

A faunistic study on the braconid wasps (Hymenoptera: Braconidae) of Iran

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SAMIN, N., CORONADO-BLANCO J. M., HOSSEINI, A., FISCHER, M. & CHELAV, H. S.: *A faunistic study on the braconid wasps (Hymenoptera: Braconidae) of Iran.*

Abstract: Twenty-three species of Braconidae (Hymenoptera) within eight subfamilies, Agathidinae, Alysiinae, Blacinae, Brachistinae, Braconinae, Cheloninae, Euphorinae, Macrocentrinae, Microgastrinae and Neoneurinae are recorded for the fauna of Iran. Five species, *Macrocentrus grandii* Goidanich, 1937 (Macrocentrinae), *Apanteles elpis* Nixon, 1973, *Apanteles urgo* Nixon, 1965, *Microplitis sofron* Nixon, 1970, and *Protapanteles aliphra* (Nixon, 1973) (Microgastrinae) are newly recorded from Iran.

Keywords: Braconidae, species diversity, parasitoid, Iran

Introduction

Braconidae is a family of parasitoid wasps and one of the richest families of insects with more than 21,000 described species worldwide (YU et al. 2016). Braconid wasps are very powerful and important biological control agent in most ecosystems (GODFRAY 1994). Most braconids are primary parasitoids of Coleoptera, Diptera, and Lepidoptera, but also some hemimetabolous insects like aphids, Heteroptera or Embiidina (WHARTON 1993, QUICKE 2015).

The fauna of Iranian Braconidae has been studied rather well (e.g., GANDALLAH & GHAHARI 2013a, b, 2015, 2017; BARAHOEI et al. 2014; GANDALLAH et al. 2015a, b, 2016a, b; GANDALLAH & GHAHARI 2016; FARAHANI et al. 2016; GHAHARI 2016; BEYARSLAN et al. 2017; SAMIN et al. 2018a, b), but since Iran is a large country comprises various ecosystems, several new species are expected to be discovered. The objective of this faunistic paper is to study of distribution of 23 braconid species and five new country records.

Material and methods

The specimens of this investigation were collected from different regions of Iran by Malaise traps and sweeping nets, and a few by rearing of the hosts in incubator. The specimens were identified by the fourth author, C. van Achterberg (National Natuurhistorisch Museum) and the late J. Papp (Hungarian Natural History Museum). Classification, nomenclature, distribution and host records of Braconidae suggested by YU et al. (2016) have been followed.

Results

In total, 23 species of Braconidae within eight subfamilies, Agathidinae (one species), Alysiinae (one species), Blacinae (one species), Brachistinae (four species in two genera), Braconinae (three species in two genera), Cheloninae (two species in one genus), Euphorinae (two species in two genera), Macrocentrinae (two species in one genus), Microgastrinae (seven species in four genera) and Neoneurinae (one species) are recorded for the fauna of Iran.

Subfamily **Agathidinae** Haliday, 1833 Genus ***Therophilus*** Wesmael, 1837

Therophilus tegularis (Thomson, 1895)

Material examined: 2♀♀, Hamadan province, Razan, 35°39'N 49°03'E, 11.vii.2015.

General distribution: Bulgaria, France, Germany, Hungary, Italy, Netherlands, Norway, Poland, Sweden, Turkey, United Kingdom, former Yugoslavia.

Subfamily **Alysiinae** Leach, 1815 Genus ***Aspilota*** Förster, 1862

Aspilota fuscicornis (Haliday, 1838)

Material examined: 1♀, Khuzestan province, Shadegan, 30°66'N 48°67'E, 4.v.2014.

General distribution: Austria, Belgium, former Czechoslovakia, Faeroe Islands, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Korea, Lithuania, Madeira Islands, Mongolia, Netherlands, Poland, Romania, Russia, Spain, Sweden, United Kingdom.

Subfamily **Blacinae** Förster, 1863 Genus ***Blacus*** Nees, 1819

Blacus (Blacus) forticornis Haeselbarth, 1973

Material examined: 1♀, West Azarbaijan province, Shahin-Dezh, 36°68'N 46°56'E, 26.ix. 2015.

General distribution: Czech Republic, Denmark, Hungary, Poland, Russia, Turkey, United Kingdom.

Subfamily **Brachistinae** Förster, 1863 Genus ***Schizoprymnus*** Förster, 1862

Schizoprymnus (Schizoprymnus) elongatus (Szépligeti, 1898)

Material examined: 4♀♀, 2♂♂, Hamadan province, Razan, 35°39'N 49°03'E, 11.vii.2015.

