2 with dorsomedian line partially impunctate; T2 with distinct double punctuation; large punctures on T2 about half diameter than punctures on T1; punctuation denser, with narrow interspaces; tiny punctures on interspaces denser and contiguous on lateral and posterior margins (Fig. 5D); T3 with small, even punctures (0.5–2 PD apart), with slightly micropunctate interspaces; T3 with broad pre-pit swelling and pit row with elongate pits (Fig. 5E); T3 posterior margin arched (Fig. 5E).

Coloration. Head and mesosoma dorsally light green to greenish-golden, with median lobe of mesoscutum dark blue; metascutellum and propodeum bluish to greenish, with or without golden reflections; upper part of mesopleuron light green to greenish-golden; head and mesosoma ventrally light blue; T1 and T2 metallic red; T3 blue; metasoma ventrally blue; tegulae greenish-golden; tarsi dark brown. Mandible brown, slightly lighter medially; scape, pedicel and F1 basally greenish, flagellum black. Forewings clear, slightly brownish on radial cell.

Vestiture. Whitish, short setae on head and mesosoma (up to 1.0 MOD long); face with short whitish setae (less than 1.0 MOD); appressed silvery setae laterally on scapal basin; metasoma with very short (less than 0.5 MOD) and barely visible setae.

Male. Similar to female, with acute propodeal teeth pointing downwards; punctures on metasoma sparser; T3 apical margin gently arched; S2 without black spots.

DISTRIBUTION. Russia (Tuva Rep.); Mongolia.

ETYMOLOGY. The specific epithet *gengiskhan* (masculine noun in apposition) is dedicated to Gengis Khan, founder of the Mongol Empire, the largest contiguous empire in history.

REMARKS. Russian specimens bear denser punctuation on metasoma, with smaller punctures on T1 and T2.

Distributional data for *Pseudochrysis incrassata* (Spinola, 1838), a southern, thermophilic species, provided by Anichtchenko (2002) are very likely referable to *P. gengiskhan* **sp. n.** or *P. fahringeri* Trautmann, 1926. The occurrence of *P. incrassata* in Siberia is in need of confirmation.

***Pseudochrysis fahringeri* Trautmann, 1926**

Figs 2E, 6A–F, 7G–H, 8C, F, I

Pseudochrysis incrassata var. *fahringeri* Trautmann, 1926: 7. Holotype – ♀; Austria: Leithagebirge [MNHU].

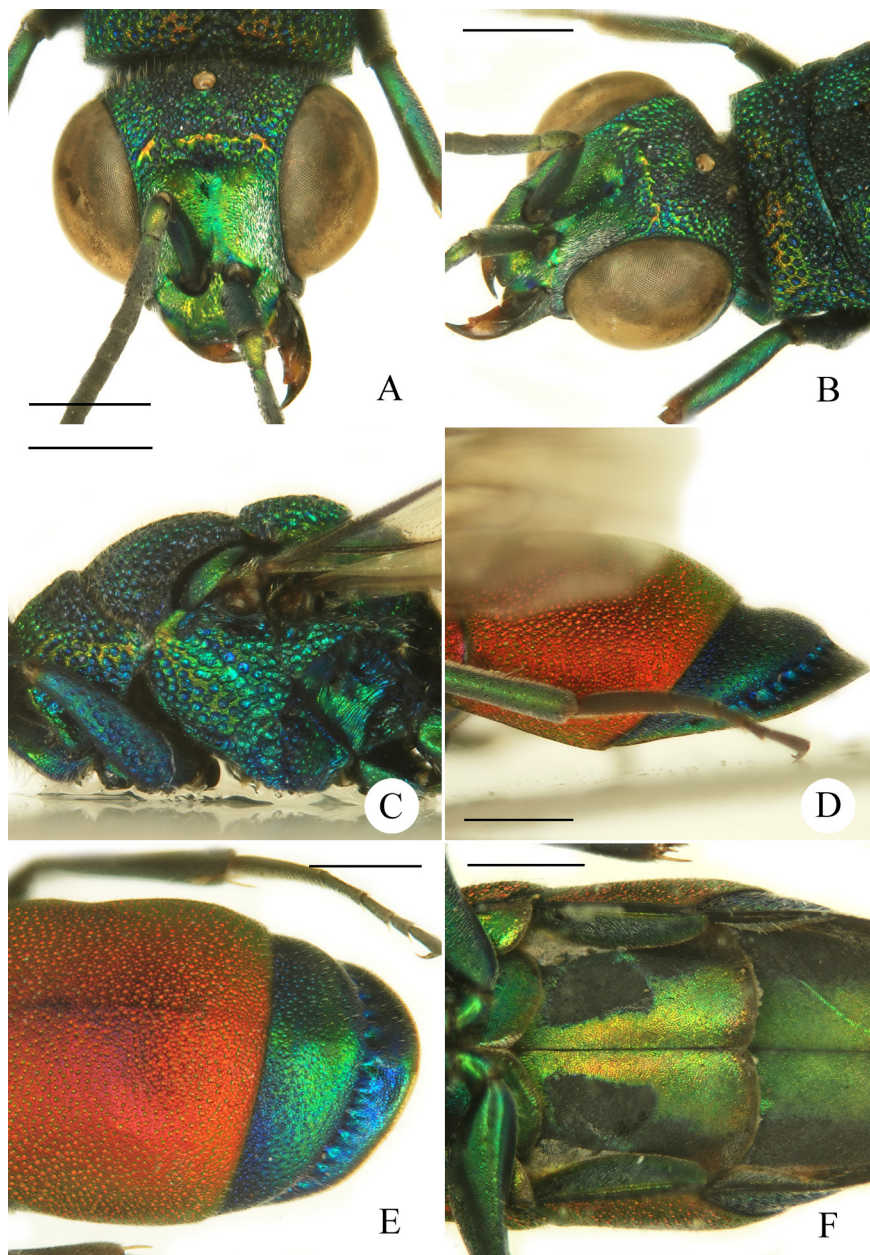


Fig. 6. *Pseudochrysis fahringeri* Trautmann, Khakassia Rep.: A – head, frontal view; B – head, dorso-lateral view; C – mesosoma, lateral view; D – metasoma, lateral view; E – metasoma, dorso-lateral view; F – metasoma, ventral view. Scale bar = 1.0 mm.

SPECIMENS EXAMINED. **Russia:** Altai Rep., 14 km SE Aktash, Chuya River, 2.VII 2016, 1 ♀, 1 ♂ (MP, VL); Khakassia Rep.: Chernoe Ozero, Chernoe Lake, 16-19.VII 2012, 1 ♀, 1 ♂ (MP, VL); idem, 4.VII 2014, 1 ♀ (AL, MP, VL); Zhemchuzhnyi, Shira Lake, 14-15.VII 2012, 1 ♀, 2 ♂ (MP, VL); Krasnoyarsk Terr.: Minusinsk, Malaya Minusa River, 7.VII 2012, 1 ♂ (MP, VL).

DISTRIBUTION. *Russia (Altai Rep., Khakassia Rep., Krasnoyarsk Terr.); Central Europe, *Pseudochrysis fahringeri* is an Euro-Siberian species; in Europe is very rarely collected and occasionally found only on mountainous steppe areas (Wallis, Switzerland) and on mountains in Central Europe (Leitha Mts., an offshoot of the Alps and a connection to the Carpathians, and at Marchfeld), which serve as refuges. The distribution is still poorly known due to the confusion of *P. fahringeri* with *P. incrassata*; e.g. Linsenmaier (1959) initially considered *P. fahringeri* as the true *P. incrassata*.

REMARKS. *Pseudochrysis fahringeri* has been considered as valid species (Linsenmaier, 1997), subspecies (Trautmann, 1926) or synonym of *P. incrassata* (Kimsey & Bohart, 1991) by different authors. *P. fahringeri* is a well distinct species, easily recognizable by the large dimensions (up to 11–12 mm); TFC raised and complete, medially straight (*vs.* almost vanishing in *P. incrassata*), subantennal space elongate (2 MOD) (*vs.* short, 1.4 MOD); T2 with distinct double punctuation and larger punctures separated (1–2 PD apart), with tiny punctures on interspaces: tiny punctures become denser and contiguous on lateral and posterior margin (*vs.* punctuation all over uniform, with dense and contiguous punctures); apical margin of T3 extended after pit row (Fig. 6E) (*vs.* not extended (Fig. 7C)); shape of male genital capsule (Figs 7E *vs.* 7G) and female internal urites (Figs 8C, F, I); coloration of mesosoma consistently dark blue (Fig. 2E) in female (*vs.* blue with reddish areas). It can be separated from *P. gengiskhan* for the dark mesosoma coloration (greenish to golden in *P. gengiskhan*); apical margin of T3 extended after the pit row (*vs.* not extended); black spots on S2 large (*vs.* smaller); genital capsule and female internal urites.

Genus *Chrysis* Linnaeus, 1761

Chrysis Linnaeus, 1761: 414. Type species: *Sphex ignita* Linnaeus, 1758, by subsequent designation of Latreille, 1810.

***Chrysis gracillima* species-group**

***Chrysis gracillima* Förster, 1853**

Chrysis gracillima Förster, 1853: 328. Holotype – ♂, Germany: Tischbein near Herrstein [MNHU] (examined) (*gracillima* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep., 15 km SE Kurai, Chuya River, 5.VII 2016, 1 ♀ (MP, VL).

DISTRIBUTION. Russia (North Caucasus, European part, Altai Rep.); Europe and North Africa, Middle East, Iran (Rosa *et al.*, 2013).

***Chrysis facialis* species-group**

***Chrysis nox* Semenov, 1954**

Chrysis (Tetrachrysis) nox Semenov in Semenov-Tian-Shanskij & Nikol'skaya, 1954: 128. Lectotype – ♀ (designated by Bohart in Kimsey & Bohart, 1991: 444); Tajikistan: Peter the Great Range [ZIN] (examined) (*facialis* group).

SPECIMENS EXAMINED. **Russia**: Altai Rep., 15 km SE Kurai, Chuya River, 5.VII 2016, 1 ♀ (MP, VL).

DISTRIBUTION. *Russia (Altai Rep.); Mongolia, Tajikistan.

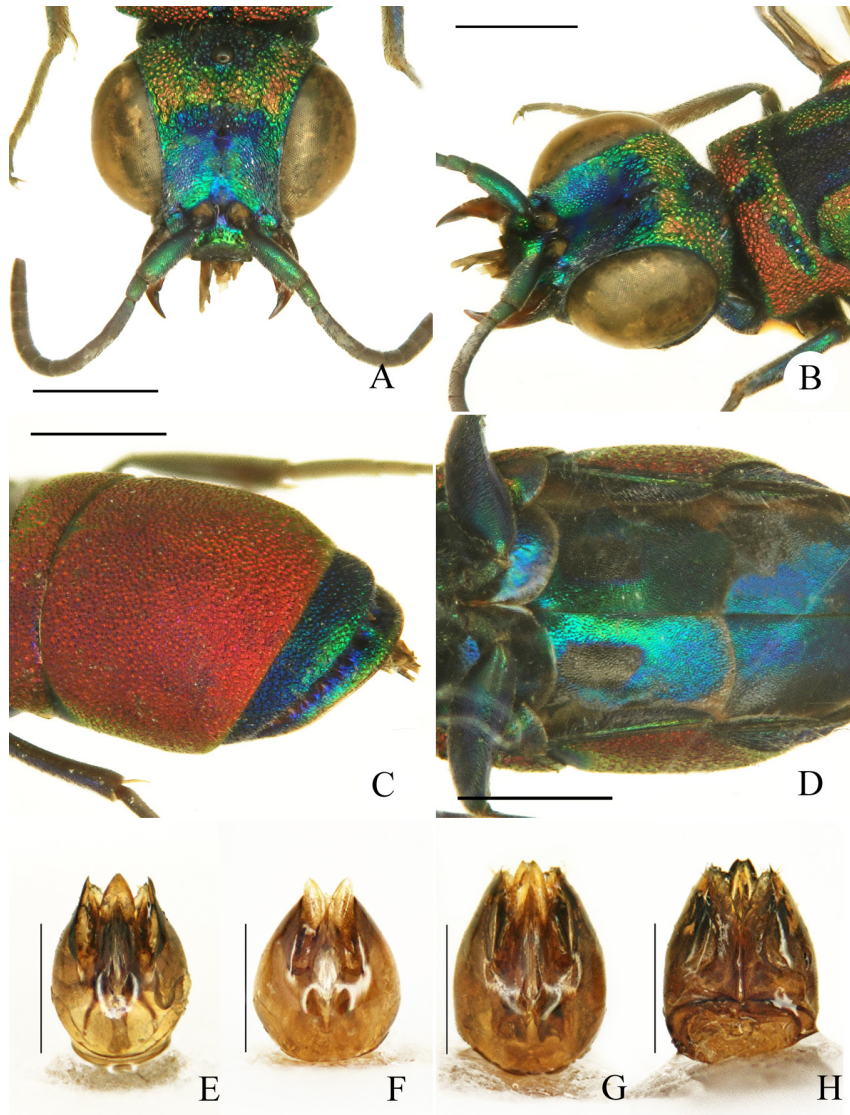


Fig. 7. A–E – *Pseudochrysis incrassata* (Spinola), ♀: A – head, frontal view; B – head, dorso-lateral view; C – metasoma, dorso-lateral view; D – metasoma, ventral view; E – genital capsule, dorsal view (A–D – Sardinia, E – Spain); F – *P. gengiskhan* Rosa, sp. n., genital capsule, dorsal view; G, H – *P. fahringeri* Trautmann, Khakassia Rep.: G – genital capsule, dorsal view; H – genital capsule, ventral view. Scale bar = 1.0 mm.

