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The Torymid fauna (Hymenoptera, Torymidae) of Bulgaria: published data and new records

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A b s t r a c t : In the present paper all published data concerning Torymid fauna of Bulgaria is summarized. Fifty-three species belonging to 14 genera were recorded in entomological papers till now. Faunistic data on another 15 species, new to the Bulgarian fauna, is herein presented.

K e y w o r d s : Hymenoptera, Torymidae, faunistic, Bulgaria, species list.

Introduction

Chalcid wasps of the family Torymidae WALKER 1833 belong to 69 genera and have worldwide distribution (NOYES 2003). Most Torymids are primary parasitoids or hyperparasitoids of various insects, members of 8 orders. Only about 1/6 of the species are phytophagous (inquilines in galls or seed-feeders associated with coniferous trees and rosaceous plants) (GRISSELL 1995).

The Torymid fauna in Bulgaria has not been a subject of a special investigation. Only 53 species have been published in chalcidological papers till now. The geographical and climatic conditions and a great variety of habitats in Bulgaria predetermine the existence of rich entomofauna with specific features. This gives basis to presume that the future studies on torymids occurring the region will increase considerably our information about species diversity of the family in Bulgaria and European and Palaearctic distribution of the species.

The aim of this article is to overview the Torymids from Bulgaria on the base of published data and to present new original faunistic material.

Material and Methods

The published data on Torymidae family in Bulgaria was summarized. Since all material from the publications could not be studied, some misidentifications are possible.

The original material was collected between 1968 and 2006 in different regions of the country, mainly by sweeping in grass localities. Some specimens were reared at laboratory conditions from galls, flower heads and stems of different plants. The investigations were completed with material collected by Moericke, Panikkin and Malaise traps.

The list of the established species comprises the following data: the valid taxa name, locality name, altitude above the sea level in metres and UTM code, date of collecting, number and sex of specimens, host (in case of rearing), name of the collector (when the material was not collected by the author). The collection localities are represented by geographical regions. The material is preserved as dry and card-mounted specimens in the author's collection, University of Plovdiv.

Results

All accessible information concerning Torymidae species in Bulgaria till 2006 year is presented in Table 1. Fifty-three species belonging to 14 genera were recorded in entomological papers. The species are arranged in alphabetic order.

Tab. 1: Torymid species published to Bulgarian fauna till 2006 year.

Taxa	Author, year
<i>Adontomerus robustus</i> (BOUČEK 1970)	BOUČEK 1970 & 1977, GRISELL 1995, NOYES 2003
<i>Ditropinotus aureoviridis</i> CRAWFORD 1907	PELOV 1975
<i>Exopristoides hypecoi</i> ZEROVA et STOJANOVA 2004	NOYES 2003, ZEROVA et al. 2004
<i>Exopristus trigonomerus</i> (MASI 1916)	ANGELOV 1970
<i>Glyphomerus aylax</i> STOJANOVA 2005	NOYES 2003, STOJANOVA 2005
<i>Glyphomerus stigma</i> (FABRICIUS 1793)	ANGELOV 1970, VASSILEVA-SAMNALIEVA 1974, 1987 & 1990, STOJANOVA 2006
<i>Idarnotorymus pulcher</i> MASI 1916	PELOV 1975, GRISELL 1995, NOYES 2003
<i>Idiomacromerus arcus</i> (BOUČEK 1970)	BOUČEK 1970 & 1977, NOYES 2003
<i>Idiomacromerus balasi</i> (SZELENYI 1957)	BOUČEK 1977, NOYES 2003
<i>Idiomacromerus mayri</i> (WACHTL 1883)	ANGELOV 1970
<i>Idiomacromerus pannonicus</i> (RUSHKA 1923)	WALL 1984
<i>Idiomacromerus perplexus</i> (GAHAN 1914)	POPOV 1968
<i>Idiomacromerus terebrator</i> (MASI 1916)	PELOV 1975
<i>Megastigmus aculeatus</i> (SWEDERUS 1795)	ANGELOV 1970, PELOV 1975, NOYES 2003, ROQUES & SKRZYPCZYNSKA 2003
<i>Megastigmus amicornum</i> BOUČEK 1969	BOUČEK 1970, NIKOLSKAYA & ZEROVA 1978, ZEROVA & SERYOGINA 1998, ASKEW et al. 2001, NOYES 2003, ROQUES & SKRZYPCZYNSKA 2003
<i>Megastigmus dorsalis</i> (FABRICIUS 1798)	ANDRIESCU 1974, PELOV 1975, VASSILEVA-SAMNALIEVA 1985, MELIKA et al. 2002a, STOJANOVA 2006
<i>Megastigmus pistaciae</i> WALKER 1871	BOUČEK 1954 & 1977, WALL 1984, NOYES 2003, ROQUES & SKRZYPCZYNSKA 2003
<i>Megastigmus rosae</i> BOUČEK 1971	ROQUES & SKRZYPCZYNSKA 2003
<i>Megastigmus stigmatizans</i> (FABRICIUS 1798)	ANGELOV 1970, VASSILEVA-SAMNALIEVA 1985, STOJANOVA 2006
<i>Megastigmus strobilobius</i> RATZEBURG 1848	TSANKOV 1974, NOYES 2003, ROQUES & SKRZYPCZYNSKA 2003
<i>Megastigmus synophri</i> MAYR 1874	MELIKA et al. 2002b, NOYES 2003, STOJANOVA 2006

