Metopiinae (Hymenoptera: Ichneumonidae) from Bulgaria and related regions

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Abstract. The newly discovered female of *Exochus hirsutus* TOLKANITZ is described and figured. Data of 40 Metopiinae species from Bulgaria and related regions are presented. Of them 19 species are new records to the Bulgarian fauna, 3 species new to Macedonia, 12 species new to Greece, 3 species new to Turkey and 1 species new to Iran (marked in the text by asterisk).

Keywords: Metopiinae, Ichneumonidae, Bulgaria, new records, description.

Introduction

Metopiinae is a medium-sized ichneumonid subfamily comprising 22 genera and about 660 species worldwide (Yu & Horstmann 1997). They are koinobiont endoparasitoids of lepidopterous larvae, living usually in leaf rolls or folds on plants. Oviposition takes place into the host larva, but the adult emergence always occurs from the pupa. A key to the genera is given by Townes (1971).

The Bulgarian Metopiinae fauna is not well studied. The first reports were made by Tschorbadjiew (1925). Until now 49 species from Bulgaria were reported mainly by Gregor (1933), Angelov & Gemanov (1969), Germanov (1980) and Kolarov (1984). In the present paper data for 40 species are given. Of them 19 species are new records to the Bulgarian fauna, 3 species new to Macedonia, 12 species new to Greece, 3 species new to Turkey and 1 species new to Iran. For the other species new localities are added. The newly discovered female of *Exochus hirsutus* TOLKANITZ is described and figured for the first time.

The dominant species are *Exochus suborbitalis* SCHMIEDEKNECHT and *E. mitratus* GRAVENHORST. Metopiinae are rare in collections, and many species in our investigation are represented by single specimens. The general distribution is mainly after Yu et al. 2012.

Material and Method

Materials were collected by sweeping with a hand net and Malayse traps. The stuffing and taxonomical identification of collected material was carried out in the University of
Plovdiv. Generally the taxonomical works of TOLKANITZ (1987, 2007) were used. The materials are preserved in the author’s collection. The following abbreviation were used in the text:
BG - Bulgaria, GR - Greece, TR - Turkey, MC - Macedonia, I - Iran, H - Hungary.

List of the species

**Chorinaeus clypeatus** KUSIGEMATI, 1967

*Distribution*: Bulgaria, Ukraine, Siberia and Japan.

**Chorinaeus cristator** (GRAVENHORST, 1829)

*Material*: BG: Razgradski heights, Trubatch vill., 3-18.06.1999, 4♂♂; 18.07-8.08.1999, 1♂; 8-22.08.1999, 2♂♂ 4♀; 19.09-2.10.1999, 1♂; 2-17.10.1999, 1♂ 1♀; Stara planina Mt., Reselets, 23-26.07.1997, 1♂ 2♀; Strandja Mt., Vitanovo, 18.09.1999, 1♂; Rhodopi Mt., Madjarovo, 200 m, 3.06.2000, 1♀.
*Distribution*: Europe, Azerbaijan and Siberia.

**Chorinaeus funebris** (GRAVENHORST, 1829)

*Distribution*: Holarctic region.

**Chorinaeus longicornis** THOMSON, 1887

*Distribution*: Europe, Kazakhstan and Khabarovsk region of Russia.

**Chorinaeus scrobipalpae** AESCHLIMANN, 1983

*Distribution*: Germany, Poland, Austria and Ukraine. TOLKANITZ (1987) erroneously reported the species from France.

**Colpotrochia triclistor** (AUBERT, 1979)

*Material*: TR: Erzurum, Narman Kirecli, 2200 m, 2.07.2000, 1♂; Erzurum, Ashkale, 1950 m, 16.07.1999, 1♀; Kars, Sarikamish, TCK Ceshmesi, 2-27.06.2006, 1♂ 1♀; Erzurum, Avcilar, 1350 m, 1♂.
*Distribution*: Turkey.

**Exochus albicinctus** HOLMGREN, 1873

*Material*: BG: Rhodopi Mt., Madjarovo, 200 m, 8.05.2000 m, 1♀.
*Distribution*: Europe, Turkey, Armenia, Mongolia and Sakhalin.
**Exochus bolivari SEYRIG, 1927**

**Material:** GR*: Olympus Mt., Prionia, 1100 m, 26.08.1993, 1♂. BG*: Razgradski heights, Trubatch vill., 19.06-3.07.1999, 1♀; 3-18.07.1999, 3♀♀; 18.07-8.08.1999, 1♂ 8♀♀; 21.08.1999, 1♀; Strandja Mt., Vitanovo, 17.07.2000, 1♀; 27.07.2000, 2♀♀; 18.08.2000, 1♀; 12.09.2000, 1♀; Stara planina Mt., Maglizhi, 380 m, 3.06.1995, 1♀; 28-30.06.1995, 3♀♀; Vratsa, 21.08.1994, 1♀; Reselets, 26.07.1992, 1♀; Vitosha Mt., Bosnek, 940 m, 29.07-10.08.1999, 1♀; 10-18.08.1998, 1♀.

