

A STUDY OF THE IRANIAN ICHNEUMONIDAE (HYMENOPTERA) III. ICHNEUMONINAE

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Abstract

Faunistic data of 93 Ichneumoninae species from Iran are reported. Of them, 63 species are new records for Iranian fauna. Zoogeographical consideration about all listed species is given. With this study, the number of the Ichneumoninae species occurring in Iran is increased to 139.

KEY WORDS: Ichneumoninae, Ichneumonidae, Hymenoptera, faunistics, zoogeography, Iran.

Introduction

The subfamily Ichneumoninae is the largest (after Cryptinae) in the Ichneumonidae family. They are endoparasitoids of Lepidoptera – the Phaeogenini tribe members are endoparasitoids of Microlepidoptera, other members of this subfamily are related to Macrolepidoptera. They lay eggs in the larvae (koinobionts) or pupae (idiobionts) of the host species. The emergence is always from the pupa. The males may be found on different flowers. The females search on foot for hosts in shrubs and leaf litter.

It is easy to recognize the members of the subfamily by the pentagonal areolet on the front wing, the straight M+Cu vein in the hind wing, the short sternaulus and ovipositor sheath and deep gastrocoeli.

Investigations into the Iranian fauna were made mainly by HEINRICH (1929, 1931, 1934, 1936, 1937, 1953, 1962, 1978), TOWNES *et al.* (1965) and RASNITSIN & SIITAN (1981). In the catalogue of KOLAROV & GHAHARI

(2005), 68 species and subspecies of Ichneumoninae were listed. The following species must be added to this list: *Amblyjoppa fuscipennis* (Wesmael, 1845), *A. proteus* (Christ, 1791), *Callajoppa cirrogaster* (Schrank, 1781), *C. exaltatoria* (Panzer, 1804), *Diphyus longigena* (Thomson, 1888), *D. palliatorius* (Gravenhorst, 1829), reported by KHANJANI (2006); *Colpognathus divisus* Thomson, 1891 and *C. postfurcalis* Constantineanu, 1959, reported by DILLER & SCHÖNITZER (2003).

In the previous papers (KOLAROV & GHAHARI, 2006, 2007), subfamilies Pimplinae, Tryphoninae, Brachycyrtinae and Cryptinae were listed. In the current paper 93 species of Ichneumoninae are recorded. Of them 63 species, marked by an asterisk (*), are newly recorded from Iran; the current number of Iranian Ichneumoninae species has increased to 139. The generic classification of Ichneumoninae follows YU & HORSTMANN (1997). The distribution data are taken mainly from YU *et al.* (2005).

Material and Methods

Material was collected by sweeping with hand net in several parts of Iran. Taxonomical identification of collected material was carried out in the University of Plovdiv, Bulgaria.

Results and Discussion

List of the species

Eurilabini Heinrich, 1934

* *Eurylabus torvus* Wesmael, 1845

Material examined: East Azarbayjan province, Arasbaran: September 2002, 1♂ and 1♀.

Distribution: Europe, Azerbaijan and Kazakhstan.

* *Eurylabus tristis* (Gravenhorst, 1829)

Material examined: East Azarbayjan province, Tabriz, September, 1999, 1♂ and 2♀♀ (det. Aliev).

Distribution: Europe, Azerbaijan and Kazakhstan.

Heresiarchini Ashmead, 1900

* *Coelichneumon (Coelichneumon) afghanicus* Heinrich, 1957

Material examined: Mazandaran province, Savadkooh, July, 1999, 2♀♀ (det. Finlayson).

Distribution: Afghanistan.

* *Coelichneumon (Coelichneumon) biannulatus* (Gravenhorst, 1820)

Material examined: Ardabil province, Moghan, September, 2001, 1♀ (det. Aliev).

Distribution: United Kingdom, Norway, Finland, Netherlands, Germany, Poland, Bulgaria, Belarus, Ukraine, Azerbaijan and Turkey.

* *Coelichneumon (Coelichneumon) biguttulatus* (Kriechbaumer, 1875)

Material examined: Mazandaran province, Amol, Joibar, Nooshahr, August, 2001, 2♀♀; Guilan province, Chabokasar, November, 2002, 3 ♀♀.

Distribution: United Kingdom, Belgium, France, Germany, Czechoslovakia, Romania, former Yugoslavia and Azerbaijan.

Coelichneumon (Coelichneumon) comitator (Linnaeus, 1758)

Material examined: Golestan province, Gorgan (cotton field), August 2003, 2♀♀.

Distribution: Europe, Azerbaijan, Turkey, Israel, Iran, Afghanistan, Japan, Far East and Sakhalin district of Russia.