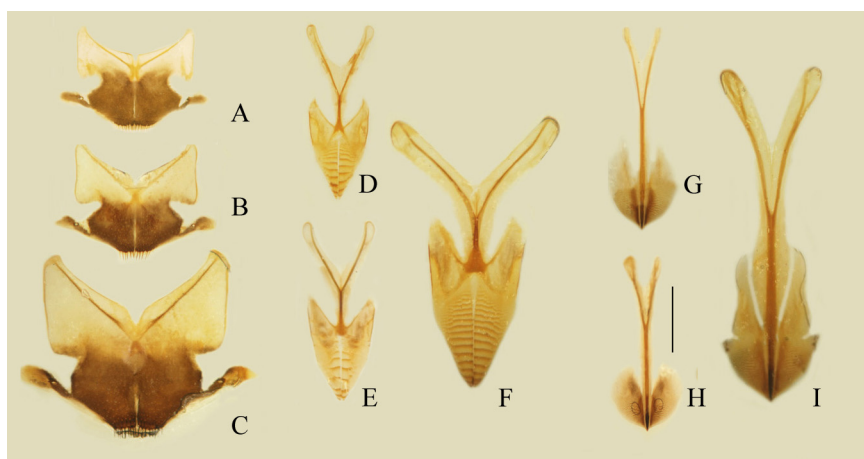


Fig. 8. A, D, G – *Pseudochrysis gengiskhan* Rosa, sp. n., holotype ♀, T4, T5, T6 ; B, E, H – *P. incrassata* (Spinola), ♀, Sardinia, T4, T5, T6; C, F, I – *P. fahringeri* Trautmann, ♀, Khakassia Rep., T4, T5, T6. Scale bar = 0.5 mm.

Chrysis succincta species-group

Chrysis frivaldszkyi Mocsáry, 1882

Chrysis frivaldszkyi Mocsáry, 1882: 52. Lectotype – ♂ (designated by Móczár, 1965); Hungary: Budapest [HNHM] (examined) (*succincta* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 14 km SE Aktash, Chuya River, 1–3.VII 2016, 6♀ (MP, VL); 15 km SE Kurai, Chuya River, 29.VI–6.VII 2016, 1♀, 5♂ (MP, VL); Khakassia Rep.: 14 km SSW Abakan, Belyi Yar, Abakan River, 12.VII 2012, 1♀ (MP, VL); 21 km SW Abakan, Izykhskie Kopi, 13.VII 2012, 1♀, 3♂ (MP, VL); idem, 7.VII 2014, 1♀, 2♂ (AL, MP, VL); Chernoe Ozero, Chernoe Lake, 16–18.VII 2012, 4♀ (MP, VL); idem, 4.VII 2014, 1♀ (AL, MP, VL); 10 km E Shira, Itkul' Lake, 28.VI 2014, 1♀, 3♂ (AL, MP, VL); 22 km NW Shira, Belyi Iyus River, 2.VII 2014, 1♀ (AL, MP, VL); Zhemchuzhnyi, Shira Lake, Shira Lake, 1.VII 2014, 1♂ (AL, MP, VL); 27 km E Shira, Borets, 29.VI 2014, 1♂ (AL, MP, VL); Tuva Rep.: 20 km SSW Erzin, Tore-Khol' Lake, 30.VI–3.VII 2013, 6♀, 6♂ (VL, MP); Ubsu-Nur Lake, 7.VII 2013, 2♀, 1♂ (MP, VL); 13 km SW Samagaltai, Dytyg-Khem River, 8–10.VII 2013, 7♀, 7♂ (VL, MP); idem, 17.VII 2014, 2♀, 1♂ (AL, MP, VL); 31 km NEE Erzin, Erzin River, 18.VII 2014, 1♀ (AL, MP, VL); 32 km SW Kyzyl, Elegend River, 22.VII 2014, 3♀ (AL, MP, VL); W of Ujukyskiy Mountains, Kamennyi river Valley, 1000m, 11–20.VII 2003, 2♀ [GLA]; Krasnoyarsk Terr.: Minusinsk, Malaya Minusa River, 7.VII 2012, 3♀, 1♂ (MP, VL); 10 km NW Minusinsk, Bystraya River, 9.VII 2014, 1♀ (AL, MP, VL); Irkutsk Prov.: 15 km E Ust'-Ordynskiy, 31.VII 2010, 1♀ (MP).

DISTRIBUTION. Russia (Crimea, North Caucasus, European part, Siberia); Central and Southern Europe, Turkey (Linsenmaier, 1968).

***Chrysis bicolor* Lepeletier, 1806**

Chrysis bicolor Lepeletier, 1806: 127. Neotype – ♂ (designated by Rosa & Xu 2015); France: Var, St. Laurent d. Verdon (Saint-Laurent-du-Verdon, Alpes-de-Haute-Provence department) [NMLS] (examined) (*succincta* group).

SPECIMENS EXAMINED. **Russia:** Omsk Prov.: Omsk [ZIN]; Irkutsk Prov.: Irkutsk [ZIN]; Padun na B. Tunguska [ZIN]; Yakutia: Petropavlovskoe [ZIN]; river Lena, env. Zhigansk [ZIN].

DISTRIBUTION. Russia (North Caucasus, European part, Ural, Siberia, Far East). Trans-Palaeartic: from Western Europe to North Africa, Caucasus and Russian Far East (Paukkunen *et al.*, 2014).

***Chrysis illigeri* Wesmael, 1839**

Chrysis illigeri Wesmael, 1839: 176. Syntypes – ♂♀; Belgium, Bruxelles, [MSNG] (examined) (*succincta* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 14 km SE Aktash, Chuya River, 1–2.VII 2016, 1♀, 1♂ (MP, VL); Tuva Rep.: 6 km SE Bai-Khaak, Sosnovka, 21.VII 2014, 1♂ (AL, MP, VL); Irkutsk Prov.: Irkutsk [sub *Ch. bicolor* ZIN]; 15 km E Ust'-Ordynskiy, 21.VII 2010, 1♀ (MP); Krasnoyarsk Terr.: Minusinsk [sub *Ch. bicolor* ZIN]; Yakutia: Yakutsk [sub *Ch. bicolor* ZIN]; Buryatia Rep.: Ust'-Kiran, Chikoi River, 28.V 2008, 1♂ (VL); Primorsky Terr.: 15 km S Ternei, Udobnaya Bay, 7.VIII 2012, 2♀ (VL); Lazovsky Nature Reserve, America, 25.VIII–3.IX 2008, 1♀ (Yu. Sundukov, V. Shokhrin); idem, 11–14.VII 2008, 8♀ (VL); Khanka Lake, Prezhevsky Foreland, 30.VI–1.VII 2006, 1♀ (S. Kholin, V. Sidorenko); Pravaya Sokolovka River, 28.VI 2008, 1♀ (VL).

DISTRIBUTION. Russia (North Caucasus, European part, Siberia, Far East); Europe (Paukkunen *et al.*, 2014).

***Chrysis popovi* Semenov, 1954**

Figs 9A–F

Chrysis popovi Semenov in Semenov-Tian-Shanskij and Nikol'skaya, 1954: 119. Holotype – ♀; Tajikistan [ZIN] (examined) (*succincta* group)

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 5 km SE Chagan-Uzun, Tuhtuyaryk River, 11.VII 2016, 1♂ (MP, VL); 15 km SW Tashanta, 9.VII 2016, 1♂ (MP, VL).

REMARKS. We assign these male specimens to *Chrysis popovi* Semenov, known only on the female holotype from Tajikistan so far, because of the following diagnostic features: 1) coloration pattern, with head and mesosoma metallic green, without red or golden parts, and metasoma metallic red; 2) punctuation on mesosoma shallow and lacunose, with large, polished, shining interspaces (Fig. 9C); 3) peculiar black spots on S2, medially fused, with posterior margin almost straight and covering only the upper third of the sternum length (Fig. 9B) (see Rosa *et al.* 2017a: Plate 109).

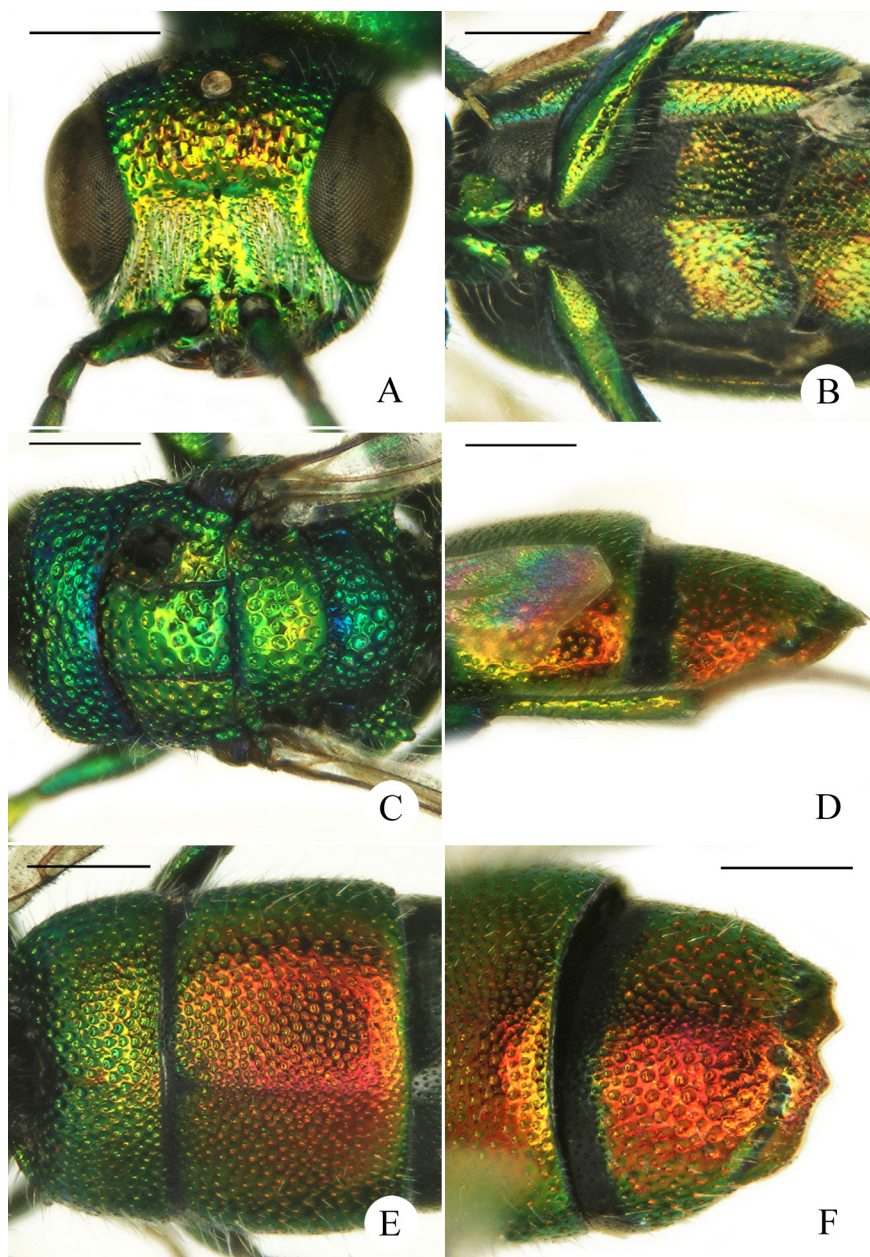


Fig. 9. *Chrysis popovi* Semenov, ♂: A – head, frontal view; B – metasoma, ventral view; C – mesosoma, dorsal view; D – metasoma, lateral view; E – metasoma, dorsal view; F – metasoma, posterior view. Scale bar = 0.5 mm.

The main difference is in the shape of T3 apical teeth; in the female holotype there are four distinct teeth, whereas in these males only the two median teeth are visible (Fig. 9F). Similar differences are to be found, as a sexual dimorphic character, also in several other species of the *succincta*-group. Examination of series of males and females from the same localities will be required for the definite confirmation of the specific attribution.

DISTRIBUTION. *Russia (Altai Rep.); Tajikistan.

***Chrysis inconsueta* Rosa, sp. n.**

Figs 10A–F

SPECIMENS EXAMINED. Holotype – ♀, **Russia**: Altai Rep., 5 km NW Chagan-Uzun, Chuya River, 12.VII 2016 (MP, VL) [ZIN].

DIAGNOSIS. *Chrysis inconsueta* sp. n. belongs to the *succincta* species-group. It's a medium-sized species (6.5 mm long) recognizable for the combination of the following characteristics: coloration pattern (bluish mesosoma with greenish-golden reflections on frons, anterior margin of pronotum and mesoscutellum; mesoscutum flame red; metasoma flame red, medially darker, purplish to blackish, on T2 and T3); punctuation (mesosoma with shallow punctures and large, polished interspaces, giving a shining appearance); T3 after pit row elongate (2 MOD long), impunctate, concolorous with the rest of T3; T3 apical margin with four short and obtuse teeth.

A similar mesosoma coloration and apical margin of T3 is observed in the female of *Ch. kessleri* Radoszkowski, 1877. Nevertheless, *Ch. kessleri* has a different, robust habitus, similar to *Ch. grohmanni* Dahlbom, 1854, and like the latter, apical margin of T3, after pit row, metallic blue, contrasting with the red coloration of T3; the punctuation of metasoma is coarse, with large and deep punctures.

From general habitus and shining sculpture, *Ch. inconsueta* appears more closely related to *Ch. popovi* Semenov, which differs for the fully green mesosoma, without any red or golden area; shape of T3, with ovoid pits on pit row, short distance between pit row and apical margin and different shape of apical teeth. However, actual affinities will be clear only when the male will be known.

