



# Entomofauna

ZEITSCHRIFT FÜR ENTOMOLOGIE

---

Band 38, Heft 21: 425-476

ISSN 0250-4413

Ansfelden, 2. Januar 2017

---

## Taxonomical and biogeographical evaluation of the subfamily Ichneumoninae (Hymenoptera: Ichneumonidae) in Turkey

Saliha ÇORUH

### Abstract

This study evaluated to faunistical, ecological, zoogeographical distribution and hosts data of specimens belonging to the subfamily Ichneumoninae (Hymenoptera: Ichneumonidae) collected from different provinces in Turkey between 1990 and 2015. As a result of the study, 10 tribus, 61 genera and 215 species were identified. Samples were collected last twenty five years or recorded in this time from seven different regions of Turkey. With present knowledge, among them, *Coelichneumon paraviolaceiventris* RIEDEL, *Coelichneumon rufigaster* RIEDEL, *Heterischnus schachi* DILLER, *Magwengiella flavescens* BACHMAIER & DILLER and *Ichneumon sexcinctoides* RIEDEL, ÇORUH & ÖZBEK are endemic for Turkey. For each species details of composition, biogeographical and zoogeographical data, altitudinal distribution, seasonal dynamics, individual diversity, available host data, plants visited by adults and the first record of the species from Turkey are summarised.

## Zusammenfassung

Vorliegende Arbeit behandelt die Ökologie Faunistik, Biogeografie und Wortsdaten zu Vertretern der Unterfamilie Ichneumonidae (Hymenoptera, Ichneumonidae), die aus Aufsammlungen in verschiedenen türkischen Provinzen in den Jahren 1990 bis 2015 stammen. Als Ergebnis konnten 10 Triben, 61 Gattungen und 215 Arten nachgewiesen werden. Aus heutiger Sicht sind die Arten *Coelichneumon paraviolaceiventris* RIEDEL, *Coelichneumon rufigaster* RIEDEL, *Heterischnus schachti* DILLER, *Magwengiella flavescens* BACHMAIER & DILLER und *Ichneumon sexcinctoides* RIEDEL, ÇORUH & ÖZBEK endemisch in der Türkei. Zu allen angeführten Arten werden unterschiedliche Angaben zu Biogeografie, Höhenverbreitung, Phänologie, Wortsdaten, Blütenbesuch bzw. zu Neunachweisen in der Türkei angeführt.

## Introduction

Parasitoid Hymenoptera can act as useful biodiversity indicators, as their abundance and richness may reflect the diversity of other arthropods (ANDERSON et al. 2011). Ichneumonidae is the biggest hymenopteran family including 1.579 genera and 24.281 described species (YU et al. 2012). However, it should be emphasized that every year many new species are added to this number.

Number of species Ichneumonidae in Turkey was recorded 1.056 in Taxapad (YU et al. 2012). As a result of many studies performed, we found several species so far unknown in Turkey. With the below mentioned contributions (ÇORUH & KOLAROV 2013, ÇORUH & ÖZBEK 2013, ÇORUH et al. 2013, ÇORUH et al. 2014a,b,c, KOLAROV et al. 2014a,b,c, ÖZDAN 2014, RIEDEL et al. 2014, YAMAN 2014, KOLAROV et al. 2015, YURTCAN & KOLAROV 2015, KOLAROV et al. 2016) the numbers of Ichneumonidae fauna of Turkey reached to about 1.172 species.

The subfamily Ichneumoninae is a worldwide subfamily of the parasitic wasp family Ichneumonidae. This is the second largest subfamily of Ichneumonidae with about 424 genera and 4300 species (YU et al. 2012). This group are koinobiont or idiobiont endoparasitoids of Lepidoptera. Ichneumonines are often large, conspicuous colourful insects. They have a 5-sided areolet, a dorso-ventrally flattened abdomen, a long sternaulus and the clypeus is truncate exposing the labium (RASNITSYN & SIITAN 1981)

Up to 1995 (KOLAROV 1995), only 65 ichneumonine species belonging to 27 genera have been documented (KOHL 1905, ROMAN 1910, FAHRINGER 1921-1922, SCHMIEDEKNECHT 1927, HEINRICH 1929, MEYER 1933, SCHIMITSCHEK 1944, SEDIVY 1959, IREN 1960, TOWNES et al. 1965, ONAT 1974, HEINRICH 1978, SOYDANBAY 1978, AUBERT 1981, KASPARIAN 1981, KHAN & ÖZER 1984, SAWONIEWICZ 1985, BACHMAIER & DILLER 1985, KOLAROV 1989, AVCI & ÖZBEK 1990, ÖNCÜER 1991, HILPERT 1992, AUBERT 1993, KOLAROV 1994). After 1995, with the below mentioned contributions (ÖZDEMİR 1996, YURTCAN et al. 1999, ÇORUH et al. 2002, ÖZBEK et al. 2003; ÇORUH et al. 2005, KOLAROV 2007, ÇORUH & ÖZBEK 2008, ÇORUH & KESDEK 2008, RIEDEL 2008, GÜRBÜZ

et al. 2008, RIEDEL et al. 2010, ÇORUH et al. 2011; EROĞLU et al. 2011, RIEDEL et al. 2011, ÇORUH & ÖZBEK 2013, KOLAROV et al. 2014a,b, ÖZDAN 2014) the numbers of Ichneumoninae fauna of Turkey reached to 215 species and 61 genera.

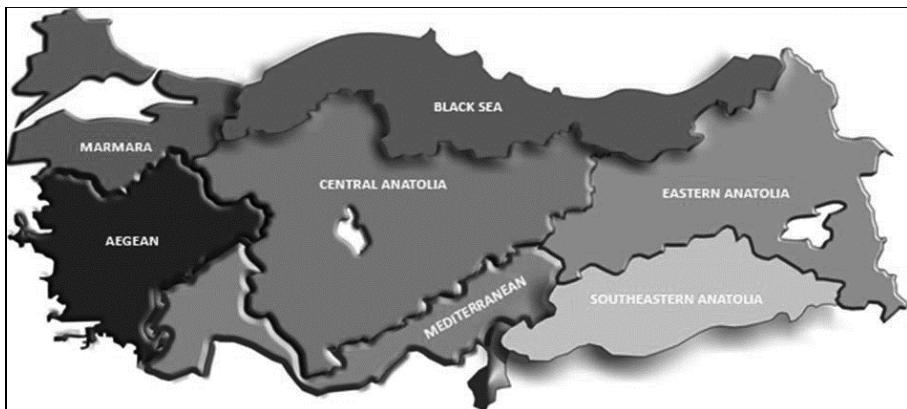
The aims of this study were as follows:

- i) To contribute seasonal dynamics, altitudinal positions, individual diversities,
- ii) To establish zoogeographical distributions,
- iii) To expand hosts and plants visited by adults of the Ichneumoninae species.

## Materials and Methods

Adult specimens of ichneumonines were collected from various habitats of Anatolia (Fig. 1) using sweeping nets, malaise and light traps. Also a small portion of ichneumonid samples were obtained as parasitoid from different hosts under laboratory conditions. In addition to all these, two species were taken under stones.

Data taxonomic categories are listed in the alphabetic order according the recent Interactive Catalogue of World Ichneumonidae (YU et al. 2012). The distributional records were also used from this catalogue. Whole data of faunistic composition, ecological properties and zoogeographical distributions, visited plants by adults some species and hosts insects of ichneumonine species are given with tables and graphs.



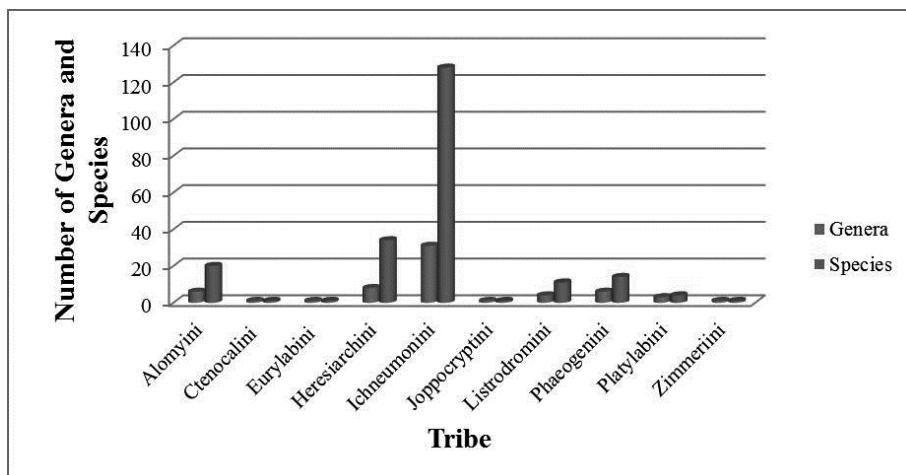
**Fig. 1:** The geographical regions of insects collected.