* *Coelichneumon (Coelichneumon) desinatorius* (Thunberg, 1824)

Material examined: Guilan province, Rasht, Fooman, July 2001, 1♂ and 1♀; Gazvin province, Alamoot, July 2001, 1♂ and 2♀♀; Golestan province: Gonbad (cotton field), 2♀ (det. J. Sedivy), Kordkoy, 1♂1♀; July 1999 [reared from *Acronicta euphorbiae* Den. et Schiff. (Lepidoptera: Noctuidae)].

Distribution: Europe and Azerbaijan.

* *Coelichneumon (Coelichneumon) dorsosignatus* (Berthoumieu & Eversmann, 1894)

Material examined: Mazandaran province, Ramsar, Chalus, September 2001, 2♀♀.

Distribution: Algeria, Spain, Germany, Austria; Poland, Romania, Russia (Rostov Oblast), Azerbaijan, Turkey and Kazakhstan.

* *Coelichneumon (Coelichneumon) falsificus* (Wesmael, 1845)

Material examined: Khuzestan province, Ahwaz, December, 1998, 1♂ and 1♀ (det. T. Finlayson), pupal parasitoid of *Acronicta rumicus* L. (Lepidoptera: Noctuidae).

Distribution: Europe, Azerbaijan, Kazakhstan and Japan.

* *Coelichneumon (Coelichneumon) leucocerus* (Gravenhorst, 1820)

Material examined: Hamedan province, Hamedan, June 2000, 2♀♀; Malayer, June 2000, 1♀; Zanjan province, Zanjan, August 2001, 1♀.

Distribution: Europe, Azerbaijan, Turkey and Kamchatka oblast of Russia.

Coelichneumon (Coelichneumon) nigerrimus (Stephens, 1835)

Material examined: West Azarbayjan province, Piranshahr, September 1999, 1♂.

Distribution: Europe, Azerbaijan and Iran.

* *Coelichneumon (Coelichneumon) orbitator* (Thunberg, 1824)

Material examined: Isfahan province, Najaf-Abad, June 1999, 1♀ (det. M.C. Townes); Chaharmahal-Bakhtiari

province, Shahrekord, June 1998, 1♂ and 1♀; Markazi province, Arak, August 2000, 1♂ and 1♀, reared from the larvae of *Energia ypsilon* Den. & Schiff. (Lepidoptera: Noctuidae).

Distribution: Europe, Azerbaijan, Turkey, Israel and Pakistan.

* *Coelichneumon (Coelichneumon) singularis* (Berthoumieu, 1892)

Material examined: Sistan-Baluchestan province, Zabol, November, 2002, 1♀.

Distribution: Algeria, Spain, Ukraine, Russia-Kirov and Voronezhskaya Oblast, Azerbaijan, Turkmenistan, Kazakhstan, Mongolia and China.

Lymantrichneumon dispar (Poda, 1761)

Material examined: Mazandaran province, Savadkooh, June, 1999, 1♂ and 1♀ (det. Aliev).

Distribution: Europe, Azerbaijan, Georgia, Turkey, Iran, China, Korea, Far East of Russia and Japan.

* *Syspasis scutellator* (Gravenhorst, 1829)

Material examined: Mazandaran province, Savadkooh, July 1998, 1♂ and 1♀; Ghaemshahr, Behshahr, Ramsar, July 1998, 3 ♀♀; West Azarbayjan province, Piranshahr, September 2000, 1♂ and 1♀.

Distribution: Algeria, Tunisia, Europe and Azerbaijan.

Ichneumonini Latreille, 1802

Amblyteles armatorius (Forster, 1771)

Material examined: Isfahan province, Isfahan, June 1998, 1 ♀; Najaf-Abad, June 1998, 1♀; Yazd province, Maibod, December 1999, 1 ♀.

Distribution: Madeira and Canary Islands, Morocco, Tunisia, Algeria, Europe, Azerbaijan, Georgia, Turkey, Cyprus, Iran, Siberia – Irkutsk Oblast, China, Sakhalin and Japan.

* *Barichneumon albicaudatus* (Fonscolombe, 1847)

Material examined: West Azarbayjan province, Maco, September, 2001, 1♀.

Distribution: Europe, Azerbaijan, Turkey, Kazakhstan and Kamchatka oblast of Russia.

* *Barichneumon bilunulatus* (Gravenhorst, 1829)

Material examined: Khorasan province, Serakhs, November 1998, 1 ♀.

Distribution: Morocco, Tunisia, Algeria, Europe, Azerbaijan, Georgia, Turkey and Kazakhstan.

* *Barichneumon peregrinator* (Linnaeus, 1758)

Material examined: Kermanshah province, Kermanshah, Sept. 1999, 1 ♀; Ilam province, Ilam, August 2000, 1 ♀.

Distribution: Iceland, Tunisia, Europe and Azerbaijan.

* *Barichneumon quadriguttatus* (Gravenhorst, 1829)

Material examined: Kordestan province, Sanandaj, July 2001, 2♀♀.

Distribution: Europe and Azerbaijan.