DESCRIPTION. *Female*. Body length 6.5 mm. Fore wing length 3.8 mm. OOL = 1.8 MOD; POL = 2.5 MOD; MS = 1.0 MOD; relative length of P : F1 : F2 : F3 = 1.0 : 1.6 : 0.7 : 0.6.

Head. Vertex and frons with large (up to 0.5 MOD), contiguous punctures; TFC faint; scapal basin impunctate, polished, with minute punctures along eye margin, as well as on clypeus and malar spaces; subantennal space 1.0 MOD; in frontal view, malar spaces subparallel (Fig. 10A).

Mesosoma. Pronotal groove narrow, forming a deep sulcus, reaching 2/3 of pronotal length; pronotal punctuation posteriorly coarse, with deep, uneven punctures, anteriorly with polished interspaces; mesoscutum with shallow and sparse (1 PD apart) punctures of different size, with polished and shining interspaces; mesoscutellum with similar punctures, larger and deeper, anyway with polished and shining interspaces (Fig. 10C); metascutellum with deep, foveate, round punctures, not larger than those on mesoscutellum. Mesopleuron with deep episternal sulcus with deep, aligned and small foveae, the rest with irregularly sized punctures and shining interspaces.

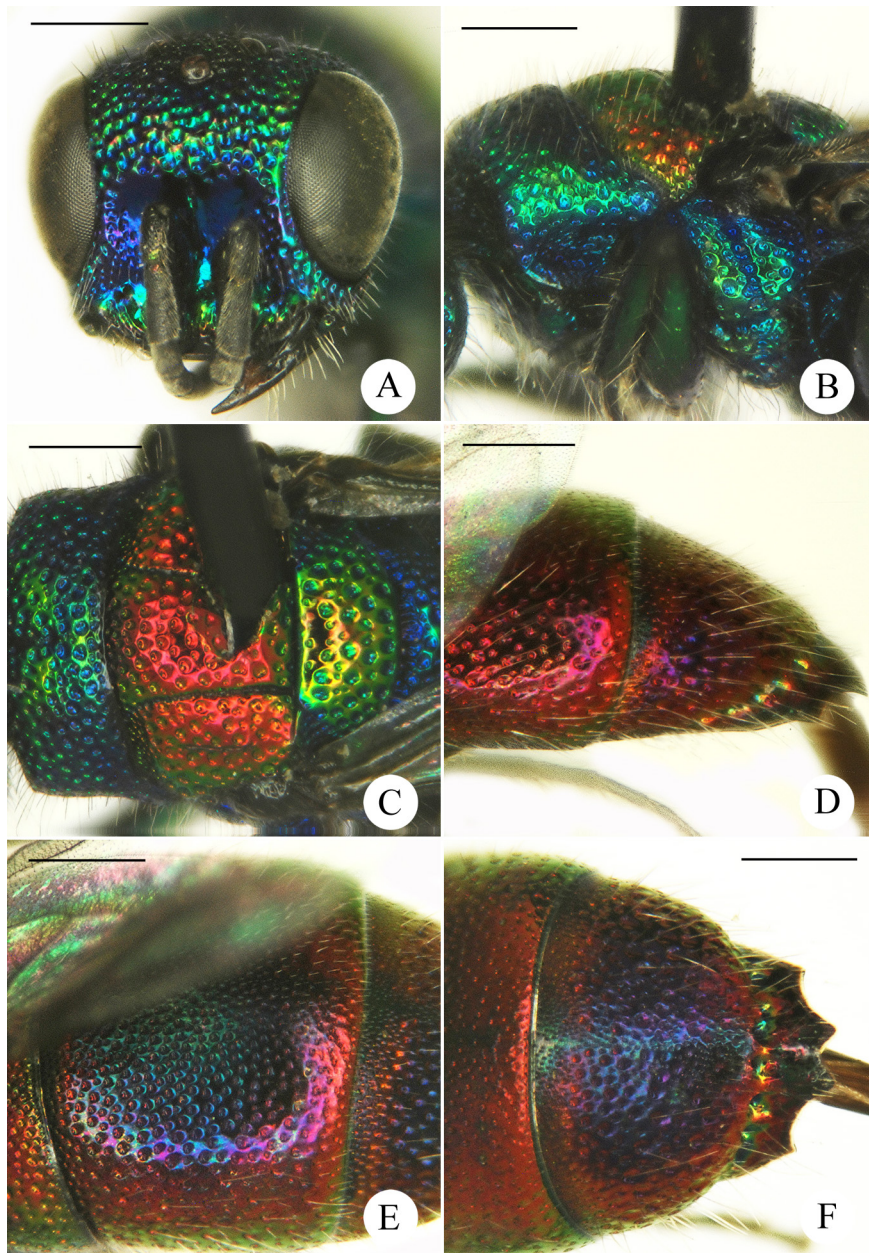


Fig. 10. *Chrysis inconsueta* Rosa, sp. n., holotype, ♀: A – head, frontal view; B – mesosoma, lateral view; C – mesosoma, dorsal view; D – metasoma, lateral view; E – metasoma, dorsal view; F – metasoma, posterior view. Scale bar = 0.5 mm.

Metasoma. Punctuation on T1 double and spaced (up to 1 PD apart), with shining interspaces; T2 dorso-medially with small, dense punctures, becoming larger towards lateral margins, smaller and shallower toward posterior margin, here and there with tiny punctures on interspaces (Fig. 10E); interspaces polished and shining (Fig. 10D); T3 with punctures of different sizes (Fig. 10F), larger on lateral margins; medially with a longitudinal line of tiny dots; pit row with deep, broad and round pits; area between pit row and apical margin elongate (2.0 MOD) and impunctate (Fig. 10F); T3 apical margin with four short and obtuse teeth, interval between median teeth half as long as interval between median and lateral tooth.

Coloration. Head and mesosoma light to dark blue, darker to blackish on ocelli area, occipital area and genal carina; with golden reflections on clypeus and frons; anterior margin of pronotum without red marks, laterally of the anteromedial groove with golden reflections; mesoscutum flame red; mesoscutellum golden-green; metascutellum blue, lighter medially; mesopleuron blue with greenish reflections. Metasoma red; dorso-medially purplish on T1 and T3, and purplish to blackish on T2. Metasoma metallic red ventrally; S2 with black spots medially fused, with almost straight posterior margins, covering about 2/3 of sternum length. Tegulae brown, without metallic reflections; tarsi brown; scape metallic green, pedicel and flagellum black. Wings hyaline, with dark brown veins.

Vestiture. Setae brownish, dense, erect and elongate (1.5 MOD) on head and dorsally on mesosoma; ventrally with longer (more than 2.0 MOD) and whitish setae; femora and tibiae with thick, erect and long setae (2.0 MOD). Metasoma laterally and posteriorly with very long, whitish setae (up to 3.0 MOD).

Male. Unknown.

DISTRIBUTION. Russia (Altai Rep.).

ETYMOLOGY. The specific epithet *inconsueta* (feminine, adjective) is given for the unusual combination of color pattern, elongate and impunctate area after the pit row and shape of apical margin of T3 with four teeth.

***Chrysis leachii* species-group**

***Chrysis proauriceps* Rosa, sp. n.**

Fig. 11B, 12A–F

SPECIMENS EXAMINED. Holotype – ♂, **Russia**: Krasnoyarsk Terr., 10 km NW Minusinsk, Bystraya River, 9.VII 2014 (AL, MP, VL) [ZIN]. Paratype: 1 ♂, same locality as holotype, 8.VII 2014 (AL, MP, VL) [PRC].

DIAGNOSIS. *Chrysis proauriceps* sp. n. belongs to the *leachii* species-group. It's a small sized species (3.5–4.0 mm long), closely related to *Ch. auriceps* Linsenmaier, 1959. The specimens collected (holotype and paratype) are distinctly smaller, slender and darker compared with males of *Ch. auriceps* (Fig. 11A). However, it's possible that these features could be related to a local population, because occasionally small and darker male specimens are also observed in males of *Ch. leachii* Shuckard, 1837. The Siberian males are anyway distinct by structure of genital capsule (Fig. 12F), with short gonostyle, propodeum shape (median area of the metapectal-propodeal complex) and shape of propodeal teeth (Fig. 11B). This species is separated by all other Russian species of the *leachii* species-group by shape of genitalia.

DESCRIPTION. *Male*. Body length 3.5–4.0 mm. Fore wing length 2.0 mm. OOL = 2.2 MOD; POL = 2.5 MOD; MS = 1.2 MOD; relative length of P : F1 : F2 : F3 = 1.0 : 1.3 : 0.8 : 0.7.

Head. Vertex and frons with large (up to 0.5 MOD), contiguous punctures; TFC faint; scapal basin broadly microridged, with large punctures along eye margin, malar spaces and genae; subantennal space about 1.0 MOD; in frontal view, malar spaces convergent (Fig. 12A).

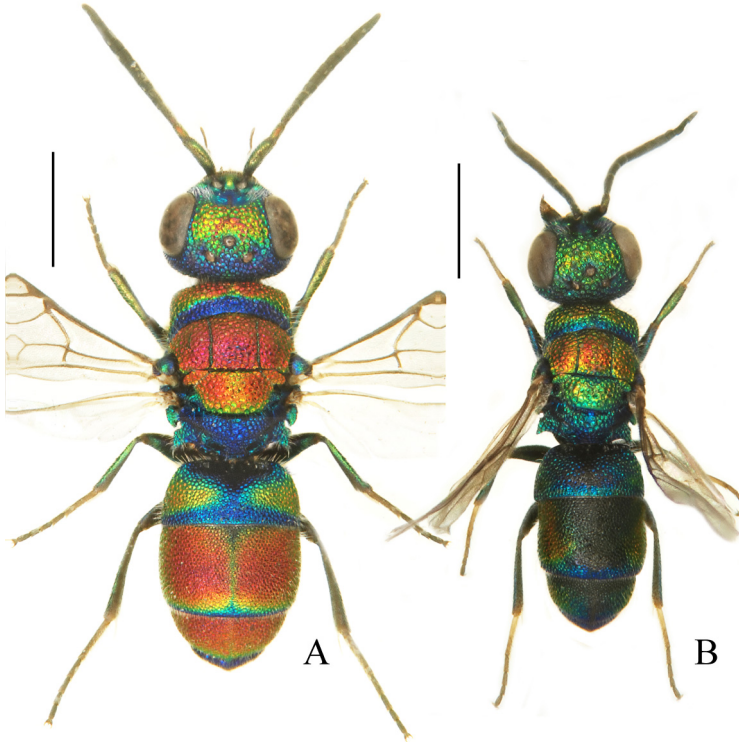


Fig. 11. A – *Chrysis auriceps* Linsenmaier, ♂, Italy, habitus, dorsal view; B – *Ch. proauriceps* Rosa, sp. n., holotype ♂, habitus, dorsal view. Scale bar = 1.0 mm.

Mesosoma. Pronotal groove large, almost reaching the pronotal posterior margin; mesoscutum and mesoscutellum with large, almost contiguous punctures, their diameter about the same of those on head (Fig. 12C). Median area of the metapectal-propodeal complex smaller than in *Ch. auriceps*, distinctly triangular rather than trapezoidal; punctures of the episternal sulcus as large as or smaller than other punctures of mesopleuron.

Metasoma. Punctuation on T1 and T2 contiguous, with large, shallow punctures, becoming smaller towards the posterior margin of T2 (Fig. 12D); on T3 with uneven, contiguous punctures; pit row with ten small, deep and round pits; T3 apical margin arched, without distinct median tooth (Fig. 12E).

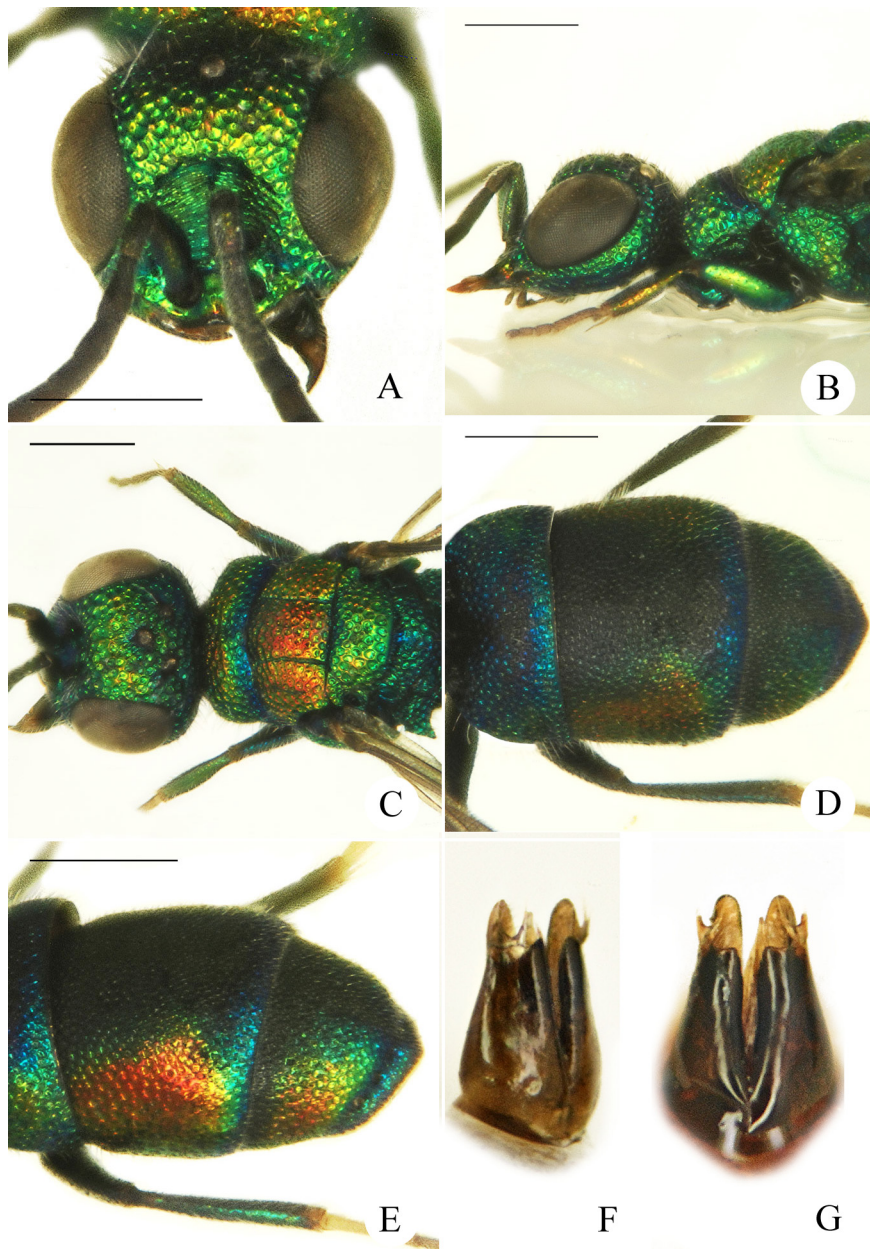


Fig. 12. A–F – *Chrysis proauriceps* Rosa, sp. n., holotype ♂: A – head, frontal view; B – mesosoma, lateral view; C – head and mesosoma, dorsal view; D – metasoma, dorsal view; E – metasoma, lateral view; F – genital capsule; G – *C. auriceps*, genital capsule. Scale bar = 0.5 mm.