## Result and Discussion

Ichneumoninae species used in this study were collected from Turkey between 1990 and 2015. Results of over 25 years were evaluated by different situations:

### Faunistic evaluations:

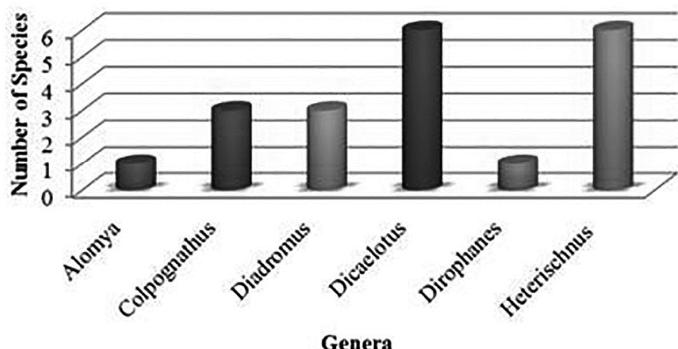
So far a total, ten tribus, 61 genera and 215 species were recognized in Turkey. Among them, six genera and 20 species belong to tribe Alomyini FÖRSTER; a genus and a species with a tribes Ctenocalini HEINRICH, Eurylabini HEINRICH, Joppocryptini VIREECK and Zimmeriini HEINRICH; eight genera and 34 species belong to tribe Heresiarchini ASHMEAD; 31 genera and 128 species tribe Ichneumonini LATREILLE; four genera and 11 species tribe Listrodromini FÖRSTER; six genera and 14 species tribe Phaeogenini FÖRSTER, three genera and four species tribe Platylabini BERTHOUMIEU were recorded. Compared to the number of species in all tribus, tribe Ichneumonini species were found to be more common with their presence Turkey (Fig. 2). Besides, *Herpestomus brunnicornis* (GRAVENHORST) (with 195 individuals), *Amblyjoppa fuscipennis* (WESMAEL) (107), *Coelichneumon leucocerus* (GRAVENHORST) (91), *Diphyus mercatorius* s.str. (FABRICIUS) (48) *Ichneumon proletarius* WESMAEL (39), *Diphyus pseudomercator* HEINRICH (36), *Triptognathus atripes* (GRAVENHORST) (35) were the most common found in research areas (Table 1).



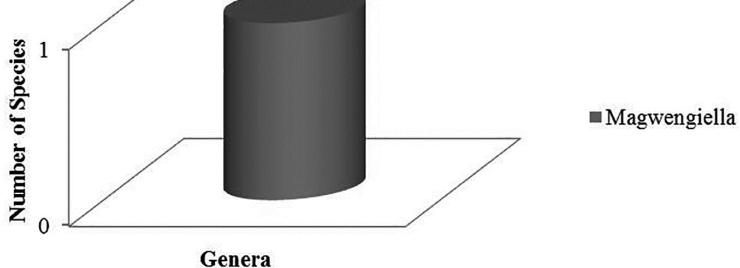
**Fig. 2:** Number of genera and species according to tribus.

As shown in Table 1, 85 species (with 1 individual) were rarely found in Turkey. Numbers of genera according to each tribus are shown in the graph (Fig. 3a-3i).

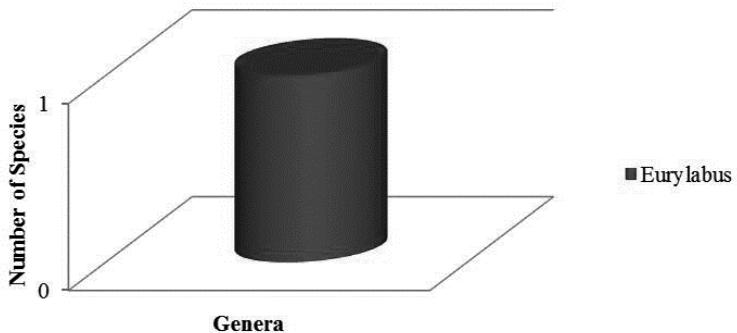
### ALOMYINI



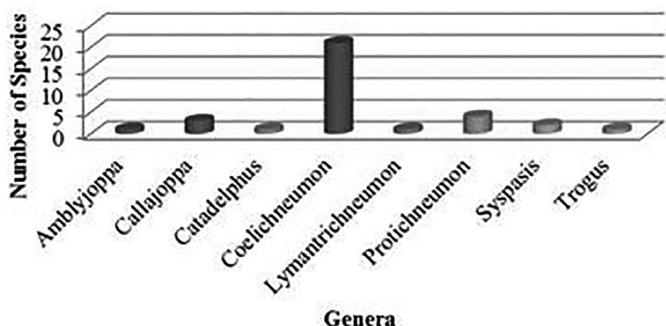
### CTENOCALINI



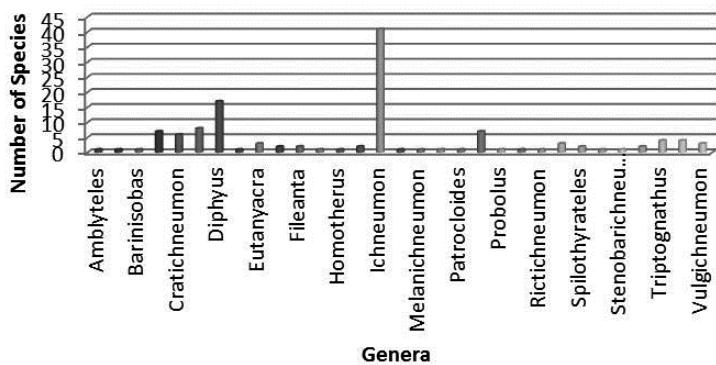
### EURLYLABINI



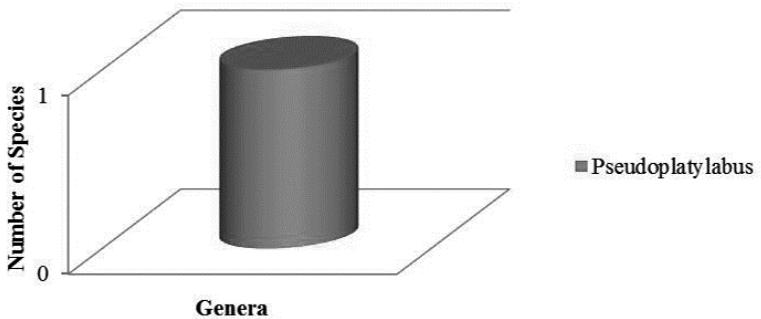
### HERESIARCHINI

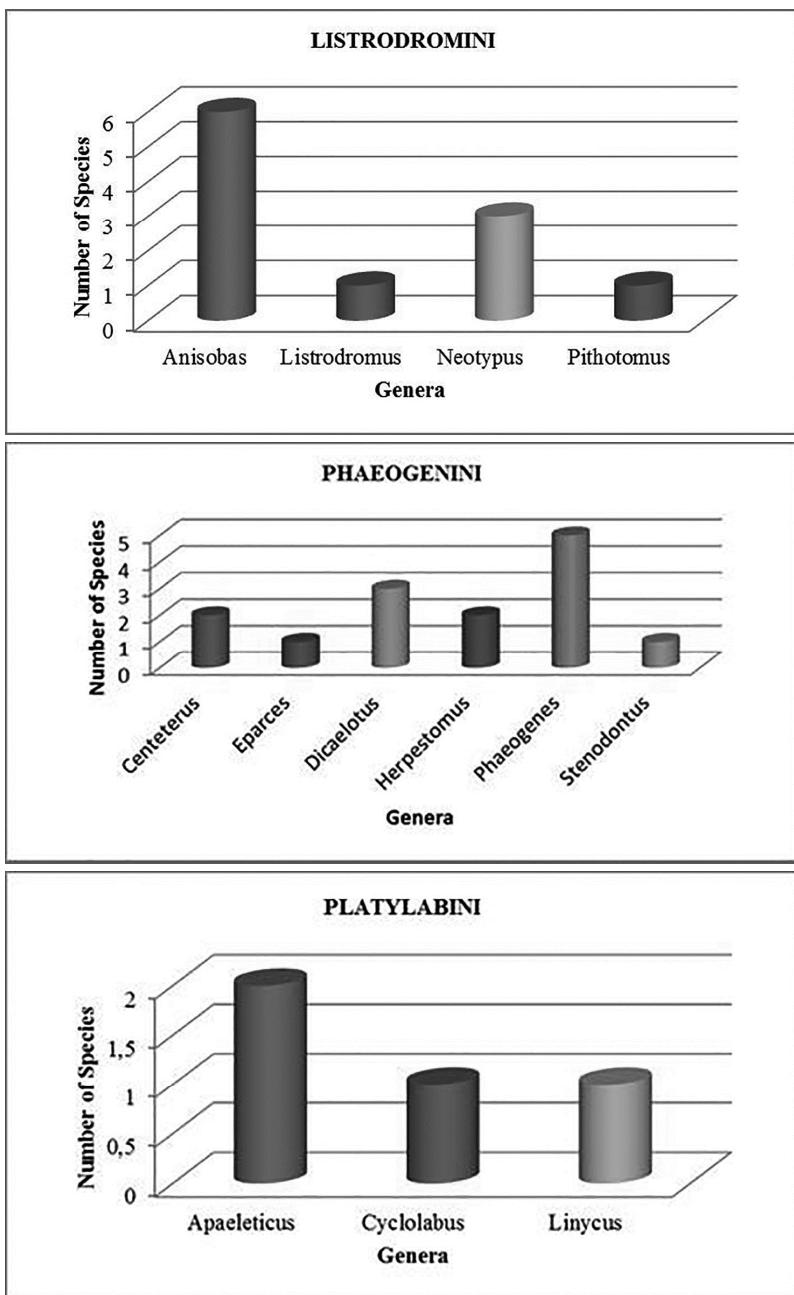


### ICHNEUMONINI



### JOPPOCRYPTINI





**Fig. 3a-3i:** Number of genera according to each tribe (Alomyini, Ctenocalini, Heresiarchini, Eurylabini, Ichneumonini, Joppocryptini, Listrodromini, Phaeogenini, Platylini, Zimmeriini).

