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Metopiinae (Hymenoptera: Ichneumonidae) from Bulgaria and related regions

Janko KOLAROV

A b s t r a c t . 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).

K e y w o r d s : 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 Malaise 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 abbreviations 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

M a t e r i a l : BG: Strandja Mt., Krainovo, 26.04.1989, 1 ♀.

D i s t r i b u t i o n : Bulgaria, Ukraine, Siberia and Japan.

Chorinaeus cristator (GRAVENHORST, 1829)

M a t e r i a l : 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 ♀.

D i s t r i b u t i o n : Europe, Azerbaijan and Siberia.

Chorinaeus funebris (GRAVENHORST, 1829)

M a t e r i a l : BG: Strandja Mt., Vitanovo, 18.08.1999, 1 ♀; 21.09.1999, 1 ♀.

D i s t r i b u t i o n : Holarctic region.

Chorinaeus longicornis THOMSON, 1887

M a t e r i a l : BG*: Razgradski heights, Trubatch vill., 6-19.09.1999, 1 ♂.

D i s t r i b u t i o n : Europe, Kazakhstan and Khabarovsk region of Russia.

Chorinaeus scrobipalpa AESCHLIMANN, 1983

M a t e r i a l : BG*: Rhodopi Mt., Madjarovo, 200 m, 19-29.04.2000, 1 ♂; Strandja Mt., Vitanovo, 18.09.1999, 2 ♀ ♀.

D i s t r i b u t i o n : Germany, Poland, Austria and Ukraine. TOLKANITZ (1987) erroneously reported the species from France.

Colpotrochia triclitor (AUBERT, 1979)

M a t e r i a l : 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 ♂.

D i s t r i b u t i o n : Turkey.

Exochus albicinctus HOLMGREN, 1873

M a t e r i a l : BG: Rhodopi Mt., Madjarovo, 200 m, 8.05.2000 m, 1 ♀.

D i s t r i b u t i o n : Europe, Turkey, Armenia, Mongolia and Sakhalin.

***Exochus bolivari* SEYRIG, 1927**

M a t e r i a l : 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., Maglizh, 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♀.

D i s t r i b u t i o n : Spain and France.

***Exochus britannicus* MORLEY, 1911**

M a t e r i a l : GR*: Kariani, 24.08.1993, 1♂. BG*: Plovdiv, 21.08.1999, 1♂; Plovdiv, apple garden, 24.08.2001, 1♂; 24.08.2001, 2♀♀. TR*: Canakkale, olive garden, 4.11.2004, 2♀♀.

D i s t r i b u t i o n : United Kingdom, Poland, Hungary, Romania, Moldova, Ukraine and Siberia.

***Exochus castaniventris* BRAUNS, 1896**

M a t e r i a l : 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♀.

D i s t r i b u t i o n : Egypt, Europe, Georgia, Turkey, Kazakhstan and Uzbekistan.

***Exochus consimilis* HOLMGREN, 1858**

M a t e r i a l : 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♀♀.

D i s t r i b u t i o n : Greenland, Tunisia, Europe, Georgia and Siberia.

***Exochus flavifrons* BOHEMAN, 1863**

M a t e r i a l : 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♂.

D i s t r i b u t i o n : Sweden, Finland, Germany, Poland, former Czechoslovakia, Hungary, Bulgaria and Moldova.

***Exochus flavomarginatus* HOLMGREN, 1856**

M a t e r i a l : BG*: Vratsa, 3.09.1968, 1♂. GR: Olympus Mt. Prionia, 1100 m, 26.08.1993, 4♀♀.

D i s t r i b u t i o n : Palaearctic region.

***Exochus foveolatus* SCHMIEDEKNECHT, 1924**

M a t e r i a l : BG: Strandja Mt., Vitanovo, 17.07.2000, 2♂♂ 1♀; 22.07.2000, 1♀. GR*: Falakro, 22.08.1993, 1♀.

D i s t r i b u t i o n : Palaearctic region.

***Exochus gravis* GRAVENHORST, 1829**

M a t e r i a l : GR*: Balndouma, 24.04.1994, 1♂.

D i s t r i b u t i o n : Europe.

