

Linzer biol. Beitr.	46/2	1447-1478	19.12.2014
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A study on the Braconidae (Hymenoptera: Ichneumonoidea) from West Azarbaijan province, Northwestern Iran

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A b s t r a c t : This paper deals with the fauna of the family Braconidae (Hymenoptera) from West Azarbaijan province (northwestern Iran). In total 29 species from 8 subfamilies Agathidinae (2), Alysiinae (3), Aphidiinae (6), Braconinae (3), Doryctinae (4), Hormiinae (2), Microgastrinae (7), Rogadinae (2) were collected.

K e y w o r d s : Hymenoptera, Braconidae, West Azarbaijan, Fauna, Iran.

Introduction

Braconid wasps (Hymenoptera: Ichneumonoidea: Braconidae) are one of the powerful biological control agents whose importance in decreasing the pests population density has been well proved (WHARTON 1993; GHAHARI et al. 2006). The Iranian Braconidae were studied rather well in recent years (see GHAHARI et al. 2009a, b, c, d, 2010; FALLAHZADEH & SAGHAEI (2010), but Iran is a large country with various geographical regions and climates, and therefore conducting the faunistic surveys in different provinces is necessary for establishing the full species composition of the family. In this paper, the fauna of West Azarbaijan province (located in North West of Iran, bordering with Turkey, Iraq and Armenia, and the provinces of East Azarbaijan, Zanjan and Kurdistan) is dealt with. It covers an area of 43,660 km², and the climate is largely influenced by the rainy winds of the Atlantic Ocean and Mediterranean. According to existing meteorological data, local temperatures vary within the province. The highest temperature reaches 34 °C in July, and the lowest temperature is -16 °C in January.

Materials and Methods

The materials were collected by Malaise traps and sweeping net from different regions of West Azarbaijan province, and killed with ethyl acetate. Aphid parasitoid samples on various hosts were collected at random from live and mummified aphids on different host plants. Plant samples with aphids containing parasitoids were placed in plastic boxes to obtain adult parasitoids. The emerging parasitoids were transferred with a fine brush into Eppendorf tubes containing 75% ethyl alcohol. The braconid specimens were mounted on triangular labels and were examined with a stereoscopic binocular microscope. Classification, nomenclature, distribution and host records of Braconidae suggested by

YU et al. (2012) have been followed. For later additions and changes, the exact references are given.

Results

In total 29 braconid species from eight subfamilies were collected from West Azarbaijan province. The list of species is given below alphabetically, with distribution and host records data.

Subfamily A g a t h i d i n a e

Agathis anglica MARSHALL, 1885

M a t e r i a l e x a m i n e d : West Azarbaijan province: Takab (1822 m), 1 ♀, unknown date.

D i s t r i b u t i o n o u t s i d e I r a n : Albania (FISCHER 1957 as *Agathis albanica*; NIXON 1986), Armenia, Azerbaijan, Mongolia, Tajikistan, Ukraine (KOKUJEV 1895 as *Agathis longicauda*), Austria, Bulgaria, Cyprus (NIXON 1986), China (CHOU & SHARKEY 1989 as *Agathis taiwanensis*), Croatia (SHENEFELT 1970; PAPP 2009a), Cyprus (NIXON 1986; PAPP 1998), Europe (FISCHER 1968), France, Kazakhstan, Morocco, Poland, Romania, Slovenia, Spain, Sweden, Switzerland, Taiwan (YU et al. 2012), Finland, Germany, The Netherlands (SHENEFELT 1970), Greece (NIXON 1986; PAPP 2007), Hungary (KOKUJEV 1895 as *Agathis longicauda*; SHENEFELT 1970), Israel (PAPP 2011-2012), Italy (KOKUJEV 1895 as *A. longicauda*; NIXON 1986), Macedonia (PAPP 2009a), Montenegro, Serbia (KOKUJEV 1895 as *A. longicauda*; ŽIKIĆ et al. 2010), Russia (KOKUJEV 1895 as *A. longicauda*; SZÉPLIGETI 1904 as *A. longicauda*; TOBIAS 1963 as *A. caucasica*; FISCHER 1968 as *A. caucasicus*; SHENEFELT 1970), Syria (FISCHER 1957, 1968 as *A. syriaca*; PAPP 2011-2012), Turkey (FISCHER 1957 as *A. syriaca*; ZETTEL & BEYARSLAN 1992; ÇETİN ERDOĞAN 2013), UK (SZÉPLIGETI 1904; SHENEFELT 1970; NIXON 1986), former Yugoslavia (KUKOJEV 1895 as *A. longicauda*; SHENEFELT 1970), Greece (PAPP 2007).

H o s t r e c o r d s : This species was reported as a parasitoid of *Epinotia mercuriata* (FRÖLICH) (Lepidoptera: Tortricidae) (NIXON 1986). YU et al. has also reported it as a parasitoid of a large number of lepidopterous hosts: *Agonopterix nervosa* (HAWORTH), *A. pallorella* ZELLER (Depressariidae), *Apoaerema anthyllidella* (HÜBNER), *Nothris verbascella* (DENIS & SCHIFFERMÜLLER), *Pexicopia malvella* HÜBNER, *Syncopacma taeniolella* ZELLER (Gelechiidae), *Coleophora adjunctella* HODGKINSON, *C. albitarcella* ZELLER, *C. argentula* STEPHENS, *C. discordella* ZELLER, *C. laricella* (HÜBNER), *C. lusciniapenella* TREITSCHKS (Coleophoridae), *Epinotia mercuriana* FRÖLICH (TORTRICIDAE), *Loxostege sticticalis* (LINNAEUS), *Pyrausta aurata* SCOPOLI (Pyralidae).

Agathis varipes THOMSON, 1895

M a t e r i a l e x a m i n e d : West Azarbaijan province: Bookan (1379 m), 1 ♂, summer 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Europe (north up to Finland, Sweden, The Netherlands and England and including the Mediterranean region), Turkey, Caucasus, Central Asia (SIMBOLOTTI & VAN ACHTERBERG 1999), Slovakia (NIXON 1986 as *Agathis ariadne*), Russia (SHESTAKOV 1928 as *A. dissimilis*), Mongolia, Russia, Tajikistan, Uzbekistan (TELENKA 1955 as *A. glabricollis*), Mongolia (FISCHER 1968 as *A. lederi*), Ukraine (IVANOV 1899 as *A. rufipes*), Kazakhstan, Mongolia (TOBIAS 1963 as *A. serratulae*), Hungary, Kazakhstan, Russia, Tajikistan, Ukraine, Uzbekistan (KOKUJEV 1895 as *A. simulatrix*), Greece (PAPP 2003, 2007), Mongolia (PAPP 1967 as *A. malvacearum*; PAPP 1971 as *A. tadzhica* and as *A. mongolica*; PAPP 2009b), England (NIXON 1986; BROAD & SHAW 2009), Macedonia (PAPP 2009a), Germany, Sweden (NIXON 1986), Turkey (ÇETİN ERDOĞAN 2013).

H o s t r e c o r d s : *Metzneria lapella* (LINNAEUS) (Lepidoptera: Gelechiidae) (NIXON 1986; SIMBOLOTTI & VAN ACHTERBERG 1999), *Myelois cirrigerella* (ZINCKEN) (Lepidoptera: Pyralidae) (NIXON 1986), *Apodia bifractella* (DUPONCHEL), possibly *Ptocheuusa paupella* (ZELLER) (Lepidoptera: Gelechiidae), *Adela barbatella* ZELLER (Lepidoptera: Incurvariidae) (SIMBOLOTTI & VAN ACHTERBERG 1999).

Subfamily Alysiinae

***Alyisia (Anarcha) rufidens* NEES, 1834**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Myandoab (1339 m), 3♂♂, June 2007. West Azarbaijan province: Ourmeh (1430 m), 2♂♂, August 2007. West Azarbaijan province: Khoy (1153 m), 2♂♂, August-September 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Austria, Sweden (THOMSON 1845 as *Alyisia (Anarcha) puncticollis*; FISCHER 1993 as *A. puncticollis*), Spain (TORMOS 1987; DOCAVO et al. 2006; PASCUAL 2010), England (MARSHALL 1889; BROAD & SHAW 2009), Ireland (FISCHER 1993 as *A. puncticollis*; BROAD & SHAW 2009), Israel (PAPP 2011-2012), Bulgaria (THOMSON 1845 as *A. puncticollis*; PAPP 2011-2012), Greece (PAPP 2007), Austria (FISCHER 1973), Western Europe (FISCHER 1993).

H o s t r e c o r d s : *Delia floralis* (FALLEN), *D. quadripila* (STEIN), *Ensina sonchi* (LINNAEUS), *Tephritis eggeri* (FRAEUNFELD) (YU et al. 2012).

***Dacnusa (Dacnusa) pubescens* (CURTIS, 1826)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Siah-Cheshmeh (1807 m), 1♀, May 2007. West Azarbaijan province: Piranshahr (1466 m), 1♀, July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Serbia (ŽIKIĆ et al. 2000), Czech Republic (LOZAN et al. 2010), England, Scotland, Ireland (BROAD & SHAW 2009), Greece (PAPP 2007), Macedonia (PAPP 2009b).

***Phaenocarpa brevipalpis* (THOMSON, 1895)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Ourmeh (1371 m), 2♂♂, June-July 2006.

D i s t r i b u t i o n o u t s i d e I r a n : Greece (PAPP 2007), Hungary, Sweden, Mongolia, Russia, Israel (PAPP 2011-2012).

Subfamily Aphidiinae

***Aphidius matricariae* HALIDAY, 1834**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Hassanloo (1288 m), 4♀♀, 3♂♂, June-July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Cosmopolitan (YU et al. 2012). Israel (SCHLINGER & MACKEUR 1963; AVIDOV & KOTTER 1966; ROSEN 1967; MESCHELOFF & ROSEN 1990b), from the Mediterranean region to Jordan River valley and the Dead Sea (MESCHELOFF & ROSEN 1990b), Serbia (ŽIKIĆ et al. 2000), Slovenia (KOS et al. 2009), Spain (TIZADO & NUÑEZ 1991), Turkey (ÇETİN ERDOĞAN et al. 2008), India (SAMIN et al. 2011), India (STARÝ & BHAGAT 1978; AGARWALA et al. 1980; TAKADA & RISHI 1980; RAYCHAUDHURY et al. 1982; SAHA et al. 1982; STARÝ & GHOSH 1975, 1978, 1979, 1983; DAS & CHAKRABARTI 1990; BHAGAT & AHMAD 1995; SINGH et al. 1999; SUBHRANI et al. 2006; AKHTAR et al. 2011), England (DALLA TORRE 1898; MARSHALL 1899), Greece (KAVALLIERATOS et al. 2004).

H o s t r e c o r d s : *Acyrtosiphon lambersi* Leclant on *Glaucium flavum* (STARÝ et al. 1973), *Acyrtosiphon primulae* Theobaldi on *Primula* sp. (STARÝ et al. 1973), *Amegosiphon platicaudum* (Nárzikulov) (NAZARI et al. 2012), *Anoecia* sp. on *Agropyrum* sp. (STARÝ 1973), *Aphis affinis* Del Guercio on *Mentha* sp. (STARÝ & KADDOU 1971; STARÝ 1973), on *Mentha longifolia* (RAKHSHANI et al. 2012), *Aphis craccivora* KOCH (STARÝ & KADDOU 1971; RAKHSHANI et al. 2008), on *Melilotus officinalis* (KAVALLIERATOS et al. 2001, 2006), on *Citrus reticulata*, *Citrus sinensis* (STARÝ 1973), on *Capsella bursa-pastoris* (TALEBI et al. 2009), on *Solanum nigrum* (SAHA et al. 1982; BHAGAT & AHMAD 1995), *Aphis crepidis* (BÖRNER) (STARÝ et al. 2000), *Aphis dlabolai* HOLMAN (BARAHOEI et al. 2013), *Aphis euphorbiae* KALTENBACH on *Euphorbia seguiriiana* (RAKHSHANI et al. 2008; TALEBI et al. 2009; MOSSADEGH et al. 2011; BARAHOEI et al. 2013), *Aphis fabae* Scopoli on *Chenopodium glaucum*, *Euonymus japonicus*, *Galium aparine*, *Rumex crispus*, *Rumex acetosa*, *Plantago lanceolate* (KAVALLIERATOS et al. 2001, 2006; STARÝ 2006; RAKHSHANI et al. 2008; TALEBI et al. 2009; MOSSADEGH et al. 2011; TAHERI & RAKHSHANI 2013; NAZARI et al. 2012; BARAHOEI et al. 2013), on *Rumex nepalensis* (AGARWALA et al. 1980), *Aphis formosa* GMELIN on *Salix caprea* (STARÝ 2006), *Aphis frangulae* KALTENBACH on *Veronica*, *Symphytum* (STARÝ et al. 1973), *Aphis hederae* KALTENBACH on *Hedera helix*, *Hedera* sp. (STARÝ et al. 1973; MESCHELOFF & ROSEN 1990b), *Aphis helianthi* MONELL (SCHLINGER & HALL 1960), *A. gossypii* GLOVER (STARÝ 1979; STARÝ et al. 2000), on *Capsella bursa-pastoris*, *Citrus aurantium*, *Citrus deliciosa*, *Citrus sinensis*, *Duranta plumieri*, *Gladiolus italicus*, *Hibiscus syriacus*, *Lapsana communis*, *Pyrus communis*, *Pyrus Malus*, *Solanum tuberosum*, *Malva neglecta* (KAVALLIERATOS et al. 2001, 2006), on *Hibiscus esculentus* (AGARWALA et al. 1980), on *Carduus argentata*, on *Duranta repens*, on *Lamium amplexicaule*, on *Salvia* sp., on *Veronica* sp. (MESCHELOFF & ROSEN 1990b), on *Catalpa bignonioides* (TALEBI et al. 2009), on *Solanum melongena* (SUBHRANI et al. 2006), *Aphis intybi* KOCH (TAHERI & RAKHSHANI 2013; BARAHOEI et al. 2013), on *Cichorium intybus* (TOMANOVIC et al. 2003), *Aphis lamiorum* BÖRNER on *Lamium rubrum* (STARÝ 1973), *A. nasturtii* KALTENBACH (NAZARI et al. 2012), *Aphis parietariae* THEOBALD on *Parietaria judaica* (STARÝ & KADDOU, 1971), on *Parietaria* sp. (STARÝ 1973), on *Parietaria diffusa* (KAVALLIERATOS et al. 2001, 2006), *Aphis plantaginis* GOEZE (BARAHOEI et al. 2013), *Aphis pomi* DE GEER (RAKHSHANI et al. 2008; RAKHSHANI et al. 2012a; BARAHOEI et al. 2013), *Aphis puniceae* PASSERINI (NAZARI et al. 2012; BARAHOEI et al. 2013), *Aphis ruborum* BÖRNER on *Rubus ulmifolius* (STARÝ et al. 1973; KAVALLIERATOS et al. 2001, 2006), *Aphis spiraecola* PATCH on *Citrus sinensis* (STARÝ et al. 1973), on *Senecio bicolor* spp. *cineraria* (KAVALLIERATOS et al. 2001, 2006), on *Bidens pilosa*, *Gynura angulosa* (AGARWALA et al. 1980), *Aphis triticallis* HILLE Ris Lambers on *Euphorbia helioscopia* (STARÝ 1973), *Aphis umbella* (BÖRNER) on *Malva neglecta*, *Malva sylvestris* (SCHLINGER & MACKAUEER 1963; STARÝ et al. 2000; KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2008; TALEBI et al. 2009; NAZARI et al. 2012), *Aphis urticata* GMELIN on *Urtica dioica* (STARÝ et al. 1973; KAVALLIERATOS et al. 2001, 2006), *Aphis zizyphae* on *Ziziphus spinchristi* (MESCHELOFF & ROSEN 1990b), *Aphis* sp. on *Vinca minor* (KAVALLIERATOS et al. 2001, 2006), on *Lamium* sp., *Clematis jackmanii*, *Galium aparine*, *Lycium europaeum* (TOMANOVIC et al. 2003), *Aspidaphis porosiphon* BÖRNER on *Festuca rubra* (STARÝ 1973), *Aulacorthum solani* KALTENBACH on *Ranunculus* (STARÝ et al. 1973), on *Prunus cerasifera*, *Senecio vernalis* (TOMANOVIC et al. 2003), on *Capsicum annuum*, *Malva neglecta*, *Salvia splendens* (KAVALLIERATOS et al. 2001, 2006), *Brachycaudus amygdalinus* (SCHOUTEDEN) (RAKHSHANI et al. 2012; NAZARI et al. 2012), on *Prunus dulcis* (KAVALLIERATOS et al. 2001, 2006), on *Polygonum equisetiforme*, on *Amygdalus communis* (MESCHELOFF & ROSEN 1990b), *Brachycaudus cardui* (L.) RAKHSHANI et al. 2008; RAKHSHANI 2012), on *Calendula arvensis*, *Carduus australis*, *Carduus crispus*, *Carduus nutans*, *Carduus pycnocephalus*, *Carduus tenuoleus armatus*, *Onopordum illyricum*, *Senecio bicolor* *cineraria* (KAVALLIERATOS et al. 2001, 2006), on *Carduus delbergii* (RAYCHAUDHURI et al. 1982), *Brachycaudus divaricata* SHAPOSHNIKOV (JAFARI-AHMADABADI et al. 2011; JAFARI-AHMADABADI & MODARRES 2012), *Brachycaudus helichrysi* (KALTENBACH) on *Matricaria perforata* (STARÝ 2006), on *Crysanthenum parthenifolium*, *Tanacetum vulgare*, *Senecio vulgaris* (STARÝ 2006), on *Solidago virgaurea* (TOMANOVIC et al. 2003), on *Cynoglossum creticum*, *Stellaria media*, *Calendula arvensis*, *Carduus australis*, *Carduus crispus*, *Carlina corymbosa* graeca, *Chamomilla recutita*, *Chrysanthemum coronarium*, *Chrysanthemum uliginosum*, *Cirsium creticum*, *Cirsium italicum*, *Cirsium tuberosum*, *Cirsium vulgare*, *Gazania eigens*, *Leucanthemum vulgare*, *Silybum marianum*, *Citrus aurantium*, *C. limon*, *Cynoglossum creticum* (KAVALLIERATOS et al. 2001, 2006),