**Distribution:** Spain and France.

**Exochus britannicus MORLEY, 1911**


**Distribution:** United Kingdom, Poland, Hungary, Romania, Moldova, Ukraine and Siberia.

**Exochus castaniventris BRAUNS, 1896**

**Material:** BG: Srebarna, Silistra distr., 22.05.1994, 1♂; Razgradski heights, Trubatch vill., 23-30.05.1999, 2♀♀; 30.05-6.06.1999, 2♀♀; 19.06.1999, 2♀♀; 8-22.08.1999, 1♂; 6-19.09.1999, 2♂♂ 1♀♀; Vratsa, 21.08.1994, 2♀♀. I*: Kerman, Jiroft, 10.07.2000, 1♀.

**Distribution:** Egypt, Europe, Georgia, Turkey, Kazakhstan and Uzbekistan.

**Exochus consimilis HOLMGREN, 1858**

**Material:** BG: Black Sea coast, Rezovo, 30.05.1998, 1♂ 1♀; Strandja Mt., Vitanovo, 9.08.1999, 1♂; 17.07.2000, 1♀; Rhodopi Mt., Madjarovo, 200 m, 13.04.2000, 2♀♀; 8.05.2000, 1♂ 3♀♀; 24.05.2000, 2♂♂ 2♀♀; 3.06.2000, 4♀♀; 15.06.2000, 7♀♀; 5-9.10.2000, 1♂; 21.10.2000, 1♂ 3♀♀; 10.11.2000, 3♀♀.

**Distribution:** Greenland, Tunisia, Europe, Georgia and Siberia.

**Exochus flavifrons BOHEMAN, 1863**

**Material:** BG: Vitosha Mt., 1280 m, 20.08.1987, 1♀; Sakar Mt., Branitsa, 28.05.1998, 1♂. MC*: Galicica Mt., 18.06.1994, 2♂♂; Kitka Mt., 1000 m, 24.06.1994, 1♂.

**Distribution:** Sweden, Finland, Germany, Poland, former Czechoslovakia, Hungary, Bulgaria and Moldova.

**Exochus flavomarginatus HOLMGREN, 1856**

**Material:** BG*: Vratsa, 3.09.1968, 1♂. GR: Olympus Mt. Prionia, 1100 m, 26.08.1993, 4♀♀.

**Distribution:** Palaeartic region.

**Exochus foveolatus SCHMIEDEKNECHT, 1924**

**Material:** BG: Strandja Mt., Vitanovo, 17.07.2000, 2♂♂ 1♀; 22.07.2000, 1♀. GR*: Falakro, 22.08.1993, 1♀.

**Distribution:** Palaeartic region.
**Exochus gravis** GRAVENHORST, 1829


Distribution: Europe.

**Exochus hirsutus** TOLKANITZ, 1993.


Until now the species was known only by male. In materials from my collection I found the female, which correspond well with the male and it is described below.

Female. Front wing 4.5 mm, body 5.4 mm long. Head strongly and rectilinear restricted behind (Fig. 1). Interantennal processus short. Antenna longer than half of the body. Flagellum with 27 elongated segments, postannellus 3.75 as long as wide, 11th segment 1.4 as long as wide. Eye irregularly elliptic, wider downwards. Inner eye orbitae weakly convergent down. Face and clypeus coarse punctured. Combined clypeus and face flat in lower part, face strongly convex in upper part, both conclude angle of 90° (Fig. 2). Mouth wider than face. Malar space 0.4 as long as mandible base.

Notaulus short but distinct. Metapleurum without hairs, shining. Nervulus strongly inclival and postfurcal. First radius 3.0 as long as second radius (Fig. 3). Nervulus strongly inclival, intercepted in lower 0.25 (Fig. 4). Hind femur 2.1 as long as wide. Inner spur of hind tibia 0.6 as long as apical width of tibia. Correlation between hind tarsal segments as 21:12:9:7:13. Propodeum without costula. Basal area not separated from areola (Fig. 5). Propodeal spiracle elongated. First and second lateral area haired. Dorsal carinae of first metasomal tergum developed to its middle. Ovipositor not bypass tip of metasoma (Fig. 6).

Black; antenna from below, couple spots on vertex, face, clypeus, malar space, mandible, palpae, front coxa, apical half of middle coxa and tip of hind coxa from below yellow colored; legs red orange; femora yellow apically; hind tibia reddish, yellow in greater dorsal part, darkened in base and apically; flagellum from above and pterostigma dark brown. In the other as in male.


