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Orijinal araştırma (Original article)

Palearctic species of *Chrysomalla* Förster, 1859 (Hymenoptera: Perilampidae: Chrysolampinae), with descriptions of new species from Turkey

Chrysomalla Förster 1859 (Hymenoptera: Perilampidae: Chrysolampinae)'nin Palearktik türleri, Türkiye'den yeni türlerin tanımlanması

Mikdat DOĞANLAR[1*] **Oğuzhan DOĞANLAR[2]**

Summary

Palearctic species of *Chrysomalla* Förster 1859 (Hymenoptera: Perilampidae: Chrysolampinae) are reviewed, and a key provided to identify the species by inserting some new characters. Distributions and redescriptions of *Chrysomalla stigmatica* Boucek, 1972, and *C. roseri* Förster, 1859 were given. Three new species, *Chrysomalla sekilica*, *C. nevsehirica*, and *C. gulsehirica* are described from Turkey and the diagnostic characteristics of the species illustrated.

Key words: Hymenoptera, Chrysolampinae, *Chrysomalla*, palearctic species.

Özet

Chrysomalla Förster 1859 (Hymenoptera: Perilampidae: Chrysolampinae)'nın Palearktik türleri incelenmiş, bazı yeni karakterler ile bu türlerin teşhisi için bir anahtar oluşturulmuştur. *Chrysomalla stigmatica* Boucek, 1972 ve *C. roseri* Förster, 1859'in dağılış alanları belirtilmiş ve yeniden tanımları yapılmıştır. Turkey'den üç yeni tür, *Chrysomalla sekilica*, *C. nevsehirica*, ve *C. gulsehirica* tanımlanmış ve türlerin ayırt edici özelliklerinin resimleri verilmiştir.

Anahtar sözcükler: Hymenoptera, Perilampidae, Chrysolampinae, *Chrysomalla*, palearktik türler.

[1] Mustafa Kemal University, Faculty of Agriculture, Department of Plant Protection, 31034, Hatay
[2] Ağrı İbrahim Çeçen University, Science and Art Faculty, Department of Biology, 04200, Ağrı
[*] Sorumlu yazar (Corresponding author) e-mail: doganlar@mku.edu.tr
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Introduction

Keys to the genera and species of Chrysolampinae have been published by Nikol'skaya and Kyao (1954) and Dzhanokmen (1978) for 8 palearctic species, Peck et al. (1964), Graham (1969) and Bouček (1956, 1972) for 7 European species, Darling (1986) for 6 nearctic species. Noyes (2011) listed 11 species of *Chrysomalla* Förster 1859 in the world, 9 of them from the Palearctic (Boucek, 1972; Dzhanokmen, 1981; 2007; Askew et al. 2001), 1 from the Nearctic (Darling, 1986) and 1 from Australia (Boucek, 1988). A key to the species of *Chrysomalla* was published by some authors (Boucek, 1972; Dzhanokmen, 1981; 2007; Askew et al. 2001).

In Turkey Boucek (1972) described two species, *Chrysomalla stigmatica* and *C. turcica*, from central Anatolia. Doğanlar (1984) listed *Chrysomalla roseri* (Förster 1859) and *Chrysolampus thenae* (Walker, 1848) in Perilampinae from Erzurum, Turkey.

In this study, identification keys are given to identify the palearctic species of *Chrysomalla*. We described three new species of *Chrysomalla* from Turkey.

Material and Methods

This study is based on examination and identification of the specimens collected from several parts of Anatolia (Turkey). The collected specimens were deposited in Insect Museum of Plant Protection Department, Agriculture Faculty, Mustafa Kemal University, Antakya, Hatay, Turkey (MKUI). Specimens were collected by sweeping and transvering the entire material directly into 96 % ethanol. After sorting the material, the type materials were dehydrated and mounted on pins and properly labeled, and some specimens of the species were stored in absolute ethanol for DNA extractions.

Terminology and abbreviations

Morphological terminology follows Gibson (1997). Abbreviations used in the key and descriptions are: C = claval segment, F = funicular segment, OOL = distance between posterior ocellus and inner margin of eye, POL = distance between posterior ocelli.

The left wing and one antenna of one paratype of each new species and a specimen of other species were slide-mounted in Canada Balsam. The types and slides of the species are deposited in the Insect Museum of the Plant Protection Department, Agriculture Faculty, Mustafa Kemal University, Antakya, Hatay, Turkiye (MKUI). Photographs of diagnostic characters of the new species were taken using a Leica DM 5500 B microscope with a digital Leica DFC 295 camera.

Chrysomalla Förster 1859

Chrysomalla Förster 1859, Verh. naturh. Ver. Preuss. Rheinl., 16:115. Type-species: *Chrysomalla roseri* Förster (by monotypy).

Diagnostic characters of *Chrysomalla* were given by Boucek (1972) as follows:

Petiole short, conical, without distinct sculpture; forewing blade bare in basal third; pronotal collar anteriorly margined by a distinct carina which only rarely (in small specimens) obliterated in middle; behind the carina with some very coarse piliferous and often with coarse rugae getting finer towards hind margin of pronotum; sculpture of mesoscutum consisting mainly of cross-striation; malar space at least 1/3 length of eye.

Key to the Palearctic species of *Chrysomalla* Förster (modified from Bouček, 1972)

1. Tibiae mainly metallic, only knees and apices narrowly yellow (Figure 1 b, c) 2

-- Tibiae and tarsi yellow (Figure 1 a, d) 4

2- Forewing stigma not enlarged, separated from posterior edge of postmarginal vein by its own height or slightly more than height (Figure 4), as pale as rest of venation. Spain…….....*C. striata* Askew 2001

– Forewing with stigma enlarged, separated from posterior edge of postmarginal vein by at most half of its own height (Figure 2 d e, 3 d); stigma together with the thickened base of postmarginal vein fuscous, often surrounded by a cloud but venation mainly testaceous 3

3- In female second funicular segment with distinct linear sensilla, almost as long as third segment (Figure 2 a,b); tip of forewing stigma parallel to postmarginal vein (Figure 2 d,e); marginal vein at least 3.7 times as long as postmarginal vein; propodeum with a median carina. In male scape with broad sensory pores ventrally as in Figure 2 g. Known from Bulgaria, Jordan, Turkey…….....*C. stigmatica* Boucek, 1972

-- In female second funicular segment with only one linear sensilla, almost anelli form (Figure 3 a, b); tip of forewing stigma turned up to postmarginal vein (Figure 3 d); marginal vein at most 3.1 times as long as postmarginal vein; propodeum without median carina, but basally with some longitudinal striae. In male scape with broad sensory pores ventrally as in Figure 3 f. Turkey ..... *C. sekilica* sp.n.