Helianthus annus, *Cynoglossum* sp., *Conyza* sp. (MESCHELOFF & ROSEN 1990b), on *Ageratum conyzoides* (AGARWALA et al. 1980; BHAGAT & AHMAD 1995), on *Prunus amygdalus*, *Prunus persicae* (DAS & CHAKRABARTI 1990), *Prunus* sp. (STARÝ & GHOSH 1975), *Brachycaudus lychnidis* L. on *Melandryum album* (STARÝ et al. 1973), *Brachycaudus klugkisti* Börner on *Melandryum rubrum* (STARÝ 1973), *Brachycaudus persicae* (PASSERINI) on *Prunus persica* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI 2012), *Brachycaudus tragopogonis* (KALTENBACH) (BARAHOEI et al. 2013), *Brachycaudus* sp. on *Matricaria* sp. *Matricaria perforata* (STARÝ 1973, 2006), on *Reseda* sp. (MESCHELOFF & ROSEN 1990b), *Brevicoryne brassicae* L. on a cruciferous plant (MESCHELOFF & ROSEN 1990b), *Capitophorus carduius* WALKER (SAHA et al. 1982), on *Carduus nutans* (STARÝ 1973), *Carduus vulgare* (TOMANOVÍC et al. 2003), *Capitophorus formosartemisiae* on *Artemisia* sp. (SAHA et al. 1982), *Diphorodon cannabis* (BÖRNER) on *Cannabis sativa* (RAYCHAUDHURI et al. 1982; SAHA et al. 1982), *Capitophorus eleagni* (DEL GUERCIO) on *Carduus crispus* (KAVALLIERATOS et al. 2001, 2006), on *Cynara scolymus*, *Cirsium arvense* (STARÝ 1973), on *Notobasis syriaca*, *Silybum Marianum* (MESCHELOFF & ROSEN 1990b), *Capitophorus hippophaeae* (WALKER) on *Polygonum* sp. (TOMANOVÍC et al. 2003), on *Eleagnus commutata* (STARÝ 1973), *Capitophorus hippophaeus indicus* on *Polygonum chinense* (STARÝ & GHOSH 1978), *Capitophorus horni* BÖRNER on *Cirsium arvense*, *Cynarascolymus* (STARÝ 1973), *Capitophorus inulae* (PASSERINI) on *Dittrichia viscosa*, *Inula conyza* (KAVALLIERATOS et al. 2001, 2006), on *Inula salicina* (STARÝ et al. 1973), on *Inula viscosa* (MESCHELOFF & ROSEN 1990b), *Capitophorus similis* VAN DER GOOT on *Eleagnus angustifolia* (RAKHSHANI et al. 2008; TALEBI et al. 2009), *Capitophorus* spp. on *Polygonum persicaria*, *Cirsium arvense* (TOMANOVÍC et al. 2003), on *Carduus nutans*, *Cynara scolymus* (STARÝ 1973), on *Hippophae rhamnoides* (STARÝ et al. 1973), on *Eleagnus angustifolia* (STARÝ 2006), *Diphorodon cannabis* (BÖRNER) on *Cannabis sativa* (RAYCHAUDHURI et al. 1982; SAHA et al. 1982), *Diphorodon* sp. on *Cannabis sativa* (RAYCHAUDHURI et al. 1982), *Diuraphis noxia* (Kurdjumov) on *Hordeum vulgare* (STARÝ et al. 2000; STARÝ 2006), *Dysaphis devecta* (WALKER) (STARÝ et al. 2000), *Dysaphis plantaginea* (PASSERINI) on *Pyrus communis* (STARÝ et al. 2000; KAVALLIERATOS et al. 2001, 2006; MOSSADEGH et al. 2011; RAKHSHANI 2012), on *Malus* sp. (STARÝ 1973), *Dysaphis pyri* (Boyer de Fonscolombe) (STARÝ et al. 2000), *Eucarazzia elegans* on *Salvia officinalis* (FERRARI) (RAKHSHANI et al. 2008; TALEBI et al. 2009; BARAHOEI et al. 2013), *Galiobium langei* BÖRNER on *Galium verum*, *Galium* sp. (STARÝ 1973), *Hayhurstia atriplicis* L. on *Chenopodium* sp. (STARÝ 1973), *Hyalopterus amygdali* (BLANCHARD) JAFARI-AHMADABADI et al. 2011; JAFARI-AHMADABADI & MODARRES 2012; NAZARI et al. 2012), *Hyalopterus pruni* (Geoffroy) (STARÝ et al. 2000; MOKHTARI et al. 2000), *Hydaphis hofmanni* BÖRNER on *Galium mollugo*, *G. verum* (STARÝ 1973, 2006), *Hyperomyzus lactucae* (L.) (MOSSADEGH et al. 2011), *Linosiphon asperulophagus* HOLMAN on *Asperula odorata* (STARÝ 1973), *Linosiphon galii* MAMONTOVA-SOLUCHA on *Galium mollugo aristatum*, *Galium silvaticum alatum* (STARÝ 1973), *L. galiiophagus* WIMSHURST on *Galium silvaticum* (STARÝ 1973), *Lipaphis erysimi* (KALTENBACH) on *Erysimum graecum*, *Sisymbrium orientale* (KAVALLIERATOS et al. 2001, 2006; MOSSADEGH et al. 2011), on *Brassica napus* (STARÝ & GHOSH 1978), *Lipaphis lepidii* NEVSKY (STARÝ 1979; STARÝ et al. 2000; MOSSADEGH et al. 2011), *L. pseudobrassicae* (DAVIS) (BARAHOEI et al. 2013), *Macrosiphoniella pseudoartemisae* on *Artemisia* sp. (SAHA et al. 1982), *Macrosiphum euphorbiae* THOMAS on *Fumaria capreolata*, on *Senecio vernalis* (MESCHELOFF & ROSEN 1990b), *Metopolophium dirhodum* (WALKER) (STARÝ et al. 2000; RAKHSHANI et al. 2008; NAZARI et al. 2012; TAHERI & RAKHSHANI 2013), *Myzus ajuga* SCHOUTEDEN on *Ajuga reptans* (STARÝ 1973), on *Ajuga genevensis* (STARÝ 2006), *Myzus brassicae* SULZER on *Amaranthus* sp., *Anthemis* sp., *Bouganvillea spectabilis*, *Brassica olitoracea* var. *capitata*, *Brassica* sp., *Chenopodium* sp., *Convolvulus* sp., *Datura stramonium*, *Echium angustifolium*, *Erodium* sp., *Galium tricornutum*, *Gerbera jamesonii*, *Lamium amplexicaule*, *Lathyrus* sp., *Lycopersicum esculentum*, *Ochradenus baccatus*, *Oxalis pes-caprae*, *Salvia* sp., *Senecio vernalis*, *Silybum Marianum*, *Solanum* sp., *Sonchus oleraceus*, *Withania somnifera* (MESCHELOFF & ROSEN 1990b), *Myzus cerasi* FABRICIUS on *Prunus cerasus* (STARÝ 1973, 2006), on *Prunus avium*, *Prunus cerasus* (KAVALLIERATOS et al. 2001, 2006; TOMANOVÍC et al. 2003), on *Phlox dummondii* (BHAGAT & AHMAD 1995), *Myzus cerasi veronicae* WALKER on *Galium mollugo* (STARÝ 1973; STARÝ et al. 1973), *Myzus cymbalariae* STROYAN on *Cymbalaria muralis* (TOMANOVÍC et al. 2003), *Myzus dycei* CARVER on *Urtica* sp. (STARÝ & GHOSH 1975; SAHA et al. 1982), *Myzus langei* (BÖRNER) on *Galium lucidum* (TOMANOVÍC et al. 2003), *Myzus lythri* (SCHRANK) on *Lythrum salicaria* (TOMANOVÍC et al. 2003), *Myzus mali* (FERSERARI) on *Malus sylvestris* (MESCHELOFF & ROSEN

1990b), *Myzus ornatus* LAING on *Sonchus* sp. (SAHA et al. 1982), *Myzus persicae* (SULZER) on *Antirrhinum majus*, *Calendula arvensis*, *Capsicum annum*, *Cardaria draba*, *Carduus crispus*, *Chaenomeles japonica*, *Chamomilla recutita*, *Chrysanthemum coronarium*, *Malva neglecta*, *Citrus aurantium*, *Nicotiana tabacum*, *Phacelia tanacetifolia*, *Prunus persica*, *Raphanus sativus*, *Rumex crispus*, *Sisymbrium irio*, *Sisymbrium orientale*, *Tulipa* sp., *Urtica urens* (KAVALLIERATOS et al. 2001, 2006), on *Solanum tuberosum*, *Prunus cerasifera* (TOMANOVIC et al. 2003; TALEBI et al. 2009; NAZARI et al. 2012; RAKHSHANI 2012; BARAHOEI et al. 2013), on *Asparagus sprengeri*, *Pilea grandiflora*, *Bougenvillea* sp., *Begonia* sp., *Prunus persica*, *Artemisia annua*, *Beta maritima*, *Convolvulus* sp., *Lepidium draba*, *Cineraria* sp., *Brassica oleracea*, *Urtica urens*, *Solanum tuberosum* (STARÝ 1973), on *Arum* sp., *Citrus* sp., *Senecio* sp. (STARÝ & KADDOU 1971; STARÝ et al. 1973), on *Brassica napus* (STARÝ & GHOSH 1975; AGARWALA et al. 1980), on *Brassica oleracea* var. *capitata* (SUBHRANI et al. 2006), on *Solanum tuberosum* (SUBHRANI et al. 2006), on *Descorina sojia* (TAKADA & RISHI 1980), on *Lysopersicon esculentum*, *Triticum aestivum* (SINGH et al. 1999), *Myzus ranunculinus* WALKER on *Ranunculus* sp. (STARÝ et al. 1973), *Myzus varians* DAVIDSON on *Prunus persica* (STARÝ 1973), on *Clematis vitalba* (KAVALLIERATOS et al. 2001, 2006), *Myzus unifoliae* (SHINJI) on *Rubia cardifolia* (BHAGAT & AHMAD 1995), *Myzus* sp. on *Stellaria media* (TOMANOVIC et al. 2003), on Rubiaceae plants (STARÝ & GHOSH 1978), *Neomyzus circumflexus* BUCKTON on *Euonymus japonica* (STARÝ 1973, 2006), *Ovatus insitus* (WALKER) on *Lycopus europaeus* (STARÝ 1973, 2006), *Ovatus Crataegarius* (WALKER) on *Mentha spicata*, *Crataegus monogyna* (KAVALLIERATOS et al. 2001, 2006), *Ovatus mentharius* (VAN DER GOOT) on *Mentha* sp. (TOMANOVIC et al. 2003; RAKHSHANI et al. 2008; RAKHSHANI 2012), *Phorodon cannabis* PASSERINI (STARÝ & BHAGAT 1978; STARÝ & GHOSH 1983), on *Canabis sativa* (TAKADA & RISHI 1980), *Phorodon humuli* (SCHRANK) (SCHLINGER & MACKAUEI 1963; STARÝ et al. 2000), on *Humulus lupulus*, *Prunus cerasifera* (STARÝ 1973; TOMANOVIC et al. 2003), *Rhopalomyzus* sp. (STARÝ 1973), *Rhopalosiphum maidis* (FITICH) on *Bromus madritensis*, *Hordeum distichon*, *Hordeum marinum*, *Hordeum vulgare* (STARÝ et al. 2000; KAVALLIERATOS et al. 2001, 2006; NAZARI et al. 2012; BARAHOEI et al. 2013), on *Sorghum halepense* (MESCHELOFF & ROSEN 1990b), *Rhopalosiphum nymphaeae* (L.) on *Alisma plantago-aquatica* (STARÝ et al. 2000; TOMANOVIC et al. 2003), *Rhopalosiphum padi* (L.) (STARÝ 1973), on *Bromus madritensis*, *Bromus ramosus*, *Hordeum distichon*, *Hordeum murinum*, *Hordeum vulgare*, *Lolium perenne*, *Piptatherum miliaceum*, *Triticum durum* (STARÝ et al. 2000; KAVALLIERATOS et al. 2001, 2006; RAKHSHANI 2012; NAZARI et al. 2012; TAHERI & RAKHSHANI 2013; BARAHOEI et al. 2013), *Schizaphis graminum Rondani* on *Hordeum murinum* (STARÝ 1973; STARÝ et al. 2000; RAKHSHANI et al. 2008, 2012b), *Schizaphis rosazebedoi* (Ilharco) on *Typha australis* (MESCHELOFF & ROSEN 1990b), *Siphra maydis* (Passerini) (STARÝ et al. 2000), *Shinjia pteridifoliae* (Shinji) on *Pteridium* sp. (STARÝ & GHOSH 1979), *Siphra burakowskii* HOLMAN & SZELEGIEWICZ on grass (SAHA et al. 1982), *Sitobion avenae* (F.) on *Hordeum vulgare* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2008; BARAHOEI et al. 2013), *Sitobion fragariae* (WALKER) (BARAHOEI et al. 2013), on *Avena sterilis*, *Bromus madritensis*, *Bromus ramosus*, *Bromus sterilis*, *Hordeum murinum*, *Piptatherum miliaceum* (KAVALLIERATOS et al. 2001, 2006), *Toxoptera aurantii* (BOYER de FONSCOLOMBE) on *Citrus aurantium* (KAVALLIERATOS et al. 2001, 2006), *Wahlgreniella nervata* (GILLETTE) (BARAHOEI et al. 2013). In Iran it was reported from *Shizaphis graminum* and *Rhopalosiphum padi* (BAGHERI et al. 2008). In Greece, it was reported from *Toxoptera aurantii* (BOYER de FONSCOLOMBE) on orange trees (KAVALLIERATOS et al. 2004).