Distribution: European Russia (Saratov district).

**Exochus lictor** HALIDAY, 1838


Distribution: Holarctic region.

**Exochus marklini** HOLMGREN, 1858


Distribution: Sweden, Germany, Poland, Italy, former Yugoslavia, Bulgaria, Moldova, Ukraine and Turkey.
Exochus mitratus GRAVENHORST, 1829

Material: BG: Plovdiv, apple garden, 12.05.2000, 1♀; Plodiv, 8.09.1999, 1♀; Varna, Drujba, 4.07.2000, 2♀; Staral Crkva, 380 m, 17.07.1995, 1♀; Razgradski heights, Trubatch vill., 18.07-8.08.1999, 1♂; 8-22.08.1999, 1♀; 6-19.09.1999, 1♀; 19.09-2.10.1999, 1♂; MC*: Kitka Mt., 1000 m, 24.06.1994, 1♂; Plodiv, 8.09.1999, 1♀; Varna, Drujba, 4.07.2000, 2♀; Maglizh, 380 m, 17.07.1995, 1♀; Razgradski heights, Trubatch vill., 18.07-8.08.1999, 1♂; 8-22.08.1999, 1♀; 6-19.09.1999, 1♀; 19.09-2.10.1999, 1♂; MC*: Kitka Mt., 1000 m, 24.06.1994, 1♂; Olympus Mt., Pronia, 1100 m, 26.08.1993, 1♂.

Distribution: Holarctic region.

Exochus pictus HOLMGREN, 1858

Material: GR*: Olympus Mt., Prionia, 1100 m, 26.08.1993, 4♀♂. BG: Rhodopi Mt., Madjarovo, 200 m, 2.04.2001, 1♀; 19.09-2.10.1999, 1♂; 27.07.2000, 1♀; Rila Mt., Skakavitsa, 15.05.1999, 1♀.

Distribution: Holarctic region.

Exochus prosopius GRAVENHORST, 1829

Material: GR: Olympus Mt., Prionia, 1100 m, 26.08.1993, 1♂. BG: Vitosha Mt., Bosnek, 940 m, 28.08-4.09.1998, 1♀.

Distribution: Palaearctic region.

Exochus semilividus VOLLENHOVEN, 1875


Distribution: Europe, Azerbaijan and Georgia.

Exochus signatus HABERMEHL, 1925


Distribution: Germany and Poland.

Exochus suborbitalis SCHMIEDEKNECHT, 1924

Material: BG: Vitosha Mt., Ribni dol, 1240 m, 30.05-28.06.2000, 1♂; 28.06-15.07.2000, 1♀; Bosnek, 940 m, 16.07.1999, 1♀; Maglizh, 380 m, 3.06.1995, 1♀; 20.06.1995, 1♂; 20.07.1995, 5♀♂; 18.08.1995, 1♀; Strelcha, 5.08.1997, 1♀; Varna, 25.07.1993, 1♀; Plovdiv, 8.05.2001, 3♀♂; 12.05.2000, 1♀; 21.08.1999, 3♀♂; 24.08.2001, 1♀; 23.09.1999, 1♀; 29.09.1999, 1♀; Strandja Mt., Vitanovo, 25.05.2000, 1♂; 15.07.1999, 1♀; 17-20.07.2000, 3♂♂; 15♀♀; 27.07.2000, 5♀♂; 15♀♀; 2.08.1999, 1♀; 7.08.2000, 2♂♂; 4♀♀; 9.08.1989, 3♀♂; 18.08.1993, 6♀♂; 18.08.2000, 5♀♂; 12.09.1999, 3♀♂; 29.09.2000, 1♀; Kalofer, Enina, 600 m, 26.07.2000, 2♀♂; Razgradski heights, Trubatch vill., 23-30.05.1999, 1♀; 3-18.07.1999, 1♀; 18.07-8.08.1999, 1♀; 8-22.08.1999, 1♀; Rhodopi Mt., Madjarovo, 200 m, 8.05.2000, 1♀; 15.06.2000, 3♀♂; 5-9.10.2000, 9♀♀; 10.11.2000, 1♀; GR*: near Jerisson Gulf, Stratoni, 14.08.2004, 1♀; Olympus Mt., Pronia, 1100 m, 26.08.1993, 1♀; Litohoro, 18.04.1994, 1♀. TR: Canakkale, olive trees, 21.09.2004, 1♀; 4.11.2004, 1♀.

Distribution: Europe, Turkey and Siberia.
Exochus thomsoni SCHMIEDEKNECHT, 1924
Distribution: Sweden, Netherland, Poland, Hungary and Romania.