It is noted that *H. brunnicornis* is the most abundant species with the number of individuals in Turkey. As recorded in the literature, this species has distribution in 46 different countries in Eastern palaearctic, Europe and Weastern palaearctic. As a result, we can say that it can be adapted vegetation and climatic properties of the world.

Most of ichneumonine were collected from flowering stage of plants. Besides, many species were caught by malasia and light traps. Also *Trogus lapidator* and *Diphyus montivagans* were taken from under stones (ÇORUH & KESDEK 2008). *T. lapidator* was collected on September 18th, 2005. This finding indicated that it overwinter as adult stage in the Erzurum.

#### Ecological evaluations

Ichneumonines were collected different altitudes from collected areas. These altitudes were ranged from 0 m to 2500 m. DAUBENMIRE (1943) and FRAHM & GRADSTEIN (1991) mentioned that altitudinal zonation which supports different vegetation and animal species describes the natural layering of ecosystems. We found that a total of 58 species were collected from between 0-500 m, three species 501-750 m, 25 species 751-1000 m, 32 species 1001-1250 m, 54 species 1251-1500 m, 44 species 1501-1750 m, 77 species 1751-2000 m, 69 species 2001-2500 m (Table 1). We also found that 109 species were collected from only one altitude. This indicates that most of them are represented by a single individual or they are collected same localities. Our results show that *Colpognathus armatus*, *Diphyus amatorius*, *D. pseudomercator*, *Ichneumon proletarius*, *Obtusodonta equitatoria* and *Virgichneumon callicerus* were collected from five; *Amblyjoppa fuscipennis* also was collected from six different altitudes. So we can say that more than 50% of all species were collected between 1751-2500 m altitudes (Fig. 4).

Considering seasonal dinamics of these species in Turkey, species collected between March-November months of the years in general. It seems that ichneumonine species are active during nine months of the year But June and July had denser other months according to ichneumonid population (Fig. 5).

**Table 1:** Data of collected species: Individual numbers (**IN**), vertical distribution (**VD**), seasonal dynamics (**SD**), geographical regions (**GR**), zoogeographical regions (**ZR**), host records (**HR**), plant visited records (**PVR**), first record of Turkey (**FRT**) of specimens.

| Names of Taxa   | IN | VD<br>(metre) | SD  | GR           | ZR                                  | HR | PVR | FRT                  |
|---|----|---------------|---|--------------|-------------------------------------|----|-----|----------------------|
| <b>TRIBE: ALOMYINI FÖRSTER, 1869</b>                              |    |               |   |              |                                     |    |     |                      |
| <i>Alomya PANZER 1806</i>   |    |               |   |              |                                     |    |     |                      |
| <i>Alomya debellator</i> (FABRICIUS, 1775)                        | 1  | A             | August  | MR           | E, WP                               | X  |     | FAHRINGER (1922)     |
| <i>Colpognathus WESMAEL, 1844</i>                                 |    |               |   |              |                                     |    |     |                      |
| <i>Colpognathus armatus</i> THOMSON, 1891                         | 7  | C, E, F, G, H | July  | CAR, EAR     | E, EP, WP                           |    |     | ÖZBEK et al. (2003)  |
| <i>Colpognathus celestor</i><br>(GRAVENHORST, 1807)               | 6  | A, E          | June, July                                      | BSR, MIR     | E, EP, WP                           |    |     | CORUH & ÖZBEK (2008) |
| <i>Colpognathus divisus</i> THOMSON, 1891                         | 15 | A, H          | June  | BSR, EAR     | E, EP, WP                           | X  |     | KOLAROV (2007)       |
| <i>Diadromus WESMAEL, 1844</i>                                    |    |               |   |              |                                     |    |     |                      |
| <i>Diadromus albinoiatus</i> (GRAVENHORST,<br>1829)               | 2  | E             | June,   | MtR          | E, WP                               |    |     | ÖZDAN (2004)         |
| <i>Diadromus collaris</i> (GRAVENHORST,<br>1829)                  | 23 | D, G          | November<br>June, July,<br>August,<br>September | AR, CAR, EAR | AFR,<br>AUR, E,<br>EP, NTR,<br>OCR, | X  |     | AVCI & ÖZBEK (1990)  |
| <i>Diadromus subtilicornis</i><br>(GRAVENHORST, 1829)             | 20 | D, G          | July,<br>September                              | CAR, EAR     | ORR, WP<br>E, EP,<br>NEAR,<br>WP    | X  |     | AVCI & ÖZBEK (1990)  |
| <i>Dicaelotus WESMAEL, 1844</i>                                   |    |               |   |              |                                     |    |     |                      |
| <i>Dicaelotus erythrogaster</i> (HOLMGREN,<br>1890)               | 1  | D             | September                                       | CAR          | E, WP                               | X  |     | ÖZDEMİR (1996)       |
| <i>Dicaelotus (Gnathichneumon) mandibulator</i><br>(AUBERT, 1958) | 1  | E             | June  | EAR          | E, WP                               |    |     | CORUH et al. (2011)  |
| <i>Dicaelotus montanus</i> (DE STEFANI, 1885)                     | 1  | C             | August  | EAR          | E, WP                               |    |     | KOLAROV (1989)       |

| Names of Taxa  | IN | VD<br>(metre) | SD                        | GR                   | ZR        | HR | PVR | FRT                       |
|--|----|---------------|---------------------------|----------------------|-----------|----|-----|---------------------------|
| <i>Dicaelotus morosator</i> AUBERT, 1969                 | 1  | A             | ?                         | MR                   | E, WP     | X  | X   | ONAT (1974)               |
| <i>Dicaelotus pumilus</i> (GRAVENHORST, 1829)            | 1  | E             | May                       | MfR                  | E, EP, WP |    |     | ÖZDAN 2014                |
| <i>Dicaelotus rufilimbatus</i> (GRAVENHORST, 1820)       | 2  | D             | March, July               | CAR                  | E, WP     | X  |     | KOLAROV (1989)            |
| <b><i>Dirophanes</i> FÖRSTER, 1868</b>                   |    |               |                           |                      |           |    |     |                           |
| <i>Dirophanes invisor</i> (THUNBERG, 1822)               | 3  | D,E           | June                      | CAR                  | E, EP, WP | X  |     | ÖZDEMİR (1996)            |
| <b><i>Heterischnus</i> WESMAEL, 1859</b>                 |    |               |                           |                      |           |    |     |                           |
| <i>Heterischnus anomalus</i> (WESMAEL, 1857)             | 3  | D,E,G         | May, July,<br>August      | BSR, EAR             | E, WP     |    |     | ÖZBEK et al. (2003)       |
| <i>Heterischnus excavatus</i> (CONSTANTINEANU, 1959)     | 5  | A,B           | June                      | BSR                  | E, WP     |    |     | KOLAROV et al. (2014b)    |
| <i>Heterischnus ridibundus</i> COSTA 1885                | 8  | A             | August                    | MR                   | E, WP     |    |     | YURTÇAN et al. (1999)     |
| * <i>Heterischnus schachti</i> DILLER, 1995              | 1  | F             | June                      | EAR                  | WP        | X  |     | KOLAROV et al. (2014b)    |
| <i>Heterischnus thoracicus</i> (GRAVENHORST, 1829)       | 7  | A,E,G         | August                    | EAR, MR              | E, WP     |    |     | YURTÇAN et al. (1999)     |
| <i>Heterischnus truncator</i> (FABRICIUS, 1798)          | 6  | A,H,E         | June, August,<br>November | BSR, EAR, MR,<br>MfR | E, EP, WP |    |     | KOLAROV (1989)            |
| <b>TRIBE: CTENOCALINI HEINRICH, 1938</b>                 |    |               |                           |                      |           |    |     |                           |
| <b><i>Magwengiella</i> BACHMAIER &amp; DILLER, 1985</b>  |    |               |                           |                      |           |    |     |                           |
| * <i>Magwengiella flavescens</i> BACHMAIER & DILLER 1985 | 1  | F             | August                    | SAR                  | WP        |    |     | BACHMAIER & DILLER (1985) |
| <b>TRIBE: EURYLABIINI HEINRICH, 1934</b>                 |    |               |                           |                      |           |    |     |                           |
| <b><i>Eurylabus</i> WESMAEL, 1845</b>                    |    |               |                           |                      |           |    |     |                           |
| <i>Eurylabus larvatus</i> (CHRIST, 1791)                 | 2  | H             | July                      | EAR                  | E, EP, WP |    |     | RIEDEL et al. (2010)      |
| <b>TRIBE: HERESIARCHINI ASHMEAD 1900</b>                 |    |               |                           |                      |           |    |     |                           |
| <i>Amblyoppa</i> CAMERON, 1902                           |    |               |                           |                      |           |    |     |                           |