Aphidius transcaspicus TELENGA, 1958

M a t e r i a l e x a m i n e d : West Azarbaijan province: Ourmieh (1371 m), 2♀♀, July 2006.

D i s t r i b u t i o n o u t s i d e I r a n : Holarctic (Yu et al. 2012). Turkey (Çetin Erdogan et al. 2008), India (Bhagat & Ahmad 1995; Akhtar et al. 2011).

H o s t r e c o r d s : *Aphis* sp. on *Prunus domestica* (BHAGAT & AHMAD 1995), *Hyalopterus amygdali* (BLANCHARD) on *Prunus dulcis* (KAVALLIERATOS et al. 2001, 2006), *Hyalopterus amygdali* (RAKHSHANI et al. 2008; MOSSADEGH et al. 2011; RAKHSHANI et al. 2012; JAFARI-AHMABADI et al. 2011; JAFARI-AHMABADI & MODARRES 2012; TAHERI & RAKHSHANI 2013; BARAHOEI et al. 2013), *Hyalopterus pruni* (GEOFFROY) on *Phragmites australis* (KAVALLIERATOS et al. 2001, 2006), on *Phragmites communis*, *Prunus* sp., *Prunus persica*, *Prunus armeniaca*

(STARÝ 1973), *Prunus cerasifera* (STARÝ & KADDOU 1971), *Prunus spinosa*, *Prunus domestica* (STARÝ 2006), *Hyalopterus pruni* (BODENHEIMER & SWIRSKI 1957; TELENGA 1958; LUZHETZKI 1960; STARÝ 1964, 1965a, 1966; MOKHTARI et al. 2000; STARÝ et al. 2000; RAKHSHANI et al. 2008, 2012; JAFARI-AHMABADI et al. 2011; JAFARI-AHMABADI & MODARRES 2012; RAKHSHANI 2012; NAZARI et al. 2012; TOMANOVIC et al. 2012; TAHERI & RAKHSHANI 2013; BARAHOEI et al. 2013), *Melanaphis donacis* PASSERINI on *Arundo donax* (STARÝ 1964, 1973; STARÝ & KADDOU 1971; TOMANOVIC et al. 2012; BARAHOEI et al. 2013).

***Diaeretiella rapae* (M'INTOSH, 1855)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Ourmieh (1376 m), 6♀♀, 3♂♂, July 2006. West Azarbaijan province: Mahabad (1359 m), 4♀♀, 2♂♂, June 2007. West Azarbaijan province: Oshnaviyeh (1462 m), 3♂♂, September 2007.

D i s t r i b u t i o n o u t s i d e I r a n : Cosmopolitan (YU et al. 2012). Israel (BODENHEIMER 1930; MESCHELOFF & ROSEN 1988, 1990b), Serbia (ŽIKIĆ et al. 2000), Belgium (WESMAEL 1835), Slovenia (KOS et al. 2009), Turkey (ÇETİN ERDOĞAN et al. 2008), Japan (TAKADA 1968), China (STARÝ et al. 2010), Continental U.S., Europe, North Africa, Australia, New Zealand (BEARDSLEY 1961), Hawaii (FULLAWAY 1913; BEARDSLEY 1961), India (ANONYMOUS 1968; ATWAL et al. 1969, 1971; STARÝ & GHOSH 1975, 1978; RAO et al. 1969, 1970; SETHUMADHAVEN & DHARMADHIKARI 1969; TAKADA & RISHI 1980; AGARWALA et al. 1980; SAHA et al. 1982; BATRA & WAHIDI 1962; DAS & CHAKRABARTI 1990; BHAGAT & AHMAD 1995; SINGH et al. 1999; AKHTAR et al. 2006, 2011; SUBHIRANI et al. 2006), Brazil, Argentina (COSTA LIMA 1962), England (MARSHALL 1899), North America (SMITH 1944 as *Diaeetus rapae* (CURTIS)), Costa Rica (MEJIAS et al. 2011), Belgium (WESMAEL 1835), Greece (KAVALLIERATOS et al. 2004), Montenegro, Greece, Serbia, Macedonia (TOMANOVIC et al. 2003).

H o s t r e c o r d s : *Amegosiphon platicaudum* (NARZIKULOV) (NAZARI et al. 2012), *Aphis craccivora* KOCH (BARAHOEI et al. 2014), on *Asparagus stipularis* (MESCHELOFF & ROSEN 1990b), on *Solanum tuberosum* (BHAGAT AND AHMAD, 1991), *Aphis acetosae* L. (STARÝ et al. 1971), *Aphis affinis* DEL GUERCIO (STARÝ & KADDOU 1971), *Aphis arbuti* FERRARI (STARÝ et al. 1971), *Aphis chloris* KOCH (STARÝ 1966), *Aphis clematis* KOCH (STARÝ 1966), *Aphis confusa* WALKER (STARÝ et al. 1973), *Aphis craccivora* KOCH), *Aphis cytisorum* HARTIG (STARÝ et al. 1971), *Aphis fabae* SCOPOLI (BARAHOEI et al. 2013) on *Chenopodium* sp., *Cirsium arvense* (STARÝ 2006), on *Cardaria draba* (KAVALLIERATOS et al. 2001, 2006), *Aphis frangulae* Koch (MACKAUEER 1960), *Aphis fumanae* REMAUDIERE & LECLANT (STARÝ et al. 1971), *Aphis gossypii* GLOVER on *Citrus aurantium*, *C. deliciosa* (KAVALLIERATOS et al. 2001, 2004, 2006; BARAHOEI et al. 2014), *Aphis hederae* KALTENBACH (STARÝ et al. 1971), *Aphis idaei* VAN DER GOOT (ACHVLEDIANI 1964), *Aphis medicaginis* KOCH (ACHVLEDIANI 1964), *Aphis nasturtii* KALTENBACH, *Aphis nerii* BOYER de FONSCOLOMBE, *Aphis parietariae* THEOBALD (TREMBLAY 1967), *Aphis punicae* PASSERINI (NAZARI et al. 2012), *Aphis nerii* BOYER de FONSCOLOMBE on *Nerium aleander* (KAVALLIERATOS et al. 2001, 2006), *Aphis ruborum longisetosus* BASU on *Punica granatum* (SAHA et al. 1982), *Aphis salviae* WALKER, *Aphis sanguisorbae* SCHRANK (STARÝ et al. 1973), *Aphis solanella* THEOBALD (BARAHOEI et al. 2013), *Aphis spiraecola* PATCH (STARÝ et al. 1971), *Aphis schneideri* (BÖRNER) on *Ribes sanguineum* (STARÝ 2006), *Aphis spiraecola* PATCH on *Brassicae compressis* (KAVALLIERATOS et al. 2004), *Aphis tirucallalis* HILLE RIS LAMBERS (STARÝ et al. 1971), *Aphis umbrellea* (BÖRNER) (BARAHOEI et al. 2013), *Aphis urticae* Fabricius (STARÝ 1966), *Aphis verbasci* Schrank (STARÝ et al. 1973), *Aphis vitalbae* Ferrari (STARÝ et al. 1971), *Aphis viicis* Ferrari (TREMBLAY 1967), *Aphis* sp. on *Polygonum aviculare* (STARÝ 2006), on *Capsicum annuum* (VIERECK, 1911), *Aspidaphis adjuvans* (WALKER) on *Polygonum equisetiforme* (MESCHELOFF & ROSEN 1990b), *Aulacortum solani* KALTENBACH on *Malva neglecta* (KAVALLIERATOS et al. 2001, 2006), *Brachycaudus amygdalinus* (Schouteden) (STARÝ 1979; STARÝ et al. 2000), on *Prunus dulcis* (KAVALLIERATOS et al. 2001, 2006), on *Polygonum equisetiforme*, *Prunus amygdalus* (MESCHELOFF & ROSEN 1990b), *Brachycaudus cardui* (L.) (STARÝ 1979; STARÝ et al. 2000), on *Calendula arvensis*, *Carduus australis*, *Carduus crispus*, *Carduus pycnocephalus* (KAVALLIERATOS et al. 2001, 2006), *Brachycaudus helichrysi* (KALTENBACH) on *Stellaria media*, *Carduus crispus*, *Carlina corymbosa* spp. *graeca*, *Chrysanthemum coronarium*, *Chrysanthemum uliginosum*, *Cirsium creticum*, *Cirsium tuberosum*, *Cirsium vulgare*, *Leucanthemum vulgare*, *Onopordum illyricum* (KAVALLIERATOS et al. 2001,

2006), on *Matricaria perforata*, *Senecio vulgaris* (STARÝ 2006), on *Prunus amygdalus* (DAS & CHAKRABARTI 1990), *Brachycaudus helichrysi* var. *warei* (THEOBALD) on *Melilotus sulcata* (KAVALLIERATOS et al. 2001, 2006), *Brachycaudus* sp. on *Rumex acetosella*, *Matricaria perforata* (STARÝ 2006), *Brachycorynella asparagi* (MORDVILKO) on *Asparagus officinalis* (STARÝ 2006), *Brevicoryne brassicae* (L.) (STARÝ 1965), on *Brassica oleracea* var. *botrytis*, *Brassica oleracea* var. *capitata* (KAVALLIERATOS et al. 2001, 2006), on *Brassica napus*, *Sinapis arvensis*, *Alliaria vulgaris* (STARÝ 2006, BARAHOEI et al. 2014), on *Brassica nigra*, *Raphanus sativus* (SAHA et al. 1982), on *Descorina sofia* (TAKADA & RISHI 1980), *Brachyunguis tamaricis* Lichtenstein (STARÝ et al. 1971), *Capitophorus carduinus* WALKER (STARÝ RÝ & KADDOU 1971), *Capitophorus inulae* (PASSERINI) (TREMBLAY 1967), *Dysaphis lappae cynarae* (THEOBALD), *Hyalopterus pruni* Geoffroy (ACHVLEDIANI 1964), *Diuraphis noxia* (KURDJUMOV) on *Hordeum vulgare* (STARÝ 2006; BARAHOEI et al. 2014), *Hayhurstia atriplicis* (L.) on *Chenopodium* sp. (STARÝ 1965, 2006; BARAHOEI et al. 2014), *Lipaphis erysimi* (KALTENBACH) on *Erýsimum graceum*, *Sisymbrium orientale* (BARAHOEI et al. 2014), *Lipaphis fritzmuelleri* BÖRNER on *Sisymbrium loeselli* (STARÝ 2006), *Lipaphis lepidii* (NEVSKY) on *Cardaria draba* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Lipaphis pseudobrassicae* (DAVIS) (BARAHOEI et al. 2013), *Melanaphis donacis* (PASSERINI) (SHARMA 1965), *Metopolophium dirhodum* (WALKER) on *Zea mays* (STARÝ 2006; RAKHSHANI et al. 2008b), *Myzus cerasi* FABRICIUS (ACHVLEDIANI 1964), *Myzus beymbenoi* (NARZYKULOV) (BARAHOEI et al. 2014), *Myzus persicae* (SULZER) on *Solanum tuberosum*, *Beta vulgaris*, *Capsicum* sp. (STARÝ 2006), on *Chamomilla recutita*, *Chrysanthemum coronarium*, *Chrysanthemum segetum*, *Brassica nigra*, *Cardaria draba*, *Sisymbrium irio*, *Sisymbrium orientale*, *Phacelia tanacetifolia*, *Malva neglecta*, *Prunus persica*, *Citrus aurantium*, *Citrus sinensis*, *Antirrhinum majus*, *Nicotiana tabacum*, *Urtica urens* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Myzus* sp. on *Cerastium tomentosum*, *Myosotis aquaticum*, *Urtica urens* (STARÝ 2006), *Rhopalosiphum maidis* (Fitch) on *Hordeum distichon* var. *nudum*, *Hordeum vulgare*, *Triticum durum* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Rhopalosiphum padi* (L.) on *Bromus romosus*, *Hordeum murinum*, *Hordeum vulgare*, *Triticum durum* (STARÝ 2006; KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Saltusaphis scirpus* Theobald (STARÝ et al. 2000), *Schizaphis graminum* (Rondani) on *Triticum vulgare* (STARÝ 2006; BARAHOEI et al. 2014), *Schizaphis scirpi* (PASSERINI) on *Typha angustifolia* (STARÝ 2006), *Schizaphis typhaea* LAING on *Typha* sp. (STARÝ 2006), *Sitobion avena* (FABRICIUS) (BARAHOEI et al. 2014), *Sitobion* sp. on *Lolium* sp. (STARÝ 2006), *Toxoptera aurantii* (BOYER de FONSOLOMBE) on *Citrus aurantium* (KAVALLIERATOS et al. 2001, 2006), *Uroleucon sonchi* (GEOFFR.) on *Sonchus* sp. (STARÝ & KADDOU 1971), *Uroleucon* sp. on *Crepis biennis*, *Petasites* sp. (STARÝ 2006).