General distribution: Afghanistan, Armenia, Azerbaijan, Czech Republic, former Czechoslovakia, Georgia, Kazakhstan, Lithuania, Moldova, Turkey.

Schizoprymnus (Schizoprymnus) excisus (Snoflák, 1953)

Material examined: 3♀, 1♂, Ardabil province, Bile-Savar, 39°37'N 48°32'E, 14.vii.2013.

General distribution: Armenia, Hungary, Russia, Turkey, Ukraine, former Yugoslavia.

Schizoprymnus (Schizoprymnus) pullatus (Dahlbom, 1833)

Material examined: 2♀, 1♂, Khuzestan province, Shoosh, 32°19'N 48°24'E, 3.v.2014.

General distribution: Former Czechoslovakia, Germany, Hungary, Kazakhstan, Moldova, Russia, Turkey, Uzbekistan.

Genus **Triaspis** Haliday, 1835*Triaspis luteipes* (Thomson, 1874)

Material examined: 1♀, Fars province, Abadeh, 31°20'N 51°62'E, 9.vi.2015.

General distribution: Bulgaria, Finland, France, Germany, Greece, Hungary, Italy, Poland, Romania, Spain, Sweden, Switzerland, Ukraine, United Kingdom.

Subfamily **Braconinae** Nees, 1811Genus **Bracon** Fabricius, 1804*Bracon (Glabrobracon) brevicaratus* Tobias, 1957

Material examined: 1♀, Ardabil province, Bile-Savar, 39°37'N 48°32'E, 14.vii.2013.

General distribution: Hungary, Kazakhstan, Turkey, Turkmenistan.

Bracon (Habrobracon) viktorovi (Tobias, 1961)

Material examined: 1♀, East Azarbaijan province, Maragheh, 37°23'N 46°24'E, 21.viii.2013.

General distribution: Cyprus, former Czechoslovakia, Greece, Korea, Russia, Turkey.

Genus **Iphiaulax** Förster, 1863*Iphiaulax (Iphiaulax) jacobsoni* Shestakov, 1927

Material examined: 1♀, 1♂, Ardabil province, Firozabad, 37°59'N 48°24'E, 12.vii.2013.

General distribution: Israel, Malta, Turkey, Uzbekistan.

Subfamily **Cheloninae** Förster, 1863Genus **Chelonus** Panzer 1806*Chelonus (Chelonus) mirandus* Tobias, 1964

Material examined: 1♂, Zanjan province, Abhar, 36°16'N 49°03'E, 7.vi.2016.

General distribution: Hungary, Kazakhstan, Moldova, Mongolia, Poland, Slovakia, Spain.

Chelonus (Chelonus) pannonicus Szépligeti, 1896

Material examined: 2♀, Fars province, Abadeh, 31°20'N 51°62'E, 9.vi.2015.

General distribution: China, Croatia, Czech Republic, former Czechoslovakia, Greece, Hungary, Mongolia, Ukraine, former Yugoslavia.

Subfamily **Euphorinae** Förster, 1863Genus **Leiophron** Nees von Esenbeck, 1819*Leiophron (Leiophron) apicalis* Haliday, 1833

Material examined: 1♂, Ardabil province, Aslanduz, 39°44'N 37°42'E, 1♀, 1♂, 28.vii.2014.

General distribution: Azerbaijan, former Czechoslovakia, France, Germany, Hungary, Netherlands, Poland, United Kingdom, Uzbekistan.

Genus *Perilitus* Nees, 1819*Perilitus dubius* (Wesmael, 1838)

Material examined: 1♀, 1♂, Kurdistan province, Bijar, 37°23'N 46°24'E, 15.viii.2015.

General distribution: Belgium, former Czechoslovakia, Finland, France, Germany, Greece, Hungary, Kazakhstan, Moldova, Netherlands, Poland, Russia, Sweden, Switzerland, United Kingdom.

Subfamily **Macrocentrinae** Förster, 1863Genus *Macrocentrus* Curtis, 1833*Macrocentrus grandii* Goidanich, 1937

Material examined: 2♂♂, Golestan province, Kordkoy, 36°41'N 54°12'E, ex *Ostrinia nubilalis* (Hübner, 1796) (Lepidoptera: Crambidae) on *Zea mays*, 23.ix.2013. New record for Iran.