* *Cratichneumon albiscuta* (Thomson, 1893)

Material examined: Mazandaran province, Behshahr, Galoogah, December 2001, 2♀♀.

Distribution: Europe, Azerbaijan, and Russia – Novosibirsk Oblast and Far East.

Cratichneumon coruscator (Linnaeus, 1758)

Material examined: Mazandaran province, Sari (citrus garden), November 2001, 1♀.

Distribution: Europe, Azerbaijan, Turkey and Iran.

* *Cratichneumon culex* (Müller, 1776)

Material examined: Golestan province, National Park, August 2001, 1♂ and 1♀; Golestan, Gonbad, November 2000, 1♂ and 1♀; West Azarbayjan province, Piranshahr, June 2002, 1♂; Guilan province, Fooman, Khomam, July 1997, 1♂ and 1♀, reared from *Bupalus piniarius* L. (Lepidoptera: Geometridae); Semnan province, Damghan, September 1999, 1♂ and 2♀♀; Khorasan province, Bojnord, Aug. 2000, 1♀; Isfahan province, Isfahan, May 2001, 1♀; Mazandaran province, Ghaemshahr, June 1998, 3♀♀, reared from *Notodonta dromedaria* L. (Lepidoptera: Notodontidae).

Distribution: Europe, Azerbaijan, Georgia, Turkey and Siberia.

* *Cratichneumon rufifrons* (Gravenhorst, 1829)

Material examined: Khorasan province, Mashhad, July 2002, 1♀.

Distribution: Iceland, Europe, Azerbaijan, Far East of Russia and Japan.

* *Cratichneumon semirufus* (Gravenhorst, 1820)

Material examined: Kerman province, Kerman, November 2001, 1♀.

Distribution: Europe, Azerbaijan and Mongolia.

Ctenichneumon castigator (Fabricius, 1793)

Material examined: Mazandaran province, Savadkooh, June 2001, 2♀♀; Behshahr, June 2001, 1♀; Chalus, June 2001, 1♀; Nooshahr, June 2001, 2♀♀.

Distribution: Tunisia, Algeria, Europe, Azerbaijan, Armenia, Kazakhstan, Siberia and Chile.

* *Ctenichneumon divisorius* (Gravenhorst, 1820)

Material examined: Guilan province, Astara, September 1998, 1♀.

Distribution: Morocco, Algeria, Europe, Azerbaijan, Mongolia, China, Korea, Japan and Sakhalin.

Ctenichneumon panzeri (Wesmael, 1845)

Material examined: Sistan-Baluchestan province, Zahedan, September 2002, 1♂ and 1♀.

Distribution: Palearctic region, India and Indonesia – Sulawesi.

Ctenichneumon repentinus (Gravenhorst, 1820)

Material examined: West Azarbayjan province, Ourmieh, July 2001, 1♀; East Azarbayjan province, Arasbaran, June 2002, 1♂ and 1♀.

Distribution: Europe and Azerbaijan.

* *Diphyus luctatorius* (Linnaeus, 1758)

Material examined: Khorasan province, Serakhs, September 2001, 1♀.

Distribution: Algeria, Iceland, Europe, Azerbaijan, Turkey, Siberia, Korea, Japan and Sakhalin.

* *Diphyus ochromelas* (Gmelin, 1790)

Material examined: Ardabil province, Ardabil, June, 2002, 1♀ (det. Aliev).

Distribution: Europe, Azerbaijan, Turkey, Kazakhstan and Siberia.

Diphyus palliatorius (Gravenhorst, 1829)

Material examined: Mazandaran province Sari, Amol (rice field), June 2001, 1♂ and 2♀♀.

Distribution: Europe, Azerbaijan, Turkey, Armenia, Kazakhstan, Mongolia, China and Far East of Russia.

Diphyus quadripunctorius (Müller, 1776)

Material examined: Semnan province, Damghan, Shahmirzad, August 2001, 2♀♀; Mazandaran province, Chalus, June, 2003, 1♀.

Distribution: Morocco, Tunisia, Algeria, Iceland, Europe, Azerbaijan, Georgia, Turkey, Cyprus and Pakistan.

* *Diphyus raptorius* (Linnaeus, 1758)

Material examined: Guilan province, Lahijan, November 2001, 1♀.

Distribution: Europe, Azerbaijan, Turkey, Siberia and Japan.

Diphyus septemguttatus (Gravenhorst, 1828)

Material examined: Golestan province, Kordkoy, August 1998, 1♂ and 1♀; Mazandaran province, Sari, Ramsar, September 2000, 1♀; Guilan province, Lahijan, Rasht, November 2001, 1♂ and 1♀.

Distribution: Europe, Azerbaijan, Iran and Kazakhstan.

Eutanyacra glaucatoria (Fabricius, 1793)

Material examined: Khorasan province, Mashhad, June 2001, 2♀♀.