Lysiphlebus fabarum (MARSHALL, 1896)

M a t e r i a l e x a m i n e d : West Azarbaijan province: Naqadeh (1334 m), 3 ♀ ♀, July 2007.

D i s t r i b u t i o n o u t s i d e I r a n : Transpalaearctic, Australian (YU et al. 2012). Israel (MESCHELOFF & ROSEN 1990a), Serbia (ŽIKIĆ et al. 2000), Slovenia (KOS et al. 2009), Turkey (ÇETİN ERDOĞAN et al. 2008), England (MARSHALL 1899), Serbia, Montenegro, Macedonia, Bosnia & Herzegovina, Bulgaria, Greece, Croatia, Turkey (TOMANOVIĆ et al. 2003).

H o s t r e c o r d s : *Acyrthosiphon ilka* EASTOP (STARÝ 1979; STARÝ et al. 2000), *Acyrthosiphon gossypii* MORDVILKO (BARAHOEI et al. 2013), on *Sophora alopecuroides* (RAKHSHANI et al. 2013), *Acyrthosiphon kondoi* SHINJI (STARÝ et al. 2001), *Acyrthosiphon lactucae* (PASSERINI) (STARÝ et al. 2000), *Aphis acetosae* L. (BARAHOEI et al. 2014), on *Rumex* sp. (RAKHSHANI et al. 2013), *Aphis affinis* del GUERCIO on *Mentha* sp. (STARÝ & KADDOU 1971), *Mentha longifolia* (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Aphis alexandrae* (NEVSKY) on *Carthamus axyacantha* (RAKHSHANI et al. 2013), *Aphis althaea* (NEVSKY) (STARÝ 1979; STARÝ et al. 2000; RAKHSHANI et al. 2012b), *Aphis anthemidis* BÖRNER (TALEBI et al. 2009; NAZARI et al. 2012), on *Antennaria nobilis*, *Achillea* sp., *Althagi maurorum*, *Amaranthus blitoides*, *Amaranthus caudatus*, *Anagallis arvensis*, *Astragalus* sp., *Atriplex* sp., *Capsella bursa-pastoris*, *Cardaria draba*, *Celosia cristata*, *Chenopodium* sp., *Elaeagnus angustifolia*, *Erodium deserti* (RAKHSHANI et al. 2013), *Aphis chloris* KOCH on *Hypericum triquetrifolium* (MESCHELOFF & ROSEN 1990a), *Aphis craccivora* KOCH (CHEN & SHI 2001), on *Vicia angustifolia*, *Glycyrrhiza glabra*, *Astragalus* sp. (STARÝ & KADDOU 1971), on *Medicago orbicularis*, *Anthyllis* (STARÝ et al. 1979), on *Cardaria*

draba, *Melilotus alba*, *Melilotus neopolitana*, *Melilotus officinalis*, *Melilotus sulcata*, *Robinia pseudoacacia*, *Alhagi maurorum*, *Glycerhizza aspera*, *Glycerhizza glabra*, *Gundelia tournefortii*, *Kochia scaparia*, *Medicago sativa*, *Medicago arborea*, *Medicago disciformis*, *Melilotus officinalis*, *Peganum harmala*, *Portulaca oleracea*, *Robinia pseudoacacia*, *Sophora alopecuroides*, *Sophora molis*, *Tragopogon graminifolius*, *Torilis arvensis*, *Trogonella foenum-graecum*, *Vicia villosa* (STARÝ 1979; KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2013; BARAHOEI et al. 2014), on *Astragalus sinensis*, *Kochia scoparia* (STARÝ et al. 2000), on *Amaranthus blitoides*, *Amarantus retroflexus*, *Amarantus* sp., *Anthemis* sp., *Asparagus stipularis*, *Medicago* sp., *Ononis antiquorum*, *Ononis nutrix* (GAHARI), *Aphis davlethiae* HILLE RIS LAMBERS on *Malva parviflora*, *Alcea* sp. (RAKHSHANI et al. 2012; 2013), *Aphis elongata* (NEVSKY) on *Artemisia absinthium* (RAKHSHANI et al. 2013), *Aphis epilobii* KALTENBACH (NAZARI et al. 2012), on *Epilobium angustifolium* (RAKHSHANI et al. 2013), *Aphis euonymi* FABRICIUS (TALEBI et al. 2009) on *Arctium lappa* (RAKHSHANI et al. 2013), *Aphis euphorbiae* KALTENBACH on *Euphorbia aucheri*, *Aphis euphorbicola* REZWANI and LAMPEL on *Euphorbia aelleni*, *Carduus onopordioides*, *Carduus arabicus*, *Centaurea iberica* (RAKHSHANI et al. 2012, 2013; BARAHOEI et al. 2013), *Aphis epilobaria* THEOBALD on *Epilobium hirsutum* (MESCHELOFF & ROSEN 1990a), *Aphis fabae* SCOPOLI on *Chenopodium* sp., *Carduus pycnocephalus*, *Turgenia latifolia* (STARÝ & KADDOU 1971), *Rumex obtusifolius*, *Rumex pulcher*, *Rumex crispus*, *Galium mollugo*, *Galium verticillatum*, *Galium aparine*, *Chenopodium album*, *Chenopodium bonus-henricus*, *Ammi majus*, *Torilis arvensis* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), on *Amarantus* sp., *Cirsium arvense*, *Solanum nigrum*, *Ammi visnaga*, *Arctotis* sp., *Carduus argenteata*, *Chrysanthemum* sp., *Cynara scolymus*, *Medicago* sp., *Mesembryanthemum acinacifolium*, *Silybum marianum*, *Solanum luteum* (RAKHSHANI et al. 2012), on *Hibiscus trionum*, on *Lawsonia inermis*, (TALEBI et al. 2009), *Aphis fabae cirsiiacanthoidis* (Schrank) on *Carduus australis*, *Cirsium arvense*, *Cirsium creticum*, *Ptilosteman strictus*, *Silybum marianum* (KAVALLIERATOS et al. 2001, 2006), on *Cirsium lygophilum*, *Cirsium vulgare*, *Cousinia* sp., *Amaranthus retroflexus*, *Arctium lappa*, *Beta vulgaris*, *Brassica rapa*, *Cenopodium album*, *Citrus aurantiifolia*, *Glycyrrhiza glabra*, *Hibiscus trionum*, *Lavsonia inermis* (RAKHSHANI et al. 2013), *Aphis fabae fabae* SCOPOLI on *Ligustrum vulgare*, *Phaseolus vulgaris*, *Raphanus sativus*, *Rosa damascena*, *Rumex acetosa*, *Rumex crispus*, *Salsola canescens*, *Silybum marianum*, *Sinapis arvensis*, *Spinacia oleracea*, *Vicia faba*; *Aphis fabae solanella* THEOBALD on *Solanum nigrum*; *Aphis gerardiana* MORDVILKO on *Euphorbia aelleni*, *Calendula persica*, *Chrysanthemum* sp., *Cucumis sativus*, *Cucurbita pepo*, *Lamium* sp., *Malva neglecta*, *Mirabilis jalapa* (RAKHSHANI et al. 2012a, 2013), *Aphis gossypii* GLOVER (CHEN & SHI 2001), on *Mirabilis jalapa*, *Nerium oleander*, *Lonicera alpigena*, *Lapsana communis*, *Hibiscus mutabilis*, *Malva sylvestris*, *Chaenomeles japonica*, *Citrus aurantium* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2012a, 2013; BARAHOEI et al. 2014), on *Amaranthus retroflexus*, *Amaranthus* sp., *Anchusa aegyptiaca*, *Anchusa italic*, *Carduus argenteata*, *Centaura* sp., *Chrysanthemum* sp., *Ferula* sp., *Gossypium* sp., *Gundelia tournefortii*, *Laminum amplexicaule*, *Trifolium* sp. (MESCHELOFF & ROSEN 1990a), on *Rosa damascene* (TALEBI et al. 2009), *Aphis hederae* Kaltenbach on *Hedera helix* (MESCHELOFF & ROSEN 1990a), *Aphis idaei* VAN DER GOOT on *Rubus idaeus* (KAVALLIERATOS et al. 2001, 2006), *Aphis intybi* KOCH on *Cichorium intybus*, *Marabium* sp. (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Aphis medicaginis* Koch (CHEN & SHI 2001), *Aphis nasturtii* KALTENBACH, *Plantago lanceolata* (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Aphis nerii* BOYER DE FONSCOLOMBE on *Nerium oleander* (TALEBI et al. 2009; BARAHOEI et al. 2014), *Aphis origani* PASSERINI on *Mentha longifolia*; *Aphis plantaginis* GOEZE on *Plantago lanceolata*; *Aphis pomi* De GEER (BARAHOEI et al. 2014), *Aphis punicea* PASSERINI on *Punica granatum* (MESCHELOFF & ROSEN 1990a; BARAHOEI et al. 2014), *Aphis ruborum* (BÖRNER) on *Rubus sanctus* (STARÝ & KADDOU 1971), *Rubus hirtus*, *Rubus ulmifolius*, *Rubus idaeus* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Aphis rumicis* LINNAEUS on *Rumex crispus* (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Aphis salviae* WALKER (STARÝ 1979; STARÝ et al. 2000), *Aphis solanella* Theobald on *Cestrum nocturnum*, *Solanum nigrum*, *Centaurea solstitialis*, *Rumex conglomeratus*, *Torilis stocksiana* (STARÝ & KADDOU 1971), *Aphis spiraecola* Patch on *Crataegus monogyna* (RAKHSHANI et al. 2013), *Aphis taraxacicola* (Börner) (BARAHOEI et al. 2014), *Aphis terricola* Rondani on *Anthemis arvensis*, *Malva neglecta* (RAKHSHANI et al. 2013), *Aphis umbrellea* BÖRNER on *Malva neglecta* and *Malva sylvestris*; *Aphis urticae* GMELIN on *Urtica dioica*, *Carduus arabicus* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Aphis* sp. (STARÝ 1979, STARÝ et al. 2000), on *Matricaria chamomilla*, *Pyrethrum leptophyllum* (STARÝ et al. 2000), *Brachycaudus*

amygdalinus (SCHOUTEDEN) (BARAHOEI et al. 2014), *Brachycaudus cardui* (L.) on *Arctium lappa*, *Borago officinalis*, *Calendula officinalis*, *Carduus acanthoides*, *Carduus australis*, *Carduus crispus*, *Carduus onopordoides*, *Chrysanthemum morifolium*, *Cirsium arvense*, *Cirsium italicum*, *Onopordum acanthium*, *Brachycaudus helichrysi* (KALTENBACH) on *Cirsium vulgare*, *Ptilostemon strictus*, *Prunus dulcis*, *Tanacetum vulgare*, *Scorzonera isphahanica* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Brachycaudus lychnidis* (L.) on *Lychnis coronaria* (KAVALLIERATOS et al. 2001, 2006), *Brachycaudus persicae* (PASSERINI) (RAKHSHANI et al. 2012), *Brachycaudus tragopogon setosus* HILLE RIS LAMBERS (BARAHOEI et al. 2014), *Brachycaudus tragopogonis* (KALTENBACH) on *Tragopogon gramfolius*, *Brachyunguis harmalae* Das on *Peganum harmal* (RAKHSHANI et al. 2012), *Brachyunguis zygophylli* (NEVSKY) on *Zygophyllum fabago* (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Brachyunguis* sp. on *Rumex* sp. (STARÝ & KADDOU 1971), *Cyanchum acutum* (TALEBI et al. 2009; RAKHSHANI et al. 2013), *Coloradoa* sp. (STARÝ 1979; STARÝ et al. 2000), *Dysaphis crataegi* (KALTENBACH) (STARÝ 1965), *Dysaphis lappae* KOCH (STARÝ 1965, 1979), *Capitophorus carduinus* (WALKER) on *Carduus* sp. (STARÝ & KADDOU 1971), *Dysaphis plantaginea* (PASSERINI) on *Malus domestica* (RAKHSHANI et al. 2013; BARAHOEI et al. 2014), *Dysaphis radicola* (MORDVILKO) on *Rheum palmatum*, *Hayhurstia atriplicis* (L.) on *Chenopodium album* (NAZARI et al. 2012; RAKHSHANI et al. 2013), *Hyadaphis coriandri* (PASSERINI) on *Cariandrum sativum* (TALEBI et al. 2009; RAKHSHANI et al. 2013), *Hyalopterus amygdali* (BLANCHARD) (RAKHSHANI 2012), *Hyalopterus pruni* (GEOFFROY) (BARAHOEI et al. 2014), *Lipaphis erysimi* (KALTENBACH) on *Capsella bursa pastoris*; *Lipaphis fritzmulleri* BÖRNER on *Sisymbrium irio*; *Lipaphis lepidii* NEVSKY on *Cardaria draba* (TALEBI et al. 2009), *Macrosiphoniella papilata* HOLMAN on *Artemisia biennis*; *Macrosiphoniella sanborni* (GILLETTE); *Macrosiphum rosae* (L.); *Melanaphis sacchari* (ZEHNTERER) on *Sorghum halepense*, *Metopolophium dirhodum* on *Rosa domascena* (RAKHSHANI et al. 2013); *Myzus beybienkoi* (MARZIKULOV) on *Fraxinus oxyacarpa* (TALEBI et al. 2009), on *Lycopersicum esculentum*, *Malva neglecta* (RAKHSHANI et al. 2013); *Myzus cerasi* (Fabricius) on *Prunus avium*; *Myzus mamecola* (MATSUMURA) on *Prunus ansu* (STARÝ et al. 2001), *Myzus pesicae* (SULZER) on *Capsicum annuum*, *Nicotiana tabacum*, *Trigonella foenum-graecum*, *Solanum nelongena* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2013), *Pemphigus lichtensteini* Tullgren on *Populus pyramidalis* (STARÝ 1965), *Phorodon humuli* (Schrank) (BARAHOEI et al. 2014), *Protaphis elongate* (Nevsky) on *Artemisia absinthium* (TALEBI et al. 2009); *Protaphis terricola* Walker, *Protaphis* sp. (BARAHOEI et al. 2014), *Rhopalosiphum maidis* (Fitch) on *Triticum durum* (KAVALLIERATOS et al. 2001, 2006), *Rhopalosiphum nymphaeae* (L.), *Rhopalosiphum padi* (L.) on *Triticum aestivum* (RAKHSHANI et al. 2013), *Saltusaphis scrippus* THEOBALD; *Saltusaphis* sp. (BARAHOEI et al. 2014), *Toxoptera aurantii* (BOYER de FONSCOLOMBE) on *Citrus aurantium*, *Citrus sinensis* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2013), *Uroleucon jaceae* (L.) on *Carlina corymbosa* spp. (KAVALLIERATOS et al. 2001, 2006).