Taxa	Author, year
<i>Monodontomerus aereus</i> WALKER 1834	TSCHORBADJIEW 1924 & 1925, THOMPSON 1958, GOSPODINOV 1963, GANTSCHW 1975, PELOV 1975, GEORGIEV 1996, ZAHARIEVA-PENCHEVA & GEORGIEV 1997, ZEROVA & SERYOGINA 2002, NOYES 2003
<i>Monodontomerus minor</i> (RATZEBURG 1848)	PELOV 1975, DIMOVA 1987
<i>Monodontomerus obscurus</i> WESTWOOD 1833	ANGELOV 1970, DOCHKOVA 1982, 1991 & 1995
<i>Podagrion pachymerum</i> (WALKER 1833)	ANGELOV 1970
<i>Pseudotorymus papaveris</i> (THOMSON 1876)	STOJANOVA 2006
<i>Pseudotorymus sapphyrinus</i> (FONSCOLOMBE 1832)	ANGELOV 1970
<i>Thaumatorymus notanisoides</i> FERRIERE et NOVICKY 1954	BOUČEK 1977, WALL 1984, NOYES 2003
<i>Torymoides dispar</i> (MASI 1916)	BOUČEK 1966, PELOV 1975, NOYES 2003
<i>Torymoides kiesewetteri</i> (MAYR 1878)	THOMPSON 1958, PELOV 1975, NOYES 2003
<i>Torymoides violaceus</i> (NIKOLSKAYA 1954)	BOUČEK 1970, GRISELL 1995, ASKEW et al. 2001, NOYES 2003
<i>Torymus affinis</i> (FONSCOLOMBE 1832)	ANGELOV 1970, PELOV 1975, VASSILEVA-SAMNALIEVA 1985, MELIKA et al. 2002b, NOYES 2003, STOJANOVA 2006
<i>Torymus armatus</i> BOHEMAN 1834	STOJANOVA 2006
<i>Torymus auratus</i> (MÜLLER 1764)	MELIKA et al. 2002a & 2002b, STOJANOVA 2006
<i>Torymus bedeguaris</i> (LINNAEUS 1758)	NIKOLOVA 1969 & 1972, ANGELOV 1970, VASSILEVA-SAMNALIEVA 1974 & 1990, STOJANOVA 2006
<i>Torymus calcaratus</i> (NEES 1834)	PELOV 1975, STOJANOVA 2006
<i>Torymus cingulatus</i> NEES 1834	ANGELOV 1970, VASSILEVA-SAMNALIEVA 1974, 1985 & 1990
<i>Torymus cyaneus</i> WALKER 1847	PELOV 1975, STOJANOVA 2006
<i>Torymus eadyi</i> GRAHAM et GIJSWIJT 1998	GRAHAM & GIJSWIJT 1998, NOYES 2003, POPESCU 2003, ZEROVA et al. 2003
<i>Torymus eglanteriae</i> MAYR 1874	ANGELOV 1970
<i>Torymus fastuosus</i> BOHEMAN 1834	ANGELOV 1970
<i>Torymus flavipes</i> (WALKER 1933)	PELOV 1975, MELIKA et al. 2002b, NOYES 2003, STOJANOVA 2006
<i>Torymus fuscicornis</i> (WALKER 1833)	PELOV 1999
<i>Torymus hormomyiae</i> KIEFFER 1899	ANGELOV 1970
<i>Torymus inulae</i> WACHTL 1884	ANGELOV 1970
<i>Torymus laetus</i> (WALKER 1833)	ANGELOV 1970
<i>Torymus microcerus</i> (WALKER 1833)	GEORGIEV & STOJANOVA 2003, NOYES 2003
<i>Torymus phyllireae</i> RUSCHKA 1921	PELOV 1975
<i>Torymus persicariae</i> MAYR 1874	ANGELOV 1970
<i>Torymus poae</i> (HOFFMEYER 1930)	PELOV 1975
<i>Torymus rubi</i> (SCHRANK 1781)	GRIGOROV 1962, NOYES 2003
<i>Torymus tipulariarum</i> ZETTERSTEDT 1838	GIJSWIJT 2000, NOYES 2003
<i>Torymus ventralis</i> (FONSCOLOMBE 1832)	ANGELOV 1970

