



## Review of Iranian Eupelmidae (Hymenoptera: Chalcidoidea), with five new records

Hossein Lotfalizadeh<sup>1\*</sup> and Leila Ghadirzadeh<sup>2</sup>

<sup>1</sup> Department of Plant Protection, Agricultural and Natural Resources Research Center of East-Azərbayjan, AREEO, Tabriz, Iran

<sup>2</sup> Department of Plant Protection, Islamic Azad University, Tabriz Branch, Tabriz, Iran.

**ABSTRACT.** Eupelmidae of Iran are revised based on collected material mainly from the northwest and accessible published data. This family in Iran includes 31 species in two subfamilies (Calosotinae and Eupelminae) and seven genera *Anastatus* Motschulsky, 1859 (four species), *Arachnophaga* Ashmead, 1896 (one species), *Brasema* Cameron, 1884 (one species), *Calosota* Curtis, 1836 (one species), *Calymmochilus* Masi, 1919 (one species), *Eupelmus* Dalman, 1820 (22 species) and *Eusandalum* Ratzeburg, 1852 (one species). The genus *Calymmochilus* and four species *Calymmochilus dispar* Bouček & Andriescu, 1967; *Eupelmus pini* Taylor, 1927; *E. splendens* Giraud, 1872 and *E. vindex* Erdős, 1955 are new records for Iran.

**Key words:** Calosotinae, Eupelminae, Fauna, Parasitoids, Iran

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### Introduction

Eupelmidae including three subfamilies Calosotinae, Neanastatinae and Eupelminae, have more than 900 species in 51 genera worldwide (Noyes 2015). Only 10 species in three genera have been reported from Iran (Fallahzadeh *et al.* 2008; Noyes 2015). These wasps are primary or secondary parasitoids and ecto or endoparasitoids of different orders of insects (Gibson 1995). Malaise or pan traps and rearing from hosts are the best method for collecting members of this family (Gibson 1989, 1995).

Keys to world genera of Calosotinae and Neanastatinae are provided by Gibson

(1989), and world genera of Eupelminae by Gibson (1995). Recently, Al Khatib *et al.* (2015) studied *urozonus*-group of *Eupelmus* in the Palaearctic region. Most recently, Gibson and Fusu (2016) revised *Eupelmus* species in the Palaearctic region. Substantial contributions to knowledge of Iranian Eupelmidae were made by Kalina (1981b, 1988) who described some species, Lotfalizadeh *et al.* (2006, 2012) and Mohammadi *et al.* (2011) who reared specimens from galls of *Diplolepis fructuum* (Rübsaamen, 1882) (Cynipidae) on *Rosa canina*, Fallahzadeh *et al.* (2008) who reared specimens from *Bellatella germanica*

Corresponding author: Hossein Lotfalizadeh, E-mail: [hlotfalizadeh@gmail.com](mailto:hlotfalizadeh@gmail.com)

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(L.) (Blattaria: Blattellidae), Lotfalizadeh and Khalghani (2008) who reported hymenopterous parasitoids of xylophagous beetles, Mahdavi and Madjdzadeh (2013) who reared specimens from Cynipidae (Hymenoptera), Lotfalizadeh and Hashemi (2015) who reared parasitoids of *Oxystoma ochropus* (Germar), and Ghadirzadeh *et al.* (2016) who reported *Brasema stenus* (Bouček).

Our general collecting in the northwest of Iran has contributed additional information that is the main aim of the present study.

### Material and methods

Specimens were collected by the authors mainly in nature reserves from north-western Iran using a standard sweep net, yellow pan traps, a Malaise trap, and by host rearing during 1996–2015. Several species were obtained from dead wood inhabited by xylophagous insect larvae, from cynipid galls and from other hosts (Table 1).

Specimens were preparations based on Noyes (1982). Generic identifications were made using Peck *et al.* (1964), Medvedev (1988) and Gibson (1995), and specific identification using all the available keys and descriptions (Kalina 1981a,b, 1988; Askew and Nieves-Aldrey 2000, 2004; Gibson 1989, 1995, 2010; Gibson and Fusu 2016). Specimens are deposited in the insect collection of the Department of Plant Protection, East-Azarbaijan Research Center for Agriculture and Natural Resources, Tabriz, Iran.

### Results

Based on examination of 125 specimens, 17 species were identified from our material. Previously reported species from Iran were also added to this list for a total of 30 species in two subfamilies: Calosotinae (one species) and Eupelminae (29 species).