***Monoctonus mali* VAN ACHTERBERG, 1989**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Seroo (1622 m), 2♀ ♀, May 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Western Palaearctic (Yu et al. 2012). Nearctic, Neotropical, Oceanic, Oriental, Palaearctic (Czech Republic, Netherlands, Serbia, Turkey, former Yugoslavia). The Netherlands (VAN ACHTERBERG 1989), Slovenia (KOS et al. 2009).

H o s t r e c o r d s : Parasitoid of *Rhopalosiphum incertum* (WALKER) on Maloideae (Rosaceae: *Malus*, *Pyrus*, *Sorbus*, *Crataegus*), and *Aphis fabae* SCOPOLI on *Viburnum* (VAN ACHTERBERG 1989); *Dysaphis reamuri* (MORDVILKO) on *Pyrus communis*; *Dysaphis* sp. on *Malus domestica*; *Rhopalosiphum inserthum* WALKER on *Malus domestica* (TOMANOVIĆ et al. 2007).

***Praon volucre* (HALIDAY, 1833)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Myandoab (1331 m), 2♀ ♀, 1♂, June 2007.

D i s t r i b u t i o n o u t s i d e I r a n : Transpalaearctic, Oriental, Neotropical (YU et al., 2012). Israel (MACKAEUR 1959a, b; ROSEN 1964, 1966, 1967, 1969; AVIDOV & HARPAZ 1969;

MESCHELOFF & ROSEN 1989), Serbia (ŽIKIĆ et al. 2000), Slovenia (KOS et al. 2009), Turkey (ÇETİN ERDOĞAN et al. 2008), Japan (TAKADA 1968), India (SUBBA RAO & SHARMA 1960; STARÝ & BHAGAT 1978; STARÝ & GHOSH 1983; DAS & CHAKRABARTI 1991; AKHTAR et al. 2011), England (MARSHALL 1899), Greece (KAVALLIERATOS et al. 2004), Serbia, Montenegro, Macedonia, Bosnia & Herzegovina, Bulgaria, Greece, Croatia, Turkey (TOMANOVIĆ et al. 2003).

H o s t r e c o r d s : *Acyrthosiphon caraganae* (CHOLODKOVSKII) on *Caragana arborescens*, *Robinia pseudoacacia*; *Acyrthosiphon euphorbiae* BÖRNER on *Euphorbia polychroma* (STARÝ 2006), *Acyrthosiphon lactucae* (PASSERINI) on *Lactuca serriola* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2007), *Acyrthosiphon lambersi* LECLANT et REMAUDIERE (STARÝ et al. 1973), *Acyrthosiphon pisum* (HARRIS) (HAMID et al. 1974; RAKHSHANI et al. 2006a, 2007a), *Acyrthosiphon* sp. on *Spiraea vanhouttei* (STARÝ 2006); *Amphorophora amurensis* (MORDVILKO) (=*Amphorophora rubiphaga* TAKAHASHI) on *Rubus* sp. (WATANABE & TAKADA 1964), *Amphorophora catharinae* (NEVSKY) on *Rosa* sp. (RAKHSHANI et al. 2012b; BARAHOEI et al. 2014), *Amphorophora rubi* (KALTENBACH) on *Rubus fruticosus* (KAVALLIERATOS et al. 2001, 2006), *Apellia tragopogonis* (KALTENBACH) (MESCHELOFF & ROSEN 1989), *Aulacorthum magnoliae* (ESSIG & KUWANA) (WATANABE & TAKADA 1964), *Aulacorthum solani* KALTENBACH (STARÝ 1966), *Aphis affinis* del GUERCIO on *Mentha longifolia* (RAKHSHANI et al. 2012b), *Aphis arbuti* FERRARI (STARÝ et al. 1971), *Aphis craccivora* KOCH on *Calicotome villosa*, *Emex spinosa* (MESCHELOFF & ROSEN 1989), on *Caragana arborescens*, *Vicia* sp. (STARÝ 2006), on *Medicago sativa*, *Robinia pseudoacacia* (RAKHSHANI et al. 2012b), on *Melilotus sulcata* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Aphis dlabolai* HOLMAN (BARAHOEI et al. 2014), *Aphis epilobiaria* THEOBALD on *Epilobium hirsutum*; *Aphis fabae* SCOPOLI on *Calendula* sp., *Solanum luteum* (MESCHELOFF & ROSEN 1989), on *Vicia faba*, *Pittosporum tobira*, *Rumex crispus*, *Galium aparine* (KAVALLIERATOS et al. 2001, 2006), on *Impatiens noli-tangere*, *Impatiens glandulifera*, *Chenopodium* sp., *Beta vulgaris*, *Euonymus europaeus*, *Galium aparine*, *Matricaria perforata* (STARÝ 2006; BARAHOEI et al. 2014), *Aphis fabae cirsiianthoidis* Scopoli on *Cirsium arvensis* (RAKHSHANI et al. 2012b), on *Carduus australis*, *Silybum marianum*; *Aphis fabae solanella* THEOBALD on *Solanum nigrum* (KAVALLIERATOS et al. 2001, 2006), on *Solanum nigrum* (TALEBI et al. 2009), on *Solanum lycopersicum*, *Solanum nigrum*, *Vicia fabae*, *Chenopodium album* (RAKHSHANI et al. 2012b), *Aphis gossypii* GLOVER on *Viburnum tinus*, *Citrus aurantium*, *Citrus deliciosa* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Aphis grossulariae* KALTENBACH on *Ribes grossularia*; *Aphis intybi* VAN DEN GOOT on *Cichorium intybus* (STARÝ 2006), *Aphis pomi* de GEER (RAKHSHANI et al. 2012b), *Aphis solanella* THEOBALD (BARAHOEI et al. 2014), *Aphis spiraephaga* F.P. MÜLLER on *Spiraea vanhouttei* (STARÝ 2006), *Aphis syringae* TAKAHASHI on *Syringa vulgaris*, *Syringa emodi*, *Syringa reticulatum* (WATANABE & TAKADA 1967), *Aphis umbrellea* (BÖRNER) on *Malva neglecta* (KAVALLIERATOS et al. 2001, 2006), *Aphis urticata* GMELIN on *Urtica dioica* (RAKHSHANI et al. 2012b), *Aphis viticis* FERRARI on *Vitex agnus castus* (KAVALLIERATOS et al. 2001, 2006), *Aphis zizyphi* THEOBALD on *Ziziphus spina-christi*, *Aphis* sp. on *Polygonum equisetiforme* (MESCHELOFF & ROSEN 1989), *Aulacorthum solani* (KALTENBACH) on *Cornus* sp. (WATANABE & TAKADA 1967), on *Pelargonium* sp. (STARÝ 2006), on *Cirsium vulgare*, *Sonchus oleraceus*, *Malva neglecta*, *Citrus aurantium*, *Urtica pilulifera*, *Urtica urens* (KAVALLIERATOS et al. 2001, 2006), *Aulacorthum solani aegopodii* Börner on *Aegopodium podagraria* (STARÝ 2006); *Brachycaudus amygdalinus* (Schouteden) on *Amygdalus arabica* (RAKHSHANI et al. 2007; BARAHOEI et al. 2014), *Brachycaudus cardui* (L.) on *Carduus pycnocephalus* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2012b), *Brachycaudus helichrysi* (Kaltenbach) on *Carduus crispus*, *Chrysanthemum coronarium*, *Onopordum illyricum* (KAVALLIERATOS et al. 2001, 2006), on *Calendula officinalis* (RAKHSHANI et al. 2007), on *Silene alba*, *Silene* sp. (STARÝ 2006; BARAHOEI et al. 2014), *Brachycaudus lychnidis* L. (STARÝ et al. 1973), *Brachycaudus persicae* (PASSERINI) (RAKHSHANI et al. 2012b), *Brachycaudus populi* (del Guercio) on *Silene vulgaris*; *Brachycaudus tragopogonis* (Kaltenbach) on *Tragopogon* sp.; *Brachycaudus* sp. on *Glaucium oxylobium* (MESCHELOFF & ROSEN 1989), on *Prunus persica*, *Matricaria perliflora*; *Brachycrynelia asparagi* (MORDVILKO), on *Asparagus officinalis*; *Brevicoryne brassicae* (L.) on *Brassica oleracea* var. *capitata* (STARÝ 2006), *Capitophorus elaeagnii* (del GUERCIO) on *Carduus crispus*; *Corylobium avellanae* (SCHRANK) on *Corylus avellana* (KAVALLIERATOS et al. 2001, 2006), *Diaphorinix noxia* (KURJUMOV) on *Triticum aestivum* (RAKHSHANI et al. 2007), on *Hordeum vulgare* (STARÝ 2006; BARAHOEI et al. 2014), *Dysaphis pyri* (BOYER de FONSOLOMBE) (RAKHSHANI et al. 2012b), *Dysaphis* sp. on *Malus domestica*;

Hyadaphis sp. on *Conium maculatum* (STARÝ 2006), *Eucarazzia elegans* (FERRARI) (STARÝ et al. 1971), *Hyalopterus amygdali* (E. BLANCHARD) on *Prunus dulcis* (KAVALLIERATOS et al. 2001, 2006), on *Prunus amygdalinus* (RAKHSHANI et al. 2007), *Hyalopterus pruni* (GEOFFROY) on *Phragmites australis*, *Prunus domestica*, *Prunus padus*, *Prunus armeniaca*, *Prunus persica* (RAKHSHANI et al. 2007), on *Phragmites australis*, *Prunus domestica*, (STARÝ & KADDOU 1971; KAVALLIERATOS et al. 2001, 2006; STARÝ 1965, 2006; BARAHOEI et al. 2014), *Hyperomyzus lactucae* (L.) (BARAHOEI et al. 2014), on *Sonchus* sp. (STARÝ 1965), *Lactuca oleracea*, *Lactuca serriola* (MESCHELOFF & ROSEN 1989), *Sonchus asper*, *Sonchus oleraceus*, *Sonchus palustris* (KAVALLIERATOS et al. 2001, 2006), on *Ribes nigrum* (STARÝ 2006), *Hyperomyzus picridis* BÖRNER (STARÝ 1966; TREMBLAY 1967), *Hyperomyzus* sp. on *Ribes alpinum*, *Ribes nigrum*, *Sonchus* sp. (STARÝ 2006), *Impatientinum asiaticum* NEVSKÝ on *Impatiens parviflora*, *Impatiens glandulifera*; *Impatientinum balsamines* (KALTENBACH) on *Impatiens noli-tangere*; *Linosiphon gallophagus* (Wimshurst) on *Galinum sylvaticum*; *Linosiphon fritzmuelleri* BÖRNER on *Sisymbrium loeselii* (STARÝ 2006), from *Lipaphis erysimi* (STARÝ & GHOSH 1983), *Longiunguis donacis* (PASSERINI) on *Arundo donax* (STARÝ & KADDOU 1971), *Macrosiphoniella riedeli* SZELEGIEWICZ on *Centaurea* sp. (MESCHELOFF & ROSEN 1989), *Macrosiphoniella* sp. on *Achillea* sp. (STARÝ 1965), *Macrosiphum akebiae* SHINJI on *Stauntonia hexaphylla* (WATANABE & TAKADA 1967), *Macrosiphum euphorbiae* (THOMAS) on *Leucanthemum vulgare*, *Sonchus oleraceus*, *Rumex crispus*, *Citrus aurantium*, *Licopersicon esculentum*, *Solanum tuberosum* (KAVALLIERATOS et al. 2001, 2006), on *Cucumis sativus*, *Euphorbia cyparissias*; *Macrosiphum funestum* (MACCHIATI) on *Rubus* sp.; *Macrosiphum ibarae* MATSUMURA on *Rosa* sp. (WATANABE & TAKADA 1967), *Macrosiphum prenanthidis* BÖRNER on *Prenanthes purpurea*; *Macrosiphum rosae* (L.) on *Rosa* sp. (STARÝ & KADDOU 1971), *Knautia arvensis* (STARÝ 1965, 2006), on *Rosa hybrid* (TALEBI et al. 2009), on *Rosa arvensis*, *Rosa canina* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014), *Macrosiphum sorbi* (MATSUMURA) on *Sorbaria sorbifolia* (TAKADA 1968), *Macrosiphum* sp. on *Euphorbia* sp. (STARÝ 2006; RAKHSHANI et al. 2012b), *Melanaphis donacis* PASSERINI (STARÝ & KADDOU 1971), *Metopolophium dirhodum* (WALKER) (BARAHOEI et al. 2014), on *Avena sterilis* (KAVALLIERATOS et al. 2001, 2006), on *Zea mays*, *Hordeum vulgare*; *Metopeurum fuscoviride* STROYAN on *Tanacetum vulgare*; *Microlophilum carnosum* (BUCKTON) on *Urtica dioica* (STARÝ 2006), on *Urtica pilulifera*, *Urtica urens*; *Myzocallis castanicola* BAKER on *Castanea sativa* (KAVALLIERATOS et al. 2001, 2006); *Myzus beybienkoi* (NARZYKULOV) (STARÝ et al. 2000); *Myzus persicae* (SULZER) on *Nicotiana* sp. (STARÝ 1965), on *Caryophila* sp., *Nicotiana tabacum*, *Capsicum annum* (RAKHSHANI et al. 2007), on *Prunus persica*, *Citrus aurantium*, *Antirrhinum majus*, *Nicotiana tabacum*, *Urtica urens* (KAVALLIERATOS et al. 2001, 2006; BARAHOEI et al. 2014); *Myzus varians* DAVIDSON on *Clematis vitalba*; *Ovatus crataegarius* (WALKER) on *Mentha spicata* (KAVALLIERATOS et al. 2001, 2006); *Phorodon humuli* (SCHRANK) on *Prunus pericæ* (RAKHSHANI et al. 2007; 2012a), on *Humulus lupulus*, *Prunus domestica*, *Prunus spinosa*; *Rhopalomyzus lonicerae* (Siebold) on *Lonicera* sp.; *Rhopalomyzus poae* (GILLETTE) on *Lonicera alpigena*; *Rhopalosiphoninus* sp. on *Oxalis acetosella* (STARÝ, 2006), *Rhopalosiphum maidis* Fitch on *Zea mays* (RAKHSHANI et al. 2007; BARAHOEI et al. 2014); from *Rhopalosiphum padi* (L.) on *Hordeum murinum*, *Piptatherum miliaceum*, *Triticum durum* (KAVALLIERATOS et al. 2001, 2006), on *Triticum aestivum* (RAKHSHANI et al. 2007), on *Prunus padus*, *Hordeum vulgare*; *Schizaphis graminum* (RONDANI) on *Triticum aestivum*, *Triticum durum*, *Bromis tectorum*, *Avena* sp. (RAKHSHANI et al. 2007), *Sitobion avenae* (Fabricius) on *Triticum aestivum*, *Avena sativa*, *Secale cereale*, *Hordeum vulgare* (STARÝ 2006; RAKHSHANI et al. 2007; BARAHOEI et al. 2014), *Sitobion fragariae* (WALKER) on *Melica* sp. (STARÝ 1965), on *Bromus madritensis*, *Hordeum murinum*; *Toxoptera aurantii* (BOYER de FONSCOLOMBE) on *Citrus aurantium* (KAVALLIERATOS et al. 2001, 2006), *Trilobaphis* sp. on *Carex flava* (STARÝ 2006), *Uroleucon aeneum* (HILLE RIS LAMBERS) on *Carlina corymbosa* (KAVALLIERATOS et al. 2001, 2006), *Uroleucon cichorii* (KOCHE) (RAKHSHANI et al. 2012a), *Uroleucon composita* (THEOBALD), *Uroleucon jaceae* (L.) (BARAHOEI et al. 2014), *Uroleucon ochropus* (HILLE RIS LAMBERS) (STARÝ 1965), *Uroleucon sonchi* (L.) on *Sonchus aurantium*, *Sonchus palustris*, *Sonchus asper* (KAVALLIERATOS et al. 2001, 2006; RAKHSHANI et al. 2007; BARAHOEI et al. 2014).