***Exochus hirsutus* TOLKANITZ, 1993.**

Exochus hirsutus TOLKANITZ, 1993. Zoologicheskii Zhurnal. 72(3): 100.

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 procesus 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). Nervellus 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, palpa, 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.

M a t e r i a l : BG*: Vitosha Mt., Boyana, 17.06.1997, 1♀.

D i s t r i b u t i o n : European Russia (Saratov district).

***Exochus lictor* HALIDAY, 1838**

M a t e r i a l : BG: Strandja, Vitanovo, 17.07.2000, 1♂ 2♀; 9.08.1999, 1♀. GR*: Olympus, Prionia, 26.08.1993, 1♀.

D i s t r i b u t i o n : Holarctic region.

***Exochus marklini* HOLMGREN, 1858**

M a t e r i a l : GR*: Olympus Mt., 1100 m, 26.08.1993, 3♀. BG: Rhodopi Mt., Madjarovo, 200 m, 5.10.2000, 1♀; Varna, 25.07.1993, 2♀; Plovdiv, 29.09.1999, 1♀; Strandja Mt., Vitanovo, 17-20.07.2000, 2♀.

D i s t r i b u t i o n : Sweden, Germany, Poland, Italy, former Yugoslavia, Bulgaria, Moldova, Ukraine and Turkey.

***Exochus mitratus* GRAVENHORST, 1829**

M a t e r i a l : BG: Plovdiv, apple garden, 12.05.2000, 1♀; Plodiv, 8.09.1999, 1♀; Varna, Drujba, 4.07.2000, 2♀♀; Stara planina, 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♂; GR*: Falakro, 21.08.1993, 4♂♂; Olympus Mt., Prionia, 1100 m, 26.08.1993, 1♂.

D i s t r i b u t i o n : Holarctic region.

***Exochus pictus* HOLMGREN, 1858**

M a t e r i a l : GR*: Olympus Mt., Prionia, 1100 m, 26.08.1993, 4♀♀. BG: Rhodopi Mt., Madjarovo, 200 m, 2.04.201, 1♀; 13.04.2000, 1♀; 19-24.04.2000, 4♀♀; 8.05.2000, ♀; 21.10.2000, 4♀♀; 10.11.2000, 4♀♀; Strandja Mt., Vitanovo, 15.05.2000, 1♀; 17.07.2000, 1♀; 27.07.2000, 1♀; Rila Mt., Skakavitsa, 15.05.1999, 1♀.

D i s t r i b u t i o n : Holarctic region.

***Exochus prosopius* GRAVENHORST, 1829**

M a t e r i a l : GR: Olympus Mt., Prionia, 1100 m, 26.08.1993, 1♂. BG: Vitosha Mt., Bosnek, 940 m, 28.08-4.09.1998, 1♀.

D i s t r i b u t i o n : Palaearctic region.

***Exochus semilividus* VOLLENHOVEN, 1875**

M a t e r i a l : GR*: Kalitea, 21.08.1993, 1♂.

D i s t r i b u t i o n : Europe, Azerbaijan and Georgia.

***Exochus signatus* HABERMEHL, 1925**

M a t e r i a l : BG*: Strandja Mt., Vitanovo, 27.07.2000, 1♂; 28.09.1989, 1♀.

D i s t r i b u t i o n : Germany and Poland.

***Exochus suborbitalis* SCHMIEDEKNECHT, 1924**

M a t e r i a l : 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♀; Stara planina Mt., Maglizh, 380 m, 3.06.1995, 1♀; 20.06.1995, 1♂; 20.07.1995, 5♀♀; 18.08.1995, 1♀; Streltcha, 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♀♀; 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., Prionia, 1100 m, 26.08.1993, 1♀; Lithoro, 18.04.1994, 1♀. TR: Canakkale, olive trees, 21.09.2004, 1♀; 4.11.2004, 1♀.

D i s t r i b u t i o n : Europe, Turkey and Siberia.