Distribution: Morocco, Tunisia, Algeria, Europe, Israel, Iran, Kazakhstan and Far East of Russia.

Eutanyacra picta (Schrank, 1776)

Material examined: Isfahan province, Najaf-Abad, August 1998, 1♀; Fars province, Shiraz, June 1999, 1♀; Kerman province, Kerman, July 2001, 1♀.

Distribution: Europe, Azerbaijan, Iran, Kazakhstan, Afghanistan, Mongolia, China, Korea and Japan.

Exephanes occupator (Gravenhorst, 1829)

Material examined: East Azarbayjan province, Arasbaran, September 2002, 1♀.

Distribution: Europe, Azerbaijan, Iran and Kazakhstan.

* *Hoplismenus bispinatorius* (Thunberg, 1824)

Material examined: Mazandaran province, Ramsar, July 1998, 1♀; Guilan province, Amlash, April 2000, 1♀; Zanzan province, Zanzan, November 2001, 2♀♀.

Distribution: Europe and Azerbaijan.

* *Ichneumon balteatus* Wesmael, 1845

Material examined: Fars province, Abadeh, Kazeroon, July 1997, 2♀♀; Bushehr province, Bushehr, May 1999, 1♀.

Distribution: Europe, Azerbaijan, Turkey and Kazakhstan.

* *Ichneumon bucculentus* Wesmael, 1845

Material examined: Golestan province, Gorgan, Bandar-Torkman, September 1997, 1♀; Mazandaran province, Sari, Ramsar, June 1999, 1♂ and 1♀; Semnan province, Shahmirzad, August 2000, 1♂ and 1♀; Tehran province, Shahreyar, November 2001, 1♀.

Distribution: Greenland, Europe, Azerbaijan, Turkey and Kazakhstan.

* *Ichneumon caedator* Gravenhorst, 1829

Material examined: Khorasan province, Bojnord, August, 1999, 1♀ (det. Aliev).

Distribution: Europe, Azerbaijan, Georgia, Kazakhstan and Mongolia.

* *Ichneumon caloscelis* Wesmael, 1845

Material examined: Guilan province, Rasht, Fooman, December 2000, 2♂♂ and 1♀.

Distribution: Europe and Azerbaijan.

Ichneumon cessator Müller, 1776

Material examined: Mazandaran province, Savadkooh, Galoogah, Chalus, April 1998, 1♂ and 1♀; Golestan province, Maraveh-Tappeh, Kordkoy, July 2001, 2♂♂ and 1♀.

Distribution: Europe, Azerbaijan, Iran, Kazakhstan and Siberia.

* *Ichneumon gracilentus* Wesmael, 1845

Material examined: Kordesatn province, Sanandaj, September 2000, 1♂.

Distribution: Europe, Turkey and Siberia.

Ichneumon crassigena Kriechbaumer, 1890

Material examined: Khuzestan province, Ahwaz, December 2002, 2♀♀.

Distribution: Europe, Azerbaijan, Turkey, Iran and Kazakhstan.

* *Ichneumon insidiosus* Wesmael, 1845

Material examined: Kermanshah province, Kermanshah, July 2000, 1♀; Khuzestan province, Andimeshk, May 2001, 1♀.

Distribution: Europe, Azerbaijan, Siberia, China and Kamchatka Oblast of Russia.

* *Ichneumon ligatorius* Thunberg, 1824

Material examined: Khorasan province, Kashmar, Taibad, December 1999, 2♀♀.

Distribution: Iceland, Europe, Azerbaijan, Turkey, Siberia and Kamchatka Oblast of Russia.

* *Ichneumon melanosomus* Wesmael, 1855

Material examined: West Azarbayjan province, Ourmieh, August 2001, 1♀.

Distribution: Europe, Azerbaijan, Siberia and Far East of Russia.

* *Ichneumon minorius* Desvignes, 1856

Material examined: Khorasan province, Neyshaboor, November 2001, 1♀.

Distribution: Europe, Azerbaijan and Turkey.

Ichneumon molitorius Linnaeus, 1761

Material examined: Hamedan province, Hamedan, June 2001, 2♀♀; Ilam province, Ilam, September 2001, 1♀.

Distribution: Europe, Azerbaijan, Iran, Japan and Sakhalin.

Ichneumon proletarius Wesmael, 1848

Material examined: Sistan-Baluchestan province, Zabol, November 2001, 1♀.

Distribution: Algeria, Europe, Azerbaijan, Georgia, Turkey and Iran.

Ichneumon sarcitorius Linnaeus, 1758

Material examined: Semnan province, Shahrood, Garmsar, July 2000, 2♀♀.

Distribution: Palearctic region.