Subfamily Braconinae

Bracon (Glabrobracon) atrator NEES, 1834

M a t e r i a l e x a m i n e d : West Azarbaijan province: Naqadeh (1327 m), 1 ♀, July 2007.

D i s t r i b u t i o n o u t s i d e I r a n : Austria, Germany, Italy (SZÉPLIGETI 1904; YU et al. 2012); Azerbaijan, Belarus, Belgium, Croatia, Czech Republic, Finland, France, Georgia, Ireland, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, The Netherlands, Poland, Russia, Sweden, Tunisia, former Yugoslavia (YU et al. 2012), Cyprus, Israel (PAPP 2011-2012; YU et al. 2012), Finland, Sweden (THOMSON 1892 as *B. longicauda*; YU et al. 2012), Greece (PAPP 2007; YU et al. 2012), Hungary, Switzerland (Szépligeti 1904 as *B. longicauda* THOMSON; YU et al. 2012), Macedonia (PAPP 2010; YU et al. 2012), Serbia (ŽIKIĆ et al. 2012), Spain (DOCAVO 1964; FALCÓ et al. 1993; YU et al. 2012), Turkey (BEYARSLAN et al. 2005; BEYARSLAN & ÇETİN ERDOĞAN 2012; YU et al. 2012), UK (BROAD & SHAW 2009; YU et al. 2012).

H o s t r e c o r d s : This species was reported as parasitoid of a number of host species of the families Agromyzidae and Tephritidae (Diptera), Curculionidae (Coleoptera), Coleophoridae (Lepidoptera) (FALCÓ et al. 1993). It was reported also reported as a parasitoid of *Gymneptron villosum* GYLLENHAL, *Apion buddebergi* BEDEL (Coleoptera: Curculionidae), *Tephritis separata* RONDANI, *T. conura* LOEW (Diptera: Tephritidae), *Phytobia flavifrons* (MEIGEN) (Diptera: Agromyzidae), *Coleophora coronillae* ZELLER (Lepidoptera: Coleophoridae) (BEYARSLAN et al. 2005).

Bracon (Glabrobracon) variator NEES, 1811

M a t e r i a l e x a m i n e d : West Azarbaijan province: Siah-Cheshmeh (1807 m), 1 ♀, May 2007. West Azarbaijan province: Myandoab (1339 m), 2 ♀ ♀, June 2007.

D i s t r i b u t i o n o u t s i d e I r a n : China, Crimea, Czech Republic, Finland, France, Italy, Middle Asia, Mongolia, Romania, Russia, Siberia, Slovakia, the Netherlands, former Yugoslavia (YU et al. 2012), Austria, Sweden (FAHRINGER 1927 as *B. sueciensis* FAHRINGER; YU et al. 2012), Belgium (WESMAEL 1838; SZÉPLIGETI 1904; YU et al. 2012), Croatia, Macedonia (PAPP 2009b), Cyprus (TELENGA 1936 as *B. meridionalis*), Germany, Hungary (SZÉPLIGETI 1904; YU et al. 2012), Greece (PAPP 2003, 2007; LOZAN 2004), Poland (FAHRINGER 1928 as *B. rytreensis*; YU et al. 2012), Serbia (ŽIKIĆ et al. 2012), Spain (MEDINA 1895; MARTINEZ & SAEZ 1874; DOCAVO 1964; FALCÓ et al. 1987, 1993; YU et al. 2012), Switzerland (YU et al. 2012), Turkey (GÜLER & ÇAĞATAY 2001; BEYARSLAN et al. 2005; YU et al. 2012), UK (SZÉPLIGETI 1904; BROAD & SHAW 2009; YU et al. 2012), Scotland, England, Sweden, Denmark, Finland, The Netherlands, France, Germany, Switzerland, Austria, Bohemia, Slovakia, Hungary, Slovenia, Romania, Croatia, Serbia, Macedonia, Kosovo, Albania, Bulgaria, Greece, Portugal, Spain, Italy, Algeria, Tunisia, Syria, Turkey, Jordan, Ukraine, Armenia, Georgia, European Russia, Turkmenistan, Mongolia, Korea (PAPP 2012).

H o s t r e c o r d s : This species was reported as the parasitoid of a large number of insect hosts of the families Anobiidae, Bruchidae and Curculionidae (Coleoptera), Anthomyidae, Cecidomyiidae, Tephritidae (Diptera), Cynipidae and Tenthredinidae (Hymenoptera), Coleophoridae, Gelechiidae, Lycaenidae, Nymphalidae, Geometridae, Gracillariidae, Phycitidae, Pieridae, Sesiidae and Tortricidae (Lepidoptera) (FALCÓ et al. 1993): *Platyedra subcineria* HAWORTH, *Pexicopia malvella* HÜBNER, *Mesophleps corsicellus* HERRICH-SCHÄFFER (Lepidoptera: Gelechiidae), *Hadena bicruris* HUFNAGEL (Lepidoptera: Noctuidae), *Lithocolletis mespilella* HÜBNER (Lepidoptera: Gracillariidae), *Aegeria andrenaeformis* LASPEYRES (Lepidoptera: Sesiidae), *Coleophora medelichennis* KRONE, *C. coronillae* ZELLER (Lepidoptera: Coleophoridae), *Grapholitha funebrana* TREITSCHKE, *G. Dorsana* FABRICIUS, *Barbara herrichiana* OBRAZTSOV, *Pandenus cerasana* HÜBNER, *Petrova resinella* LATREILLE, *Laspeyresia strobilella* LATREILLE, *Eucosma cana* HAWORTH (Lepidoptera: Tortricidae), *Etiella zinckenella* TREITSCHKE, *Dioryctia abietella* DENIS & SCHIFFERMÜLLER, *Myelois cibrella* HÜBNER (Lepidoptera: Phycitidae), *Ernobius nigrinus* STURM (Coleoptera: Anobiidae), *Larinus turbinatus* GYLLENHAL, *L. Jaceae* FABRICIUS, *Pissodes validirostrus* GYLLENHAL, *Baris cuprirostris* FABRICIUS, *B. laticollis* MARSH, *B. chlorisans* GERMAR, *Magdalisa rufa* GERMAR, *Gyneutron tetrum* LATREILLE, *G. asellus*

GRAVENHORST, *Miarus campanulae* LATREILLE, *Sitona longulus* GYLLENHAL, *Ceutorhynchus punctiger* GYLLENHAL (Coleoptera: Curculionidae), *Bruchus laticollis* BOHEMAN, *B. lenthis* FRÖLICH, Bruchidae), *Pegohylemyia seneciella* (MEADE) (Diptera: Anthomyiidae), *Noeeta pupillata* (FALLÉN), *Chaetostomella cylindrica* ROBINEAU-DESOVIDY, *Tephritis leontodontis* DE GEER, *Sphenella marginata* (FALLÉN) (Diptera: Tephretidae), *Hoplocampa brevis* KLUG (Hymenoptera: Tenthredinidae) (BEYARSLAN et al. 2005).

***Pseudovipio castrator* (FABRICIUS, 1798)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Seroo (1616 m), 1♀, unknown date.

D i s t r i b u t i o n o u t s i d e I r a n : Palaeartic species (FALCÓ et al. 1993). Caucasus, Central Asia, South and Central Europe, North Africa, Asia Minor (TOBIAS 1986), Albania, Algeria, Azerbaijan, Croatia, Cyprus, Czech Republic, Egypt, Georgia, Germany, Greece, Moldova, Montenegro, Romania, Slovakia, Sudan, Switzerland, Syria, Ukraine, former Yugoslavia (YU et al. 2012), France, Italy (SZÉPLIGETI 1904 as *Glyptomorpha castrator* KOKUJEV; YU et al. 2012), Hungary (SZÉPLIGETI 1904 as *Glyptomorpha castrator* SZÉPLIGETI; PAPP 1960 as *G. castrator* SZÉPLIGETI; YU et al. 2012), Israel (PAPP 1989, 2011-2012; YU et al. 2012), Kazakhstan, Mongolia (TOBIAS 1986; YU et al. 2012), Russia (SZÉPLIGETI 1904 as *Glyptomorpha castrator* SZÉPLIGETI; YU et al. 2012), Serbia (BELOKOBILSKIJ & ŽIKIĆ 2009; YU et al. 2012), Spain (CEBALLOS 1956; DOCAVO 1964; FALCÓ et al. 1993; YU et al. 2012), Turkey (BEYARSLAN et al. 2005; YU et al. 2012), Greece (PAPP 2007).

H o s t r e c o r d s : It is principally parasitoid of Buprestidae, Cerambycidae and Curculionidae (PRIORE & TREMBLAY 1981) This species was reported as the parasitoid of *Chrysobothris affinis* FABRICIUS, *Buprestis* sp. (Coleoptera: Buprestidae) (TOBIAS 1986; BEYARSLAN et al. 2005, STANKOVIĆ et al. 2010), *Lixus junci* BOHEMAN (Coleoptera: Curculionidae), *Gortyna xenthaleres* GERMAR (Lepidoptera: Noctuidae) (TOBIAS 1986; BEYARSLAN et al. 2005), *Plagionotus arcuatus* L. (Coleoptera: Cerambycidae) (TOBIAS 1986; BEYARSLAN et al. 2005).

Subfamily D o r y c t i n a e

***Doryctes leucogaster* (NEES, 1834)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Bookan (1379 m), 1♀, June 2008. West Azarbaijan province: Hassanloo (1288 m), 1♂, 1♀, July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Hungary (PAPP 2008), Caucasus, Central Asia, Siberia, West Europe (TOBIAS 1995), Belgium (WESMAEL 1838 as *Ischiogonus erythrogaster*), Montenegro, Serbia (BELOKOBILSKIJ & ŽIKIĆ 2009), Israel (PAPP 2011-2012), Spain (DOCAVO 1960, 1964; FALCÓ & JIMÉNEZ 1988), Algeria, Romania, Tunisia, Switzerland (MARSHALL 1899 as *D. liogaster*), Georgia, Russia, Ukraine (KOKUJEV 1900 as *D. caucasicus*), Azerbaijan (KOKUJEV 1900 as *D. disputabilis*), Austria, Hungary (SZÉPLIGETI 1902 as *D. marothiensis*), Austria, Hungary, Romania, Serbia (SZÉPLIGETI 1905 as *D. pulchripes*), Israel, Uzbekistan (TELENGA 1941 as *D. turkestanicus*), Croatia (PAPP 2009b), Greece (PAPP 2007). According to YU et al. (2012): Bulgaria, Czech Republic, Denmark, Germany, Greece, Hungary, Italy, Turkey, UK.

H o s t r e c o r d s : It was reported as a parasitoid of *Rhajium inquisitor* LINNAEUS, *Clytus pilosus* FÖRSTER, *Phymatodes variabilis* LINNAEUS, *Acanthocerus aedilis* LINNAEUS, *Hylotrupes bajulus* LINNAEUS, *Tetropium castaneum* LINNAEUS, *Acanthoderes cinereus* FABRICIUS, *Anaesthetis testacea* FABRICIUS, *Exocentrus lusitanus* LINNAEUS and other longhorned beetles, furniture beetles *Anobium pertinax* LINNAEUS, *A. punctatum* DEGEER, goldeneyed *Lampra mirifica* MULS., *Chrysobothris affinis* FABRICIUS, *Agrilus* spp. and beetles of other families (*Bothriscinus capucinus* LINNAEUS, *Ptinus fur* LINNAEUS, *Ips typographus* LINNAEUS, *Pissodes notatus* FABRICIUS) as well as some lepidopteran *Pyrausta sticticalis* LINNAEUS (TOBIAS 1995). The following hosts are also reported according to YU et al. (2012): *Agrilus biguttatus* FABRICIUS, *Anthaxia aurulenta* FABRICIUS, *A. manca* LINNAEUS, *Chrysobothris solieri* GORY & LAPORTE, *Lampra mirifica* MULSANT (Coleoptera: Buprestidae), *Anobium pertinax* (LINNAEUS) (Coleoptera: Anobiidae), *Bostrichus capucinus* (LINNAEUS) (Coleoptera: Bostrichidae), *Acanthocinus aedilis*

(LINNAEUS), *Acanthoderes cinereus* FABRICIUS, *Exocentrus lusinatus* (LINNAEUS), *Hesperophanes cinereus* VILLERS, *Chlorophorus pilosus* FOERSTER, *Hylotrupes bajulus* (LINNAEUS), *Penichroa fuscata* (STEPHENS), *Phymatodes testaceus* (LINNAEUS), *Plagionotus arcuatus* (LINNAEUS), *Rhagium bifasciatum* FABRICIUS, *R. inquisitor* (LINNAEUS), *R. mordax* DEGEER, *Tetropium castaneum* (LINNAEUS) (Coleoptera: Cerambycidae), *Agelastica alni* (LINNAEUS) (Coleoptera: Chrysomelidae), *Opilo domesticus* LINNAEUS (Coleoptera: Cleridae), *Loxotege sticticalis* (LINNAEUS) (Lepidoptera: Pyralidae), *Lymantria dispar* (LINNAEUS) (Lepidoptera: Noctuidae).