4- All femora yellow (Figure 4 of Dzhanokmen (1981) 5

-- All femora partly to entirely dark, with metallic tinge (Figure 1) 6

5- Antennal flagellum distinctly clavate (Figure 1 of Dzhanokmen (1981); postmarginal vein of forewing shorter than stigmal vein (Figure 3 of Dzhanokmen (1981); tegulae white; POL=1.3 OOL; scape of female pale, of male dark, metallic…….....*C. tobiasi* Dzhanokmen 1981

--Antennal flagellum slightly clavate, almost filiform (Figure 9 of Dzhanokmen, 2007); postmarginal vein of forewing longer than stigmal vein (Figure 7 of Dzhanokmen, 2007) ; tegulae dark; POL subequal to OOL; scape dark, metallic in both sexes. …….....*C. rara* Dzhanokmen 2007

6. Scutellum smooth or almost so (Figure 4 h) 7

– Scutellum conspicuously striate, transversely before frenal groove (Figure 2 k; 3 h) 8

7. Forewing with a brown discal cloud below marginal vein (Figure 4g), submarginal and stigmal veins, and parastigma, brown; width of head more than height (in front view); malar space 2/3 length of eye. Austria, Azerbaidzhan, Croatia, Czech Republic, Germany, Hungary, Kazakhstan, Moldavia, Serbia, Spain, Ukraine, Turkey……*C. roseri* Förster, 1859

- Forewings hyaline, venation pale yellow; width of head equal to height. Malar space 1/2 length of eye. Ukraine …….....……..*C. pallidivena* Zerova, 1973

8- Legs mostly yellow, except basal half of femora concolorous with thorax (Figure 1 d); antennae with first two funicular segments narrower than third and following ones; mouth at least 5 times as long as malar space 9

-- Legs with femora concolorous with thorax, but knees and tibiae with tarsi (except darker claw segment) yellow (Figure 1 a); antennae with only first funicular segments narrower than second and following ones 11

9- Spur of the hind tibia very weakly developed, about half length of metatarsi (Figure 4 of Dzhanokmen, 2007); second and third funicular segments almost triangular (Figure 2 of Dzhanokmen, 2007); in female C1 0.8 times as long as C2+C3. In male first funicular segment narrower than pedicel (Figure 5 of Dzhanokmen, 2007); mouth at most 4.5 times as long as malar space. Central Asia…….....……C. *huberi* Dzhanokmen 2007

-- Spur of the hind tibia very strongly developed about 2/3 length of metatarsi (Figure 1 d); second and third funicular segments quadrate (Figure 5 a, 6 a); in female C1 at least 1.4 times as long as C2+C3; in male first funicular segment at least as wide as pedicel (Figure 5 d, 6 d); mouth at least 5 times as long as malar space 10

10- In female antenna with scape 4.2 times as long as wide (Figure 5 a); funicular segments with fewer longitudinal sensilla as in Figure 5 a; costal cell about 1.8 times as long as marginal vein (Figure 5b); in male first funicular segment wider than pedicel (Figure 5 d); scape 3.5 times as long as wide, with sensory pores as in Figure 5 e. Turkey……..…C. *nevsehirica* n.sp.

-- In female antenna (Figure 6 a) with scape 5 times as long as wide, longitudinal sensilla of funicular segments with more than as alternate as in Figure 6 a ; costal cell about twice as long as marginal vein (Figure 6 b). In male first funicular segment as wide as pedicel (Figure 6 d); scape 2.9 times as long as wide, with sensory pores as in Figure 6 e.Turkey…..……..C. *gulsehirica* n.sp.

11- Eyes large, fully 1.5 times as long as antennal scape and about 3.4-3.5 times as long as malar space (measured along malar sulcus to the carinately set-of epistomal area); lower face between clypeus and eye very finely shallowly engraved-reticulate, sculpture here much finer and shallower than above at sides of frons between median ocellus and upper half of eye; funicle segments generally at least twice as broad as long; body 2.3-3.2 mm Turkey….....……..….C. *turcica* Boucek, 1972

-- Eyes smaller, only about 1.2 times as long as antennal scape and about 2.4 times as long as malar space; lower face between clypeus and eye as coarsely rugulose-striate as above sides of frons (Figure 9 of Boucek, 1972); basal and middle funicular segments not quite twice as broad as long; body 2 mm.. Morocco, Tunisia…….....……C. *parva* Boucek, 1972