Coloration. Head and mesosoma blue to green, with greenish-coppery reflections on frons; pronotum anteriorly and mesoscutum golden to golden-red, mesoscutellum greenish, somehow contrasting with mesoscutum; metascutellum and propodeum bluish; mesopleuron and legs greenish. Metasoma medially black, without metallic reflections, laterally golden to golden-greenish and blue (Fig. 12E) (in the paratype almost entirely blackish); apical margin of T3, after pit row, concolorous with the rest of T3; metasomal sterna black, without distinct spots on S2. Tegulae brown, without metallic reflections (metallic blue in *Ch. auriceps*); tarsi light brown; scape metallic green, pedicel and flagellum black. Wings hyaline, smoky along costal and radial vein.

Vestiture. Body, including legs, evenly covered with whitish, short, erect setae (1.0 MOD), somewhere laterally a little longer.

Female. Unknown.

DISTRIBUTION. Russia (Krasnoyarsk Terr.).

ETYMOLOGY. The specific epithet *proauriceps* is derived from the Latin preposition *pro-* (“in front of” or “compared with”) and the chrysidid name *Ch. auriceps*, the most similar species in the *leachii* species-group.

Chrysis viridula species-group

Chrysis consanguinea Mocsáry, 1889

Chrysis (Gonochrysis) consanguinea Mocsáry, 1889: 299. Syntypes – ♀♀; Italy: Sicily; Algeria [MHNG] (examined) (*viridula* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 12 km SE Aktash, Chuya River, 4.VII 2016, 1♀, 1♂ (MP, VL); 14 km SE Aktash, Chuya River, 2.VII 2016, 2♂ (MP, VL); 15 km SE Kurai, Chuya River, 8.VII 2016, 1♂ (MP, VL); 5 km SE Chagan-Uzun, Tudituyaryk River, 12.VII 2016, 1♂ (MP, VL); Khakassia Rep.: 20 km SW Abakan, Izykhskie Kopi, 13.VI 2012, 1♂ (MP, VL); idem, 1♀, 7.VII 2014 (AL, MP, VL); 27 km E Shira, Borets, 30.VI 2014, 1♂ (AL, MP, VL); Zhemchuzhnyi, Shira Lake, 14–15.VII 2012, 2♂ (MP, VL); idem, 1.VII 2014, 2♂ (AL, MP, VL); Tuva Rep.: 12 km SW Samagaltai, Dytyyg-Khem River, 8–10.VII 2013, 3♀ (MP, AL); idem, 19.VII 2014, 9♀, 3♂ (AL, MP, VL); 27 km SSW Erzin, Tore-Khol Lake, 12.VII 2014, 4♂, (AL, MP, VL); 31 km NEE Erzin, Erzin River, 18.VII 2014, 6♀, 1♂ (AL, MP, VL); Irkutsk Prov.: Bratsk, Gidrostroitel’, Sosnovyi Island, 22.VIII 2000, 1♂ (P. Klimov).

DISTRIBUTION. *Russia (Altai Rep., Khakassia Rep., Tuva Rep., Irkutsk Prov.); Southern Europe, Caucasus, North Africa.

Chrysis cylindrica Eversmann, 1858

Chrysis cylindrica Eversmann, 1858: 554. Holotype – ♀; Russia: Kazan [ISEA] (examined) (*viridula* group).

SPECIMENS EXAMINED. **Russia:** Yakutia: Yakutsk [sub *Ch. viridula*, ZIN].

DISTRIBUTION. Russia (Crimea, European part, Ural, Yakutia); South-Eastern Europe, Caucasus (Linsenmaier, 1959, 1968).

Chrysis splendidula species-group

Chrysis rutilans extranea Linsenmaier, 1959

Chrysis (*Chrysis*) *rutilans* ssp. *extranea* Linsenmaier, 1959: 128. Holotype – ♂; Japan [NMLS] (examined) (*splendidula* group).

SPECIMENS EXAMINED. **Russia:** Khakassia Rep.: 14 km SSW Abakan, Belyi Yar, Abakan River, 12.VII 2012, 1♂ (MP, VL); 20 km SW Abakan, Izykhskie Kopi, 7.VII 2014, 1♂ (AL, MP, VL); Primorsky Terr.: 7 km E Khasan, Golubinyi Utes, 26.VI 2010, 2♂ (MP, VL).

DISTRIBUTION. *Russia (Khakassia Rep., Primorsky Terr.); China, Japan (Linsenmaier, 1959).

Chrysis bihamata species-group

Chrysis sibirica Rosa, sp. n.

Figs 13B, D, 14A–F

SPECIMENS EXAMINED. Holotype – ♀, **Russia:** Tuva Rep., 31 km NEE Erzin, Erzin River, 18.VII 2014 (AL, MP, VL) [ZIN]. Allotype – ♂, same data as holotype [ZIN]. Paratypes: same data as holotype, 5♂, 2♀ (AL, MP, VL); Buryatia Rep.: Gusinoe Lake, Baraty, 26.VII 2007, 1♀ (AL, MP, VL) [IBSS].

DIAGNOSIS. *Chrysis sibirica* sp. n. belongs to the *bihamata* species-group. It is a medium sized species (7.5–8.0 mm long), closely related to *Ch. pavesii* Rosa, sp. n. The two species are similar, but different in body coloration (Fig. 13) (fully metallic red in *Ch. sibirica*, fully metallic green in *Ch. pavesii*; this difference appears not to be a post-mortem alteration of the specimens); different body sculpture (in *Ch. pavesii* with shining interspaces and shallower punctures, more spaced apart); general habitus (more robust in *Ch. sibirica*, with stocky metasoma, see Figs 13A–D); mesopleuron with episternal sulcus deeply marked only on anterior half, then becoming obsolete (Fig. 14B) (*vs.* complete in *Ch. pavesii* (Fig. 15B)); mandible shape (*Ch. sibirica* female has a subdentate mandible with elongate mandible apex); female TFC M-shaped in *Ch. sibirica*, almost straight in *Ch. pavesii*; male propodeal teeth distinctly outwards directed in *Ch. sibirica* (*vs.* subparallel in *Ch. pavesii*); male scapal basin with elongate, silvery and partially erect setae in *Ch. sibirica* (*vs.* setae appressed in *Ch. pavesii* male).

DESCRIPTION. Body length 7.5–8.0 mm. Fore wing length 5.0 mm. *Female.* OOL = 2.0 MOD; POL = 2.2 MOD; MS = 1.2 MOD; relative length of P : F1 : F2 : F3 = 1.0 : 1.8 : 0.8 : 0.7.

Head. Vertex and frons with small (about 0.2–0.3 MOD) and contiguous punctures, with narrow polished interspaces; two large impunctate areas (1.0 MOD width) close to posterior ocelli; TFC M-shaped and bordered by dark purple color (Fig. 14A); scapal basin broadly polished in the third across (about 3 MOD), medially polished (about 2 MOD width), laterally punctate in the lower two thirds; subantennal space about 1.0 MOD.

Mesosoma. Pronotal groove shallow, broad and shorter than half pronotal length; pronotum with relatively small, even and equally spaced punctures with small punctures on interspaces; mesoscutum with larger punctures, almost contiguous at base; mesoscutellum with contiguous and corrugate punctures, postero-medially with an impunctate area; propodeal teeth slightly divergent to subparallel; mesopleuron with a peculiar episternal sulcus (Fig. 14B): in the upper half with small foveae, anyway larger than other punctures on mesopleuron; in the lower part foveae vanishing, becoming shallower and smaller, smaller than punctures on the rest of mesopleuron.

Metasoma. Punctuation on T1 geminate (seen in posterior view), with small punctures widely separate (1.0–3.0 PD apart), larger along posterior margin and with fine dots on interspaces; T2 basally with larger, rugulose and irregular punctures, geminate and partially contiguous (Fig. 14D); laterally and posteriorly with simple punctures widely separate; along midline with row of fine dots; T3 basally with corrugate and contiguous punctures becoming polished before pit row (Fig. 14D); with small scattered punctures between pit row and apical margin; pit row with small and shallow pits (Figs 14D, 14E) barely visible. Apical margin straight, without teeth, corners or undulations (Fig. 14E).

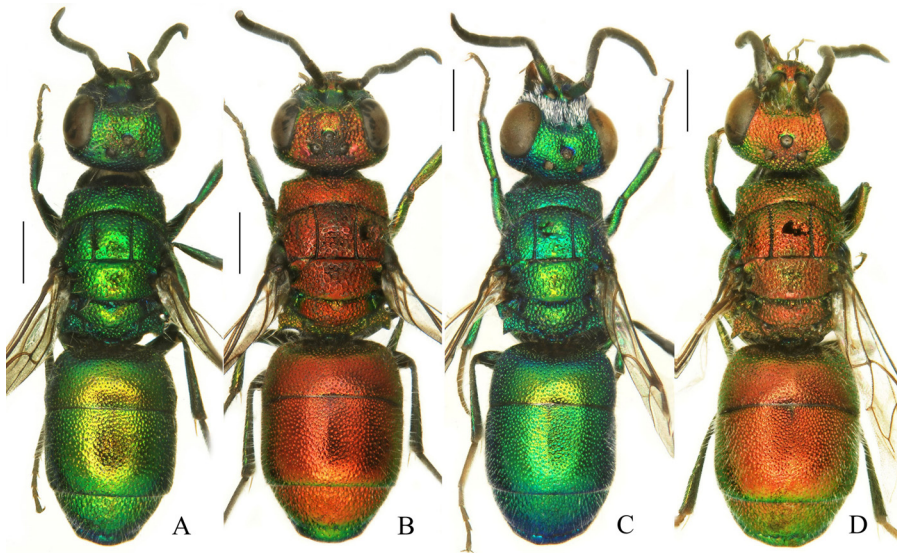


Fig. 13. Habitus, dorsal view. A, C – *Chrysis pavesii* Rosa, sp. n.: A – holotype ♀; C – ♂; B, D – *Ch. sibirica* Rosa, sp. n.: B – holotype ♀; D – ♂. Scale bar = 1.0 mm.

Coloration. Body entirely metallic red with greenish to coppery reflection on face, legs, propleuron, sulci on mesopleuron, metapleuron and T3 apical margin; darker to violet on ocelli area and TFC. Tegulae brown, basally with slightly metallic reflections (metallic greenish in male); tarsi brown; scape metallic, rest of antenna black (pedicel metallic in male). Wings hyaline.

Vestiture. Body with whitish, long, erect setae (up to 2.0 MOD), longer laterally.