| Names of Taxa   | IN  | VID<br>(metre) | SD                    | GR                   | ZR                    | HR | PVR                    | FRT |
|---|-----|----------------|-----------------------|----------------------|-----------------------|----|------------------------|-----|
| <i>Amblyjoppa fuscipennis</i> (WESMAEL, 1844)                             | 107 | B,C,D,E,H      | June, July,<br>August | BSR, CAR, EAR,<br>MR | ORR                   | x  | FAHRINGER (1922)       |     |
| <i>Callajoppa cameroni</i> CAMERON, 1903                                  | 1   | H              | July                  | EAR                  | E, EP,<br>NEAR,<br>WP |    | ÖZBEK et al. (2003)    |     |
| <i>Callajoppa cirrogaster</i> (SCHRANK, 1781)                             | 1   | F              | ?                     | CAR                  | E, EP,<br>NEAR,<br>WP | X  | FAHRINGER (1922)       |     |
| <i>Callajoppa exaltatoria</i> (PANZER, 1804)                              | 1   | H              | August                | EAR                  | North East<br>Turkey  |    | HEINRICH (1978)        |     |
| <i>Callajoppa exaltatoria armenica</i><br>HEINRICH (1978)                 | 1   | G              | June                  | EAR                  | E, WP                 |    | ÖZBEK et al. (2003)    |     |
| <i>Catadelphus</i> WESMAEL, 1854  | 1   |                |                       |                      |                       |    | KOLAROV et al. (2014b) |     |
| <i>Catadelphus arrogator</i> (FABRICIUS,<br>1781)                         | 1   |                |                       |                      |                       |    | RIEDEL et al. (2010)   |     |
| <i>Coelichneumon</i> THOMSON, 1893  | 1   | A              | June                  | BSR                  | E, EP, WP             |    | ÖZBEK et al. (2003)    |     |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>bilineatus</i> (GMELIN,<br>1790)    | 2   | H              | July                  | EAR                  | E, WP                 |    | KOLAROV et al. (2014a) |     |
| <i>Coelichneumon bohemani</i> (HOLMGREN,<br>1864)                         | 7   | D,E,G,H        | June, July,<br>August | CAR, EAR             | E, EP, WP             |    | RIEDEL et al. (2010)   |     |
| <i>Coelichneumon comitor</i> (LINNAEUS,<br>1758)                          | 1   | E              | August                | EAR                  | E, WP                 |    | ÖZBEK et al. (2003)    |     |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>consimilis</i><br>(WESMAEL, 1845)   | 1   | C              | June                  | BSR                  | E, EP, WP             |    | KOLAROV et al. (2014a) |     |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>destinarius</i><br>(THUNBERG, 1822) | 5   | A,D,G,H        | July, August          | CAR, EAR, MRR        | E, EP, WP             |    | KOLAROV et al. (2014b) |     |
| <i>Coelichneumon dorsosignatus</i><br>BERTHOUDIEU, 1894                   | 1   | D              | April                 | CAR                  | E, EP, WP             |    | KOLAROV (1994)         |     |
| <i>Coelichneumon fusicifus</i> (WESMAEL, 1845)                            | 1   |                |                       |                      |                       |    | ? ÖZDEMİR (1996)       |     |

| Names of Taxa  | IN | VID<br>(metre) | SD           | GR            | ZR        | HR | PVR | FRT                                    |
|--|----|----------------|--------------|---------------|-----------|----|-----|--|
| <i>Coelichneumon fasciatus</i> (GMELIN, 1790)                  | 1  | G              | July         | EAR           | E, EP, WP |    |     |  |
| <i>Coelichneumon erythromerus</i> (RUDOW, 1888)                | 3  | G              | June         | Anatolia, EAR | E, WP     |    |     | ÖZBEK et al. (2003)<br>HEINRICH (1978) |
| <i>Coelichneumon (C.) lacrymator</i> (FONSCOMBE, 1847)         | 1  | E              | August       | EAR           | E, EP, WP |    |     | KOLAROV et al. (2014)                  |
| <i>Coelichneumon leucocerus</i> (GRAVENHORST, 1820)            | 91 | G,H            | July, August | CAR, EAR      | E, EP, WP | X  | X   | FAHRINGER (1922)                       |
| <i>Coelichneumon nigerrimus</i> (STEPHENS, 1893)               | 2  | D              | July         | BSR           | E,EP, WP  |    |     | RIEDEL et al. (2010)                   |
| <i>Coelichneumon nigricornis</i> (WESMAEL, 1845)               | 7  | E,H            | June, July   | EAR           | E, WP     |    |     | ÖZBEK et al. (2003)                    |
| <i>Coelichneumon nigritor</i> RIEDEL, ÇORUH & ÖZBEK, 2010      | 3  | H,G            | July         | EAR           | WP        |    |     | RIEDEL et al. (2010)                   |
| <i>Coelichneumon nudicoxator</i> AUBERT, 1966                  | 4  | G              | June, July   | EAR           | NEAR      |    |     | RIEDEL (2008)                          |
| <i>Coelichneumon orbitor</i> (THUNBERG, 1822)                  | 2  | F,H            | June         | EAR           | E, EP,    |    |     | ÖZBEK et al. (2003)                    |
| * <i>Coelichneumon pararidis</i> RIEDEL, 2008                  | 1  | ?              | ?            | Anatolia      | ORR, WP   |    |     | RIEDEL (2008)                          |
| <i>Coelichneumon paraviolaceiventer</i> RIEDEL, 2008           | 1  | ?              | ?            | Anatolia      | E, WP     |    |     | RIEDEL (2008)                          |
|  |    |                |              |               | WP        |    |     |  |
| <i>Coelichneumon problematicus</i> RIEDEL, ÇORUH & ÖZBEK, 2010 | 2  | H              | July         | EAR           | EP, WP    |    |     | RIEDEL et al. (2010)                   |
| <i>Coelichneumon rufidus</i> (FONSCOLOMBE, 1847)               | 5  | A,E            | October      | EAR, MtR      | E, WP     |    |     | GÜRBÜZ et al. (2008)                   |
| * <i>Coelichneumon rufigaster</i> RIEDEL, 2008                 | 1  | ?              | ?            | Anatolia      | WP        |    |     | RIEDEL (2008)                          |
|  |    |                |              |               |           |    |     |  |
| <i>Lymantrichneumon</i> HENRICH, 1968                          |    |                |              |               |           |    |     |  |

| Names of Taxa   | IN | VD<br>(metre) | SD                       | GR                    | ZR                         | HR | PVR | FRT                  |
|---|----|---------------|--------------------------|-----------------------|----------------------------|----|-----|----------------------|
| <i>Lymantrichneumon dispars</i> (PODA, 1761)          | 1  | A,D           | July                     | CAR                   | E, EP,<br>ORR, WP          |    | X   | FAHRINGER (1922)     |
| <b><i>Protochneumon</i> THOMSON, 1893</b>             |    |               |                          |                       |                            |    |     |                      |
| <i>Protochneumon coqueberti</i> (WESMAEL, 1848)       | 32 | E,H           | June, July,<br>August    | EAR                   | E, WP                      |    | X   | CORUH et al. (2013)  |
| <i>Protochneumon fusorius</i> (LINNAEUS, 1761)        | 22 | D,E,H         | June, July,<br>August    | Anatolia, BSR,<br>EAR | E, EP, WP                  |    | X   | ROMAN (1910)         |
| <i>Protochneumon pisoirius</i> (LINNAEUS, 1758)       | 1  | ?             | ?                        | Anatolia              | E, EP, WP                  |    |     | ROMAN (1910)         |
| <i>Protochneumon simulatorius</i> (FABRICIUS, 1798)   | 1  | C             | April                    | CAR                   | E, EP, WP                  |    |     | ÖZDEMİR (1996)       |
| <b>Syssopsis TOWNES, 1965</b>                         |    |               |                          |                       |                            |    |     |                      |
| <i>Syssopsis carinator</i> (FABRICIUS, 1798)          | 1  | E             | August                   | EAR                   | E, WP                      |    |     | RIEDEL et al. (2010) |
| <i>Syssopsis scutellator</i> (GRAVENHORST, 1829)      | 3  | E,G           | June, July               | EAR                   | E, EP, WP                  |    |     | RIEDEL et al. (2010) |
| <b>Troglis PANZER, 1806</b>                           |    |               |                          |                       |                            |    |     |                      |
| <i>Troglis lapidator</i> (FABRICIUS, 1787)            | 3  | G,H           | June, July,<br>September | EAR                   | E, EP,<br>NEAR,<br>ORR, WP |    |     | ÖZBEK et al. (2003)  |
| <b>TRIBE: ICHEUMONINI LATREILLE, 1802</b>             |    |               |                          |                       |                            |    |     |                      |
| <b><i>Amblyteles</i> WESMAEL, 1844</b>                |    |               |                          |                       |                            |    |     |                      |
| <i>Amblyteles armatorius</i> (FORSTER, 1771)          | 4  | A,C           | April,<br>August, May    | MR                    | E, EP, WP                  |    | X   | FAHRINGER (1921)     |
| <b><i>Aoplus</i> TISCHBEIN, 1874</b>                  |    |               |                          |                       |                            |    |     |                      |
| <i>Aoplus castaneus</i> (GRAVENHORST, 1820)           | 3  | H,G           | July, August             | EAR                   | E, EP, WP                  |    |     | CORUH et al. (2011)  |
| <b><i>Barriniscobas</i> HEINRICH, 1972</b>            |    |               |                          |                       |                            |    |     |                      |
| <i>Barriniscobas ritalibundus</i> (GRAVENHORST, 1829) | 2  | F,H           | July                     | EAR                   | E, WP                      |    |     | RIEDEL et al. (2010) |