Doryctes striatellus (NEES, 1834)

M a t e r i a l e x a m i n e d : West Azarbaijan province: Shahin-Dezh (1422 m), 1♂, August 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Distributed throughout Palaearctic region (Tobias 1995 as *D. mutilator*), Serbia (BELOKOBILSKIJ & ŽIKIĆ 2009), England (MARSHALL 1885; BROAD & SHAW 2009), Portugal (PETERSEN-SILVA et al. 2012), Italy (CAMPADERLI & SCARAMOZZINO 1994 as *D. mutilator* (THUNBERG)), Hungary, Russia, Slovakia (MARSHALL 1888 as *D. brachyurus*), Hungary (RATZEBURG 1844 as *Bracon disparator*), UK (CURTIS 1837 as *D. maculipes*), Austria, Belgium, Finland, France, Germany, Hungary, Italy, Poland, Russia, Sweden, Switzerland, Ukraine, UK (NEES 1834 as *Bracon obliteratus*), Austria, Russia, Serbia (KOKUJEV 1902 as *D. petrovskii*), Germany, Hungary, Sweden, Switzerland (Marshall 1897 as *D. rex*), Bulgaria, former Czechoslovakia, Lithuania, Sweden (STRAND 1918 as *D. striatelloides*), Russia (KOKUJEV 1900 as *D. strigatus*), UK (HALIDAY 1836 as *Rogas tabidus*). According to YU et al. (2012): Albania, Armenia, Azerbaijan, Croatia, former Czechoslovakia, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Italy-Sicily, Kazakhstan, Lithuania, Macedonia, Moldova, Mongolia, The Netherlands, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, UK, former Yugoslavia, Montenegro, Serbia.

H o s t r e c o r d s : Parasitoid of longhorned beetles: *Tetropium castaneum* LINNAEUS, *T. gabrieli* WEISE, *T. gracilicorne* RITT, *T. fuscum* FABRICIUS, *Stenostola ferrea* SCHR., *Exocentrus lusitanus* LINNAEUS, *Phymatodes testaceus* LINNAEUS, *P. pusillus* LINNAEUS, *P. alni* LINNAEUS, *Acanthocinus aedilis* LINNAEUS, *Molorchus minor* LINNAEUS, *Callidium abdominalis* BON., *C. violaceum* LINNAEUS, *Pogonocherus hispidus* LINNAEUS, *Rhagium inquisitor* LINNAEUS, *Clytus* sp., *Monochamus* sp., *Agapanthia* sp. (Coleoptera: Cerambycidae), goldeneyed *Phaenops cyanea* FABRICIUS, *P. guttulata* GEBL., weevils *Pissodes notatus* FABRICIUS, *P. harcynia* HERBST, *Rhyncaenus fagi* LINNAEUS, *R. quercus* LINNAEUS, *R. salicis* LINNAEUS, *R. testaceus* MÜLLER, *R. pilosus* FABRICIUS, *Magdalalis violacea* LINNAEUS (Coleoptera: Curculionidae), Stamping beetle *Dorcatoma dresdensis* HERBST, *D. setosella* MULS. & REY., *Ernobius mollis* LINNAEUS, bark beetles *Ips typographus* LINNAEUS, *I. sexdentatus* BÖRN., *I. subelongatus* MOTSCH., *Blastophagus piniperda* LINNAEUS, lepidopterans *Laspeyresia strobilella* L., *Grapholitha funebrana* Tr., *hymenopterans Xiphidrea dromedarius* FABRICIUS, *Xyela pusilla* DAHLBOM (TOBIAS 1995). It was also reported as a parasitoid of *Ernobius mollis* (LINNAEUS), *Dorcatoma dresdensis* HERBST (Coleoptera: Anobiidae), *Anthoxia quadripunctata* (LINNAEUS), *Phaenops cyanea* (FABRICIUS), *P. guttulata* (GEBLER) (Coleoptera: Buprestidae), *Acanthocinus aedilis* (LINNAEUS), *Agapanthia* sp., *Callidium* sp., *C. violaceum* (LINNAEUS), *Clytus* sp., *Exocentrus lusitanus* (LINNAEUS), *Mesosa curculionoides* (LINNAEUS), *Molorchus minor* (LINNAEUS), *Monochamus galloprovincialis* (OLIVIER), *M. sutor* (LINNAEUS), *Phymatodes pusillus* (FABRICIUS), *Ph. testaceus* (LINNAEUS), *Poecilium alni* (LINNAEUS), *Pogonocherus* sp., *P. hispidus* (LINNAEUS), *Rhagium inquisitor* (LINNAEUS), *Semanotus undatus* (LINNAEUS), *Stenostola ferrea* (SCHRANK), *Tetropium castaneum* (LINNAEUS), *T. gabrieli* WEISE, *T. fuscum* (FABRICIUS), *T. gracilicorne* REITTER (Coleoptera: Cerambycidae), *Pissodes barcyniae* (HERBST), *P. notatus* (FABRICIUS), *Rhynchaenus fagi* (LINNAEUS), *R. pilosus* (FABRICIUS), *R. quercus* (LINNAEUS), *R. testaceus* (MÜLLER), *Magdalalis violacea* (LINNAEUS), *M. rufa* (GERMAR), *Tachyerges salicis* (LINNAEUS) (Coleoptera: Curculionidae), *Hylurgops palliates* (GYLLENHAL), *Ips topographus* (LINNAEUS), *I. sexdentatus* (BOERNER), *I. subelongatus* MUTSCHULSKY, *Pityogenes bidentatus* (HERBST), *Tomicus piniperda* (LINNAEUS) (Coleoptera: Scolytidae), *Xyphidria prolongata* (GEOFFROY) (Coleoptera: Xyphididae) (YU et al. 2012). In Italy, it was reported from *M. galloprovincialis* (CAMPADERLI & SCARAMOZZINO 1994). In Portugal it was reported from *Monochamus galloprovincialis* (PETERSEN-SILVA et al. 2012).

***Rhaconotus aciculatus* RUTHE, 1854**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Takab (1822 m), 1♂, 1♀, September 2006.

D i s t r i b u t i o n o u t s i d e I r a n : Israel (PAPP 1988, 2011-2012), Serbia (ŽIKIĆ et al. 2000; BELOKOBILSKIJ & ŽIKIĆ 2009), Caucasus, Kazakhstan, Central Asia, Western Europe, Pacific Coastal region, Israel, Mongolia (TOBIAS 1995), England (SHAW 1998; BROAD & SHAW 2009), Spain (FALCÓ & JIMÉNEZ 1988), Spain (DOCAVO 1960 as *R. cerdai*), Kazakhstan (TOBIAS 1964 as *R. major*), Mongolia (PAPP 2009a), Azerbaijan, China, Czech Republic, France, Germany, Hungary, Israel, Italy, Kazakhstan, Korea, Kyrgyzstan, Moldova, Mongolia, Russia, Slovakia, Spain, Tajikistan, Ukraine, UK, Uzbekistan, Serbia (YU et al. 2012).

H o s t r e c o r d s : This species was recorded as a parasitoid of *Bruchus* sp. (Coleoptera: Bruchidae) in Israel (LUCAS 1965), *Agrilus viridis* (LINNAEUS), *Anthaxia igockii* OBENBERGER (Coleoptera: Buprestidae), *Caryedon serratus* (OLIVIER) (Coleoptera: Chrysomelidae), *Lixus lukjanovitschi* (Coleoptera: Curculionidae) (YU et al. 2012).

***Spathius curvicaudis* RATZEBURG, 1844**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Bookan (1379 m), 2♀, June 2008.
West Azarbaijan province: Makoo (1637 m), 1♀, unknown date.

D i s t r i b u t i o n o u t s i d e I r a n : Europe (PHILIP et al. 2012), Hungary (PAPP 2008), Transcucasia, Western Europe, Turkey (TOBIAS 1995), Serbia (BELOKOBILSKIJ & ŽIKIĆ 2009), Caucasus, Transcaucasia, Western Europe, Turkey (TOBIAS 1995), Azerbaijan, Czech Republic, France, Germany, Hungary, Italy, Lithuania, Moldova, The Netherlands, Poland, Russia, Slovakia, Sweden, Switzerland, Turkey, Ukraine, UK, Serbia (YU et al. 2012).

H o s t r e c o r d s : *S. curvicaudis* RATZEBURG was reported as a parasitoid from *Agrilus biguttatus* (FABRICIUS) (Coleoptera: Buprestidae) on Oak trees in Europe (PHILIP et al. 2012). Parasitoid of longhorned beetles: *Phymatodes testaceus* LINNAEUS, *Xylotrechus pantherinus* SAV., *Callidium aeneum* DEG., *Obrium cantharinum* LINNAEUS, *Clytus* sp., *Pyrrhidium sanguineum* LINNAEUS, *Hedobia pubescens* OLIVIER (Coleoptera: Cerambycidae), bark beetles *Scolytus intricatus* RATZ., *S. morawitzi* SEM., *Ips subelongatus* MOTSCH. (Coleoptera: Curculionidae), goldeneye *Agrilus sulcicollis* LAC., *A. hastulifer* RATZBURG, *A. olivicolor* KSW., *A. subauratus* GEBL., *A. biguttatus* FABRICIUS, *A. roberti* CHEVROLAT (Coleoptera: Buprestidae), horntails *Xiphidria prolongata* GEOFFROY, *X. longicollis* GEOFFROY (Coleoptera: Xiphidiidae) (TOBIAS 1995), *Agrilus biguttatus* FABRICIUS, *A. pannonicus* PILLAR & MITTERPACHER, *A. roberti* CHEVROLAT, *A. subauratus*, *A. sulcicollis* LACORDAIRE (Coleoptera: Buprestidae), *Hedobia pubescens* FABRICIUS, *Xestobium plumbeum* ILLIGER (Coleoptera: Anobiidae), *Callidium aeneum* DEGEER, *Phymatodes pusillus* FABRICIUS, *P. testaceus* (LINNAEUS), *Obrium cantharinum* LINNAEUS, *Pyrrhidium sanguineum* (LINNAEUS), *Xylotrechus pantherinus* SAVNIUS (Coleoptera: Cerambycidae), *Magdalis carbonaria* (LINNAEUS), *Scolytus intricatus* (RATZEBURG) (Coleoptera: Curculionidae), *Xiphidria camelus*, *X. prolongata* (GEOFFROY) (Coleoptera: Xiphidiidae) (YU et al. 2012).

Subfamily H o r m i n i a e

***Hormius moniliatus* (NEES, 1811)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Piranshahr (1466 m), 2♀, July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Mongolia (PAPP 2009), Turkey (BEYARSLAN & AYDOĞDU 2013), Belgium (WESMAEL 1838), UK (BROAD & SHAW 2009), Macedonia (PAPP 2010), Greece (PAPP 2007). According to YU et al. (2012): Afghanistan, Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Canary Islands, Cape Verde Islands, China, Czech Republic, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Latvia, Lithuania, Macedonia, Moldova, Mongolia, Morocco, The Netherlands, Norway, Poland, Russia, Serbia, Slovakia, Spain, Sweden, Switzerland, Tajikistan, Turkmenistan, Ukraine, UK, Uzbekistan, Vietnam, former Yugoslavia.

***Hormius similis* (SZÉPLIGETI, 1896)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: no locality cited, 2♀♀, July 2006. West Azarbaijan province: Salmas (1311 m), 1♀, October 2007. West Azarbaijan province: Makoo (1637 m), 3♀♀, unknown date.

D i s t r i b u t i o n o u t s i d e I r a n : All Palearctic region, Taiwan (BELOKOBILSKIJ 1995), Hungary (PAPP 2008), Caucasus, Kazakhstan, Central Asia, Eastern Siberia, Far East, Western Europe (TOBIAS 1995), Korea (PAPP 2003), Croatia, Greece (PAPP 2007 as *H. moniliatus* var. *similis*). According to YU et al. (2012): Azerbaijan, Bulgaria, China, Croatia, Czech Republic, Germany, Greece, Hungary, Japan, Kazakhstan, Korea, Macedonia, Mongolia, Russia, former Yugoslavia.

H o s t r e c o r d s : Parasitoid of lepidopterans *Pexicopia malvella* HÜBNER (Gelechiidae), *Scythris inspersella* HÜBNER (Scythrididae), *Pyrausta aurata* SCOPOLI, *Microstega hyalinalis* HÜBNER, *Loxostege nudalis* HÜBNER (Pyraustidae), *Coleophora trifariella* ZELLER (Cleophoridae), *Archips crataegana* HÜBNER (Tortricidae) (TOBIAS 1995).

Subfamily M i c r o g a s t r i n a e

***Apanteles obscurus* (NEES, 1834)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Seroo (1616 m), 3♀♀, May 2008.

D i s t r i b u t i o n o u t s i d e I r a n : UK (HALIDAY 1834 as *Microgaster arenarius*), Hungary (PAPP 2008), Mongolia (PAPP 2009a), Transpalearctic (TOBIAS 1995), Turkey (BEYARSLAN et al. 2006; GÜCLÜ & ÖZBEK 2011), Croatia, Macedonia (PAPP 2009b), Crete, Greece (PAPP 2007). According to YU et al. (2012): Albania, Armenia, Azerbaijan, Croatia, Czechoslovakia, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Italy-Sicily, Kazakhstan, Lithuania, Macedonia, Moldova, Mongolia, The Netherlands, Poland, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK, Montenegro, Serbia.

H o s t r e c o r d s : Parasitoid of *Eurrhypara terrealis* TR. (Lepidoptera: Pyralidae), *Udea ferrugalis* HÜBNER, *Ebulea crocealis* HÜBNER (Lepidoptera: Pyraustidae), *Clepsis strigana* HÜBNER (Lepidoptera: Tortricidae) (TOBIAS 1995).

***Cotesia cuprea* (LYLE, 1925)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Oshnaviyeh (1467 m), 1♂, September 2007.

D i s t r i b u t i o n o u t s i d e I r a n : Hungary (PAPP 2008), Azerbaijan, Lithuania, Mongolia (PAPP 2009b), Morocco (NIXON 1965 as *Hypomicrogaster semele*), Azerbaijan, England, Finland, France, Germany, Hungary, Lithuania, The Netherlands, Spain (PAPP 1987), Turkey (BEYARSLAN 1988; INANÇ & BEYARSLAN 2001). According to YU et al. (2012): Azerbaijan, Bulgaria, Canary Islands, former Czechoslovakia, Finland, France, Germany, Greece, Hungary, Lithuania, Mongolia, The Netherlands, Poland, Romania, Spain, Switzerland, Turkey, UK.