### Subfamily Calosotinae

#### I- Genus: *Calosota* Curtis, 1836

##### 1-*Calosota metallica* (Gahan, 1922)

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" E 46°02'55", vii.2012, H. Lotfalizadeh (1♀).

This species was reported from Iran without exact locality (Gibson 2010) but it was collected from northwest of Iran in a Malaise trap. It is widely distributed in the Palaearctic and Nearctic regions as a parasitoid of Coleoptera (Scolytidae), Diptera (Cecidomyiidae, Tephritidae), Hymenoptera (Eurytomidae), and Lepidoptera (Tortricidae) (Noyes 2015).

### Subfamily Eupelminae

#### II- Genus: *Anastatus* Motschulsky, 1859

This genus includes four species in Iran. Bayegan *et al.* (2013) reported *Anastatus intrroptus* (Nikolskaya 1952) from northern Iran but our recent examination showed that this record is a misidentification.

##### 2-*Anastatus bifasciatus* Geoffroy, 1785

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" E 46°02'55", 6.ix.2014, H. Lotfalizadeh, Malaise trap (1♀).

This species has been reported on eggs of *Eurygaster integriceps* Puton (Hem.: Scutelleridae) and an unknown moth (Lepidoptera) (Iranipour *et al.* 1998). It is widely distributed in the Palaearctic region, North Africa, US (Noyes 2015), and Iran (Iranipour *et al.* 1998).

##### 3- *Anastatus dlabolai* Kalina, 1981

Kalina (1981a) described this species based on collected specimens from Kerman province, Deh-Bakri. It may be endemic to Iran. Mehrnejad reported this species as parasitoid of *Kermania pistaciella* Amsel (Lepidoptera: Tineidae).

**4- *Anastatus tenuipes* Bolivar y Pielitian, 1925**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" & E 46°02'55", Malaise trap, 8.ix.2014, H. Lotfalizadeh (3♀♀). Sistan & Baluchestan province, Zabol, Hirmand, 6.iv.2011, ex *Hyles linenta* on *Vitis* sp., S. Taheri (2♀♀).

This species widely distributed in the Afrotropical, Nearctic and Palaearctic regions and has known as a parasitoid of Blattellidae and Blattidae (Noyes 2015). Our examined specimens were collected from southeast and northwest of Iran as egg parasitoids of *Hyles lineata* (Fabricius) (Lepidoptera: Sphingidae) on *Vitis* sp.

**5- *Anastatus* sp.**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37° 58' 28" E 46° 02' 55", 14.ix.2010, H. Lotfalizadeh (1♀).

We could identify this species using current keys.

**III-Genus: *Arachnophaga* Ashmead, 1896****6- *Arachnophaga matritensis* (Bolivar y Pielitian, 1934)**

This species has been reported as parasitoid of *Kermania pistaciella* Amsel (Lepidoptera: Tineidae) (Mehrnejad, 2008).

**IV-Genus: *Brasema* Cameron, 1884**

This genus with 54 known species (Noyes 2015) includes only one species in Iran (Ghadirzadeh *et al.* 2016).

**7- *Brasema stenus* Bouček, 1968**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" E 46°02'55", Malaise trap, H. Lotfalizadeh , vii.2008 (2♀♀), viii.2008 (3♀♀), 5.viii.2009 (2♀♀) 16.viii.2009 (2♀♀), 2.x.2009 (3♀♀ &

1♂), 18.vii.2010(7♀♀ & 2♂♂), 21.vii.2010 (2♀♀ & 1♂), 2.viii.2010 (13♀♀ & 1♂).

In the Palaearctic region, *Brasema stenus* known from some European countries (Noyes 2015) and the Middle East (Ghadirzadeh *et al.* 2016). Two hymenopterous families, Cynipidae and Eurytomidae, have been recorded as hosts.

**V- Genus: *Calymmochilus* Masi, 1919**

This is first record of the genus from Iran. This is a small genus, includes 10 nominal species in the world (Noyes 2015).

**8-*Calymmochilus dispar* Bouček & Andriescu, 1967**

**Material examined:** Iran, East-Azarbaijan province, Yam,vii. 2002, H. Lotfalizadeh (1 ♀).

This species known from some European countries from Spain to Armenia (Noyes 2015). It is a new record for Iran.

**VI- Genus: *Eupelmus* Dalman, 1820**

Nine species of *Eupelmus* were collected. Including the 13 previously reported species, there are 21 species in Iran. These species belong to the subgenera *Eupelmus* Dalman, 1820 (17 species), *Macroneura* Walker, 1837 (4 species), and *Episolidelia* Girault, 1914 (1 species).