| Names of Taxa  | IN | VID<br>(metre) | SD                                     | GR       | ZR                 | HR | PVR | FRT                    |
|--|----|----------------|--|----------|--------------------|----|-----|------------------------|
| <b><i>Barichneumon</i> THOMSON, 1893</b>                   |    |                |  |          |                    |    |     |                        |
| <i>Barichneumon albicaudatus</i><br>(FONSCOLOMBE, 1847)    | 2  | D,H            | May, July                              | CAR, EAR | E, EP, WP          |    |     | ÖZDEMIR (1996)         |
| <i>Barichneumon bithyniatus</i><br>(GRAVENHORST, 1829)     | 9  | E,G            | May, June,<br>July,                    | EAR      | E, EP, WP          |    |     | AUBERT (1993)          |
| <i>Barichneumon chionomus</i> (WESMAEL,<br>1845)           | 2  | C,G            | September<br>August,<br>September<br>? | CAR, EAR | E, WP              |    |     | ÖZDEMIR (1996)         |
| <i>Barichneumon manni</i> (KRIECHBAUMER,<br>1888)          | 1  | A              |  | MR       | E, WP              |    |     | SCHMIEDEKNECHT (1927)  |
| <i>Barichneumon peregrinator</i> (LINNAEUS,<br>1758)       | 1  | E              | November                               | MrR      | E, EP, WP          |    |     | ÖZDAN (2014)           |
| <i>Barichneumon perversus</i><br>(KRIECHBAUMER, 1893)      | 1  | C              | September                              | CAR      | E, WP              |    |     | ? ÖZDEMIR (1996)       |
| <i>Barichneumon plagiarius</i> (WESMAEL,<br>1848)          | 1  | E              | July                                   | EAR      | E, WP              |    |     | RIEDEL et al. (2010)   |
| <b><i>Cratichneumon</i> THOMSON, 1893</b>                  |    |                |  |          |                    |    |     |                        |
| <i>Cratichneumon corsicator</i> (LINNAEUS,<br>1758)        | 2  | A,E            | July                                   | EAR, MR  | E, EP, WP          | X  |     | FAHRINGER (1921)       |
| <i>Cratichneumon fugitivus</i><br>(GRAVENHORST, 1829)      | 1  | E              | May                                    | EAR      | E, WP              |    |     | RIEDEL et al. (2010)   |
| <i>Cratichneumon fabricator</i> FABRICIUS,<br>1793         | 2  | A              | July                                   | EAR, MR  | E, EP, WP          | X  |     | FAHRINGER (1921)       |
| <i>Cratichneumon sexarmillatus</i><br>(KRIECHBAUMER, 1891) | 1  | A              | June                                   | BSR      | E, EP, WP          |    |     | KOLAROV et al. (2014b) |
| <i>Cratichneumon versator</i> (THUNBERG, 1822)             | 1  | A              | June                                   | BSR      | E, EP, WP          |    |     | KOLAROV et al. (2014b) |
| <i>Cratichneumon viator</i> (SCOPOLI, 1763)                | 3  | A              | June,<br>November                      | BSR, MR  | E, EP,<br>NEAR, WP | X  |     | FAHRINGER (1922)       |

| Names of Taxa  | IN | VID<br>(metre) | SD                         | GR            | ZR                        | HR | PVR | FRT                  |
|--|----|----------------|----------------------------|---------------|---------------------------|----|-----|----------------------|
| <b>Cenichneumon THOMSON, 1894</b>                    |    |                |                            |               |                           |    |     |                      |
| <i>Cenichneumon castigator</i> (FABRICIUS, 1793)     | 2  | F,H            | July                       | EAR           | E, EP,<br>NTR, WP         |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon divisorius</i> (GRAVENHORST, 1820)   | 3  | A,G,H          | July, August,<br>September | ER, EAR       | E, EP, WP                 |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon funereus</i> (GEOFFROY, 1785)        | 1  | G              | September                  | EAR           | E, EP,<br>ORR, WP         |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon inspector</i> (WESMAEL, 1845)        | 4  | H              | July                       | EAR           | E, EP, WP                 |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon melanocastanus</i> GRAVENHORST, 1829 | 5  | F,H            | June, July,<br>August      | EAR           | E, EP, WP                 |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon nitens</i> (CHRIST, 1791)            | 1  | E              | July                       | EAR           | E, EP, WP                 |    |     | RIEDEL et al. (2011) |
| <i>Cenichneumon panzeri</i> (WESMAEL, 1845)          | 5  | F,G            | June, July,<br>August      | EAR           | AUR, E,<br>EP, ORR,<br>WP |    |     | RIEDEL et al. (2010) |
| <i>Cenichneumon repentinus</i> (GRAVENHORST, 1820)   | 6  | G,H            | May, June,<br>July, August | EAR           | E, EP, WP                 |    |     | RIEDEL et al. (2010) |
| <b>Diphrys KRIECHBAUMER, 1890</b>                    |    |                |                            |               |                           |    |     |                      |
| <i>Diphrys amatorius</i> (MÜLLER, 1776)              | 11 | A,D,F,G,H      | June, July,<br>August      | BSR, EAR      | E, EP, WP                 |    |     | ?ÖZBEK et al. (2003) |
| <i>Diphrys fossorius</i> (LINNAEUS, 1758)            | 1  | G              | July                       | EAR           | E, EP, WP                 |    |     | RIEDEL et al. (2011) |
| <i>Diphrys inopinus</i> HEINRICH, 1972               | 1  | G              | July                       | EAR           | E, WP                     |    |     | RIEDEL et al. (2011) |
| <i>Diphrys longimanus</i> (WESMAEL, 1857)            | 22 | E              | June                       | EAR           | E, WP                     |    |     | RIEDEL et al. (2010) |
| <i>Diphrys lucitorius</i> (LINNAEUS, 1758)           | 2  | A              | August                     | MR            | E, EP, WP                 | X  |     | Fahninger (1922)     |
| <i>Diphrys mercatorius</i> s.str. (FABRICIUS, 1793)  | 48 | F,G,H          | June, July,<br>August      | Anatolia, EAR | E, EP, WP                 |    |     | HEINRICH (1978)      |
| <i>Diphrys mercatorius ponticus</i> HEINRICH, 1978   | 1  | ?              | ?                          | Anatolia      | Eastern<br>Turkey,        |    |     | HEINRICH (1978)      |