***Exochus thomsoni* SCHMIEDEKNECHT, 1924**

M a t e r i a l : BG*: Rhodopi Mt., Madjarovo, 200 m, 5-10.2000, 1♂; Strandja Mt., Vitanovo, 20.07.2000, 1♂; 18.08.2000, 1♂; Popovo, 16.07.1987, 1♂; Kalofer, Enina, 600 m, 26.07.2000, 2♀♀. **T R ***: Balikeshir, olive trees, 7.09.2005, 1♀; Canakkale, olive trees, 4.11.2004, 1♀.

D i s t r i b u t i o n : Sweden, Netherland, Poland, Hungary and Romania.

***Exochus tibialis* HOLMGREN, 1858**

M a t e r i a l : GR*: Olympus Mt. Prionia, 1100 m, 26.08.1993, 1♀.

D i s t r i b u t i o n : Europe.

***Exochus vafer* HOLMGREN, 1873**

M a t e r i a l : BG*: Strandja Mt., Ahtopol, 7.06.1997, 1♂.

D i s t r i b u t i o n : Europe and Siberia.

***Exochus vexator* TOLKANITZ, 1993**

M a t e r i a l : BG*: Stara planina Mt., Maglizh, 20.07.1995, 1♀.

D i s t r i b u t i o n : Moldova, Ukraine and Azerbaijan.

***Exochus* sp. cf. *monticola* TOLKANITZ, 1999**

M a t e r i a l : BG: Vitosha Mt., Stenata, 22.08.1992, 1♀.

***Hypsicera anglica* (SCHMIEDEKNECHT, 1925)**

M a t e r i a l : BG*: Razgradski heights, Trubatch vill., 19.09-2.10.1999, 1♂.

D i s t r i b u t i o n : United Kingdom, Belgium, France, Italy, Switzerland, Romania, Ukraine and Turkey.

***Hypsicera curvator* (FABRICIUS, 1793)**

M a t e r i a l : BG: Rhodopi Mt., Madjarovo, 9.10.2000, 6♀♀; Stara planina Mt., Etropole, Banitsa, 31.07.1992, 1♀; Razgradski heights, Trubatch vill., 29.04-20.05.2000, 1♀; 30.05-6.06.1999, 1♀; 8-22.08.1999, 1♀; 19.09-2.10.1999, 1♀.

D i s t r i b u t i o n : Holarctic region.

***Hypsicera femoralis* (GEOFFROY, 1785)**

M a t e r i a l : 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♀. **T R ***: Canakkale, olive trees, 4.11.2004, 1♂. **G R ***: Olympus Mt., Prionia, 1100 m, 24.08.1993, 1♀.

D i s t r i b u t i o n : Almost all world.

***Hypsicera subtilitor* AUBERT, 1969**

M a t e r i a l : 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♂.

D i s t r i b u t i o n : France.

***Stethoncus sulcator* AUBERT, 1963**

M a t e r i a l : 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♂.

D i s t r i b u t i o n : Europe and Japan.

***Triclistus globulipes* (DESIGNES, 1856)**

M a t e r i a l : BG*: Strandja Mt., Varvara, 7.07.1997, 1♀.

D i s t r i b u t i o n : Palaearctic region and Taiwan.

***Triclistus lativentris* THOMSON, 1887**

M a t e r i a l : BG: Stara planina MT., Maglizh, 15.07.1995, 1♂. MC*: Galicica Mt., Oteshevo, 18.06.1994, 1♀.

D i s t r i b u t i o n : Madeira Islands, Europe and Turkey.

***Triclistus longicalcar* THOMSON, 1887**

M a t e r i a l : BG: Rhodopi Mt. Madjarovo, 200 m, 19.03.2001, 1♀.

D i s t r i b u t i o n : Europe.

***Triclistus niger* (BRIDGMAN, 1883)**

M a t e r i a l : BG: Rhodopi Mt. Madjarovo, 200 m, 8.05.2000, 1♀.

D i s t r i b u t i o n : Europe.

***Triclistus pallipes* HOLMGREN, 1873**

M a t e r i a l : GR: Olympus Mt., Prionia, 1100 m, 21.08.1993, 2♂♂ 6♀♀. H: Bukk. National Park, 22.08.2000, 3♀♀.

D i s t r i b u t i o n : Holarctic region and Taiwan.