* *Ichneumon tuberculipes* Wesmael, 1848

Material examined: Isfahan province, Isfahan, August 1998, 2♀♀; Fars province, Kazeroon, June 1999, 1♀; Chaharmahal-Bakhtiari province, Shahrekord, September 2000, 1♀; Khuzestan province, Dezfool, April 2001, 1♀.

Distribution: Canary Islands, Europe and Azerbaijan.

Ichneumon vafer Tischbein, 1876

Material examined: Tehran province, Damavand, Karaj, September 1998, 2♀♀; Mazandaran province, Firoozkoh, Savadkooh, November 2000, 1♂ and 1♀; Golestan province, National Park, August 2001, 1♂ and 1♀.

Distribution: Europe and Azerbaijan.

Ichneumon xanthorius Forster, 1771

Material examined: Ilam province, Ilam, June 2001, 2♀♀.

Distribution: Morocco, Tunisia, Algeria, Madeira Islands, Europe, Azerbaijan, Turkey, Israel, Iran and Kazakhstan.

* *Melanichneumon glaucatoriops* Heinrich, 1972

Material examined: Khorasan province, Mashhad (grape garden), June 2001, 1♀.

Distribution: Austria, Italy and Azerbaijan.

* *Platylabops cornicula* (Wesmael, 1855)

Material examined: Semnan province, Damghan, Shahrood, June 2001, 2♀♀.

Distribution: Europe and Azerbaijan.

* *Probolus concinnus* Wesmael, 1853

Material examined: East Azarbaijan province, Tabriz, June 1999, 1♂.

Distribution: Europe, Azerbaijan and Siberia.

* *Spilichneumon occisorius* (Fabricius, 1793)

Material examined: Khorasan province, Birjand, December 2001, 1♂.

Distribution: Europe, Azerbaijan and Turkey.

* *Spilothyrates illuminatorius* (Gravenhorst, 1820)

Material examined: Mazandaran province, Babol, June 2001, 1♀.

Distribution: Algeria, Europe, Azerbaijan and Turkey.

Spilothyrates punctus (Gravenhorst, 1829)

Material examined: Golestan province, Bandar-Torkman, November 2000, 2♂♂.

Distribution: Morocco, Europe, Azerbaijan, Iran, Kazakhstan, Afghanistan and Siberia.

Stenichneumon culpator (Schrank, 1802)

Material examined: Sistan-Baluchestan province, Zabol, April 2001, 1♀.

Distribution: Holarctic region.

* *Stenobarichneumon basiglyptus* (Kriechbaumer, 1890)

Material examined: Mazandaran province, Sari (Citrus garden), November 1998, 1♀; Golestan province, National Park, July 2002, 2♀♀; Yazd province, Abarchoo, Nay, 2005, 1♂; Kuzestan province, Andimeshik, April, 2004, 1♂.

Distribution: Europe, Azerbaijan, Turkey, Mongolia, Japan, Sakhalin and Kamchatka Oblast of Russia.

* *Virgichneumon callicerus* (Gravenhorst, 1820)

Material examined: East Azarbayjan province, Maragheh, December, 1999, 1♀ (det. Aliev).

Distribution: Europe, Azerbaijan, Kazakhstan, Mongolia, China and Siberia.

* *Virgichneumon digrammus* (Gravenhorst, 1820)

Material examined: Khorasan province, Kashmar, Ghoochan, August 1999, 1♂ and 1♀; Golestan province, National Park, June 2001, 1♂ and 1♀.

Distribution: Europe, Azerbaijan and Kazakhstan.

* *Virgichneumon maculicauda* (Perkins, 1953)

Material examined: Mazandaran province, Savadkooh, Veresk, September 1998, 1♀; Tehran province, Damavand, June 2000, 1♂ and 1♀; Semnan, Damghan, November, 2001, 1♀.

Distribution: Europe and Azerbaijan.

Vulgichneumon bimaculatus (Schrank, 1776)

Material examined: Golestan province, National Park, November 1999, 1♀; Mazandaran province, Ramsar, August 2002, 1♂ and 1♀.

Distribution: Europe, Azerbaijan, Israel, Uzbekistan and Iran.

Vulgichneumon suavis (Gravenhorst, 1820)

Material examined: Ardabil province, Meshkinshahr, July, 2003, 1♂ (det. Aliev).

Distribution: Europe, Azerbaijan, Israel and Iran.

Listrodromini Förster, 1869

Anisobas cingulatellus Horstmann, 1997

Material examined: Semnan province, Shahrood, August 2000, 1♀.

Distribution: Europe, Azerbaijan, Turkey, Iran and Kazakhstan.

Platylabini Berthoumieu, 1904

* *Cyclolabus nigricollis* (Wesmael, 1845)

Material examined: Ardabil province, Moghan, Gergy, June 2002, 1♂ and 1♀, reared from *Lucita*

pentadaetyla L. (Lepidoptera: Pterophoridae).

Distribution: Europe and Azerbaijan.