| Names of Taxa   | IN | VID<br>(metre) | SD                    | GR                    | ZR                             | HR | PVR | FRT                    |
|---|----|----------------|-----------------------|-----------------------|--------------------------------|----|-----|------------------------|
| Iran  |    |                |                       |                       |                                |    |     |                        |
| <i>Diphysus montivagans</i> BERTHOUMIEU,<br>1887              | 5  | A,E,F,H        | July                  | BSR, CAR, EAR,<br>MtR | E, WP                          |    |     | HEINRICH (1978)        |
| <i>Diphysus ochromelas</i> (CHRIST, 1790)                     | 5  | A,H            | July, August          | EAR, MR               | E, EP, WP                      | X  |     | FAHRINGER (1922)       |
| <i>Diphysus palliatorius</i> (GRAVENHORST,<br>1829)           | 3  | A,G            | July, August          | BSR, EAR, MR          | E, EP,                         | X  |     | FAHRINGER (1922)       |
| <i>Diphysus pseudomercator</i> (HEINRICH,<br>1978)            | 36 | A,D,E,F,G,     | June, July,<br>August | EAR, MR               | ORR, WP                        | X  |     | HEINRICH (1978)        |
| <i>Diphysus pseudomercator hexaleucus</i><br>(HEINRICH, 1978) | 7  | D,F,G,H        | June, July            | EAR, SAR              | Georgia,<br>Turkey,<br>Armenia |    |     | HEINRICH (1978)        |
| <i>Diphysus quadripunctarius</i> (MÜLLER,<br>1776)            | 5  | A,C,E          | April,<br>June, July  | BSR, EAR, MR          | E, EP, WP                      | X  |     | FAHRINGER (1922)       |
| <i>Diphysus quinquecinctus</i> s.str<br>(KRIECHBAUMER, 1891)  | 1  | E              | June                  | CAR                   | E, EP, WP                      |    |     | KOHL (1905)            |
| <i>Diphysus raporis</i> LINNAEUS, 1758                        | 1  | A              | August,<br>September  | MR                    | E, EP,                         |    |     | YURTCAN (1999)         |
| <i>Diphysus septemguttatus</i><br>(GRAVENHORST, 1829)         | 2  | H              | July                  | EAR                   | ORR, WP                        |    |     | RIEDEL et al. (2010)   |
| <i>Diphysus trifasciatus</i> (GRAVENHORST,<br>1829)           | 4  | E              | July,<br>September    | MtR                   | E, EP, WP                      |    |     | ÖZDAN (2004)           |
| <b><i>Eupalamus</i> WESMAEL 1845</b>                          |    |                |                       |                       |                                |    |     |                        |
| <i>Eupalamus wesmaeli</i> (THOMSON, 1886)                     | 1  | A              | June                  | BSR                   | E, EP, WP                      |    |     | KOLAROV et al. (2014b) |
| <i>Eutanyacra CAMERON, 1903</i>                               |    |                |                       |                       |                                |    |     |                        |
| <i>Eutanyacra glauatoria</i> (FABRICIUS,<br>1793)             | 1  | G              | August                | EAR                   | E, EP, WP                      |    |     | RIEDEL et al. (2010)   |
| <i>Eutanyacra picta</i> (SCHRANK, 1776)                       | 1  | G              | July                  | EAR                   | E, EP,<br>ORR, WP              |    |     | RIEDEL et al. (2010)   |

| Names of Taxa  | IN | VID<br>(metre) | SD                            | GR                         | ZR                              | HR | PVR | FRT                                |
|--|----|----------------|-------------------------------|----------------------------|---------------------------------|----|-----|------------------------------------|
| <i>Eutanyacra ruficornis</i> (BERTHOUMIEU, 1894)     | 1  | G              | June                          | EAR                        | WP                              |    |     | CORUH & ÖZBEK (2013)               |
| <b><i>Estephanus</i> WESMAEL, 1844</b>               | 4  | F,G            | July                          | EAR                        | E, WP                           |    |     | RIEDEL et al. (2010)               |
| <i>Estephanus ischiostanthus</i> (GRAVENHORST, 1829) | 1  | G              | May                           | EAR                        | E, WP                           |    |     | ÖZBEK et al. (2003)                |
| <i>Estephanus ulbrichti</i> HINZ, 1957               | 2  | E,G<br>?       | August<br>?                   | CAR, EAR<br>Anatolia       | EP, WP<br>EP, ORR,<br>WP        |    |     | HEINRICH (1978)<br>HEINRICH (1978) |
| <b><i>Filatia CAMERON, 1901</i></b>                  |    |                |                               |                            |                                 |    |     |                                    |
| <i>Filatia flavolata</i> BERTHOUMIEU, 1892           | 1  | E,G<br>?       | August<br>?                   | CAR, EAR<br>Anatolia       | EP, WP<br>EP, ORR,<br>WP        |    |     | HEINRICH (1978)<br>HEINRICH (1978) |
| <i>Filatia radoszkowskii</i> BERTHOUMIEU, 1892       |    |                |                               |                            |                                 |    |     |                                    |
| <b><i>Hepipodellus</i> WESMAEL, 1844</b>             | 2  | D,H            | July                          | EAR                        | E, EP, WP                       |    |     | RIEDEL et al. (2010)               |
| <i>Hepipodellus melanogaster</i> (GMELIN, 1790)      |    |                |                               |                            |                                 |    |     |                                    |
| <b><i>Homotherus</i> FORSTER, 1868</b>               | 1  | F              | July                          | EAR                        | E, EP, WP                       |    |     | RIEDEL et al. (2010)               |
| <i>Homotherus locutor</i> (THUNBERG, 1824)           |    |                |                               |                            |                                 |    |     |                                    |
| <b><i>Hoplismenus</i> GRAVENHORST, 1829</b>          | 1  | E              | June                          | EAR                        | E, EP, WP                       |    |     | KOLAROV et al. (2014a)             |
| <i>Hoplismenus axillarius</i> (THUNBERG, 1822)       |    |                |                               |                            |                                 |    |     |                                    |
| <i>Hoplismenus bidentatus</i> (GMELIN, 1790)         | 5  | A,E,F          | April, June,<br>August        | EAR, MR                    | E, WP                           |    |     | KOLAROV (1989)                     |
| <b><i>Ichneumon</i> LINNAEUS, 1758</b>               |    |                |                               |                            |                                 |    |     |                                    |
| <i>Ichneumon albicollis</i> s.s. WESMAEL, 1857       | 1  | ?              | ?                             | Anatolia                   | E, EP, WP                       |    |     | HILPERT (1992)                     |
| <i>Ichneumon alius</i> TISCHEBEIN, 1879              | 1  | ?              | ?                             | Anatolia                   | E, EP, WP                       |    |     | HILPERT (1992)                     |
| <i>Ichneumon balteatus</i> WESMAEL, 1845             | 3  | C,F            | June, August                  | CAR, EAR                   | E, EP, WP                       |    |     | ÖZDEMIR (1996)                     |
| <i>Ichneumon bucculentus</i> WESMAEL, 1845           | 11 | A,F,G,H        | June, July,<br>August<br>July | AR, MR, EAR,<br>CAR<br>EAR | E, EP,<br>NEAR, WP<br>E, EP, WP | X  |     | FAHRINGER (1922)                   |
| <i>Ichneumon caecator</i> GRAVENHORST, 1829          | 1  | E              |                               |                            |                                 |    |     | CORUH et al. 2011                  |

| Names of Taxa                                    | IN | VID<br>(metre) | SD                 | GR                    | ZR        | HR | PVR | FRT                  |
|--|----|----------------|--------------------|-----------------------|-----------|----|-----|----------------------|
| <i>Ichneumon caloscelis</i> WESMAEL, 1845        | 2  | E              | September          | MitR                  | E, WP     |    |     | ÖZDAN (2014)         |
| <i>Ichneumon cessator</i> MÜLLER, 1776           | 2  | F,G            | June, July         | EAR                   | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon confusor</i> GRAVENHORST, 1820      | 1  | G              | June               | EAR                   | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon coniger</i> TISCHBETTEN, 1876       | 2  | F              | June, July         | EAR                   | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon curvulus</i> KRIECHBAUMER, 1882     | 2  | H              | June, August       | EAR                   | E, EP, WP |    |     | ÇORUH & ÖZBEK (2011) |
| <i>Ichneumon erythromerus</i> WESMAEL, 1857      | 1  | G              | June               | EAR                   | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon excilicornis</i> WESMAEL, 1857      | 5  | G,H            | June, July         | EAR                   | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon extensorius</i> LINNAEUS, 1758      | 2  | G,F            | June, July         | BSR, CAR              | E, EP, WP |    |     | FAHRINGER (1921)     |
| <i>Ichneumon fahricornis</i> GRAVENHORST, 1829   | 4  | G,H            | May, June          | EAR                   | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon gracilicollis</i> WESMAEL, 1844     | 1  | ?              | July               | Asia Minor            | E, EP, WP |    | X   | FAHRINGER (1922)     |
| <i>Ichneumon gracilicollis</i> GRAVENHORST, 1829 | 4  | F,G,H          | July               | Anatolia, EAR         | E, EP, WP |    | X   | HILPERT (1992)       |
| <i>Ichneumon gratus</i> WESMAEL, 1855            | 1  | G              | June               | EAR                   | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon haematojénus</i> HEINRICH, 1980     | 2  | H              | June               | Anatolia, EAR         | E, WP     |    |     | KOLAROV (1995)       |
| <i>Ichneumon ignobilis</i> WESMAEL, 1855         | 2  | A,E            | June, July         | BSR, EAR              | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon languidus</i> WESMAEL, 1845         | 1  | F              | June               | EAR                   | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon laetatorius</i> DESVIGNES, 1856     | 10 | C,G,H          | June, July,        | AR, EAR               | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ichneumon ligatorius</i> THUNBERG, 1822       | 1  | ?              | ?                  | Anatolia              | E, EP, WP |    |     | HILPERT (1992)       |
| <i>Ichneumon minutarius</i> DESVIGNES, 1856      | 3  | E,G            | July, August       | Anatolia, BSR,<br>EAR | E, WP     |    |     | HILPERT (1992)       |
| <i>Ichneumon ostentator</i> HEINRICH, 1978       | 6  | C,G,H          | May, June,<br>July | Anatolia, EAR         | E, WP     |    |     | HEINRICH (1978)      |