**9- *Eupelmus (Eupelmus) annulatus* Nees, 1834**

**Material examined:** Iran, Golestan province, Aliabad, 1.vii.2013, ex Cynipidae on *Quercus castaneifolia*, 36°54'N 54°53'E, 140m, A. Gol (3♀♀).

*Eupelmus annulatus* widely distributed in Europe, Canada, USA (Noyes 2015) and Iran (Gibson, 2011). It is parasitoid of Coleoptera (Buprestidae, Curculionidae), Hymenoptera (Cynipidae, Diprionidae) and Lepidoptera (Lymantriidae, Momphidae, Psychidae, Tortricidae) (Noyes, 2015).

**10- *Eupelmus (Eupelmus) azureus* Ratzeburg, 1844**

*Eupelmus azureus* has recently been reported from Iran (Gibson and Fusu 2016).

**11- *Eupelmus (Eupelmus) bicolor* Gibson & Fusu, 2016**

*Eupelmus bicolor* belongs to the *splendens* species-group. It was reported from Kermanshah and Lorestan provinces as a parasitoid of *Andricus ceconii* Kieffer, 1901 (Hymenoptera: Cynipidae) on *Quercus brantii* Lindl. (Gibson and Fusu 2016).

**12- *Eupelmus (Eupelmus) cerris* Förster, 1860**

Sadeghi *et al.* (2009) reared this species as parasitoid of *Pseudoneuroterus macropterus* (Hartig, 1843) galls (Hymenoptera: Cynipidae) on *Quercus brantii*.

**13- *Eupelmus (Episolindelia) cicadae* Giraud, 1872**

This species was reported by OILB (1971) from Iran but Noyes (2015) believes the identification needs confirmation.

**14- *Eupelmus (Macroneura) coleophorae* (Kalina, 1981)**

This species was collected from Semnan (Shahrud) and Qazvin (Abyek) provinces (Kalina 1981b). It known only from Iran and Uzbekistan (Noyes 2015).

**15- *Eupelmus (Eupelmus) confusus* Al Khatib, 2015**

This recently described species is mostly distributed in the European countries of Mediterranean Basin and reported from Iran (Al Khatib *et al.* 2015). It is parasitoid of *Diplolepis* (Hym.: Cynipidae) on *Rosa canina* (Gibson and Fusu 2016).

**16- *Eupelmus (Eupelmus) fulvipes* Förster, 1860**

**Material examined:** East-Azarbaijan province, Zonuz, ex. gallon *Rosa damascena*, vii.1996, H. Lotfalizadeh (1 ♀), same data, vii.2002 (2 ♂♂ & 5 ♀♀).

Lotfalizadeh *et al.* (2006) reported this species as a parasitoid of rose gall wasp, *Diplolepis fructuum* (Rübsaamen, 1882) (Hymenoptera: Cynipidae). Gibson and Fusu (2016) placed this species in the *fulvipes* species-group of *Eupelmus*.

**17- *Eupelmus (Eupelmus) gelechiphagus* Gibson & Fusu 2016**

Type material of this species was collected from central Iran as parasitoid of *Amblypalpis olivierella* Ragonot (Lepidoptera: Gelechiidae) on *Tamarix phylla* (L.) (Tamaricaceae) (Gibson and Fusu 2016).

**18- *Eupelmus (Macroneura) impennis* (Nikol'skaya, 1952)**

**Material examined:** East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" E 46°02'55", Malaise trap, 25.viii.2009, H. Lotfalizadeh (1♀), same data, 16.ix.2012 (1♀). West-Azarbaijan province, Maku and Shot, 25.vi.2010, ex rose gall wasp *Diplolepis fructuum* on *Rosa canina*, R. Mohammadi (2♀♀).

This species has been reported from Europe (Noyes 2015) and Iran (Mohammadi *et al.* 2011).

**19- *Eupelmus (Eupelmus) iranicus* Kalina, 1988**

The type specimen was collected from northern Iran and was recently reported from Greece, Israel, Libya and Somalia (Gibson and Fusu 2016). This species was placed in the *iranicus* species-group (Gibson and Fusu 2016).

**20- *Eupelmus (Eupelmus) longicaudus* Kalina, 1988**

The type material of this species was collected from southeast Iran. Gibson and Fusu (2016) included this species in the *fulgens*-group.

This species has been reported as parasitoid of *Kermania pistaciella* Amsel (Lepidoptera: Tineidae) (Mehrnejad, 2008).