Studied Material

Faunistic data on 15 species belonging to 9 genera (*Cryptopristus* FÖRSTER 1856 – 1 species; *Eridontomerus* CRAWFORD 1907 – 1 sp.; *Glyphomerus* FÖRSTER 1856 – 2 sp.; *Idiomacromerus* CRAWFORD 1907 – 2 sp.; *Microdontomerus* CRAWFORD 1907 – 1 sp.; *Megastigmus* DALMAN 1820 – 2 sp.; *Podagrion* SPINOLA 1811 – 1 sp.; *Pseudotorymus* Masi 1921 – 1 sp.; *Torymus* DALMAN 1820 – 4 sp.) new to the Bulgarian fauna, are herein presented.

The species are arranged in alphabetic order.

Cryptopristus caliginosus (WALKER 1833)

M a t e r i a l : Stara Planina Ridge: Yamna village, 600 m, UTM: KH64, 28.VII.1968, 1 ♀ (A. Germanov); Rhodope Mts.: Byaga village, 300 m, UTM: KG86, 19.VI.1967, 3 ♀ ♀ (A. Germanov); Bryanovshitsa hut, 950 m, UTM: LG05, 17.V.1997, 1 ♀; Novakovo village, 400 m, UTM: LG34, 8.VII.1968, 1 ♀ (A. Germanov); Dazhdovnitsa village, 450 m, UTM: LG51, 18.V.2002, 4 ♀ ♀ (P. Boyadzhiev); Thracian Lowland: Kadievo village, 150 m, UTM: LG06, 19.V.1983, 1 ♀ (S. Petrov); Bryagovo village, 250 m, UTM: LG45, 26.IV.1968, 1 ♀ (A. Germanov); Chirpan, 150 m, UTM: LG67, 11.V.1968, 1 ♀ (A. Germanov); Momkovo village, 100 m, UTM: MG23, 22.V.1982, 1 ♀ (S. Petrov); Strandzha Mt.: Bolyarovo, 200 m, UTM: MG86, 31.V.1968, 1 ♀ (P. Angelov); Golyamo Bukovo village, 200 m, UTM: NG17, 2.VI.1968, 1 ♀ (P. Angelov); Fakiya village, 200 m, UTM: NG07, 9.VI.1988, 1 ♀ (A. Donev); Kosti village, 45 m, UTM: NG65, 24.VI.1986, 1 ♀ (A. Donev); The Black Sea coast: Tsarevo, 30 m, UTM: NG66, 21-23.VI.2002, 1 ♀ (Moericke trap).