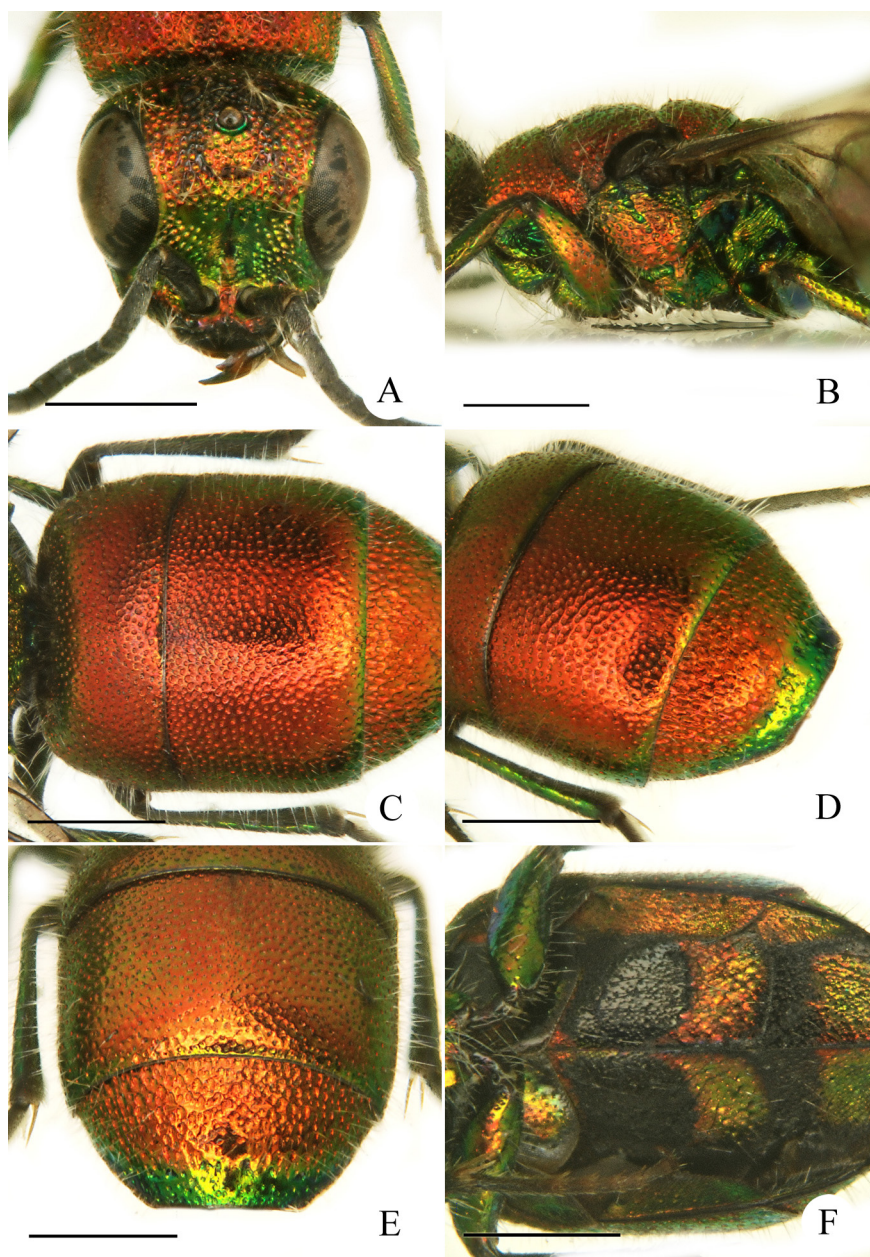


Fig. 14. *Chrysis sibirica* Rosa, sp. n., holotype ♀: A – head, frontal view; B – mesosoma, lateral view; C – metasoma, dorsal view; D – metasoma, postero-lateral view; E – metasoma, posterior view; F – metasoma, ventral view. Scale bar = 1.0 mm.

Male. Similar to female, scapal basin fully micropunctate, with silvery setae; TFC obsolete; tegulae metallic; teeth of apical margin of T3 reduced to slight undulations.

DISTRIBUTION. Russia (Tuva Rep., Buryatia Rep.).

ETYMOLOGY. The specific epithet *sibirica* (adjective) is named after the type locality in Siberia.

***Chrysis pavesii* Rosa, sp. n.**

Figs 13A, C, 15A–F

SPECIMENS EXAMINED. Holotype – ♀: Russia, Altai Rep., 5 km SE Chagan-Uzun, Tudduyaryk River, 50°04,367'N 88°25,193'E, 1780m, 11.VII 2016 (MP, VL) [ZIN]. Allotype – ♂, same data as holotype [ZIN].

DIAGNOSIS. *Chrysis pavesii* sp. n. belongs to the *bihamata* species-group. It's a medium sized species (7.5–8.0 mm long), closely related to *Ch. sibirica* Rosa, sp. n. It is separated by body coloration (fully metallic green); different body sculpture with shining interspaces, shallower, more scattered punctures; general habitus slender (see Fig. 13); mandible with faint inner tooth (Fig. 15A); mesopleuron with episternal sulcus complete (Fig. 15B); female T3 apical margin with lateral corner (Fig. 15E); for others diagnostic characters see diagnosis of *Ch. sibirica* sp. n.

DESCRIPTION. Body length 7.5–8.0 mm. Fore wing length 5.0 mm. *Female*. OOL = 2.1 MOD; POL = 2.3 MOD; MS = 1.2 MOD; relative length of P : F1 : F2 : F3 = 1.0 : 1.8 : 0.8 : 0.7.

Head. Vertex and frons with small (about 0.2–0.3 MOD) and contiguous punctures; with two large (1–3 PD apart) impunctate areas close to posterior ocelli, and polished interspaces; TFC almost straight (Fig. 15A); area between TFC and mid-ocellus slightly sunken; scapal basin broadly polished in the third across; medially polished (about 2 MOD width) in the lower two thirds and laterally punctate; subantennal space about 1.0 MOD.

Mesosoma. Pronotal groove shallow, broad and longer than half pronotal length; pronotum with relatively small, even and equally spaced punctures, with small punctures on interspaces; mesoscutum with small and shallow punctures, about 1 PD apart, with polished and shining interspaces; mesoscutellum with irregular small punctures, about 1 PD apart, with polished and shining interspaces as well; metanotum with large anteromedial half-circle fovea; propodeal teeth slightly divergent to subparallel; mesopleuron with complete episternal sulcus, with subrectangular foveae, larger than surrounding punctures (Fig. 15B).

Metasoma. Punctuation on T1 geminate, with small punctures widely separate (1–2 PD apart), and tiny dots on interspaces; T2 basally with larger irregular punctures, geminate, partly corrugate and contiguous (seen in dorso-lateral view) (Fig. 15D); laterally and posteriorly with simple, shallow, widely separate punctures; T3 basally with corrugate, irregular punctures, smaller before pit row; with small punctures between pit row and apical margin; pit row with small, shallow pits. Apical margin weakly undulate, with blunt lateral corners.

Coloration. Body entirely metallic green, with golden reflection on TFC and somewhere ventrally on metasoma. Tegulae brown, with slightly metallic reflections at base; tarsi brown; scape metallic, rest of antenna black (pedicel metallic in male). Wings hyaline.

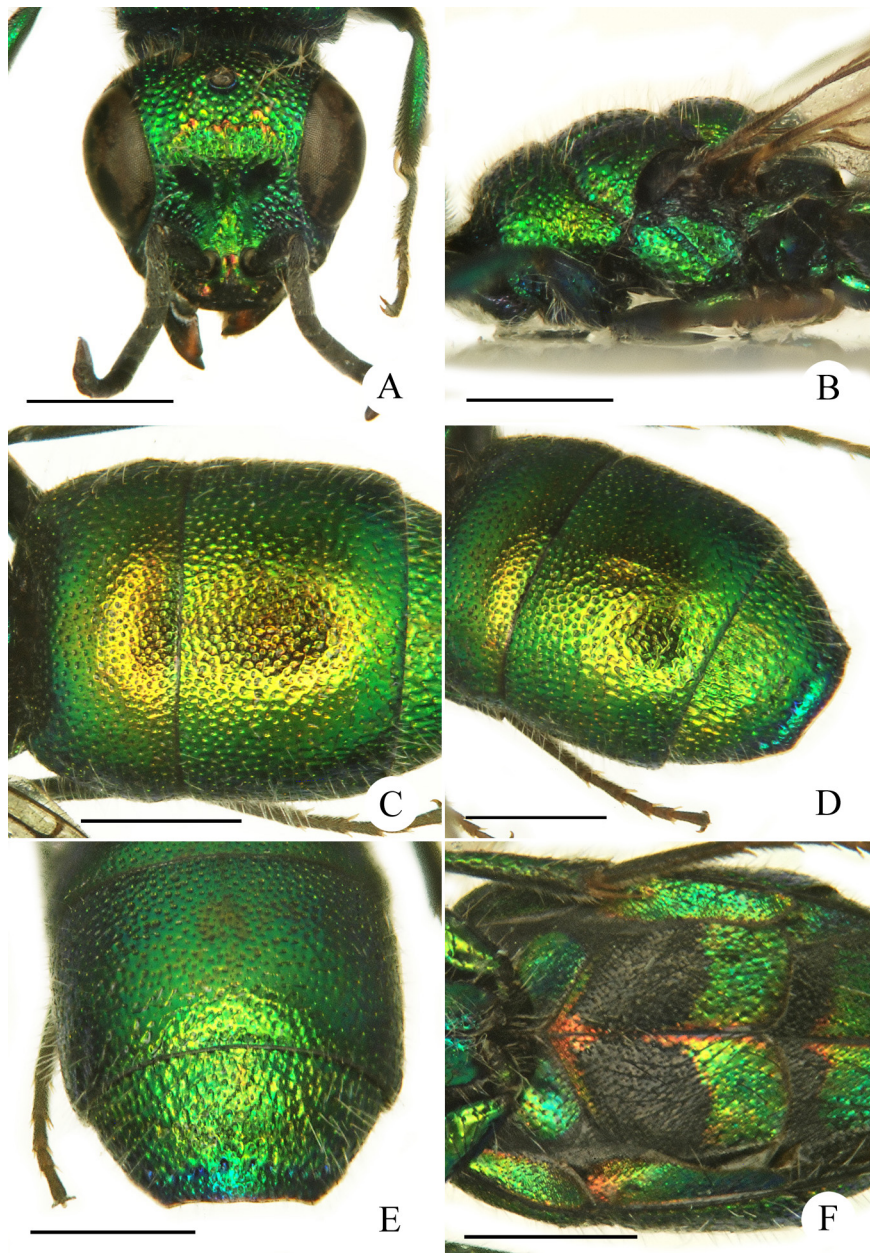


Fig. 15. *Chrysis pavesii* Rosa, sp. n., holotype ♀: A – head, frontal view; B – mesosoma, lateral view; C – metasoma, dorsal view; D – metasoma, postero-lateral view; E – metasoma, posterior view; F – metasoma, ventral view. Scale bar = 1.0 mm.

Vestiture. Body with whitish, long, erect setae (up to 2.0 MOD), longer laterally.

Male. Similar to female, scapal basin fully micropunctate, with silvery setae; tegulae metallic green; apical margin of T3 with slight undulations.

DISTRIBUTION. Russia (Altai Rep.).

ETYMOLOGY. The specific epithet *pavesii* is dedicated to Maurizio Pavesi (Milano, Italy), renowned entomologist and excellent connoisseur of cuckoo-wasps, who kindly reviewed this article and supported the research activity of P. Rosa with materials and precious suggestions.

***Chrysis ignita* species-group**

***Chrysis brevitarsis* Thomson, 1870**

Chrysis brevitarsis Thomson, 1870: 107. Holotype – ♀; Sweden: Nerike (= Närke) [LZM] (examined) (*ignita* group).

SPECIMENS EXAMINED. **Russia**: Tuva Rep.: W of Ujukskyi Mountains, Kamennyi river Valley, 1000m, 11–20.VII 2003, 1♂ [GLA].

DISTRIBUTION. Russia (Crimea, North Caucasus, Tuva Rep.); Northern and Central Europe (Linsenmaier, 1997).

***Chrysis pseudobrevitarsis* Linsenmaier, 1951**

Chrysis (Chrysis) ignita var. *pseudobrevitarsis* Linsenmaier, 1951: 79. Lectotype – ♀ (designated by Linsenmaier, 1959); Switzerland: Wallis [NMLS] (examined).

SPECIMENS EXAMINED. **Russia**: Altai Rep.: 24 km NWW Aktash, Chuya River, 30.VI 2016, 1♀ (MP, VL); 12 km SE Aktash, Chuya River, 3–4.VII 2016, 2♀, 1♂ (MP, VL); idem, 13.VII 2016, 1♀ (MP, VL); Khakassia Rep.: 26 km NW Shira, 4th Sunduk Mt., 2.VII 2014, 1♀ (AL, MP, VL); 20 km SW Abakan, Izykhskie Kopi, 7.VII 2014, 1♀ (AL, MP, VL); Tuva Rep.: 6 km SE Bai-Khaak, Sosnovka, 21.VII 2014, 3♀ (AL, MP, VL); Krasnoyarsk Terr.: Krasnoyarsk, 20.VII 2012, 1♀ (MP, VL).

DISTRIBUTION. Russia (Crimea, North Caucasus, European part, Siberia); Trans-Palaearctic: from Western Europe to Mongolia (Paukkunen *et al.*, 2014).

***Chrysis buda* Bohart, 1991**

Chrysis (Tetrachrysis) buddhae Semenov, 1967: 179. Holotype – ♀; China: Inner Mongolia [ZIN] (examined) (*ignita* group), nom. praeocc., nec Mocsáry, 1913.

Chrysis buda Bohart in Kimsey & Bohart, 1991: 392. Replacement name for *C. buddhae* Semenov.

SPECIMENS EXAMINED. **Russia**: Buryatia Rep.: Ulan-Ude, 21.VI 2014, 1♂ (A. Filippov) [GLA].

DISTRIBUTION: *Russia (Buryatia Rep.); China (Inner Mongolia, Hubei).

***Chrysis chinensis* Mocsáry, 1912**

Chrysis (Chrysis) chinensis Mocsáry, 1912: 589. Holotype – ♀; China: Shanghai [HNHM] (examined) (*ignita* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 12 km SE Aktash, Chuya River, 3–4.VII 2016, 5♀, 5♂ (MP, VL); 15 km SE Kurai, Chuya River, 8.VII 2016, 1♀ (MP, VL); Khakassia Rep.: Zhemchuzhnyi, Shira Lake, 1.VII 2014, 1♀ (AL, MP, VL); Zabaikalskyi Terr.: “Dauria” [NMLS].

DISTRIBUTION. *Russia (Altai Rep., Khakassia Rep., Zabaikalskii Terr); Trans-Palaeartic: from Western Europe to Mongolia and China (Heilongjiang, Shanghai) (Linsenmaier, 1959).