Exochus tibialis HOLMGREN, 1858
Material: GR*: Olympus Mt. Prionia, 1100 m, 26.08.1993, 1♀.
Distribution: Europe.

Exochus vafer HOLMGREN, 1873
Distribution: Europe and Siberia.

Exochus vexator TOLKANITZ, 1993
Distribution: Moldova, Ukraine and Azerbaijan.

Exochus sp. cf. monticola TOLKANITZ, 1999

Hypsicera anglica (SCHMIEDEKNECHT, 1925)
Distribution: United Kingdom, Belgium, France, Italy, Switzerland, Romania, Ukraine and Turkey.

Hypsicera femoralis (GEOFFROY, 1785)
Material: BG: Stara planina Mt., Maglizh, 380 m, 17-20.06.1995, 1♂; 20.07.1995, 1♂; Rhodopi Mt., Madjarovo, 200 m, 5.10.2000, 2♂♂; Kalofer, Enina, 600 m, 26.07.2000, 3♂♂ 1♀; Strandja Mt, Vitanovo, 27.07.2000, 1♂; Belasitsa Mt., 600 m, 12.07.1998, 1♂; Krumovo, Plovdiv distr., 150 m, 23.05.1993, 1♂; Razgradski heights, Trubatch vill., 6-19.09.1999, 2♀♂; Streltcha, 6.09.1997, 1♀. TR: Canakkale, olive trees, 4.11.2004, 1♂. GR*: Olympus Mt., Prionia, 1100 m, 24.08.1993, 1♀.
Distribution: Almost all world.
**Hypsicera subtilitor AUBERT, 1969**

*Material*: BG*: Strandja Mt., Vitanovo, 20.07.2000, 2♀♂; 9.09.1999, 1♀; Rhodopi Mt., Madjarovo, 200 m, 9.10.2000, 2♀♂; Belasitsa Mt., 600 m, 12.07.1994, 1♂; Razgradski heights, Trubatch vill., 19-09-2.10.1999, 1♂; Black Sea coast, Tsarevo, June, 1994, 1♂; Stara planina Mt., Maglizh, 380 m, 20.07.1995, 1♂; Plovdiv, apple garden, 24.08.2001, 1♂; 18.09.1999, 1♂; Strandja Mt., Vitanovo, 15.07.1999, 1♂. TR*: Canakkale, olive trees, 4.11.2004, 1♂.

*Distribution*: France.

**Stethoncus sulcator AUBERT, 1963**

*Material*: BG: Strandja Mt., Vitanovo, 17.07.2000, 1♂; 22.07.2000, 1♀; Vitosha Mt., Bosnek, 940 m, 25.07.1997, 1♂; Kalofer, Enina, 600 m, 26.07.2000, 1♂ 2♀♀; Rhodopi Mt., Madjarovo, 200 m, 10.11.2000, 1♂.

*Distribution*: Europe and Japan.

**Triclistus globulipes (DESIGNES, 1856)**


*Distribution*: Palaearctic region and Taiwan.

**Triclistus lativentris THOMSON, 1887**


*Distribution*: Madeira Islands, Europe and Turkey.

**Triclistus longicalcar THOMSON, 1887**


*Distribution*: Europe.

**Triclistus niger (BRIDGMAN, 1883)**

*Material*: BG: Rhodopi Mt. Madjarovo, 200 m, 8.05.2000, 1♀.

*Distribution*: Europe.

**Triclistus pallipes HOLMGREN, 1873**


*Distribution*: Holarctic region and Taiwan.

**Trieces nitifrons (THOMSON, 1887)**

*Material*: BG*: Razgradski heights, Trubatch vill., 23.05-30.05.1999, 1♀; 30.05-6.06.1999, 1♂; 19.06-3.07.1999, 9♂♂ 1♀; 18.07-8.08.1999, 1♂; 8-22.08.1999, 1♂ 2♀♀.

*Distribution*: Sweden, Finland, Netherlands and Ukraine.
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Zusammenfassung

Das neu entdeckte Weibchen von Exochus hirsutus TOLKANITZ (Hymenoptera, Ichneumonidae, Metopiinae) wird beschrieben und abgebildet. Daten von 40 Metopiinae-Arten aus Bulgarien und anschließenden Gebieten werden dargelegt. Davon sind 19 Arten, markiert mit einem *, Neunachweise für die bulgarische Fauna, 3 für Mazedonien, 12 für Griechenland, drei für die Türkei und eine Art für den Iran.

References


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Figs 1-6. *Exochus hirsutus* TOLKANITZ, ♀: (1) head from above; (2) head in front; (3) front wing; (4) hind wing; (5) propodeum; (6) metasoma, lateral view. Figure Scale bars: 0.2 mm for 1,2,5; 0.5 mm for 3,4,6.