* *Cyclolabus pactor* (Wesmael, 1845)

Material examined: Mazandaran province, Shahsavar, November 2000, 1♀.

Distribution: Europe and Azerbaijan.

* *Ectopius rubellus* (Gmelin, 1790)

Material examined: Mazandaran province, Ghaemshahr, Nooshahr, September, 2000, 3♀♀.

Distribution: Europe and Azerbaijan.

* *Hypomecus quadriannulatus* (Gravenhorst, 1829)

Material examined: Khuzestan province, Ahwaz, October 2001, 1♀.

Distribution: Holarctic region and India.

* *Platylabus rufus* Wesmael, 1845

Material examined: Mazandaran province, Amol (Rice field), September 2001, 3♀♀.

Distribution: Europe, Azerbaijan and Japan.

* *Platylabus tricingulatus* (Gravenhorst, 1820)

Material examined: Golestan province, Gorgan (cotton field), July 2000, 1♂ and 1♀; Semnan province, Shahmirzad (walnut garden), August 2002, 1♂ and 1♀.

Distribution: Morocco, Algeria, Europe, Azerbaijan and Turkey.

Phaeogenini, Förster, 1869

* *Centeterus confector* (Gravenhorst, 1829)

Material examined: Ardabil province, Moghan, July, 2002, 1♂ (det. Aliev).

Distribution: Europe, Azerbaijan, Siberia and China.

* *Centeterus major* Wesmael, 1845

Material examined: West Azarbayjan province, Maco, September 1999, 1♀.

Distribution: Europe, Azerbaijan and Turkey.

* *Centeterus rubiginosus* (Gmelin, 1790)

Material examined: East Azarbayjan province, Arasbaran, June 2001, 1♀.

Distribution: Europe, Azerbaijan, Western Siberia and Kazakhstan.

Colpognathus celerator (Gravenhorst, 1807)

Material examined: Mazandaran, Savadkooh, Ramsar, November 2000, 2♀♀.

Distribution: Palearctic region.

* *Diadromus collaris* (Gravenhorst, 1829)

Material examined: Golestan province, Bandar-Torkman, September, 1999, 1♀ (det. Kasparyan).

Distribution: Holarctic, India, South Africa and Mexico, introduced in South Asia, Australia and New Zealand.

* *Diadromus subtilicornis* (Gravenhorst, 1829)

Material examined: Kermanshah province, Paveh, June 1999, 1♀.

Distribution: Holarctic region.

* *Diadromus ustalatus* Holmgren, 1890

Material examined: East Azarbaijan province, Maragheh, September 2000, 1♀.

Distribution: Europe, Azerbaijan and Georgia.

* *Diadromus varicolor* Wesmael, 1845

Material examined: West Azarbaijan province, Maco, September 2001, 1♀.

Distribution: Europe and Azerbaijan.

* *Dirophanes invisor* (Thunberg, 1824)

Material examined: Gilan province, Astara, November, 1997, 2♀♀ (det. Aliev).

Distribution: Algeria, Europe, Azerbaijan, Turkey and Western Siberia.

* *Hemichneumon subdolos* Wesmael, 1857

Material examined: Semnan province, Shahrood, Shamirzad, April 2001, 2♂♂ and 1♀.

Distribution: Europe and Azerbaijan.

* *Herpestomus arridens* (Gravenhorst, 1829)

Material examined: West Azarbaijan province, Salmas, July 2001, 1♀.

Distribution: Algeria, Europe, Georgia, Azerbaijan and Israel.

Herpestomus brunnicornis (Gravenhorst, 1829)

Material examined: East Azarbaijan province, Arasbaran, September 2002, 2♀♀.

Distribution: Europe, Azerbaijan, Turkey, Iran, Western Siberia, Far East of Russia, China, Korea and Japan.

* *Heterischnus nigricollis* (Wesmael, 1845)

Material examined: Kermanshah province, Ravansar, May 2002, 2♂♂.

Distribution: Madeira Islands, Europe, Azerbaijan and Siberia.

* *Heterischnus truncator* (Fabricius, 1798)

Material examined: Mazandaran province, Savadkooh, Veresk, Firoozkooh, Sept. 1999, 1♂ and 1♀; Golestan province Gonbad, Minoodasht, Aug. 2000, 1♂ and 2♀♀; Semnan province, Shahmirzad, Sept. 2001, 1♂ and 1♀.

Distribution: Canary Islands, Europe, Azerbaijan and Turkey.

* *Phaeogenes heterogonus* Holmgren, 1860

Material examined: Chaharmahal-Bakhtiari province, Shahrekord, August, 1998, 1♂ and 1♀; Isfahan province, Shahreza, June 1999, 2♂♂ and 1♀; Markazi province, Saveh, September, 2001, 1♂ and 1♀.

Distribution: Europe and Azerbaijan.