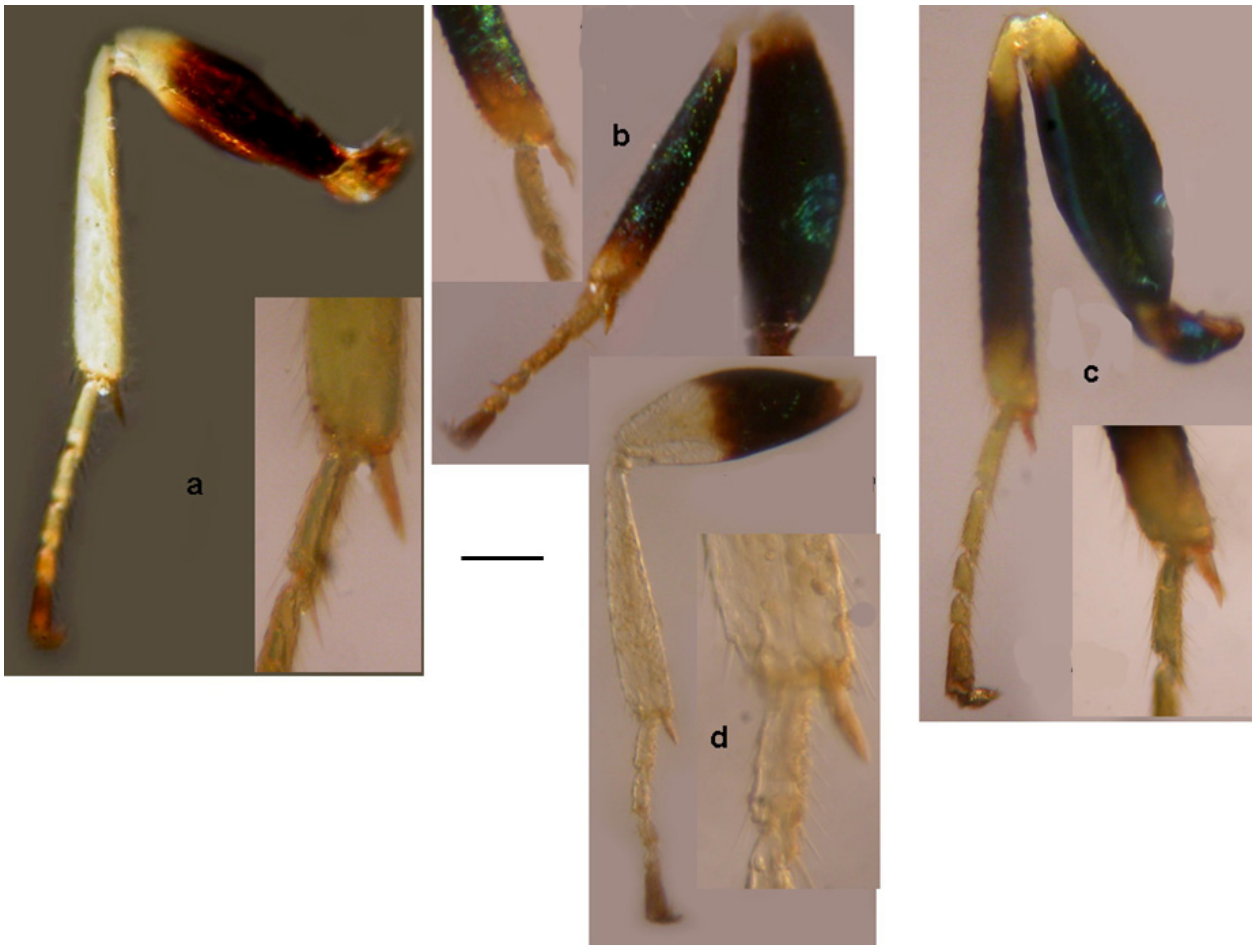

Figure 1. *Chrysomalla* spp. Hind legs. a. *C. roseri* Förster; b. *C. stigmatica* Boucek; c. *sekilica* n.sp.; d. *C. nevsehirica* n.sp. (scale bar for 0.09 mm).

Chrysomalla stigmatica Boucek 1972

(Figures. 1 b, 2a-i)

Chrysomalla stigmatica Boucek 1972: 61, 97-100.

Type material. Holotype, Turkey.

Remarks. Both sexes of the species were described in detail from Turkey, Bulgaria and Jordan by Boucek (1972). Some additional characters to ones given in the key are as follows:

FEMALE. 2.2-2.6 mm. Antenna (Figures 2a-c) with scape 4 times as long as wide, first segment of funicle 1.7 times as wide as long, second 1.8 times and the following ones gradually more transverse, seventh 2.3 times as wide as long, club 1.4 times as long as wide, C_1 0.8 times as long as C_2+C_3 (Figure 2c). Pedicel plus flagellum 2.1 times as long as scape. Scutellum (Figure 2 k) striately reticulate; frenum narrow, smooth. Forewing with costal cell twice as long as marginal vein, the latter 3.7-3.9 times as long as postmarginal vein; stigmal vein almost as long as postmarginal vein (Figures 2d,e).

MALE. 2.2-2.4 mm. Antenna (Figure 2 f-i) having funicular segment with linear sensillae; scape 3 times as long as wide, having broad sensory area ventrally (Figure 2 g), first segment of funicle 1.7 times as wide as long, second 2.2 times and the following ones gradually more transverse, seventh 2.3 times

as wide as long, club 1.3 times as long as wide, C_1 0.8 times as long as C_2+C_3 (Figure 2 i). Pedicel plus flagellum 2.2 times as long as scape.

Distribution. Ankara, Polatlı (Turkey); Bulgaria, Jordan (Boucek 1972).

Studied material. Sivas: 9. vı. 1989, ♀; 23.v. 1989, 5 ♂♂; Campus of Cumhuriyet University, 23.v. 1989, 5 ♂♂.