***Trieces nitifrons* (THOMSON, 1887)**

M a t e r i a l : 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♀♀.

D i s t r i b u t i o n : Sweden, Finland, Netherlands and Ukraine.

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Zusammenfassung

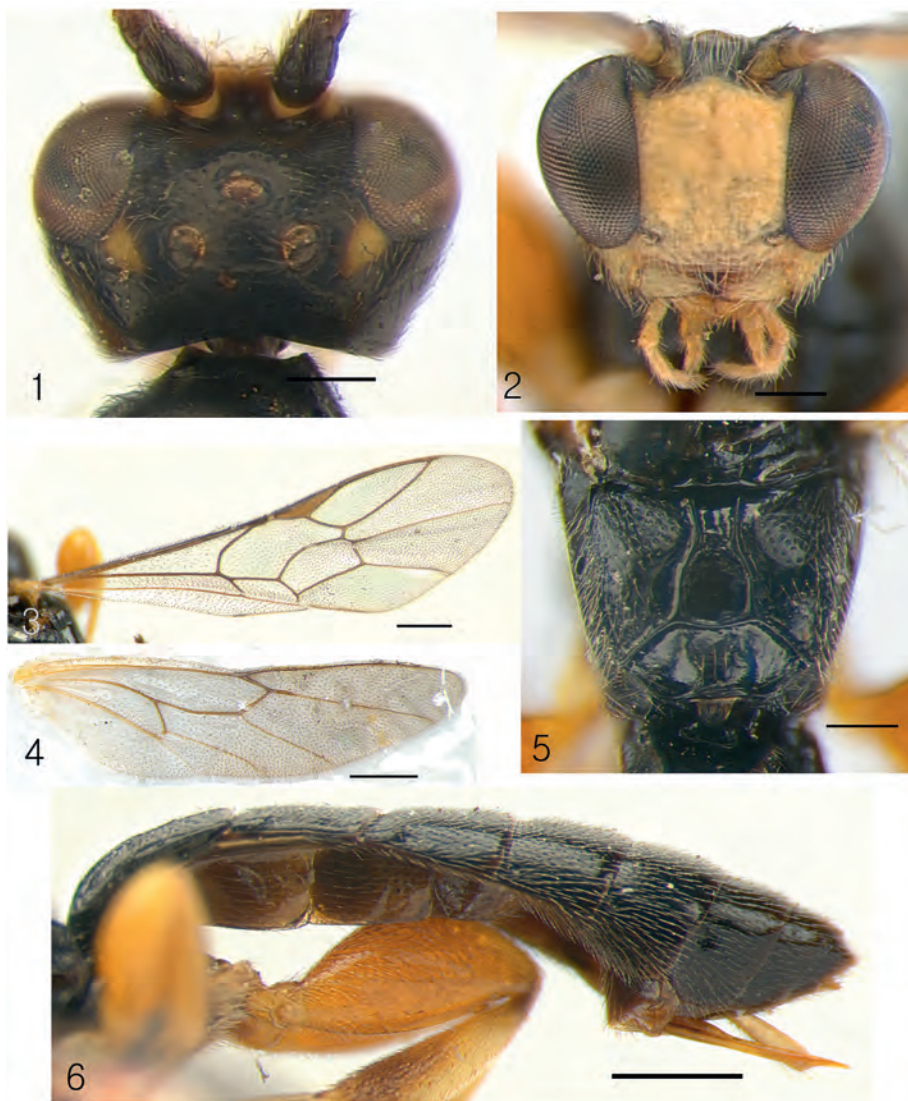
Das neu entdeckte Weibchen von *Exochus hirsutus* TOLKANITZ (Hymenoptera, Ichneumonidae, Metopiinae) wird beschrieben und abgebildet. Daten von 40 Metopiinae-Arten aus Bulgarien und anschließenden Gebieten werden dargelegt. Davon sind 19 Arten, markiert mit einem *, Neunachweise für die bulgarische Fauna,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

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Author's address:

Dr. Janko KOLAROV
University of Plovdiv, Faculty of Pedagogy
24 Tsar Assen Str.
4000 Plovdiv, Bulgaria
E-mail: jkolarov@uni-plovdiv.bg



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.

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