| Names of Taxa   | IN | VID<br>(metre) | SD                                  | GR                           | ZR                           | HR | PVR | FRT                                 |
|---|----|----------------|-------------------------------------|------------------------------|------------------------------|----|-----|-------------------------------------|
| <i>Ichneumon phaeostigmus</i> WESMAEL,<br>1857                  | 2  | G,H            | July                                | EAR                          | E, EP, WP                    |    |     | RIEDEL et al. (2010)                |
| <i>Ichneumon primatorius</i> FORSTER, 1771                      | 2  | G              | July                                | EAR                          | E, EP, WP                    |    |     | CORUH et al. 2011                   |
| <i>Ichneumon proletarius</i> WESMAEL, 1848                      | 39 | A,E,F,G,H      | June, July,<br>August,<br>September | Anatolia, BSR,<br>EAR        | E, EP, WP                    |    |     | HILPERT (1992)                      |
| <i>Ichneumon quasitorius</i> LINNAEUS, 1761                     | 1  | E              | June                                | EAR                          | E, EP, WP                    |    |     | CORUH et al. (2011)                 |
| <i>Ichneumon sarcitorius</i> s. str. LINNAEUS,<br>1758          | 14 | C, F, H        | June, July                          | Anatolia, CAR,<br>EAR        | E, EP,<br>OCR, WP            |    |     | HILPERT (1992)                      |
| <i>Ichneumon sarcitorius caucasicus</i><br>MEYER, 1926          | 4  | G,H            | June, July                          | Eastern Anatolia,<br>Turkey, | Eastern Anatolia,<br>Turkey, |    |     | HILPERT (1992)                      |
| <i>Ichneumon sexcinctus</i> GRAVENHORST,<br>1829                | 1  | G              | June                                | EAR                          | Kyrgyzstan                   |    |     | RIEDEL et al. (2010)                |
| * <i>Ichneumon sexcinctoides</i> RIEDEL, CORUH<br>& ÖZBEK, 2010 | 2  | H              | July                                | EAR                          | E, EP, WP                    |    |     | RIEDEL et al. (2010)                |
| <i>Ichneumon simulans</i> TISCHBEIN, 1873                       | 1  | ?              | ?                                   | Anatolia                     | NTR                          |    |     | HILPERT (1992),<br>FAHRINGER (1922) |
| <i>Ichneumon stramentarius</i><br>GRAVENHORST, 1820             | 2  | A,H            | July                                | BSR, MR                      | E, WP                        | X  |     | FAHRINGER (1922)                    |
| <i>Ichneumon stramentor</i> RASNITSIN, 1984                     | 1  | ?              | ?                                   | Anatolia                     | E, WP                        |    |     | HILPERT (1992)                      |
| <i>Ichneumon suspiciosus</i> WESMAEL, 1845                      | 1  | D              | June                                | EAR                          | E, EP, WP                    |    |     | RIEDEL et al. (2010)                |
| <i>Ichneumon terminatorius</i><br>GRAVENHORST, 1820             | 6  | D,F,G          | July, August                        | CAR, EAR, MR                 | E, WP                        | X  |     | FAHRINGER (1921)                    |
| <i>Ichneumon tuberculipes</i> WESMAEL,<br>1848                  | 1  | A              | July                                | CAR                          | E, EP, WP                    |    |     | RIEDEL et al. (2010)                |
| <i>Ichneumon vafer meridionalis</i><br>HEINRICH, 1929           | 2  | F,H            | June                                | EAR                          | ?                            |    |     | RIEDEL et al. (2010)                |

| Names of Taxa   | IN | VID<br>(metre) | SD                    | GR                        | ZR        | HR | PVR | FRT                  |
|---|----|----------------|-----------------------|---------------------------|-----------|----|-----|----------------------|
| <i>Ichneumon veressi</i> (KISS, 1915)                   | 1  | ?              | ?                     | Anatolia                  | E, WP     |    |     | HILPERT (1992)       |
| <i>Ichneumon xanthorius xanthorius</i>                  | 1  | A              | May                   | Anatolia, AR              | E, EP, WP |    |     | HILPERT (1992)       |
| <i>Förster</i> , 1771                                   |    |                |                       |                           |           |    |     | HILPERT (1992)       |
| <b><i>Limerodops</i> HEINRICH, 1949</b>                 |    |                |                       |                           |           |    |     |                      |
| <i>Limerodops subsericans</i><br>(GRAVENHORST, 1820)    | 4  | E, G           | June, July            | BSR, EAR                  | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <b><i>Melanichneumon</i> THOMSON, 1893</b>              |    |                |                       |                           |           |    |     |                      |
| <i>Melanichneumon glaucatorius</i><br>HEINRICH, 1972    | 2  | F, H           | June                  | Erzurum                   | E, EP, WP |    |     | CORUH et al. (2011)  |
| <b><i>Obusodonata</i> HEINRICH, 1962</b>                |    |                |                       |                           |           |    |     |                      |
| <i>Obusodonata equitatoria</i> (PANZER,<br>1786)        | 11 | A,C,D,E,F      | July, July,<br>August | Anatolia, CAR,<br>EAR, MR | E, EP, WP | X  |     | KHAN & ÖZER (1984)   |
| <b><i>Patriocloides</i> HEINRICH, 1961</b>              |    |                |                       |                           |           |    |     |                      |
| <i>Patriocloides spittator</i> (FABRICIUS, 1793)        | 3  | A,D            | August                | MR, MtRR                  | EP        | X  |     | FAHRINGER (1922)     |
| <b><i>Ptaylorabops</i> HEINRICH, 1950</b>               |    |                |                       |                           |           |    |     |                      |
| <i>Ptaylorabops humilis</i> (WESMAEL, 1857)             | 1  | G              | July                  | EAR                       | E, WP     |    |     | RIEDEL et al. (2011) |
| <i>Ptaylorabops iridipennis</i> (GRAVENHORST,<br>1829)  | 5  | E,F            | May                   | EAR                       | E, EP, WP |    |     | RIEDEL et al. (2010) |
| <i>Ptaylorabops neglectus</i> (FONSCOLOMBE,<br>1847)    | 2  | F,G            | May, July             | EAR                       | E, EP, WP |    |     | CORUH et al. 2011    |
| <i>Ptaylorabops ocellatus</i> (HEINRICH, 1972)          | 1  | G              | July                  | EAR                       | E, WP     |    |     | RIEDEL et al. (2010) |
| <i>Ptaylorabops tricinctulus</i><br>(GRAVENHORST, 1820) | 2  | A,C            | July,<br>September    | BSR, CAR                  | E, EP, WP |    |     | ÖZDEMİR (1996)       |
| <i>Ptaylorabops vibratorioides</i> (THUNBERG,<br>1824)  | 1  | G              | July                  | EAR                       | E, WP     |    |     | RIEDEL et al. (2011) |
| <i>Ptaylorabops zagoriensis</i> HEINRICH, 1930          | 2  | C,D            | September             | CÆ                        | E, WP     |    |     | ÖZDEMİR (1996)       |
| <b><i>Probolus</i> WESMAEL, 1844</b>                    |    |                |                       |                           |           |    |     |                      |

| Names of Taxa   | IN<br>(metre) | VD<br>(metre) | SD                                     | GR                    | ZR                    | HR | PVR | FRT                  |
|---|---------------|---------------|--|-----------------------|-----------------------|----|-----|----------------------|
| <i>Probolus crassulus</i> HORSTMANN, 2000                   | 7             | A,F,H         | June, July,<br>August                  | Anatolia, BSR,<br>EAR | E, WP                 |    |     | HORSTMANN (2000)     |
| <b><i>Pseudamblytylus HEINRICH, 1926</i></b>                |               |               |  |                       |                       |    |     |                      |
| <i>Pseudamblytylus homocerus</i><br>(WESMAEL, 1857)         | 16            | C,E,D,G       | July, August                           | CAR, EAR              | E, EP,<br>NEAR, WP    | X  |     | AVCI & ÖZBEK (1990)  |
| <b><i>Ricichneumon HEINRICH, 1961</i></b>                   |               |               |  |                       |                       |    |     |                      |
| <i>Ricichneumon lombardi</i> (BERTHUMIEU,<br>1897)          | 22            | A,G,E,H       | June, July                             | EAR                   | E, WP                 |    |     | ÖZBEK et al. (2003)  |
| <b><i>Spilichneumon THOMSON, 1894</i></b>                   |               |               |  |                       |                       |    |     |                      |
| <i>Spilichneumon ammonius</i><br>(GRAVENHORST, 1820)        | 1             | H             | June                                   | EAR                   | E, EP, WP             |    |     | CORUH et al. (2011)  |
| <i>Spilichneumon timnophilus</i> (THOMSON,<br>1888)         | 2             | E,G           | May, July                              | EAR                   | E, EP, WP             |    |     | CORUH et al. (2011)  |
| <i>Spilichneumon occisorius</i> (FABRICIUS,<br>1793)        | 17            | C,D,E,H       | July, August,<br>September,<br>October | BSR, EAR, CAR,<br>MtR | E, EP, WP             |    |     | ÖZDEMİR (1996)       |
| <b><i>Spilothrytates HEINRICH, 1968</i></b>                 |               |               |  |                       |                       |    |     |                      |
| <i>Spilothrytates illuminatorius</i><br>(GRAVENHORST, 1820) | 4             | C,D,G         | July,<br>September                     | CAR, EAR              | E, EP, WP             |    |     | ÖZDEMİR (1996)       |
| <i>Spilothrytates nupitorius</i> (FABRICIUS,<br>1793)       | 2             | C,H           | May, July                              | EAR                   | E, WP                 |    |     | RIEDEL et al. (2010) |
| <b><i>Senichneumon THOMSON, 1893</i></b>                    |               |               |  |                       |                       |    |     |                      |
| <i>Senichneumon culpator</i> (SCHRANK,<br>1802)             | 3             | A,C           | June,<br>September                     | BSR, EAR              | E, EP,<br>NEAR,<br>WP |    |     | RIEDEL et al. (2010) |
| <b><i>Senobarichneumon HEINRICH, 1961</i></b>               |               |               |  |                       |                       |    |     |                      |
| <i>Senobarichneumon basiglyptus</i><br>KRIECHBAUMER, 1890   | 1             | A             | October                                | MR                    | E, EP, WP             |    |     | YURTÇAN (1999)       |