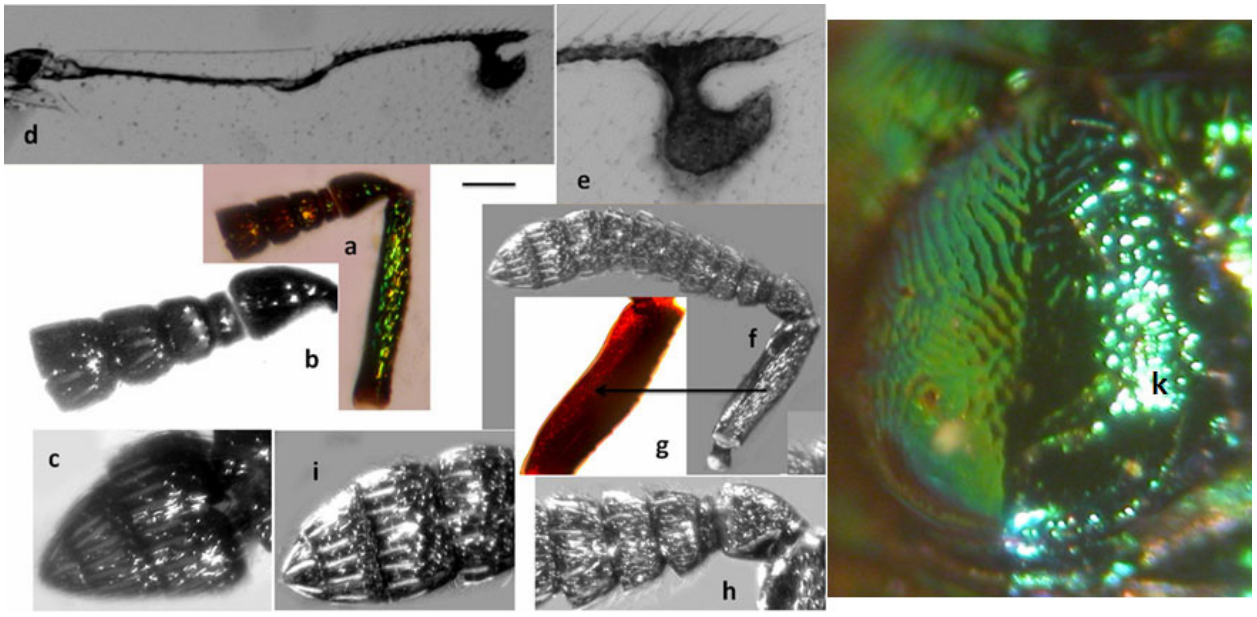

Figure 2. *Chrysomalla stigmatica* Boucek. a-e: female. a. basal segments of antenna; b. pedicel and basal segments of flagellum; c, scape; d-e. forewing, d. veins, e. stigma and postmarginal vein; f-i: male. f. antenna; g. scape with sensory pores; h. pedicel and basal segments of flagellum; i. scape; k. scutellum. (scale bar for a , f= 0.08 mm; b, e, h = 0.05 mm; d, k= 0.1 mm; c, i, g= 0.09).

Chrysomalla sekilica sp. nov.

(Figures.1c, 3)

Description. FEMALE.1.8-2.0 mm. Body bright green, with metallic reflection; antenna with scape and pedicel dark green, flagellum more weakly metallic; mandible yellow, teeth dark brown; legs green with apices of femora and tibiae, and extreme bases of tibiae, yellow, tarsi yellow with apical segments infuscate (Figure 1c); wings hyaline, stigma and thickened base of postmarginal vein fuscous often surrounded by a cloud but venation mainly testaceous.

Head in dorsal view 1.2 times as broad as mesoscutum, 2.2 times as broad as long; temples half as long as an eye; POL 1.4 times OOL, posterior ocellus separated from eye by 2.5 diameters; ocellar area with rugulose sculpture changing to mainly transversely striate sculpture with scattered piliferous punctures behind and laterad of ocelli. Head in frontal view 1.3 times as broad as high; lower edges of toruli on lower ocular line; genae curved; malar space 0.3 times mouth opening and 0.4 times height of eye; clypeus with anterior margin truncate and strongly protuberant; sculpture of face finely reticulate in lower half changing to striate-reticulate near malar sulcus, in upper half with vertically elongated areoles running into the transverse striations of the vertex. Antenna (Figure 3a), with scape extending only 0.8 times the distance from torulus to anterior ocellus; pedicel plus flagellum 1.9 times as long as scape, 1.3 times as long as breadth of head, 1.1 times as long as distance between eyes; first two funicular

segments without linear sensilla laterally, almost anelli form (Figure 3 b), about half as long as 3rd segment and the following ones; second segment with one anellus laterally; first segment twice as wide as long, 2nd 1.8; 3rd -7th flagellar segments gradually widening, 3rd 1.7, 4th -6th almost twice as broad as long; 7th 1.9 times as wide as long; clava with dense sensillae on dorsal side, sparse sensillae on ventral side (Figure 3c), 1.3 times as long as wide, C_1 0.8 times as long as C_2+C_3.

Mesosoma in dorsal view 1.5 times as long as broad. Pronotum with collar occupying 0.3 times its length, margined anteriorly by a fine but distinct carina; sculpture of pronotum transversely striate, finely so on neck, more coarsely on collar which has a row of large piliferous punctures behind the carina and scattered punctures laterally and posteriorly. Mesoscutum twice as broad as long, transversely striate with scattered punctures laterally and bordering notaular grooves; axillae transversely striate, inner angles reticulate; scutellum (Figure 3h) slightly longer than broad (18:17), frenal groove fine but distinct at about one-third median length of scutellum, sculpture anterior to frenal groove transversely striate, frenum irregularly longitudinally striate, its posterior rim costulate. Propodeum declived at an angle of about 45° to plane of mesothorax; finely reticulate, laterally with transverse rugae, median carina not developed, but with some longitudinal striae; spiracles oval, separated from metanotum by about their transverse diameters. Forewing (Figure 3 d) with short but dense pilosity in apical half, bare in basal half; lengths costal cell: marginal vein: stigmal vein; postmarginal vein as 56:28:7:8; marginal vein 3.1 times as long as post marginal vein; stigma enlarged, separated from posterior edge of postmarginal vein by 1/3 of its height.