**21- *Eupelmus (Eupelmus) martellii* Masi, 1941**

**Material examined:** East-Azarbaijan province, Norduz, Malaise trap, 19.ix.2010, H. Lotfalizadeh (1♀).

This species has been reared on leaf-galls on *Salix alba* L. in Kerman (Mahdavi and Madjdzadeh 2013). Our specimen was collected from north-western Iran in a completely different ecosystem. It seems that this species widely distributed in Iran.

**22- *Eupelmus (Eupelmus) mehrnejadi* Gibson & Fusu, 2016**

This recently described species is based on collected material from central and western of Iran. It was reared as parasitoid of *Kermania pistaciella* Amsel (Lepidoptera: Tineidae) or a facultative hyperparasitoid of this through *Chelonus kermakiae* (Tobias, 2001) (Hymenoptera: Braconidae) on *Pistacia vera* (Mehrnejad and Basirat 2009) and *Aphelonyx persica* Melika *et al.*, 2004 (Hymenoptera: Cynipidae) galls on *Quercus brantii* Lindl. (Fagaceae) (Gibson and Fusu 2016). Mehrnejad (2008) reported this species as *Eupelmus longicornis* (Kalina, 1981).

**23- *Eupelmus (Eupelmus) microzonus* Förster, 1860**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, Malaise trap, 1346 m, N 37°58'28" E 46°02'55", 5.xii. 2007, H. Lotfalizadeh (1♀), same data, 5.xii.2007 (2♀♀), 19.x.2007 (1♀), 14.vii.2009 (2♀♀), 1.viii.2009 (1♀), 15.viii.2009 (1♀), 30.ix.2009 (3♀♀). East-Azarbaijan province, Mianeh, Malaise trap, 23.vi.2014 (2♀♀). Ardabil province, Namin, Patakh, 25.vi. 2012S. M. Hashemi (4♀♀).

This species was reported from Europe, Caucasus, North Africa, Middle Asia and Iran as parasitoid of Cynipidae (Gibson and Fusu 2016). In Iran it is a parasitoid of *Oxystoma ochropus* (Germar, 1818) (Coleoptera: Apioninae) (Lotfalizadeh and Hashemi 2015).

**24- *Eupelmus (Macroneura) muellneri* Ruschka, 1921**

*Eupelmus muellneri* was reported under *Macroneura muellneri* from Tehran and Markazi provinces as parasitoid of *Ruguloscolytus mediterraneus* (Eggers, 1922) (Coleoptera: Scolytidae) and *Sphenoptera davatchii* Descarpentries, 1960 (Coleoptera: Buprestidae) (Lotfalizadeh & Khalghani 2008).

**25- *Eupelmus (Eupelmus) pini* Taylor, 1927**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural Research Station, 1346 m, N 37°58'28" E 46°02'55", Malaise trap, 19.vii. 2009, H. Lotfalizadeh (1♀).

This Holarctic species is a parasitoid of xylophagous beetles: Anobiidae, Cerambycidae, Curculionidae, Scolytidae (Coleoptera). Our collected specimen was collected in a Malaise trap where *Pinus* sp. was widely planted. *Eupelmus pini* has been reported from 22 countries (Gibson and Fusu 2016) but is a new record for Iran.

**26- *Eupelmus (Eupelmus) pistaciae* Al Khatib, 2015**

This species is associated with *Pistacia* spp. (Anacardiaceae) (Al Khatib *et al.* 2015); therefore, it is widely distributed in the Mediterranean Basin where its host, *Megastigmus pistaciae* Walker, 1871 (Hymenoptera: Torymidae), is present. On *Pistacia vera* L. and *P. atlantica* Desfontaines (Gibson and Fusu 2016). Paratypes of this species were collected from Iran (Al Khatib *et al.* 2015).

**27- *Eupelmus (Eupelmus) splendens* Giraud, 1872**

**Material examined:** Iran, Kermanshah province, Chalabeh, 26.i.2012, ex Cynipidae on *Quercus* sp., M. Zardouei (2♀♀).

This species known from Europe (Gibson and Fusu 2016) and is a new record for Iran. It belongs to the *splendens* species group. Our examined specimens were reared from oak galls (Cynipidae).

**28-*Eupelmus (Eupelmus) urozonus* Dalman, 1820**

**Material examined:** Iran, East-Azarbaijan province, Yam, 5.v.2002, ex *D. fructuum* galls on *R. canina*, H. Lotfalizadeh (6♀♀), 18.v.2002 (8♀♀ & 2♂♂), 12.ix.2003 (3♀♀ & 2♂♂). East-Azarbaijan province, Marand, 17.viii.2003, exgall on *Rosa damascena*, H. Lotfalizadeh (4♀♀). Tehran, Evin, 6.vi.2002, *D. fructuum* galls on *R. canina*, H. Lotfalizadeh (11♀♀). West-Azarbaijan province, Salmas, 16.vii.2015, ex stem gall on *Salix alba*, Lotfalizadeh (2♀♀ & 1♂). Iran, East-Azarbaijan province, Arasbaran, ex *Megastigmus amicorum* on *Juniperus* sp., H. Lotfalizadeh (2♀♀).