Eridontomerus isomatidis (RILEY 1881)

M a t e r i a l : Rhodope Mts.: Isparihovo village, 300 m, UTM: KG86, 1.VII.2000, 2 ♀ ♀ (emerged from stems of *Stipa capillata*); Ognyanovo village, 350 m, UTM: KG86, 25.VI.2001, 1 ♀ (emerged from stem of *Stipa capillata*); Gela village, 1400 m, UTM: KG91, 24.VII.2002, 1 ♀.

Known as parasitoid of *Tetramesa* ssp. (Eurytomidae) develop in stems of Poaceae (NOYES 2003).

Glyphomerus carinatus NIKOLSKAYA 1952

M a t e r i a l : Rhodope Mts.: Asenovgrad, 300 m, UTM: LG29, 21.VII.1969, 1 ♀ (A. Germanov).

Glyphomerus europaeus (ERDÖS 1957)

M a t e r i a l : Rhodope Mts.: Oreshtets village, 900 m, UTM: LG23, 10.VII.1968, 1 ♀ (A. Germanov).

Idiomacromerus budensis (ERDÖS 1955)

M a t e r i a l : Thracian Lowland: Plovdiv, Dzhendem tepe loc., 125 m, UTM: LG16, 24.X.1999, 17 ♀ ♀ (emerged from flower heads of *Centaurea* sp.).

Information about hosts of *I. budensis* lacks in the literature. Associate of the species with *Centaurea* sp. (Asteraceae) is newly recorded.

***Idiomacromerus papaveris* (FÖRSTER 1856)**

M a t e r i a l : Thracian Lowland: Plovdiv, Dzhendem tepe loc., 125 m, UTM: LG16, 15.XI.1998, 3 ♀♀, 1 ♂ (emerged from flower heads of *Centaurea* sp.); 24.X.1999, 4 ♀♀ (emerged from flower heads of *Centaurea* sp.); Strandzha Mt.: Rezovo village, 20 m, UTM: NG84, 22.VI.2003, 1 ♀.

Develops parasitically in Cynipidae galls on Caryophyllaceae, Lamiaceae, Papaveraceae and Rosaceae plants (NOYES 2003). Associate with *Centaurea* sp. (Asteraceae) is newly recorded.

***Megastigmus bipunctatus* (SWEDERUS 1795)**

M a t e r i a l : Vitosha Mt.: S of Planinska pesen hut, 1750 m, UTM: FN81, 11.VI.-20.VII.2003, 1 ♀, 3 ♂♂ (Moericke trap on *Juniperus communis nana*, N. Simov); 20.VII.-30.VIII.2003, 15 ♂♂ (Panikkin trap on *Juniperus communis nana*, N. Simov); Rila Mt.: Gorno Ribno Ezero Lake, 2240 m, UTM: GM06, 21.VIII.2001, 1 ♀ (N. Simov); Pirin Mt.: S of Vihren hut, 2014 m, UTM: GM02, 1 ♀, 1 ♂ (Panikkin trap on *Pinus mugo*, N. Simov).

***Megastigmus brevicaudis* RATZEBURG 1852**

M a t e r i a l : Rila Mt.: Yastrebets hut, 2350 m, UTM: GM17, 23.VII.1982, 1 ♀ (S. Petrov).

***Microdontomerus annulatus* (SPINOLA 1808)**

M a t e r i a l : Rhodope Mts.: Martsiganitsa hut, 1400 m, UTM: LG24, 16.X.1999, 1 ♀, 1 ♂ (emerged from flower heads of *Centaurea* sp.); Dobralak village, 1100 m, UTM: LG14, 12.VIII.2004, 1 ♀ (M. Kechev); Thracian Lowland: Plovdiv, Dzhendem tepe loc., 125 m, UTM: LG16, 24.XI.1999, 1 ♀ (emerged from flower head of *Centaurea* sp.).

Parasitoid of Diptera, Lepidoptera and Hymenoptera (Cynipidae) galls on Asteraceae, Apiaceae, Lamiaceae and Poaceae plants (NOYES 2003).