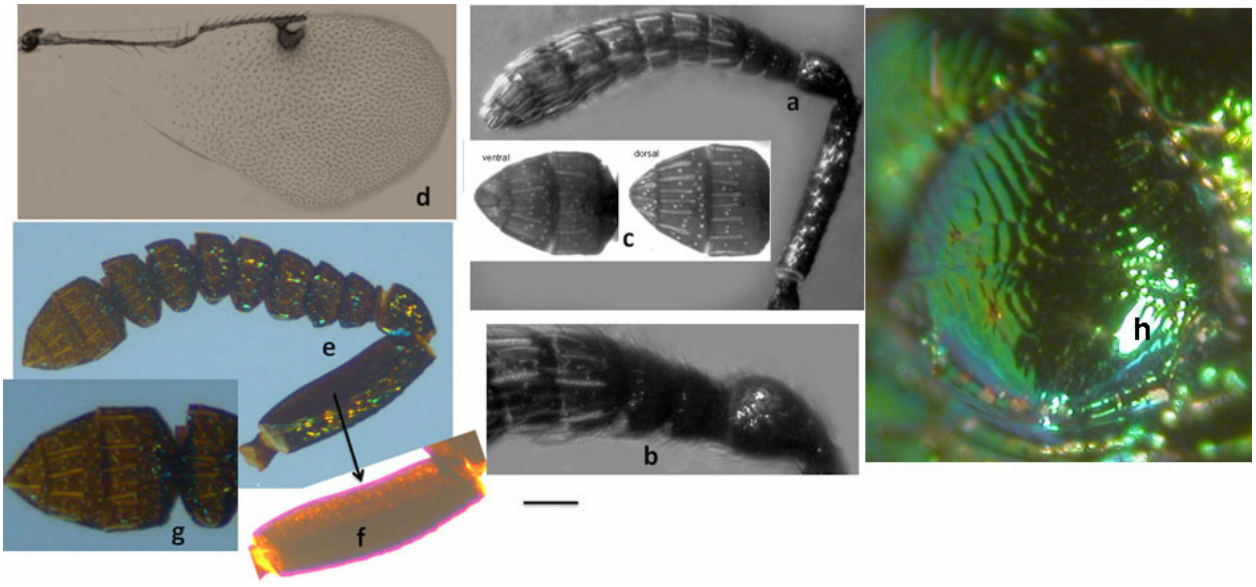

Figure 3. *Chrysomalla sekilica* n.sp. a-d. female. a. antenna; b. pedicel and basal segments of flagellum; c. club, in ventral and dorsal view; d forewing; e-g. male. e. antenna; f. scape with sensory pores; g. club; h. scutellum. (scale bar for a , e= 0.08 mm; b, c ,f, g = 0.05 mm; d, h= 0.2 mm).

Gaster in dorsal view about 1.6 times as long as broad, about as long as mesonotum, bluntly rounded posteriorly, ovipositor almost concealed; basal tergite smooth, following tergites transversely striate. Gaster in profile convex dorsally; tip of hypopygium at 0.6 gaster length. Petiole of gaster short, transverse.

MALE. 1.6-1.8 mm. Similar to female, except as follows: Antenna (Figure 3 e) with pedicel plus flagellum 2.5 times as long as scape, 0.7 times as long as breadth of head, and as long as distance between eyes; scape 3.2 times as long as wide, with broad sensory area, almost half width of scape (Figure 3 f); pedicel 1.1 times as long wide; funicular segments transverse, ventrally narrower than dorsal wide; the first segment without longitudinal sensilla, anelliform, 1.9 times as wide as long; second segment 1.7 times, 3^{rd} -7^{th} 1.8 time as wide as long; club (Figure 3 g) 1.4 times as long as wide, with sparse sensilla C_1 as long as C_2+C_3. Marginal vein 3.4 times as long as post marginal vein

Studied materials. Holotype: Female, Gaziantep: Nizip, Sekili kav. 12. v. 2011 (Turkey), swept from *Sinapis* sp., deposited in the Insect Collection of Mustafa Kemal University (MKUI). Paratypes: 6 ♀♀, 2 ♂♂, same data as Holotype; 1 ♀. same data as Holotype, except 28.iv.2012.

Diagnosis. *Chrysomalla sekilica* n.sp. similar to *C. striata* Askew and *C. stigmatica* Boucek in having tibiae mainly metallic, only knees and apices narrowly yellow, and also similar to *C. stigmatica* Boucek in having enlarged fuscous stigma surrounded by an infumate cloud. It differs from *C. striata* in having forewing with enlarged fuscous stigma (in *C. striata* forewing stigma not enlarged). It differs from *C. stigmatica* in female: in having the first two funicular segments almost anelli form (in *C. stigmatica* the first funicular segments almost anelli form); propodeum without median carina, but basally with some longitudinal striae (in *C. stigmatica* propodeum with a median carina); marginal vein 3.12 times as long as postmarginal vein (in *C. stigmatica* marginal vein 3.8-3.9 times as long as postmarginal vein); in male: the first funicular segments almost anelli form (in *C. stigmatica* the first funicular segments with distinct linear sensilla); scape with sensory area almost half width of scape (in *C. stigmatica* scape with sensory area about 1/3 width of scape).

Chrysomalla roseri Förster 1859

(Figures. 4a-g)

Chrysomalla roseri Förster 1859: 116-117.

Type materials. Holotype male, Germany,in Naturhistorisches Museum, Vienna.

Remarks. The species has been mentioned by several authors (Ruschka 1924; Nikol'skaya 1952; Erdös 1955; Hoffer & Nowicky 1955; Boucek 1956; 1972; 1977; Graham 1969; Doğanlar 1984; Kalina 1989; Öncüer 1991; Askew et al. 2001; Dzhanokmen 1978; 2007). Förster (1859) and Ruschka (1924) gave brief short descriptions of male. Dzhanokmen (2007) gave distributions of the species, the list of studied materials from Kazakhstan, and the Figures of male and female antennae, forewing venation, and tip of hind tibia and tarsus.

Redescription: FEMALE. 2-2.5 mm. Body bright green, with golden reflection; antenna with base of scape narrowly yellow, pedicel and flagellum brown, weakly metallic green; mandible yellow, teeth dark brown; legs (Figure 1 a) with all femora partly dark, with metallic tinge, tibiae and tarsi yellow with apical segments infuscate; forewing with a brown discal cloud below marginal vein, submarginal and stigmal veins, and parastigma brown.

Head finely reticulated with fine punctations, width of head more than height (in front view); clypeus smooth with 2 piliferous punctures close to anterior margin and 2 light ones on the base; malar space 2/3 length of eye; pedicel plus flagellum (Figure 4 a) 2.3 times as long as scape, 0.7 times as long as breadth of head, as long as distance between eyes; scape 5.4 times, pedicel 1.6 times as long as wide; funicular segment with linear sensilla laterally, first segment as wide as long, 2^{nd} -7^{th} flagellar segments equal in

length and width, slightly transverse (5:6) club (Figure 4 b) with dense sensillae on both sides, 1.4 times as long as wide, C_1 0.7 times as long as C_2+C_3. Mesosoma with pronotum having distinct interspersed piliferous punctures, parapsidal sutures fein, scutellum (Figure 4 h) smooth or almost so; propodeum almost smooth, sides slightly reticulated, without median carina; forewing (Figures 4 c, d) with basal cell bare; relative measurements: costal cell length 60, marginal vein 30, postmarginal vein 8, stigmal vein 7.

MALE. Body 2 mm.Similar to female except as follows:

Antenna with flagellar segments with sparser linear sensilla (Figure 4 e); clava with sparse sensillae on both sides (Figure 4 f), 1.6 times as long as wide. Forewing (Figure 4 g) below marginal vein darker than female; relative measurements: costal cell length 66, marginal vein 30, postmarginal vein 5, stigmal vein 8. Metasoma 5-segmented.