This species was reared as a parasitoid of a gall making insect on *Salix alba* and on *Megastigmus amicorum* Bouček, 1969 (Hymenoptera: Chalcidoidea, Torymidae) in our recently examined collections. *Diplolepis fructuum* (Rübsaamen) (Hymenoptera: Cynipidae) on *Rosa canina* L. in north-western Iran (Lotfalizadeh *et al.* 2006) and on *R. beggeriana* Schrenk in central Iran (Mahdavi and Madjdzadeh 2013) have also been listed as hosts of this species. This species is included in the *urozonus*-group (Gibson and Fusu 2016).

**29- *Eupelmus (Macroneura) vesicularis* (Retzius, 1783)**

**Material examined:** Iran, East-Azarbaijan, Kaleibar, 15.ix.2013, Malaise trap, H. Lotfalizadeh (3♀♀). West-Azarbaijan province, Maku and Shot, 25.vi.2010, ex rose gall wasp *Diplolepis fructuum* on *Rosa canina*, R. Mohammadi (3♀♀).

This species was recorded from Europe, Caucasus, North-Africa (Noyes 2015) and Iran (Mohammadi *et al.* 2011). It is known from five other *Diplolepis* species including *mayri* (Schlechtendal), *nervosa* (Curtis), *nodulosa* (Beutenmüller), *rosae* (L.) and *spinosissima* Giraud.

**30- *Eupelmus (Eupelmus) vindex* Erdös, 1955**

**Material examined:** Iran, East-Azarbaijan province, Khosroshah, Agricultural

Research Station, 1346 m, N 37°58'28" E 46°02'55", Malaise trap, 27. viii. 2009, H. Lotfalizadeh (1♀), 9.x.2011, (1♀).

This is first report of *E. vindex* from Iran. It is reported from Algeria, Azerbaijan, Bulgaria, France, Greece, Hungary, Israel, Italy, India, Romania, Tunisia and Turkey (Gibson and Fusu 2016).

**VII- Genus: *Eusandalum* Ratzeburg, 1852  
31- *Eusandalum inerme* (Ratzeburg, 1848)**

**Material examined:** Iran, Fars province, ii.2005, ex Buprestidae on *Ficus carica*, (3♀).

This species is a common parasitoid of numerous species of xylophagous beetles from different Coleoptera: Anobiidae, Bostrichidae, Buprestidae, Cerambycidae and Scolytidae in some European countries. This species was reported on an unknown buprestid species in Iran (Lotfalizadeh and Khalghani 2008).

**Discussion**

This review is the first attempt to review the eupelmids of Iran and their biological associations. It includes 31 species in two subfamilies (Calosotinae and Eupelminae) and seven genera *Anastatus* Motschulsky (four species), *Arachnophaga* Ashmead, 1896 (one species), *Brasema* Cameron (one species), *Calosota* Curtis (one species), *Calymmochilus* Masi (one species), *Eupelmus* Dalman (22 species) and *Eusandalum* Ratzeburg (one species) (Table 1). *Calymmochilus* and four species *Calymmochilus dispar* Bouček & Andriescu, *Eupelmus pini* Taylor, *E. splendens* Giraud and *E. vindex* Erdös are new records for Iran. Reported genera and species from Iran and adjacent countries show that the fauna of Iran is better explored than for adjacent countries (Fig. 1). After Noyes (2015), within listed species and genera for these countries two genera *Eupelmus* and *Anastatus* are most common genera, respectively (Table 2).