***Podagrion splendens* SPINOLA 1811**

M a t e r i a l : Rhodope Mts.: Ognyanovo village, 350 m, UTM: KG86, 2.V.1998, 1 ♀ (P. Boyadzhiev); Strandzha Mt.: Zvezdets village, 400m, UTM: NG36, 6.VI.1971, 1 ♀ (P. Angelov).

***Pseudotorymus arvernicus* (WALKER 1933)**

M a t e r i a l : Pirin Mt.: Melnik, 400 m, UTM: FL98, 23.V.1970, 1 ♀ (P. Angelov); Rhodope Mts.: Jundola village, Pashovi skali loc., 1400 m, UTM: GM35, 1.VII.2002, 1 ♀; Lednitsata hut, 1720 m, UTM: KG91, 24.VII.2002, 1 ♀; Pashaliysa hut, 1100 m, UTM: LG13, 16.VII.1980, 2 ♀♀ (A. Donev); Snezhanka summit, 1925 m, UTM: LG01, 30.7.1993, 1 ♀ (P. Boyadzhiev); Madan, 700 m, UTM: LF29, 5.VII.1996, 1 ♀; Madzharovo, 200 m, UTM: MG00, 28.V.-8.VI.2001, 2 ♀♀ (Malaise trap) (H. Etarska); Strandzha Mt.: Fakiya village, 200 m, UTM: NG07, 9.VI.1988, 2 ♀♀ (A. Donev).

***Torymus corni* MAYR 1874**

M a t e r i a l : Rhodope Mts.: S of Hrabrino village, 700 m, UTM: LG05, 21.IX.2002, 10 ♀♀, 13 ♂♂ (emerged May 2003 from *Craneobia corni* (Diptera, Cecidomyiidae) galls on *Cornus sanguinea*).

Develops parasitically in *Craneobia corni* (Diptera, Cecidomyiidae) galls on *Cornus sanguinea* (Cornaceae) (NOYES 2003).

***Torymus juniperi* (LINNAEUS 1758)**

M a t e r i a l: Pirin Mt.: Vihren hut, 1950 m, UTM: FM92, 26.VIII.2005, 5 ♀♀, 1 ♂ (P. Boyadzhiev); Popovi livadi loc., 1430 m, UTM: GM20, 28.IV.2004, 1 ♀ (O. Todorov).

***Torymus rosariae* GRAHAM et GIJSWIJT 1998**

M a t e r i a l: Vitosha Mt.: 5 km SE Zheleznitsa village, 1250 m, UTM: FN90, 10.V.1987 coll. galls of *Dasyneura rosaria* (Diptera, Cecidomyiidae) on *Salix* sp., 16 ♀♀, 4 ♂♂ emerged 10.V-30.V.1987 (L.Vassileva-Samnalieva); Zheleznitsa village, 1000 m, UTM: FN91, 10.I.1986 coll. galls of *D. rosaria* on *Salix* sp., 1 ♀ emerged 28.IV.1986 (L.Vassileva-Samnalieva).

Dr. L.Vassileva-Samnalieva made the host determination. Develops parasitically in Cecidomyiid galls (incl. *Dasyneura rosaria*) on *Salix* (NOYES 2003).

***Torymus verbasci* RUSCHKA 1921**

M a t e r i a l: Rila Mt.: Chaira loc., 1200 m, UTM: GM37, 12.VIII.1999, 5 ♀♀ (emerged from *Asphondylia verbasci* (Cecidomyiidae, Diptera) galls on *Verbascum* sp.); Rhodope Mts.: Gela village, 1400 m, UTM: KG91, 24.VII.2002, 1 ♀ (emerged from *A. verbasci* gall on *Verbascum* sp.).

Develops parasitically in *Asphondylia verbasci* galls on *Verbascum* sp. (NOYES 2003).

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Zusammenfassung

In vorliegender Arbeit werden alle veröffentlichten Daten zur Torymid-Fauna Bulgariens zusammengefasst. Dreiundfünfzig Arten aus 14 Gattungen waren bisher bekannt, 15 zusätzliche Arten ergänzen in dieser Publikation die bekannte Liste.

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