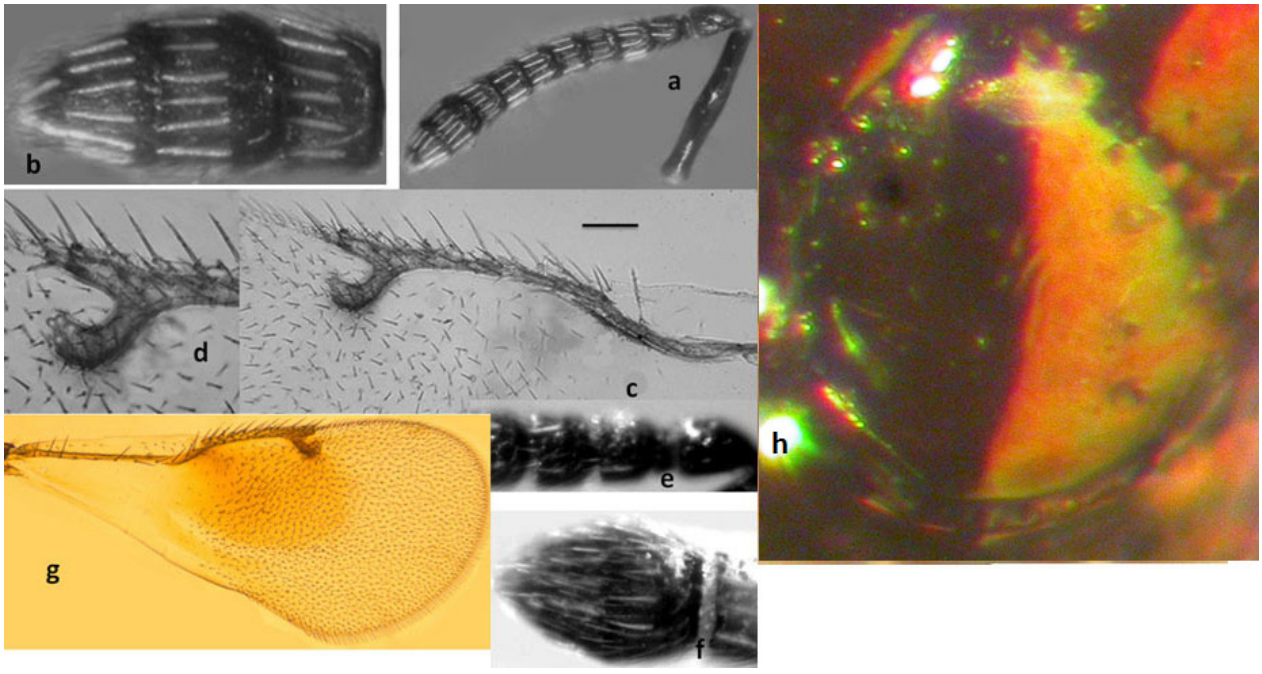

Figure 4. *Chrysomalla roseri* Förster. a-d female.a.antenna; b.apical segments of flagellum; c. fore wing veins; d. stigma and postmarginal vein; e-g male. e. pedicel and basal segments of flagellum; f. apical segments of flagellum; g. fore wing, h. scutellum. (scale bar for a = 0.08 mm; b, f= 0.03 mm; d= 0.07 mm; e, c = 0.05 mm; g,h = 0.3 mm).

Distribution: Austria, Azerbaijan, Czech Republic, Czechoslovakia, Europe Germany, Hungary, Kazakhstan, Spain, Tadzhikistan, Tselinograd Obl., Turkey, Ukraine, USSR (Nikolskaya 1952; Erdös 1955; Hoffer & Nowicky 1955; Boucek 1956; 1972; 1977; Graham 1969; Doğanlar 1984; Kalina 1989; Öncüer 1991; Askew et al. 2001; Dzhanokmen 1978; 2007).

Studied materials: Erzurum: 29.vii. 1978, swept from *Medicago sativa* field, 7 ♀♀, leg. H. Özbek; Sivas: Pasabahçe, 24.vii.1992, swept from pasture, 2 ♀♀, 1 ♂, leg. L. Gencer.

Biology: Nikolskaya (1952) reared this species from *Tychius flavus* Beck. (Col., Curculionidae) and it was recorded by Boucek (1972) and Dzhanokmen (2007).

Chrysomalla nevsehirica sp. nov.

(Figures.1 d, 5 a-e)

Description. FEMALE Length 1.8-2.2 mm. Body bright green, with metallic reflection; antennae with scape and pedicel dark green, flagellum more weakly metallic; mandible yellow, teeth dark brown; legs (Figure1d) green with apices of femora and tibiae, and extreme bases of tibiae, yellow, tarsi yellow with apical segments infuscate; wings hyaline, stigma and thickened base of postmarginal vein fuscous often surrounded by a cloud but venation mainly testaceous.

Head in dorsal view 1.1-1.2 times as broad as mesoscutum, 2.1 times as broad as long; temples half as long as an eye; POL 1.3 times OOL, posterior ocellus separated from eye by 3.5 diameters; ocellar area with rugulose sculpture changing to mainly transversely striate sculpture with scattered piliferous punctures behind and laterad of ocelli. Head in frontal view 1.2 times as broad as high; lower edges of toruli on lower ocular line; genae curved; malar space 0.2 times mouth opening and 0.3 times height of eye; clypeus with anterior margin truncate and strongly protuberant; sculpture of face finely reticulate in lower half changing to striate-reticulate near malar sulcus, in upper half with vertically elongated areoles running into the transverse striations of the vertex. Antenna with scape 4.2 times as long as wide, extending only 0.7 times the distance from torulus to anterior ocellus; pedicel plus flagellum 2.1-2.7 times as long as scape, 0.6 times as long as breadth of head, 0.9 times as long as distance between eyes; antenna (Figure 5 a) with first two funicular segment without linear sensilla, anelli form, about twice as wide as long; 3^{rd} – 7^{th} with linear sensilla, gradually widening, about twice as wide as long, 7^{th} 1.8 times as wide as 1^{st} funicular segments; clava with dense sensillae on both sides, 1.25 times as long as wide, C_1 1.4 times as long as C_2+C_3. Number of linear sensillae on funicular segments: F_1 and F_2 null; F_3 3; F_4-F_5 4; F_6-F_7 7.