**Table 1.** Eupelmidae of Iran with their distribution and reported hosts (\* new record for Iran).

Subfamily	Genus	Species	Distribution in Iran (province)	Host	References
<b>Calosotinae</b>	<i>Calosota</i> Curtis	<i>C. metallica</i> (Gahan)	East-Azarbaijan	Unknown	Gibson (2010)
Eupelminae	<i>Anastatus</i> Motschulsky	<i>A. bifasciatus</i> Geoffroy	East-Azarbaijan	<i>Eurygaster integriceps</i> (Scutelleridae)	Iranipour <i>et al.</i> (1998) Present study
		<i>A. dlabolai</i> Kalina	Kerman	<i>Kermania pistaciella</i> Amsel (Tineidae)	Kalina (1981a), Mehrnejad (2008)
		<i>A. tenuipes</i> Bolivar y Peltian	East-Azarbaijan, Sistan & Baluchestan, Fars	<i>Hyles lineata</i> (Sphengidae); <i>Bellatella germanica</i> (Blattellidae)	Present study Fallahzadeh <i>et al.</i> (2008)
		<i>Anastatus</i> sp.	East-Azarbaijan	Unknown	Present study
	<i>Arachnophaga</i> Ashmead	<i>Arachnophaga matritensis</i> (Bolivar y Peltian)	Kerman	<i>Kermania pistaciella</i> (Tineidae)	Mehrnejad (2008)
	<i>Brasema</i> Cameron	<i>B. stenus</i> Bouček	East-Azarbaijan	Unknown	Ghadirzadeh and Lotfalizadeh (2016)
	<i>Calymmochilus</i> Masi	<i>C. dispar</i> Bouček & Andriescu*	East-Azarbaijan	Unknown	Present study
	<i>Eupelmus</i> Dalman	<i>E. annulatus</i> Nees	Golestan	Cynipidae	Present study Gibson (2011)
		<i>E. azureus</i> Ratzeburg	Without exact locality	Cynipidae	Gibson and Fusu (2016)
		<i>E. bicolor</i> Gibson & Fusu	Kermanshah, Lorestan	<i>Andricus cecconii</i> (Cynipidae)	Gibson and Fusu (2016)
		<i>E. cerris</i> Förster	Without exact locality	<i>Pseudoneuroterus macropterus</i> (Cynipidae)	Gibson and Fusu (2016)
		<i>E. cicadae</i> Giraud	Without exact locality	Unknown	OILB (1971)
		<i>E. coleophorae</i> (Kalina)	Semnan, Qazvin	Unknown	Kalina (1981b)
		<i>E. confusus</i> Al khatib	Without exact locality	<i>Diplolepis</i> sp. (Cynipidae)	Al Khatib (2015)
		<i>E. fulvipes</i> Förster	East-Azarbaijan	<i>Diplolepis fructuum</i> (Cynipidae)	Lotfalizadeh <i>et al.</i> (2006)
		<i>E. gelechiphagus</i> Gibson & Fusu	Kerman	<i>Amblypalpis olivierella</i> (Gelechiidae)	Gibson and Fusu (2016)
<i>E. impennis</i> Nikol'skaya		East-Azarbaijan, West-Azarbaijan	<i>D. fructuum</i> (Cynipidae)	Mohammadi <i>et al.</i> (2011)	
<i>E. iranicus</i> Kalina		Aliabad	Unknown	Kalina (1988b)	
<i>E. longicaudus</i> Kalina	Nikhshakr (riv.)	Unknown	Kalina (1988b)		