***Chrysis mediadentata* Linsenmaier, 1951**

Chrysis (Chrysis) ignita var. *mediadentata* Linsenmaier, 1951: 75. Lectotype – ♂ (designated by Linsenmaier, 1959); Switzerland: Wallis [NMLS] (examined) (*ignita* group).

SPECIMENS EXAMINED. **Russia:** Irkutsk Prov.: Irkutsk [NMLS].

DISTRIBUTION. Russia (North Caucasus, European part, Irkutsk Prov.); Europe (Rosa & Soon, 2012).

REMARKS. The specimen was examined before the description of *Ch. borealis* Paukkunen, Ødegaard et Soon, 2015; northern Russian specimens could belong to the latter taxon.

***Chrysis schencki* Linsenmaier, 1968**

Chrysis (Chrysis) ignita ssp. *schenckiana* Linsenmaier, 1959: 156, nom. praeocc., *nec* Mocsáry, 1912. Holotype – ♀; Switzerland: Graubünden [NMLS] (examined).

Chrysis (Chrysis) ignita schencki Linsenmaier, 1968: 99. Replacement name for *C. ignita schenckiana* Linsenmaier, 1959.

SPECIMENS EXAMINED. **Russia:** Tomsk Prov.: Kolpashevo [NMLS].

DISTRIBUTION. Russia (North Caucasus, European part, Tomsk Prov.); Trans-Palaeartic: from Western Europe to Central Asia, Siberia and Japan (Paukkunen *et al.*, 2014).

***Chrysis castigata* Linsenmaier, 1959**

Chrysis (Chrysis) exsulans var. *asiatica* Linsenmaier, 1951: 82. Holotype – ♀; Uzbekistan: Ferghana [HNHM] (examined) (*ignita* group), nom. praeocc., *nec* Radoszkowski, 1889.

Chrysis (Chrysis) exsulans var. *castigata* Linsenmaier 1959: 155. Replacement name for *C. asiatica* Linsenmaier, 1951.

SPECIMENS EXAMINED. **Russia:** Tuva Rep.: 20 km SSW Erzin, Tore-Khol' Lake, 2–3.VII 2013, 4♀ (VL, MP); 13 km SW Samagaltai, Dytytg-Khem River, 8–10.VII 2013, 6♀ (VL, MP); 25 km SE Erzin, Tes-Khem River, 15.VII 2014, 1♀, 1♂ (VL, MP); 6 km SE Bai-Khaak, Sosnovka, 21.VII 2014, 6♀, 1♂ (AL, MP, VL); south slope of W Tanu-Ola near Soglyi Village, 2000–2800m, 15–20.VI 2003, 1♂ [GLA]; Buryatia Rep.: Dzida, Dzhida River, 28.VII 2007, 1♀ (AL, MP, VL); Ust'-Kiran, Chikoi River, 27.V 2008, 1♀ (VL).

DISTRIBUTION. *Russia (Buryatia Rep., Tuva Rep.); Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan (Linsenmaier, 1959).

***Chrysis inaequalis* species-group**

***Chrysis mysticalis* Linsenmaier, 1959**

Chrysis mysticalis Linsenmaier, 1959: 165. Holotype – ♀; Spain: Zamora, Ribadelago [NMLS] (examined) (*inaequalis* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 15 km SE Kurai, Chuya River, 6.VII 2016, 1♀ (MP, VL); Krasnoyarsk Terr.: Minusinsk, 9.VII 2012, 1♂ (MP, VL); Tuva Rep.: W Ujukskyi Mountains, Kamennyi river Valley, 800–1000m, 11–20.VII 2003, 1♀ [GLA]; Zabaikalskiy Terr.: 20 km SSE Krasnokamensk, 4.VIII 2007, 1♂ (AL, MP, VL).

DISTRIBUTION. *Russia (European part, Siberia); Southern Europe.

Genus *Chrysura* Dahlbom, 1845

Chrysura Dahlbom, 1845: 6. Type species: *Chrysis austriaca* Fabricius, 1804, by subsequent designation of Bodenstern, 1939.

***Chrysura radians* species-group**

***Chrysura trimaculata* (Förster, 1853)**

Chrysura trimaculata Förster, 1853: 307. Syntypes – ♀♀; Hungary [depository unknown] (*radians* group).

SPECIMENS EXAMINED. **Russia:** Tuva Rep.: Sayany [ZIN].

DISTRIBUTION. *Russia (Tuva Rep.); Central and South-Eastern Europe, Caucasus, Turkey. The northern African distributional record (Kimsey & Bohart, 1991) is in error (Rosa & Vårdal, 2015). Recorded also from Eastern Ukraine and expected for European part of Russia.

***Chrysura alticola* (Semenov, 1912)**

Chrysis petri alticola Semenov, 1912: 190. Lectotype – ♀ (designated by Rosa in Rosa *et al.*, 2017a); Eastern Bukhara [ZIN] (examined) (*radians* group).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 5 km SE Chagan-Uzun, Tudu-yaryk River, 11–12.VII 2016, 2♀ (MP, VL); 15 km SE Kurai, Chuya River, 5.VII 2016, 1♀ (MP, VL).

DISTRIBUTION. *Russia (Altai Rep.); Tajikistan.

Tribe Elampini

Genus *Omalus* Panzer, 1801

Omalus Panzer, 1801: 13. Type species: *Chrysis aenea* Fabricius, 1787, by monotypy.

***Omalus berezovskii* (Semenov, 1932)**

Ellampus (Dictenulus) berezovskii Semenov, 1932: 12. Holotype – ♀; China: Sichuan [ZIN] (examined).

SPECIMENS EXAMINED. **Russia:** Khakassia Rep.: 14 km SSW Abakan, Belyi Yar, Abakan River, 12.VII 2012, 1 ex. (MP, VL); Tuva Rep.: Shuurmak, Shuurmak River, 12.VII 2013, 3 ex. (VL, MP); Zhemchuzhnyi, Shira Lake, 1.VII 2014, 1 ex. (MP, VL); Primorskyi Terr.: 70 km SE Chuguevka, "Zov tigra" Natural Park, 12.VII 2010, 2 ex. (VL); 15 km S Ternei, Udobnaya Bay, 7.VIII 2012, 1 ex. (VL).

DISTRIBUTION. *Russia (Khakassia Rep., Tuva Rep., Primorsky Terr.); China (Ningxia, Sichuan).

Genus *Pseudomalus* Ashmead, 1902

Pseudomalus Ashmead, 1902: 229. Type species: *Omalus semicircularis* Aaron, 1885 [= *Pseudomalus janus* (Haldeman, 1844)], by monotypy and original designation.

***Pseudomalus punctatus* (Uchida, 1927)**

Philoctetes punctatus Uchida, 1927: 152. Syntypes – ♂, ♀; Japan: Hokkaido and Honshu [EIHU].

SPECIMENS EXAMINED. **Russia:** Khakassia Rep.: 14 km SSW Abakan, Belyi Yar, Abakan River, 12.VII 2012, 2♀ (MP, VL); Krasnoyarsk Terr.: Minusinsk, 6.VII 2012, 1♂ (MP, VL); Minusinsk, Malaya Minusa River, 7.VII 2012, 1♀ (MP, VL); Yakutia: 50 km SSW Yakutsk, Oktemtsy, 17.VIII 1977, 1♀ (Bagachanova); 60 km NE Amga, Mikhailovka, 21.VI 1986, 1♀ (Bagachanova); Pokrovsk, Lena River, 28.VII 1980, 1♀ (Gavril'eva); Megino-Aldan, 23.VI 1981, 1♀ (Kaimuk); Sakhalinskaya Prov.: Kunashir Isl., 11 km N Golovnino, 1.VIII 1989, 1♀ (AL); idem, Dubovoe, 20–21.VII 2011, 1♀ (VL, MP); idem, Tret'yakovo, 27.VII 2011, 1♀, 4♂ (VL, MP); South Sakhalin, (Nesterov) [ZIN]; Primorskyi Terr.: Anisimovka, 4.IX 1982, 1♀ (AL); idem, 24.VII 2010, 1♂ (MP); Novitskoe, 18.VII 1979, 1♂ (SB); Barabash-Levada, 6.VI 1980, 1♀ (SB); idem, 7.IX 1982, 1♀ (AL); idem, 25.V 1989, 1♀ (SB); Novogeorgievka, 5.VIII 1982, 1♂ (Shalygina); 7 km E Khasan, 26.VIII 1986, 2♀ (SB); Khasan, 31.V 1989, 1♀ (SB); Blagodatnoe, 12.VI 1979, 1♀ (SB); 30 km N Ternei, 1.VII 1982, 1♀ (V. Mutin); Novokachalinsk, 16.VIII 1977, 1♀ (AL); 20 km SE Spassk, 18.VI 1980, 1♀ (SB); Spassk, 13.IX 1988, 2♂ (SB); Chernigovsky distr., Dmitrievka, 29.V 1985, 3♀ (P. Nemkov); idem, 23.VI 1986, 1♂ (P. Nemkov); 30 km S Lazo, Benevskoe, 18.VIII 1986, 1♀ (AL); 10 km NE Vladivostok, 11.VI 1991, 1♂ (AL); Brovnichi, Tigrovaya River, 7.VI 1994, 3♂ (AL); Nakhodka, 21–22.VIII 2015, 1♂ (S. Shabalin, E. Poletkov); Amurskaya Prov.: Arkhara, 18.VIII 1982, 1♀ (AL); Kamchatsky Terr.: Mil'kovo, 6.VII 1985, 1♀ (SB); Kozyrevsk, 13.VII 1985, 1♀ (SB); idem, 22.VII 1985, 2♀ (SB); 8 km S Kozyrevsk, 16.VII 1985, 3♀ (SB); 10 km S Kozyrevsk, 23.VII 1985, 1♀ (SB).

DISTRIBUTION. *Russia (Siberia, Far East); Korea and Japan (Hokkaido, Honshu).

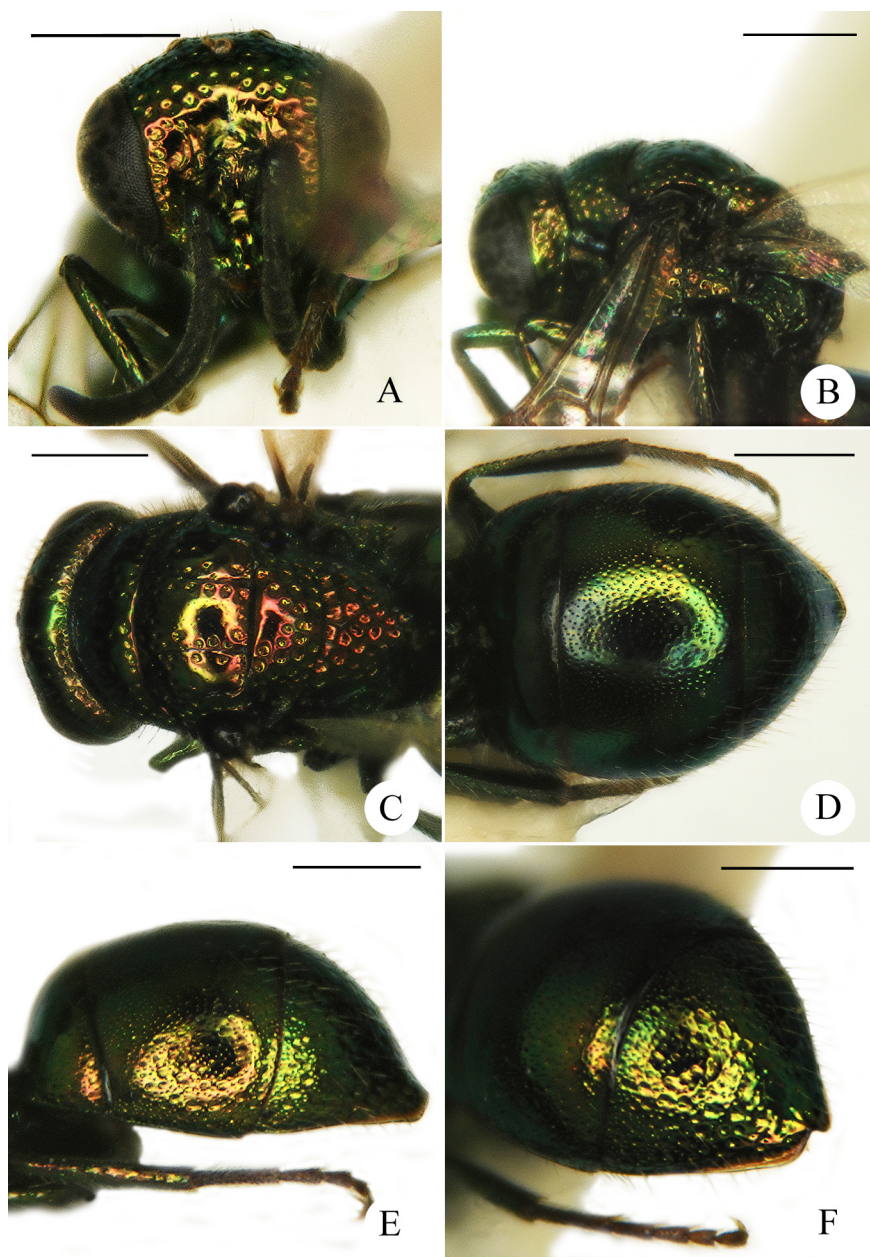


Fig. 16. *Philoctetes cynthiae* Rosa, sp. n., holotype ♀: A – head, frontal view; B – head and mesosoma, lateral view; C – head and mesosoma, dorsal view; D – metasoma, dorsal view; E – metasoma, lateral view; F – T3, postero-lateral view. Scale bar = 0.5 mm.