Mesosoma in dorsal view 1.5 times as long as broad. Pronotum with collar occupying 0.4 times its length, margined anteriorly by a fine but distinct carina; sculpture of pronotum transversely striate, finely so on neck, more coarsely on collar which has a row of large piliferous punctures behind the carina and scattered punctures laterally and posteriorly. Mesoscutum 2.1 times as broad as long, transversely striate with scattered punctures laterally and bordering notaular grooves; axillae transversely striate, inner angles reticulate; scutellum slightly longer than broad (35:32), frenal groove fine but distinct at about one-third median length of scutellum, sculpture anterior to frenal groove transversely striate, frenum irregularly longitudinally striate, its posterior rim costulate. Propodeum declived at an angle of about 60° to plane of mesothorax; finely reticulate, laterally with transverse rugae, median carina not developed, but with some longitudinal striae; spiracles oval, separated from metanotum by about their transverse diameters. Forewing (Figure 5 b) with short but dense pilosity in apical half, bare in basal half; lengths costal cell: marginal vein: stigmal vein; postmarginal vein as 35:20:7:5; costal cell 1.8 times as long as marginal vein, marginal vein 4.0 times as long as post marginal vein; stigma (Figure 5 c) enlarged, separated from posterior edge of postmarginal vein by 0.7 of its height.

Gaster in dorsal view about 1.2 times as long as broad, about as long as mesosoma, bluntly rounded posteriorly, ovipositor almost concealed; basal tergite smooth, following tergites transversely striate. Gaster in profile convex dorsally; tip of hypopygium at 0.6 gaster length. Petiole of gaster short, transverse.

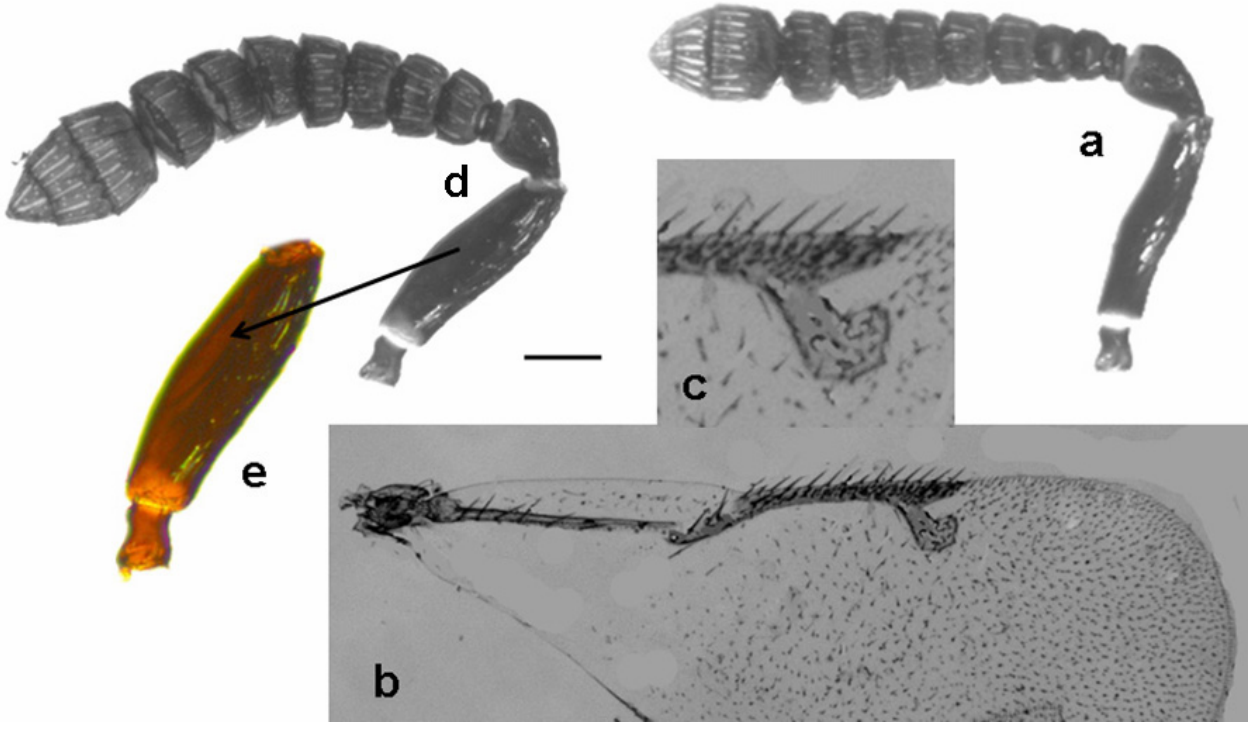

Figure 5. *Chrysomalla nevsehirica* n.sp. a-c. female. a. antenna; b. forewing anterior part; c. forewing stigma and postmarginal vein; d-e. male. d antenna; e. scape with sensory pores. (scale bar for a, d = 0.08 mm; e, c = 0.05 mm; b = 0.3 mm).

MALE. Length 1.6-1.8 mm. Similar to female, except as follows: Antenna (Figures 9 a, b) with pedicel plus flagellum 2.8 times as long as scape, and 0.7 times as long as breadth of head; scape 3.5 times, pedicel 1.3 times as long as wide; funicle segments transverse, about twice as wide as long, with distinct linear sensilla, slightly widening apically, 7th 1.5 times as wide as 1st, the first broader than pedicel. C_1 0.7 times as long as C_2+C_3.marginal vein 3.4 times as long as post marginal vein.

Studied materials. Holotype: Female. Turkey: Nevşehir: 19.v. 2005. swept from wheat field. Deposited in the Insect Collection of Mustafa Kemal University (MKUIC). Paratypes: 13 ♀♀, 7 ♂♂, same data as Holotype; Kırşehir: 19.v. 2005, swept from wheat field, 1 ♂. All of the paratypes deposited in (MKUI).