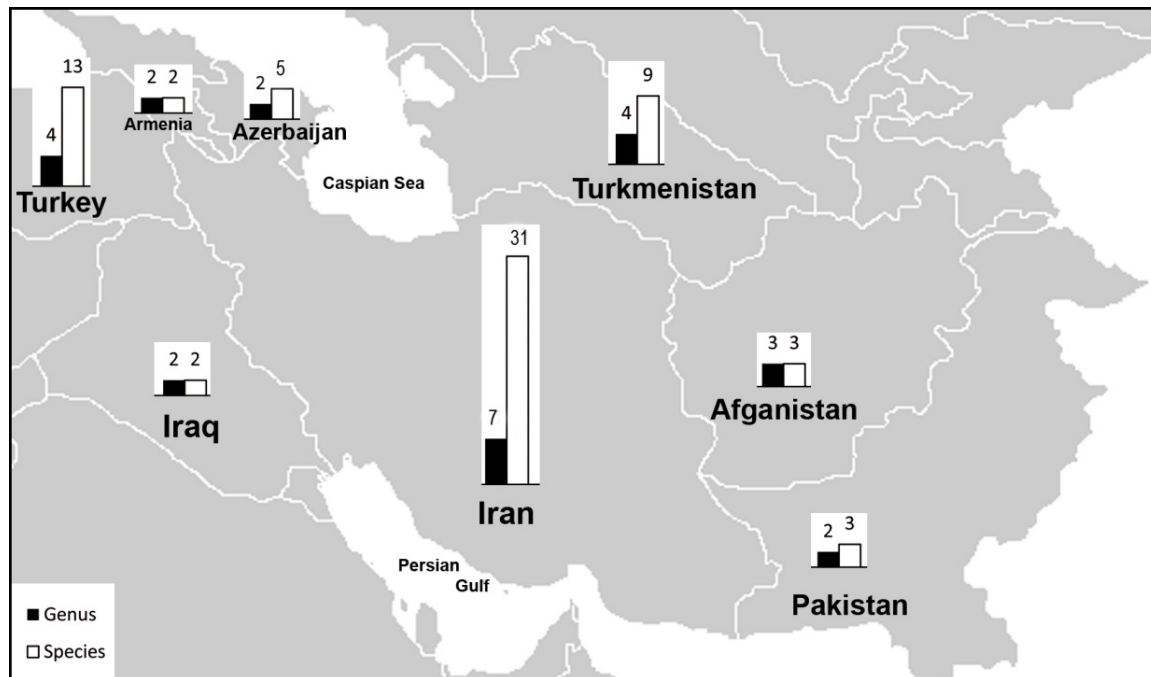
Table 1. Continued

<i>Eupelmus</i> Dalman	<i>E. macroneura</i> Walker*	East-Azarbaijan	Unknown	Present study
	<i>E. martellii</i> Masi	East-Azarbaijan Kerman	<i>Pontania</i> sp. (Tenthredinidae)	Present study Mahdavi and Madjdzadeh (2013)
	<i>E. mehrnejadi</i> Gibson & Fusu	Kerman	<i>Kermania pistaciella</i> (Tineidae), <i>Aphelonyx persica</i> (Cynipidae)	Gibson and Fusu (2016)
	<i>E. microzonus</i> Förster	Without exact locality Ardabil East-Azarbaijan	Unknown	Gibson (2011)  Lotfalizadeh and Hashemi (2015) Present study
	<i>E. muellneri</i> Ruschka	Tehran, Markazi	<i>Ruguloscolytus mediterraneus</i> (Scolytidae), <i>Sphenoptera davatchii</i> (Buprestidae)	Lotfalizadeh & Khalghani (2008)
	<i>E. pini</i> Taylor*	East-Azarbaijan	Unknown	Present study
	<i>E. pistaciae</i> Al khatib	Without exact locality	<i>Megastigmus pistaciae</i> (Torymidae)	Al Khatib <i>et al.</i> (2015)
	<i>E. splendens</i> Giraud*	Kermanshah	Cynipidae	Present study
		Kerman	<i>Kermania pistaciella</i> Amsel (Tineidae),	Mehrnejad (2008)
	<i>E. urozonus</i> Dalman	East-Azarbaijan, Tehran, Kerman	<i>Diplolepis fructuum</i> (Cynipidae),	Lotfalizadeh <i>et al.</i> (2006), Lotfalizadeh <i>et al.</i> (2012), Mahdavi and Madjdzadeh (2013)
		West-Azarbaijan East-Azarbaijan	<i>Megastigmus amicornum</i> (Torymidae)	Present study
	<i>E. vesicularis</i> Retzius	East-Azarbaijan, West-Azarbaijan	<i>Diplolepis fructuum</i> (Cynipidae)	Mohammadi <i>et al.</i> (2011), Present study
	<i>E. vindex</i> Erdös*	East-Azarbaijan	Unknown	Present study
<i>Eusandalum</i> Ratzeburg	<i>E. inerme</i> (Ratzeburg)	Fars	Buprestidae	Lotfalizadeh and Khalghani (2008)