General distribution: Azerbaijan, Bulgaria, Georgia, Germany, Italy, Japan, Korea, Lithuania, Moldova, Russia, Slovakia, United States of America.

Macrocentrus linearis (Nees, 1811)

Material examined: 1♀, 1♂, Ardabil province, Aslanduz, 39°44'N 37°42'E, ex *Malacosoma neustria* (Linnaeus, 1758) (Lepidoptera: Lasiocampidae), 28.vii.2014.

General distribution: Eastern Palaearctic, Ethiopian, Europe, Nearctic, Oriental, Western Palaearctic.

Subfamily **Microgastrinae** Förster, 1863Genus *Apanteles* Förster, 1863*Apanteles elpis* Nixon, 1973

Material examined: 1♂, East Azarbaijan province, Maragheh, 37°23'N 46°24'E, 14.vii.1999. New record for Iran.

General distribution: Austria, Azerbaijan, Bulgaria, former Czechoslovakia, Finland, Germany, Hungary, Korea, Mongolia, Poland, Slovakia, United Kingdom.

Apanteles litae Nixon, 1972

Material examined: 2♀♀, 1♂, West Azarbaijan province, Mahabad, 36°46'N 45°44'E, ex *Plutella xylostella* (Linnaeus, 1758) (Lepidoptera: Plutellidae), 16.viii.2013.

General distribution: Cape Verde Islands, Cyprus, Egypt, Germany, Ghana, Greece, Hungary, Israel, Italy, Jordan, Spain, Switzerland, Turkey, former Yugoslavia.

Apanteles urgo Nixon, 1965

Material examined: 1♀, 2♂♂, East Azarbaijan province, Heris, 38°14'N 46°50'E, 11.vii.2014. New record for Iran.

General distribution: Azerbaijan, former Czechoslovakia, Greece, Hungary, Mongolia, Turkey.

Genus *Microgaster* Latreille, 1804*Microgaster curvicrus* Thomson, 1895

Material examined: 1♂, Golestan province, Gonbad, 37°24'N 55°16'E, 3.vi.2001.

General distribution: Austria, Azerbaijan, Bulgaria, Croatia, Finland, Germany, Hungary, Moldova, Mongolia, Poland, Romania, Russia, Serbia, Sweden, Switzerland, Turkmenistan, United Kingdom, former Yugoslavia.

Genus *Microplitis* Förster, 1863*Microplitis fordi* Nixon, 1970

Material examined: 1♀, 1♂, East Azarbaijan province, Damirchi, 38°12'N 47°37'E, 9.vi.2015.

General distribution: Austria, Bulgaria, Germany, Greece, Hungary, Israel, Italy, Jordan, Mongolia, Switzerland, Tunisia, Turkey, United Kingdom.

Microplitis sofron Nixon, 1970

Material examined: 1♂, Qazvin province, Takestan, 36°00'N 49°33'E, 26.vii.2006. New record for Iran.

General distribution: Azerbaijan, Bulgaria, Denmark, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Italy, Kazakhstan, Netherlands, Norway, Russia, Spain, Sweden, Switzerland, Turkey, United Kingdom.

Genus *Protopanteles* Ashmead, 1898*Protopanteles aliphera* (Nixon, 1973)

Material examined: 2♀, Guilan province, Astara, 38°20'N 48°46'E, 7.vii.2014. New record for Iran.

General distribution: Armenia, Azerbaijan, former Czechoslovakia, Finland, France, Georgia, Germany, Greece, Hungary, Israel, Netherlands, Poland, Romania, Russia, Slovakia, Sweden, Switzerland, United Kingdom.

Subfamily *Neoneurinae* Bengtsson, 1918Genus *Elasmosoma* Ruthe, 1858*Elasmosoma berolinense* (Ruthe, 1858)

Material examined: 1♂, Khuzestan province, Shoosh, 32°19'N 48°24'E, 3.v.2014.

General distribution: Albania, Austria, Bulgaria, Canada, China, Croatia, former Czechoslovakia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iran, Italy, Japan, Kazakhstan, Luxemburg, Macedonia, Moldova, Mongolia, Netherlands, Poland, Russia, Slovakia, Slovenia, Spain, Sweden, Tajikistan, Turkey, United States of America, United Kingdom, former Yugoslavia.

Acknowledgements

The authors are grateful to C. van Achterberg (the Netherlands) and J. Papp (Hungary) for identification of some materials. This research was supported by Islamic Azad University (Young Researchers and Elite Club, Science and Research Branch, Qaemshahr and Shahre Rey Branches).

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