***Pseudomalus triangulifer* (Abeille de Perrin, 1877)**

Omalus triangulifer Abeille de Perrin, 1877: 65. Lectotype – ♀ (designated by Kimsey, 1986); France: Sainte-Baume [MNHN] (examined).

SPECIMENS EXAMINED. **Russia:** Altai Rep.: 24 km NWW Aktash, Chuya River, 30.VI 2016, 1 ex. (MP, VL); Altai Terr.: Bele, Altaiskiy State Nature Reserve [ZIN]; Khakassia Rep.: 21 km SW Abakan, Izykhskie Kopi, 13.VII 2012, 1 ex. (MP, VL); 26 km NW Shira, 4th Sunduk Mt., 2.VII 2014, 1 ex. (AL, MP, VL); Tuva Rep.: 12 km SW Samagaltai, Dyttyg-Khem River, 17.VII 2014, 1 ex. (AL, MP, VL); 20 km SSW Erzin, Tore-Khol' Lake, 1–3.VII 2013, 3 ex. (VL, MP);); Irkutsk *Prov.*: vill Padun' upper Tunguzka [ZIN]; 15 km E Ust'-Ordynskiy, 22.VI 2007, 6 ex. (P. Nemkov); Yakutia: 125 km SW Olekminsk, 23.VII 1977, 1 ex. (Averinskij); 60 km SW Pokrovsk, Elanskoe, 16–19.VII 1979, 5 ex. (Kaimuk); Megino-Aldan, 23–27.VI 1981, 2 ex. (Kaimuk); idem, 7–13.VII 1981, 2 ex. (Gavril'eva); idem, 26.V 1982, 1 ex. (Kaimuk); Zabaikalskii Terr.: resort Yamarovka [ZIN].

DISTRIBUTION. Russia (European part, North Caucasus, Siberia, Far East). Trans-Palaeartic: from Europe, Turkey and Caucasus to China.

***Pseudomalus nipponicus* (Tsuneki, 1970)**

Omalus nipponicus Tsuneki, 1970: 28. Holotype – ♀; Japan: Hokkaido [NIAS], according Kimsey & Bohart, 1991.

SPECIMENS EXAMINED. **Russia:** Krasnoyarsk Terr.: 20 km SE Minussinsk, Nichka River, 6.VII 2012, 1 ♀ (MP, VL); Primorsky Terr.: 20 km W Spassk, Khanka Lake, 12.VI 1989, 5 ♀ (S. Belokobylskij).

DISTRIBUTION. *Russia (Krasnoyarsk Terr.; Primorsky Terr.); Japan (Hokkaido).

Genus *Philoctetes* Abeille de Perrin, 1879

Philoctetes Abeille de Perrin, 1879: 27. Type species: *Holopyga cicatrix* Abeille de Perrin, 1879 [= *Philoctetes micans* (Klug, 1835)], by subsequent designation of Ashmead 1902: 228.

***Philoctetes horváthi* (Mocsáry, 1889)**

Ellampus wesmaeli Mocsáry, 1882: 27. Lectotype – ♀ (designated by Móczár, 1964), Hungary: Deliblat [HNHM] (examined); nom. praeocc., *nec* Chevrier, 1862
Ellampus horváthi (!) Mocsáry, 1889: 82. Replacement name for *Ellampus wesmaeli* Mocsáry, 1882.

SPECIMENS EXAMINED. **Russia:** Krasnojarsk Terr.: Minusinsk [ZIN]; Tuva Rep.: 13 km SW Samagaltai, Dyttyg-Khem River, 9–10.VII 2013, 7 ♀ (VL, MP) [IBSS].

DISTRIBUTION. Russia (European part: Volgograd Prov.; Eastern Siberia: Krasnojarsk Terr.). Trans-Palaeartic: from Europe to China and Korea (Rosa *et al.* 2015).

***Philoctetes cynthiae* Rosa sp. n.**

Figs 16A–F, 17A–F, 19G

SPECIMENS EXAMINED. Holotype – ♀, **Russia**: Tuva Rep., 13 km SW Samagaltai, Dyttyg-Khem River, 9.VII 2013 (VL, MP) [ZIN]. Allotype – ♂, Tuva Rep., 13 km SW Samagaltai, Dyttyg-Khem River, 9.VII 2013 (VL, MP) [ZIN]. Paratypes: Tuva Rep.: 20 km SSW Erzin, Tore-Khol' Lake, 1–3.VII 2013, 8 ♀, 5 ♂ (VL, MP); 25 km SE Erzin, Tes-Khem River, 5.VII 2013, 1 ♂ (VL, MP); 13 km SW Samagaltai, Dyttyg-Khem River, 8–10.VII 2013, 5 ♀, 15 ♂ (VL, MP); idem, 19.VI 2014, 1 ♀ (AL, MP, VL) [IBSS]. **Mongolia**: SE Mongolia, 200 km SSE Baruun-Urt Moltsoy Els, 1250m, 27.VII 2007, 1 ♀ (M. Kadlecová) [PRC].

DIAGNOSIS. *Philoctetes cynthiae* sp. n. is closely related to *Ph. mongolicus* (du Buysson, 1901). The male can be easily separated for the following features: body color uniformly metallic green to brass, in some specimens darker to blackish dorso-medially on T2; partly bronze on mesoscutellum and metanotum, more or less also on propodeum and mesopleuron, mesoscutum bright without dark, lusterless areas, tegulae non-metallic (Fig. 17C) (*vs.* body entirely red to dark red or coppery, with broad dull areas on mesosoma and dorsally on metasoma, tegulae metallic red in *Ph. mongolicus* Fig. 19C); genitalia with stout gonocoxae (Fig. 19G) (*vs.* genitalia with elongate gonocoxae (Fig. 19F)); T2, laterally and posteriorly, and T3 with punctuation irregular, double, rugulose and somewhere lacunose, with confluent punctures (*vs.* even punctures with tiny, shallow dots). Female body color from greenish with bronze or coppery reflections to red and golden-red (purplish-red in the Mongolian paratype), without dark, lusterless areas on mesosoma, tegulae non-metallic (Fig. 19C) (*vs.* body entirely dark red, with extensive dark, dull areas medially extended on mesosoma and dorsally on metasoma; tegulae metallic red (see Rosa *et al.* 2015)); F1 short ($l/w = 2$) (*vs.* F1 elongate ($l/w = 2.6$)); punctuation similar to the male. *Ph. cynthiae* sp. n. is also somewhat similar to *Ph. lyubae* sp. n. through the greenish-bronze body color and the metascutellum with elongate subtriangular lamella, but it can be separated through smaller size (3–4 mm) (*vs.* > 5.0 mm); scapal basin irregularly rugulose (*vs.* fully polished); in lateral view, lamella as long as mesoscutellum width (*vs.* longer than mesoscutellum width); body color variable, yet uniform (*vs.* metasoma more golden, contrasting in color with forebody in *Ph. lyubae* (Fig. 18F)).

DESCRIPTION. Body length 3–4 mm. Fore wing length 2.7–3 mm. *Female*. OOL = 2.1 MOD; POL = 2.7 MOD; MS = 1 MOD; relative length of P : F1 : F2 : F3 = 1 : 1.2 : 0.9 : 0.8.

Head. Frons, vertex, face between eye and scapal basin with medium-large (up to 1 MOD), shallow punctures (Fig. 16A), widely separate (1–3 PD). Punctures on post-ocellar vertex smaller, aligned along posterior edge, with large impunctate areas (up to 3 PD) behind posterior ocelli. Scapal basin asetose, deep, irregularly rugulose (Fig. 16A). Gena with large punctures (0.5 MOD) and wrinkles along margin. Genal carina relatively sharp, not bisecting MS. Ocellar triangle isosceles, with large POL (2.7 MOD). Postocellar line obsolete.

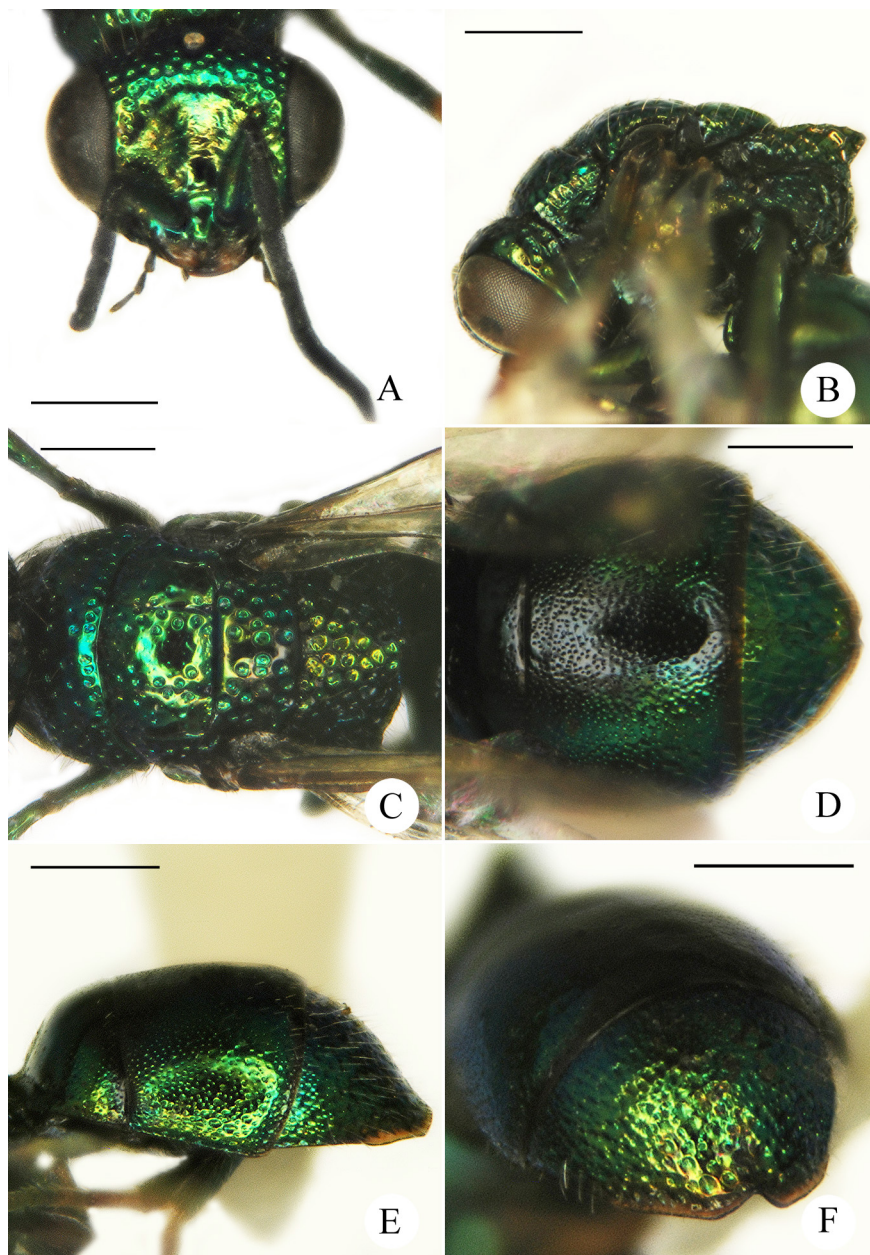


Fig. 17. *Philoctetes cynthiae* Rosa, sp. n., allotype ♂: A – head, frontal view; B – head and mesosoma, lateral view; C – mesosoma, dorsal view; D – metasoma, dorsal view; E – metasoma, lateral view; F – T3, postero-lateral view. Scale bar = 0.5 mm.

Mesosoma. Pronotum medially polished, with small punctures, anteriorly sparse, along the posterior margin in a row; laterally with deep and closer punctures. Mesoscutum with shallow punctures clumped along notauli and between parapsidal furrow and lateral margin before tegulae (Fig. 16C), growing in size posteriorly (0.3–0.75 MOD). Notauli and parapsidal furrows complete. Mesoscutellum antero-medially largely impunctate, laterally and posteriorly with foveate punctures. Metascutellum with foveate-reticulate punctures and subtriangular lamella; in lateral view, lamella about as long as mesoscutellum (Fig. 16B). Mesopleuron with foveate-subreticulate punctures. Tarsal claw with four teeth, the basal one reduced.

Metasoma. T1 impunctate, with a row of fine, spare punctures along posterior margin, and scattered punctures laterally. T2 dorsally with even, small punctures (Fig. 16D), laterally and posteriorly with double punctuation, as well as on T3 (Figs 16E, 16F), the largest punctures deep, lacunose, partially confluent. T3 lateral margins almost straight, weakly undulate before apical notch, with narrow brownish rim; T3 median notch obtuse and small, less than 1 MOD deep (around 0.75 MOD or even less), round at apex.

Coloration. Body color uniformly green with bronze or coppery reflections, some specimens more or less entirely with red and golden-red color or reflections, anyway without black areas on mesosoma; tegulae non-metallic. Scape and pedicel metallic green, flagellomeres blackish. Legs metallic green, tarsi brown to rusty-brown. Wings distinctly brownish, with fine mother-of-pearls wrinkles on outer half.

Vestiture. Long, whitish, sparse, erected setae on head, mesosoma, femur, T2 laterally, and T3.

Male. Similar to female, generally with darker and greenish coloration, not extensively reddish or coppery. Tarsi light brown. Genitalia as in Fig. 19G, with stout gonocoxae. T3 median notch generally less deeply incised than in female.

DISTRIBUTION. Russia (Tuva Rep.); Mongolia.

ETYMOLOGY. The specific epithet *cynthiae* (feminine noun in genitive case) is dedicated to Cinzia Monte (Florence, Italy), acknowledged entomologist, who kindly supported the editorial work of the first author.