* *Phaeogenes melanogonos* (Gmelin, 1790)

Material examined: Ardabil province, Ardabil, June 2001, 1♀.

Distribution: Europe, Georgia, Azerbaijan, Siberia and Japan.

* *Tycherus ophtalmicus* (Wesmael, 1845)

Material examined: Mazandaran province, Behshahr, Joibar, Babol, November 2002, 3♂♂ and 1♀.

Distribution: Holarctic region.

Zoogeographic characterization

The zoogeographic characterization follows the chorotype classification of the Near East fauna, proposed by TAGLIANTI *et al.* (1999). After investigation of the recent geographical distribution of the species, treated above, they can be divided into the following groups:

1. Cosmopolitan species with ranges of distribution in almost all zoogeographical regions. Only *Diadromus collaris* belongs to this group.
2. Species with wide ranges of distribution, which include two or more zoogeographical regions (mainly Holarctic and Oriental). The following species belong here: *Ctenichneumon castigator*, *C. panzeri* and *Hypomecus quadriannulatus*.
3. Holarctic chorotypes – This zoogeographical group is represented by the species: *Ichneumon bucculentus*, *Stenichneumon culpator*, *Diadromus subtilicornis* and *Tycherus ophtalmicus*.
4. Palearctic chorotypes include: *Amblyteles armatorius*, *Ctenichneumon divisorius*, *Diphyus luctatorius*, *Eutaniacra glaucatoria*, *Ichneumon sarcitorius* and *Colpognathus celerator*.
5. Asiatic-European chorotypes are comprised of the following species: *Coelichneumon* (*Coelichneumon*) *comitator*, *C. (C) falsificus*, *C. (C) leucocerus*, *Lymantrichneumon disparis*, *Barichneumon albicaudatus*, *Cratichneumon albiscuta*, *C. ruffrons*, *Diphyus palliatorius*, *D. raptorius*, *Eutaniacra picta*, *Ichneumon insidiosus*, *I. ligatorius*, *I. melanosomus*, *I. molitorius*, *Stenobarichneumon basiglyptus*, *Platylabus rufus*, *Centeterus confector*, *Herpestomus brunnicornis* and *Phaeogenes melanogonos*.
6. Sibero-European chorotypes include the species: *Cratichneumon culex*, *Diphyus ochromelas*, *Ichneumon cessator*, *I. gracilentus*, *Probolus concinnus*, *Spilothyrateles punctus*, *Virgichneumon callicerus* and

Heterischnus nigricollis.

7. European chorotypes are the most numerous: *Eurylabus torvus*, *E. tristis*, *Coelichneumon* (*Coelichneumon*) *biannulatus*, *C. (C) biguttulatus*, *C. (C) desinatorius*, *C. (C) nigerrimus*, *C. (C) orbitator*, *Barichneumon peregrinator*, *B. quadriguttatus*, *Cratichneumon corruscator*, *Ctenichneumon repentinus*, *Diphyus septemguttatus*, *Exephanes occupator*, *Hoplismenus bispinatorius*, *Ichneumon balteatus*, *I. caloscelis*, *I. haemorrhoidicus crassigena*, *I. minorius*, *I. tuberculipes*, *I. vafer*, *Platylabus cornicula*, *Spilichneumon occisorius*, *Virgichneumon digrammus*, *V. maculicauda*, *Anisobas cingulatellus*, *Cyclolabus nigricollis*, *C. pactor*, *Ectopius rubellus*, *Centeterus major*, *C. rubiginosus*, *Diadromus ustulatus*, *D. varicolor*, *Dirophanes invisor*, *Hemichneumon subdolosus*, *Heterischnus truncator* and *Phaeogenes heterogonus*.

8. Turanian range includes only the sub endemic species *Coelichneumon* (*Coelichneumon*) *afghanicus*.

9. Turano-European chorotype – To this group belong only *Vulgichneumon bimaculatus* and *V. suavis*.

10. Turano-European-Mediterranean chorotypes include: *Coelichneumon* (*Coelichneumon*) *dorsosignatus*, *Syspasis scutellator*, *Barichneumon bilunulatus*, *Diphyus quadripunctorius*, *Ichneumon proletarius*, *Ichneumon xanthorius*, *Spilothyrates illuminatorius*, *Platylabus tricingulatus* and *Herpestomus aridens*.

11. Turano-Mediterranean range is represented by only one species - *Melanichneumon glaucatorius*.

12. Central Asiatic-European-Mediterranean chorotypes are represented by only *Coelichneumon* (*Coelichneumon*) *singularis*.