Diagnosis. *Chrysomalla nevsehirica* n.sp.similar to *C. huberi* Dzhanokmen in having legs mostly yellow, except basal half of femora concolorous with thorax (Figure 1 d); antennae with first two funicular segments narrower than third and following ones; mouth at least 5 times as long as malar space, but it differs from *C. huberi* in having spur of the hind tibia very strongly developed, about 2/3 length of metatarsi (in *C. huberi* spur of the hind tibia very weakly developed, about half length of metatarsi); third and fourth funicular segments quadrate (in *C. huberi* third and fourth funicular segments almost triangular); in female scape about 5 times as long as wide (in *C. huberi* in female scape about 4 times as long as wide); C_1 1.4 times as long as C_2+C_3 (in *C. huberi* C_1 0.83 times as long as C_2+C_3); in male first funicular segment wider than pedicel (in *C. huberi* first funicular segment narrower than pedicel).

Biology. Unknown.

Chrysomalla gulsehirica sp. nov.

(Figures.1 d, 6 a-e)

Description. FEMALE. Length 1.8-2.0 mm. Similar to *C. nevsehirica* n.sp. except as follows: female having antennae with scape about 5 times as long as wide; number of linear sensillae on funicular segments: F_1 1; F_2 null; F_3 1; F_4 2; F_5 3; F_6 4; F_7 6. Forewing (Figure 6 b) with lengths costal cell: marginal vein: stigmal vein; postmarginal vein as 40:21:8:6; costal cell about twice as long as marginal vein; marginal vein 3.5 times as long as post marginal vein; stigma (Figure 6 c) enlarged, separated from posterior edge of postmarginal vein by 0.6 of its height.

MALE. Length 1.6-1.7 mm. Similar to female, except as follows: antennae (Figure 6 d) with pedicel plus flagellum 2.9 times as long as scape; scape 2.9 times as long as wide, with sensory pores as seen in Figure 6 e; pedicel 1.3 times as long as wide; funicle segments transverse, about twice as wide as long, with distinct linear sensilla, slightly widening apically, 7^{th} 1.3 times as wide as 1^{st}, the first as wide as pedicel. C_1 0.6 times as long as C_2+C_3.

Studied materials. Holotype: Female. Turkey: Nevşehir: Gülşehir, 19.v. 2005. swept from wheat field. Deposited in the Insect Collection of Mustafa Kemal University (MKUI). Paratypes: 10 ♀♀, 8 ♂♂, same data as Holotype, swept from wheat field, leg. M. and O. Doğanlar. All of the paratypes deposited in (MKUI).

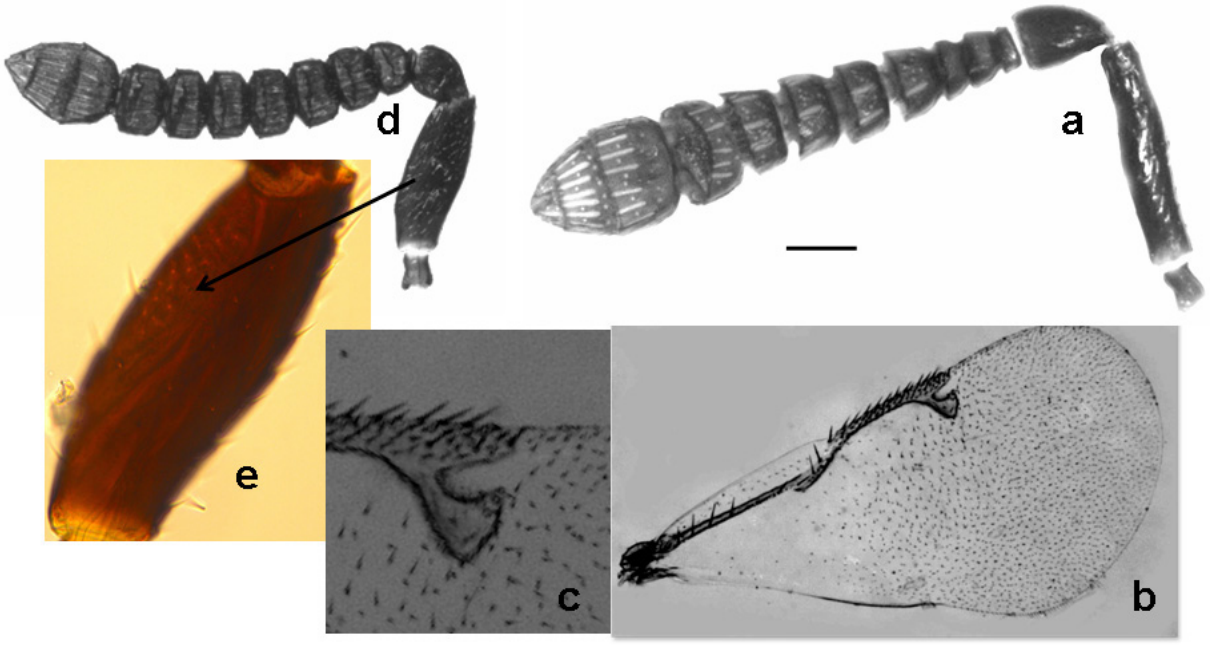

Figure 6. *Chrysomalla gulsehirica* n.sp. a-c. female. a. antenna; b. forewing; c. forewing stigma and postmarginal vein; d-e. male. d antenna; e. scape with sensory pores. (scale bar for a, d = 0.08 mm; e, c = 0.05 mm; b = 0.3 mm).

Diagnosis. *Chrysomalla gulsehirica* n.sp. similar to *C. nevsehirica* n.sp. in having spur of the hind tibia very strongly developed, about 2/3 length of metatarsi; in female C_1 at least 1.4 times as long as C_2+C_3; in male first funicular segment at least as wide as pedicel; mouth 5 times as long as malar space. It differs from *C. nevsehirica* n.sp in having in female antenna with scape 5 times as long as wide; number of linear sensillae on funicular segments: F_1 1; F_2 null; F_3 1; F_4 2; F_5 3; F_6 4; F_7 6. (in *C. nevsehirica* in female antenna with scape 4.2 times as long as wide; number of linear sensillae on funicular segments:

F_1 and F_2 null; F_3 3; F_4-F_5 4; F_6-F_7 7); costal cell about twice as long as marginal vein (in *C. nevsehirica* costal cell about 1.75 times as long as marginal vein); in male first funicular segment as wide as pedicel; scape 2.9 times as long as wide, with sensory pores as seen in Figure 6 e (in *C. nevsehirica* in male first funicular segment wider than pedicel; scape 3.5 times as long as wide, with sensory pores as seen in Figure 5e).

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