***Philoctetes kuznetsovi* (Semenov, 1932)**

Ellampus (*Ellampus*) *kuznetsovi* Semenov-Tian-Shanskij, 1932: 25. Lectotype – ♂ (designated by Kimsey 1986); Georgia: Tbilisi [ZIN] (examined).

SPECIMENS EXAMINED. **Russia**: European part: Tatar Rep. [MMC]; North Caucasus: Dagestan Rep. [ZIN]; Eastern Siberia: Irkutsk Prov.: Kuz'mikha env. Irkutsk [ZIN].

DISTRIBUTION. Russia (Tatar Rep., Dagestan Rep., Irkutsk Prov.); Caucasus (Georgia).

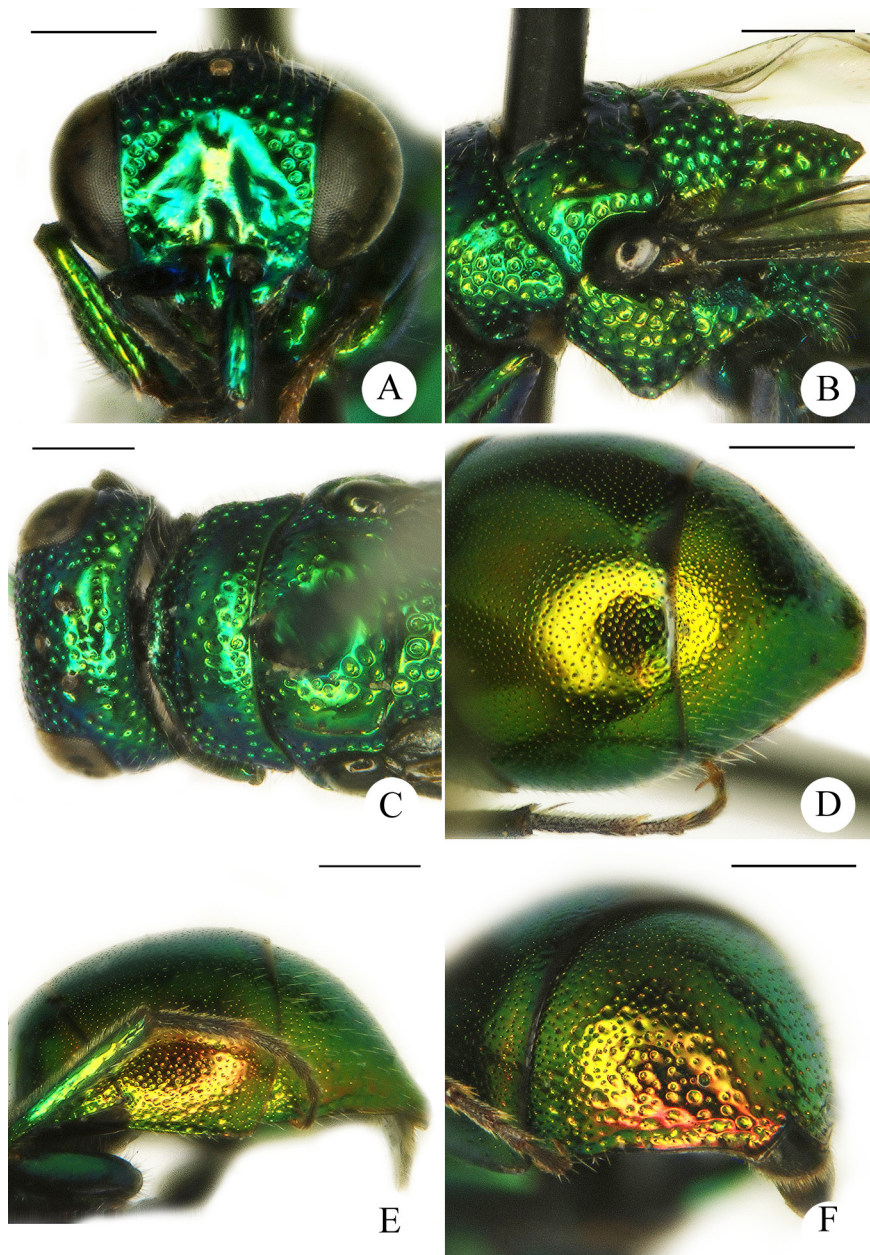


Fig. 18. *Philoctetes lyubae* Rosa, sp. n., holotype ♀: A – head, frontal view; B – mesosoma, lateral view; C – head and mesosoma, dorsal view; D – metasoma, dorsal view; E – metasoma, lateral view; F – T3, postero-lateral view. Scale bar = 0.5 mm.

***Philoctetes lyubae* Rosa, sp. n.**

Figs 18A–F

SPECIMENS EXAMINED. Holotype – ♀: **Russia**: Tuva Rep., 20 km SSW Erzin, Tore-Khol' Lake, 3.VII 2013 (VL, MP) [ZIN].

DIAGNOSIS. *Philoctetes lyubae* sp. n. can be separated from other *Philoctetes* by the following combination of characters: scapal basin smooth; metascutellum with elongate, subtriangular, apically subtruncate lamella; the latter in lateral view longer than mesoscutellum; body bicolored, with head and mesosoma metallic green, metasoma golden to golden-greenish; tegulae non-metallic black; medium-large dimensions (5.0 mm). *Ph. lyubae* sp. n. is closely related to *Ph. putoni* (du Buysson, 1892), considered endemic for the Alps so far (Rosa *et al.* 2017b); it can be separated for scapal basin entirely smooth (Fig. 18A) (*vs.* transversely and irregularly rugulose in *Ph. putoni*), head and mesosoma with short (> 1 MOD) and whitish setae (*vs.* head mesosoma with long (1.0–1.8 MOD) black and erect setae); T1 posterior margin uniformly punctate with tiny dots (*vs.* T1 posterior margin with scattered tiny dots); in lateral view, T3 straight before apical margin (Fig. 18E) (*vs.* T3 transversely depressed before apical margin); body bicolored (*vs.* uniformly metallic green to dark blue). *Ph. lyubae* is also similar to *Ph. mongolicus* (du Buysson) (Figs 19A–F) and *Ph. cynthiae* sp. n. for metascutellum with elongate, subtriangular lamella, yet it can be separated by the scapal basin entirely smooth (*vs.* irregularly rugulose in the other two species), larger size (> 5.0 mm) (*vs.* 3–4 mm); apex of T3 with broadly open median notch (*vs.* deep and more or less narrow); body bicolored (*vs.* entirely metallic red with blackish shiny areas in *Ph. mongolicus* and bronzed to coppery in *Ph. cynthiae* sp. n.); tegulae non-metallic (*vs.* metallic in *Ph. mongolicus*, Figs 19B, C).

DESCRIPTION. *Female*. Body length 5.1 mm. Fore wing length 3.7 mm. OOL = 2.0 MOD; POL = 2.7 MOD; MS = 1 MOD; relative length of P : F1 : F2 : F3 = 1 : 1.3 : 0.8 : 0.7.

Head. Frons, vertex, and face between eye and scapal basin with small to large (up to 0.7 MOD) and shallow punctures (Fig. 18A), widely separate (1–2 PD). Punctures on post-ocellar vertex smaller, with large impunctate areas up to 3 PD apart. Scapal basin asetose, deep, smooth (Fig. 18A). Gena with large punctures (0.5 MOD), with wrinkles along margin. Genal carina relatively sharp, not bisecting MS. Ocellar triangle isosceles, with large POL (2.7 MOD). Postocellar line obsolete.

Mesosoma. Pronotum with multiple rows of deep pits along anterior and posterior margins, medially with shallow, scattered punctures surrounded by broad polished, or at most micropunctate, intervals (Fig. 18C); laterally with large, deep, contiguous punctures (Fig. 18B). Mesoscutum with small, shallow punctures clumped along notauli; punctures basally between notauli large, about 1 MOD (Fig. 18C). Notauli and parapsidal furrows complete; notaular pit deep, narrow, short (about 1 MOD). Mesoscutellum with foveate punctuation; punctures as large as those at the base of mesoscutum. Metascutellum with large foveate-reticulate punctures (1 MOD), contiguous or with narrow interspaces; metascutellum with elongate subtriangular lamella, apically subtruncate; in lateral view, lamella longer

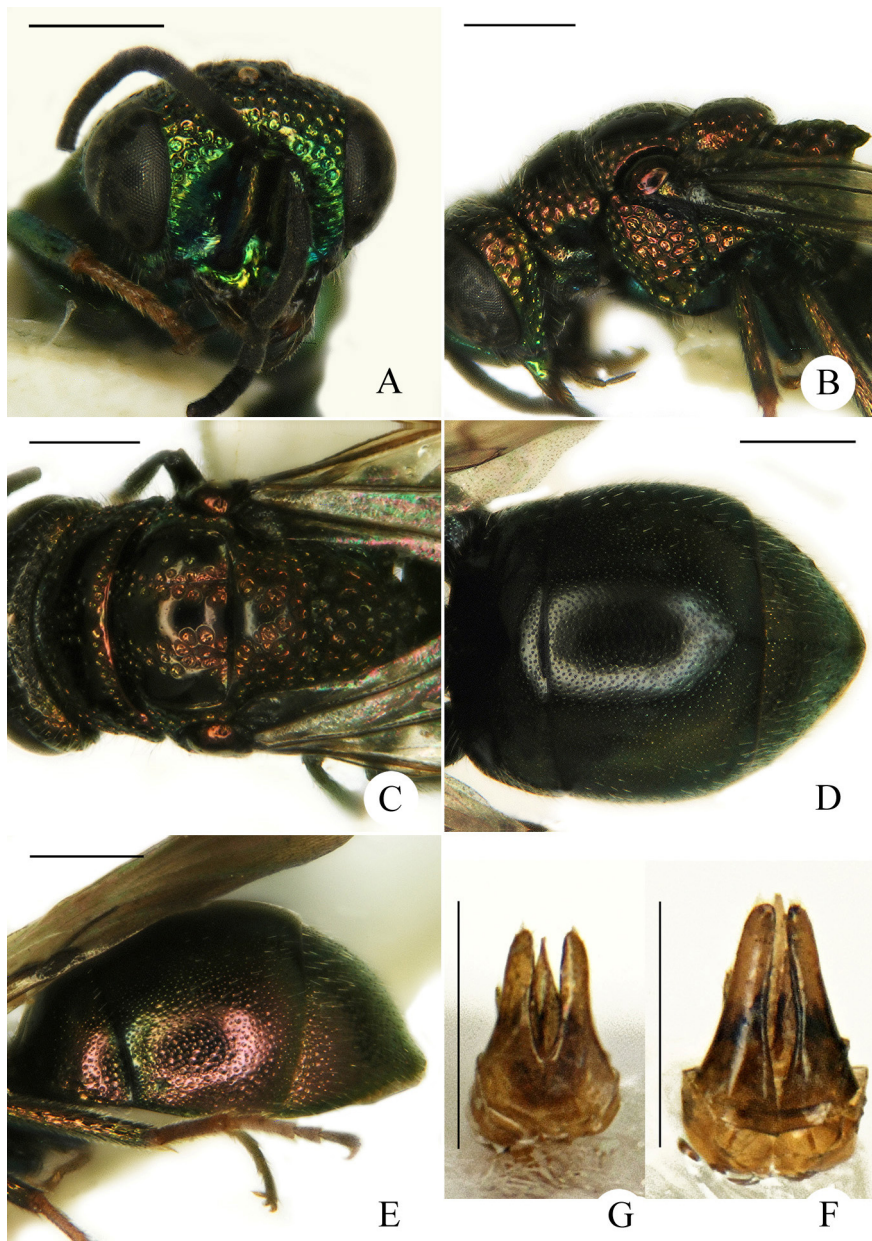


Fig. 19. A–F – *Philoctetes mongolicus* (du Buysson), ♂, Tuva: A – head, frontal view; B – mesosoma, lateral view; C – mesosoma, dorsal view; D – metasoma, dorsal view; E – metasoma, lateral view; F – genital capsule; G – *Ph. cyntiae* Rosa, sp. n., genital capsule. Scale bar = 0.5 mm.

than mesoscutellum (Fig. 18B). Mesopleuron with large foveate punctures (Fig. 18B). Tarsal claw four-toothed.

Metasoma. T1 impunctate, smooth, with even, fine punctures on lateral and posterior margins; T2 dorsally evenly, finely punctate (Fig. 18D); T2 with postero-medial impunctate longitudinal line; posterior margin impunctate. T3 lateral margins almost straight, gently curved before the median notch; punctuation distinctly double, rugulose, with confluent punctures along margins (Fig. 18F); apex with narrow brownish rim. median notch deep, yet widely open ($> 90^\circ$), with lateral angles acute, edges thickened by brownish rim (Fig. 18F).

Coloration. Head and mesosoma metallic green, metasoma golden with greenish to golden-red reflections at apex (Fig. 18F); mesopleuron, metanotum and sterna with weak golden reflection. Scape and pedicel metallic green, flagellum blackish. Legs metallic green, tarsi dark brown. Tegulae brown to black. Wings distinctly brownish, with regular and fine mother-of-pearls wrinkles on outer half.

Male. Unknown.

Vestiture. Long (around 1 MOD), whitish, sparse and erected setae on head, mesosoma, femur, T2 postero-laterally, and T3.

DISTRIBUTION. Russia (Tuva Rep.).

ETYMOLOGY. The specific epithet *lyubae* (feminine noun in genitive case) is dedicated to Lyuba Zaytseva (Smolensk, Russia), wife of the first author, for her contribution to the study of Russian Chrysididae and her uninterrupted support.

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