13. Central Asiatic-European chorotype includes *Cratichneumon semirufus* and *Ichneumon caedator*.

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References

- DILLER, E. & SCHÖNITZER, K., 2003. Revision einiger westpalaearktischer und nearktischer Arten der Gattung *Colpognathus* Wesm., (1845) (Hymenoptera, Ichneumonidae, Ichneumoninae, Alomyini). *Entomofauna*, 24(24): 333-342.
- HEINRICH, G.H., 1929. Beiträge zur Kenntnis der Insektenfauna Nordpersiens. Nach der Ausbeute der Elbrus-Expedition von G. Heinrich und Dr. M. Dammholz Anno 1927. Ichneumonidae (Hym.). *Deutsche Entomologische Zeitschrift*, 1929(4): 305-326.
- HEINRICH, G.H., 1931. Zur Systematik der Ichneumoninae Stenopneusticae IV. *Konowia*, 10:29-33
- HEINRICH, G.H., 1934. Zur Systematik der Ichneumoninae Stenopneusticae VI. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 19: 154-165.

- HEINRICH, G.H., 1936. Zur Systematik der Ichneumoninae Stenopneusticae (Hym.) VII. Deutsche Entomologische Zeitschrift, 1935: 191-200.
- HEINRICH, G.H., 1937. Zur Systematik der Ichneumoninae Stenopneusticae VIII (Hym.). Mitteilungen der Deutschen Entomologischen Gesellschaft, 8: 51-54.
- HEINRICH, G.H., 1953. Ichneumoniden der Steiermark (Hym.). Bonner Zoologische Beiträge, 4: 147-185.
- HEINRICH, G.H., 1962. Eine weitere Ichneumoninae von Afghanistan. Entomologische Zeitschrift, 72: 5-7.
- HEINRICH, G.H., 1978. Eastern Palearctic Hymenopterous insects of the subfamily Ichneumoninae. Nauka, Leningrad, 81 pp. [in Russian]
- KASPARYAN, D.R., 1981. Key of insects of European part of USSR, Vol. III, Part 3. Nauka, Leningrad, 688 pp. [in Russian].
- KHANJANI, M. 2006. Vegetable pests in Iran. Bu Ali Sina University, No. 205, 467 pp. [in Persian]
- KOLAROV, J. & GHAHARI, H., 2005. A Catalogue of Ichneumonidae (Hymenoptera) from Iran. Linzer biol. Beitr., 37(1): 503-532.
- KOLAROV, J. & GHAHARI, 2006. A Study of the Iranian Ichneumonidae (Hymenoptera) I. Pimplinae and Tryphoninae. Zoology in the Middle East, 37: 63-68.
- KOLAROV, J. & GHAHARI, 2007. A Study of the Iranian Ichneumonidae (Hymenoptera) II. Cryptinae. Zoology in the Middle East, 42: 79-82.
- TAGLIANTI, A.V., AUDISIO, P.A., BIONDI, M., BOLOGNA, M.A., CARPANETO, G.M., DE BIASE, A., FATTORINI, S., PIATTELLA, E., SINDACO, R., VRNCHI, A. & ZAPPAROLI, M., 1999. A proposal for a chorotype classification of the Near East fauna, in the framework of the Western Palearctic region. Biogeographia, 20: 31-59.
- TOWNES, H.K., MOMOI, S. & TOWNES, M., 1965. A catalogue and reclassification of the eastern Palearctic Ichneumonidae. Memoirs of the American Entomological Institute, No. 5, 661 pp.
- YU, D.S. & HORSTMANN, K., 1997. A catalogue of world Ichneumonidae (Hymenoptera). Memoirs of the American Entomological Institute. 58(1-2), 1558 pp.
- YU, D.S., VAN ACHTERBERG, K. & HORSTMANN, K., 2005. World Ichneumonoidea 2004 - Taxonomy, Biology, Morphology and Distribution. DVD/CD. Taxapad. Vancouver, Canada. <http://www.taxapad.com>.

ИСТРАЖИВАЊА ICHNEUMONIDAE (HYMENOPTERA) ИРАНА III. ICHNEUMONINAE

ЈАНКО КОЛАРОВ и ХАСАН ГАХАРИ

Извод

У овом раду су дати подаци о 93 врсте и подврсте подпородице Ichneumoninae са територије Ирана. Од овог броја, 63 врсте су нове у фауни Ирана и у тексту су обележене звездицом. Проширење листе врста Ichneumoninae Ирана је овом приликом такође представљено. На основу резултата ове студије, број врста из групе Ichneumoninae које су забележене на територији Ирана повећан је на 139. Дата је и зоогеографска класификација врста наведених у овом раду, на основу поделе коју су дали TAGLIANTI и сарадници. Врсте су подељене у следећих 13 група: космополитске (1 врста), мултирегионалне (3 врсте), холарктичке (4 врсте), палеарктичке (5 врста), евроазијске (19 врста), евросибирске (8 врста), европске (36 врста), туранске (1 врста), евротуранске (2 врсте); турано-евромедитеранске (9 врста); тураномедитеранске (1 врста); средњеазијско-евромедитеранске (1 врста) и средњеазијско-европске (2 врсте).

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