**Table 2.** Comparative study of presented species in Iran and neighbouring countries (after Noyes, 2015) (+, present).

Species	Iran	Afganistan	Armenia	Azerbaijan	Iraq	Pakistan	Turkey	Turkmenistan
<i>Calosota aestivalis</i> Curtis							+	
<i>Calosota metallica</i> (Gahan)	+						+	
<i>Anastatus bifasciatus</i> Geoffroy	+						+	
<i>Anastatus brevicaudus</i> Kalina		+						
<i>Anastatus dlabolai</i> Kalina	+						+	
<i>Anastatus japonicus</i> Ashmead								
<i>Anastatus longicornis</i> Abdul-Rassoul & Al-Sandouk					+			
<i>Anastatus splendens</i> Nikol'skaya				+				
<i>Anastatus tenuipes</i> Bolivar y Pieltian	+							
<i>Arachnophaga matritensis</i> (Bolivar y Pieltain)	+							
<i>Brasema rara</i> (Kalina)								+
<i>Brasema stenus</i> Bouček	+							
<i>Calymnochilus dispar</i> Bouček & Andriescu	+		+					
<i>Eupelmus annulatus</i> Nees	+						+	
<i>Eupelmus aseculatus</i> (Kalina)				+				
<i>Eupelmus azureus</i> Ratzeburg	+						+	
<i>Eupelmus bicolor</i> Gibson & Fusu	+							
<i>Eupelmus cerris</i> Förster	+							
<i>Eupelmus cicadae</i> Giraud	+							
<i>Eupelmus coleophorae</i> (Kalina)	+							
<i>Eupelmus confusus</i> Al Khatib	+							
<i>Eupelmus fulgens</i> Nikol'skaya								+
<i>Eupelmus fulvipes</i> Förster	+			+				
<i>Eupelmus gelechiphagus</i> Gibson & Fusu	+							
<i>Eupelmus infimbriatus</i> Gibson & Fusu								+
<i>Eupelmus impennis</i> Nikol'skaya	+							
<i>Eupelmus iranicus</i> Kalina	+							
<i>Eupelmus lanceolatus</i> Gibson & Fusu							+	
<i>Eupelmus longicaudus</i> Kalina	+							
<i>Eupelmus macroneura</i> Walker	+							
<i>Eupelmus martellii</i> Masi	+							
<i>Eupelmus mehrnejadi</i> Gibson & Fusu	+							
<i>Eupelmus microzonus</i> Förster	+						+	+
<i>Eupelmus muellneri</i> Ruschka	+							
<i>Eupelmus nitidus</i> Nikol'skaya								+
<i>Eupelmus orientalis</i> (Crawford)					+			
<i>Eupelmus pini</i> Taylor	+							
<i>Eupelmus pistaciae</i> Al Khatib	+						+	
<i>Eupelmus seculatus</i> (Ferrière)				+			+	
<i>Eupelmus splendens</i> Giraud	+							
<i>Eupelmus stramineipes</i> Nikol'skaya								+
<i>Eupelmus tachardiae</i> (Howard)						+		
<i>Eupelmus tibicinis</i> Bouček				+				
<i>Eupelmus urozonus</i> Dalman	+	+	+			+	+	
<i>Eupelmus vesicularis</i> Retzius	+						+	+
<i>Eupelmus vindex</i> Erdös	+							
<i>Eusandalum afganum</i> Bouček		+						
<i>Eusandalum inerme</i> (Ratzeburg)	+							
<i>Eusandalum puella</i> (Nicol'skaya)								+
<i>Pentacladia eques</i> (Haliday)								+
<i>Pentacladia hatayensis</i> Doganlar							+	
<i>Tineobius indicus</i> (Ferrière)						+		



**Figure 1.** Number of genera and species of Eupelmidae in Iran (after present study) and neighbouring countries (after Noyes, 2015).

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## مرور خانواده Eupelmidae (Hymenoptera: Chalcidoidea) در ایران، به همراه پنج گزارش جدید

حسین لطفعلی زاده<sup>۱</sup> و لیلا قدیرزاده<sup>۲</sup>

۱ مرکز تحقیقات کشاورزی و منابع طبیعی آذربایجان شرقی، تبریز، ایران

۲ گروه گیاهپزشکی، دانشگاه آزاد اسلامی، شعبه تبریز، تبریز، ایران

\* پست الکترونیکی نویسنده مسئول مکاتبه: [hlotfalizadeh@gmail.com](mailto:hlotfalizadeh@gmail.com)

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**چکیده:** خانواده Eupelmidae بر اساس نمونه های جمع آوری شده از شمال غرب ایران و اطلاعات منتشر شده قابل دسترس مورد بازبینی قرار گرفت. این خانواده در ایران شامل ۳۱ گونه در دو زیرخانواده (Eupelminae و Calosotinae) و هفت جنس *Anastatus* Motschulsky, 1859 (چهار گونه)، *Arachnophaga* Ashmead, 1896 (یک گونه)، *Brasema* Cameron, 1884 (یک گونه)، *Calosota* Curtis, 1836 (یک گونه)، *Calymmochilus* Masi, 1919 (یک گونه)، *Eupelmus* Dalman, 1820 (۲۲ گونه) و *Eusandalum* Ratzeburg, 1852 (یک گونه) می باشد. جنس *Calymmochilus* و چهار گونه شامل *Calymmochilus* *E. eupelmus pini* Taylor, 1927 *dispar* Bouček & Andriescu, 1967 *E. vindex* Erdös, 1955 و *splendens* Giraud, 1872 گزارش های جدید از ایران هستند.

واژگان کلیدی: Eupelminae, Calosotinae, فون، پارازیتوئید، ایران.