H o s t r e c o r d s : It was bred from *Simacthis nemorana* HÜBNER (Lepidoptera: Glyptipterigidae) (NIXON 1965). It was reported from *Archips rosana* LINNAEUS (Lepidoptera: Tortricidae) (PAPP 2007).

***Cotesia vanessae* (REINHARD, 1880)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Salmas (1311 m), 2♀♀, October 2007. West Azarbaijan province: Piranshahr (1466 m), 2♀♀, July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Almost throughout the Palearctic region, European part of USSR (TOBIAS 1995 as *Apanteles vanessae*), Czech Republic (LOZAN et al. 2010),

Hungary (PAPP 2008), Austria, England, Finland, Germany, Hungary, Russia (PAPP 1988), Australia, China, North and West Africa (YU et al. 1988), Turkey (İNANÇ & BEYARSLAN 2001; ÇETİN ERDOĞAN & BEYARSLAN 2005). According to YU et al. (2012): Afghanistan, Armenia, Austria, Bulgaria, Canary Islands, China, Czech Republic, Ethiopia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Moldova, Morocco, The Netherlands, Poland, Russia, Serbia, Montenegro, Spain, Turkey, Ukraine, UK, Uzbekistan.

Host records: Parasitoid of *Vanessa atalanta* LINNAEUS, *Inachis io* LINNAEUS, *Cynthia cardui* LINNAEUS (Lepidoptera: Nymphalidae), *Spodoptera exigua* HÜBNER, *Mythimna littoralis* CURTIS, *Ochropleura praecox* LINNAEUS, *Dicestra trifolii* HUFNAGEL, *Apamea sordens* HUFNAGEL, *Autophaga gamma* LINNAEUS, *Syngrapha circumflexa* LINNAEUS, *Helicoverpa armigera* HÜBNER, *Mamestra brassicae* LINNAEUS (Lepidoptera: Noctuidae) (TOBIAS 1995).

***Protapanteles vitripennis* (CURTIS, 1830)**

Material examined: West Azarbaijan province: Myandoab (1339 m), 2♂♂, June 2007.

Distribution outside Iran: France (GAUTIER & DRESNAY 1927 as *Apantales impavidus*), Western Europe, North America (introduced) (TOBIAS 1995 as *Apanteles vitripennis*), Caucasus, Kazakhstan, Siberia, Central Asia (TOBIAS 1995), Belgium (WESMAEL 1837 as *Microgaster fulgriger*), widely distributed in the British Island (NIXON 1973 as *Apanteles vitripennis*), Greece (PAPP 2007 as *Glyapanteles vitripennis*). According to YU et al. (2012): Azerbaijan, Belgium, Bulgaria, Czech Republic, Finland, France, Georgia, Germany, Greece, Hungary, India, Ireland, Italy, Italy-Sicily, Kazakhstan, Kyrgyzstan, Latvia, Pakistan, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Ukraine, UK, Uzbekistan, Yugoslavia-Serbia.

Host records: Parasitoid of *Acronicta psi* LINNAEUS, *Eupsilia transversa* HUFNAGEL, *Catocala nupta* LINNAEUS, *Cucullia verbasci* LINNAEUS (Lepidoptera: Noctuidae), *Biston stratarius* HUFNAGEL, *Cabera pusaria* LINNAEUS, *Chesias legatella* DENIS & SCHIFFERMÜLLER, *C. rufata* FABRICIUS, *Cleorodes lichenaria* HUFNAGEL, *Alcis repandata* LINNAEUS, *Europhila badiata* DENIS & SCHIFFERMÜLLER, *Operophtera brumata* LINNAEUS, *Thera juniperata* LINNAEUS (Lepidoptera: Geometridae), *Archips rosana* LINNAEUS (Lepidoptera: Tortricidae), *Plutella maculipennis* CURTIS (Lepidoptera: Plutellidae), *Yponomeuta cognatellus* HÜBNER, *Y. padillus* LINNAEUS, *Y. malinellus* ZELLER (Lepidoptera: Yponomeutidae) (TOBIAS 1995). It was reported as a solitary parasitoid of many species of Lepidoptera: *Acronicta psi* (LINNAEUS), *Catocala nupta* (LINNAEUS), *Cucullia verbasci* (LINNAEUS) (Noctuidae), *Biston strataria* (HUFNAGEL), *Cabera pusaria* (LINNAEUS), *Chesias legatella* (SCHIFFERMÜLLER), *C. rufata* (FABRICIUS), *Cleorodes lichenaria* (HUFNAGEL), *Alcis repandata* (LINNAEUS), *Anticlea badiata* (SCHIFFERMÜLLER), *Operophtera brumata* (LINNAEUS), *Thera juniperata* (LINNAEUS) (Geometridae), *Archips rosanus* (LINNAEUS) (Tortricidae), *Plutella xylostella* (LINNAEUS) (NIXON 1973).

***Microgaster luctuosa* HALIDAY, 1834**

Material examined: West Azarbaijan province: Takab (1822 m), 1♂, September 2006.

Distribution outside Iran: Hungary (PAPP 2008), Caucasus, Central Asia, Western Europe, Mongolia (TOBIAS 1995 as *Lissogaster curvircrus*), England (HALIDAY 1834), Greece (PAPP 2007 as *Microgaster curvircrus*). According to YU et al. (2012): Austria, Azerbaijan, Bulgaria, Croatia, Finland, Germany, Greece, Hungary, Ireland, Moldova, Mongolia, Poland, Romania, Russia, Sweden, Switzerland, Turkmenistan, UK, Uzbekistan, Serbia.

Host records: Parasitoid of *Agonopterix pallorella* ZELLER (Lepidoptera: Oecophoridae) (TOBIAS 1995), *Cnephaso assedana* DENIS & SCHIFFERMÜLLER, *Olethreutes arbutella* (LINNAEUS) (Lepidoptera: Tortricidae) (YU et al. 2012).

***Microgaster parvistriga* THOMSON, 1895**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Seroo (1616 m), 3♂♂, May 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Distributed in Europe, eastwards as far as Armenia, Hungary, Greece (PAPP 2007), Austria, Germany, Italy (BOUCHÉ 1834 as *Microgaster blanckardellae*), Germany (RATZEBURG 1848 as *Microgaster flavolimbatus*), Hungary (RATZEBURG 1848 as *Microgaster flavolimbatus*; PAPP 2008), England (MARSHALL 1885 as *Apanteles lautellus*), Belgium (WESMAEL 1837 as *Microgaster lividipes*), Mongolia (PAPP 2009), Caucasus, western Europe (TOBIAS 1995 as *Lissogaster parvistriga*), Armenia, Northern half of Europe, Korea (PAPP 2003). According to YU et al. (2012): Armenia, Bulgaria, Czech Republic, Finland, Germany, Greece, Hungary, Korea, Mongolia, Poalnd, Romania, Russia, Slovakia, Switzerland, UK.

H o s t r e c o r d : Parasitoid as *Anacampsis disquei* MEES (Lepidoptera: Gelechiidae) (TOBIAS 1995), *Acleris kochiella* GOEZE, *Anacampsis midella* WOCKE (Lepidoptera: Gelechiidae), *Cosmpterix scribaeilla* ZELLER, *C. zieglerella* (HÜBNER) (Lepidoptera: Cosmopteridae), *Swammerdamia caesiella* (HÜBNER) (Lepidoptera: Yponomeutidae), *Tortrix viridana* (LINNAEUS) (Lepidoptera: Tortricidae) (YU et al. 2012).

***Pholetesor circumscriptus* (NEES, 1834)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Siah-Cheshmeh (1807 m), 3♀♀, May 2007. West Azarbaijan province: Hassanloo (1288 m), 1♀, July 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Entire Palearctic region (TOBIAS 1995 as *Apanteles circumscriptus*), Hungary (PAPP 2008), N.W. Europe (NIXON 1973 as *Apanteles circumscriptus*), Greece (PAPP 2007), Austria, Germany, Italy (BOUCHÉ 1834 as *Microgaster blanckardella*), Germany, Hungary (RATZEBURG 1848 as *Microgaster flavolimbatus*), England (MARSHALL 1885 as *Apanteles lautellus*), Belgium (WESMAEL 1837 as *Microgaster lividipes*). According to YU et al. (2012): Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Croatia, Czech Republic, Finland, Georgia, Germany, Greece, Hungary, Ireland, Israel, Italy, Italy-Sardinia, Italy-Sicily, Korea, Latvia, Lithuania, Madeira Islands, Moldova, The Netherlands, NewZealand, Poland, Romania, Russia, Slovakia, Spain, Switzerland, USA, Ukraine, UK, former Yugoslavia.

H o s t r e c o r d s : Parasitoid of *Elachista gangabella* ZELLER, *E. gleichenella* FABRICIUS, *E. humilis* ZELLER, *E. luticomella* ZELLER (Lepidoptera: Elachistidae), *Lithocolletis blanckardella* FABRICIUS, *L. cavella* ZELLER, *L. cerasicolella* H.-S., *L. emberizaepanella* BOUCHÉ, *L. junoniella* ZELLER, *L. lantanella* SCR., *L. lautella* ZELLER, *L. mespilella* HÜBNER, *L. messaniella* ZELLER, *L. nigrescentella* LOGAN, *L. populinfoliella* TR., *L. pomonella* ZELLER, *L. quercifoliella* ZELLER, *L. rajella* LINNAEUS, *L. scabiosella* DOUGL., *L. tenerella* JOANNIS (Lepidoptera: Gracillariidae) (NIXON 1973; TOBIAS 1995). In Iran it was reported as a larval parasitoid of *Lithocolletis blanckardella* FABRICIUS (Lepidoptera: Gracillariidae) (BEHDAD 1991; GHAHARI et al. 2010).

Subfamily R o g a d i n a e

***Aleiodes (Aliodes) signatus* (NEES, 1811)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Seroo (1616 m), 1♀, spring 2008.

D i s t r i b u t i o n o u t s i d e I r a n : Turkey (AYDOGDU & BEYARSLAN 2006), Czech Republic (LOZAN et al. 2010), Hungary (PAPP 2008), Israel (Papp 1988), Mongolia (PAPP 2009a), Belgium (Wesmael 1838 as *A. geniculator*), England (BROAD & SHAW 2009), Croatia (PAPP 2010), Greece (PAPP 2007).

H o s t r e c o r d s : It was reported as endoparasitoid of lepidopterans: *Arctia caja* LINNAEUS, *A. villosa* LINNAEUS, *Ocnogyna boeticum*, *Coscinia cibrum* LINNAEUS (Arctiidae), *Philodoria potatoria* LINNAEUS (Lasiocampidae), *Orgyia antica* LINNAEUS, *O. gonostigma* LINNAEUS, *Gynaephora selenitica*, *Euproctis chrysorrhoea* LINNAEUS, *E. similis* (Lymantridae), *Autographa gamma* LINNAEUS, *Noctua fimbriata*, *N. pronuba* LINNAEUS, *Acronicta psi* LINNAEUS (Noctuidae), *Thaumetopoea processionea* LINNAEUS, *T. pityocampa* DENIS & SCHIFFERMÜLLER

(Thaumetopoeidae), *Spilonota ocellana* FABRICIUS (Tortricidae) (AYDOGDU & BEYARSLAN 2006; YU et al. 2012).

Aleiodes (*Neorhogas*) *duktor* (THUNBERG, 1822)

M a t e r i a l e x a m i n e d : West Azarbaijan province: Naqadeh (1327 m), 1♂, unknown date.

D i s t r i b u t i o n o u t s i d e I r a n : Czech Republic (LOZAN et al. 2010), Israel (PAPP 1988), Caucasus, Kazakhstan, Central Asia, Souther Siberia to Far East, Western Europe, Northern Africa, Israel (TOBIA 1995 as *Rogas doctor*), Turkey (BEYARSLAN et al. 2006), Croatia (PAPP 2010), Greece (PAPP 2007).

H o s t r e c o r d s : Parasitoid of *Mamestra brassicae* LINNAEUS, *Autographa gamma* LINNAEUS, *Discestra trifolii* (HUFNAGEL) (Lepidoptera: Noctuidae), *Philudoria potatoria* LINNAEUS (Lepidoptera: Lasiocampidae) (TOBIAS 1995).

Discussion

In this faunistic survey 29 braconid species were collected from West Azarbaijan province, a result that indicates a high diversity of these parasitoids in this part of Iran. Based on several samplings by Iranian researchers, we are sure that there are many species not found in West Azarbaijan so far. Therefore, we suggest that samplings by standard methods are continued, resulting in new records and probably new species. With attention to high diversity of agricultural ecosystems and therefore various insect pests (especially Lepidoptera, Coleoptera, and Diptera) in West Azarbaijan province, we expect a diverse fauna of these powerful parasitoids in this part of Iran. Braconids are efficient agents of biological control, which have powerful role in pest control in different agroecosystems (SHARKEY 1993; GODFRAY 1994). Conserving of these natural enemies will be resulted in increasing their efficiency in pests control upon the IPM (Integrated Pest Management) and ICM (Integrated Crop Management) programs (Maredia et al. 2003). Of course conservation of natural enemies must be done as a regular and exact program toward the successful results (DE BACH & ROSEN 1991; VAN DRIESCHE & BELLOWS 1996).

Acknowledgments

The authors express their thanks to M. Fischer (Austria), C. van Achterberg (The Netherlands), J. Papp (Hungary) and V. Tobias (Russia) for their scientific cooperation, and F. Gusenleitner for editing the manuscript. The research was supported by Shahre Rey Islamic Azad University, Cairo University, and Russian Institute of Plant Protection.

Zusammenfassung

Vorliegende Arbeit behandelt die Fauna der Braconidae (Hymenoptera) der Provinz West Azarbaijan im Nordwesten des Irans. Insgesamt gelang der Nachweis von 29 Arten aus den 8 Unterfamilien Agathidinae (2), Alysiinae (3), Aphidiinae (6), Braconinae (3), Doryctinae (4), Hormiinae (2), Microgastrinae (7) und Rogadinae (2).

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Zeitschrift/Journal: [Linzer biologische Beiträge](#)

Jahr/Year: 2014

Band/Volume: [0046_2](#)

Autor(en)/Author(s): Samin Najmeh, Ghahari Hassan, Gadallah Neveen Samy,
Davidian Elena

Artikel/Article: [A study on the Braconidae \(Hymenoptera: Ichneumonoidea\) from
West Azarbajian province, Northwestern Iran 1447-1478](#)