| Names of Taxa   | IN | VID<br>(metre) | SD                         | GR            | ZR                | HR | PVR | FRT                  |
|---|----|----------------|----------------------------|---------------|-------------------|----|-----|----------------------|
| <b><i>Thyrateles</i> PERKINS, 1953</b>                  |    |                |                            |               |                   |    |     |                      |
| <i>Thyrateles camelinus</i> (WESMAEL, 1845)             | 9  | B,F,G          | June, August,<br>September | EAR           | E, EP, WP         |    |     | RIEDEL et al. (2010) |
| <i>Thyrateles tardus</i> (BERTHOMIEU, 1897)             | 2  | G              | July                       | EAR           | E, EP, WP         |    |     | ÖZBEK et al. (2003)  |
| <b><i>Tripognathus</i> BERTHOMIEU, 1904</b>             |    |                |                            |               |                   |    |     | KOHL (1905)          |
| <i>Tripognathus ariipes</i> (GRAVENHORST,<br>1820)      | 35 | F,G,H          | June, July,<br>August      | CAR, EAR      | E, EP, WP         |    |     | RIEDEL et al. (2011) |
| <i>Tripognathus fumigatus</i><br>(GRAVENHORST, 1820)    | 3  | G,H            | June, July                 | EAR           | E, EP, WP         |    |     | HEINRICH (1978)      |
| <i>Tripognathus undentatus</i><br>BERTHOMIEU, 1894      | 2  | F              | ?                          | CAR, EAR      | E, EP, WP         |    |     | HEINRICH (1978)      |
| <i>Tripognathus unifasciatus</i> (SPINOLA, 1843)        | 5  | F,G            | June, August               | Anatolia, EAR | E, EP, WP         |    |     | HEINRICH (1978)      |
| <b><i>Vrgichneumon</i> HEINRICH, 1977</b>               |    |                |                            |               |                   |    |     | RIEDEL et al. (2010) |
| <i>Vrgichneumon albosignatus</i><br>(GRAVENHORST, 1829) | 6  | G,H            | June, July,<br>August      | EAR           | E, EP, WP         |    |     | RIEDEL et al. (2010) |
| <i>Vrgichneumon callicerus</i><br>(GRAVENHORST, 1820)   | 18 | A,D,<br>F,G,H  | June, July,<br>August      | BSR, EAR      | E, EP, WP         |    |     | RIEDEL et al. (2010) |
| <i>Vrgichneumon digrammus</i><br>(GRAVENHORST, 1820)    | 6  | E,F,G,H        | June, July,<br>August      | EAR, MfR      | E, EP, WP         |    |     | RIEDEL et al. (2010) |
| <i>Vrgichneumon maculicauda</i> (PERKINS,<br>1953)      | 29 | F,H            | June, July                 | EAR           | E, EP, WP         |    |     | RIEDEL et al. (2010) |
| <b><i>Vulgichneumon</i> HEINRICH, 1962</b>              |    |                |                            |               |                   |    |     | ÖZDEMİR (1996)       |
| <i>Vulgichneumon deceptor</i> (SCOPOLI,<br>1763)        | 8  | C,H            | March, June,<br>July       | EAR, CAR      | E, EP, WP         |    |     |                      |
| <i>Vulgichneumon saturatorius</i> (LINNAEUS,<br>1758)   | 6  | A,F,G          | March,<br>June, July       | BSR, EAR, MfR | E, EP,<br>ORR, WP |    |     | RIEDEL et al. (2010) |
| <i>Vulgichneumon suavis</i> (GRAVENHORST,<br>1820)      | 5  | A,F            | June, August               | BSR, EAR      | E, EP, WP         |    |     | RIEDEL et al. (2010) |

| Names of Taxa  | IN | VD<br>(metre) | SD | GR                                   | ZR                    | HR                      | PVR            | FRT                  |
|--|----|---------------|----|--------------------------------------|-----------------------|-------------------------|----------------|----------------------|
| <b>TRIBE JOPPOCRYPTINI VIERECK, 1918</b>                 |    |               |    |                                      |                       |                         |                |                      |
| <i>Pseudoplaxylabus</i> SMITS VAN BURGST, 1920           |    |               |    |                                      |                       |                         |                |                      |
| <i>Pseudoplaxylabus violentus</i><br>(GRAVENHORST, 1829) | 1  | C             |    | August                               | EAR                   |                         | E, NEAR,<br>WP | RIEDEL et al. (2010) |
| <b>TRIBE LISTRODROMINI FÖRSTER, 1869</b>                 |    |               |    |                                      |                       |                         |                |                      |
| <i>Anisobas</i> WESMAEL, 1845                            |    |               |    |                                      |                       |                         |                |                      |
| <i>Anisobas brombacheri</i> HEINRICH, 1933               | 3  | A,G,H         |    | July, August                         | EAR                   | E, EP, WP               |                | ÖZBEK et al. (2003)  |
| <i>Anisobas cingulatus</i> HORSTMANN, 1997               | 16 | A,D,E,H       |    | April, July,<br>August,<br>September | CAR, EAR, MR,<br>MtR  | E, EP, WP               | X              | KOHL (1905)          |
| <i>Anisobas seyrigi</i> HEINRICH, 1933                   | 1  | ?             |    | ?                                    | Anatolia              | E, EP, WP               |                | SELFA et al. (1988)  |
| <i>Anisobas hostilis</i> (GRAVENHORST, 1820)             | 5  | A,E,H         |    | June, July,<br>August                | EAR, MR               | E, EP, WP               |                | YURTÇAN (1999)       |
| <i>Anisobas rebellis</i> WESMAEL, 1845                   | 6  | E,F           |    | June, July,<br>August,<br>October    | BSR, CAR, EAR,<br>EAR | E, EP, WP               |                | RIEDEL et al. (2010) |
| <i>Anisobas seyrigi</i> HEINRICH, 1934                   | 3  | C             |    | May                                  | Anatolia, EAR         | E, EP, WP               |                | SELFA et al (1988)   |
| <i>Listrodromus</i> WESMAEL, 1845                        |    |               |    |                                      |                       |                         |                |                      |
| <i>Listrodromus nycthemerus</i><br>(GRAVENHORST, 1820)   | 3  | E,F           |    | June                                 | EAR                   | E, EP, WP               |                | ÖZBEK et al. (2003)  |
| <i>Neotyphus</i> FÖRSTER, 1868                           |    |               |    |                                      |                       |                         |                |                      |
| <i>Neotyphus coreensis</i> UCHIDA, 1930                  | 1  | G             |    | July                                 | EAR                   | E, EP,<br>NEAR,<br>WP   |                | RIEDEL et al. (2010) |
| <i>Neotyphus nobilitator</i> (GRAVENHORST,<br>1807)      | 1  | H             |    | July                                 | EAR                   | E, EP, NEAR,<br>ORR, WP |                | CORUH et al. (2011)  |
| <i>Neotyphus melanoccephalus</i> (GMELIN, 1790)          | 1  | A             |    | August                               | MR                    | E, EP, WP               | X              | FAHRINGER (1922)     |

| Names of Taxa   | IN | VD<br>(metre) | SD                 | GR       | ZR        | HR | PVR | FRT                    |
|---|----|---------------|--------------------|----------|-----------|----|-----|------------------------|
| <b><i>Phytotomus</i> KRECHBAUMER, 1888</b>            |    |               |                    |          |           |    |     |                        |
| <i>Phytotomus rufiventris</i> KRECHBAUMER,<br>1888    | 1  | A             | ?                  | MR       | E, WP     |    |     | KOLAROV (1989)         |
| <b>TRIBE PHAEOGENINI FÖRSTER, 1869</b>                |    |               |                    |          |           |    |     |                        |
| <b><i>Centeterus</i> WESMAEL 1845</b>                 |    |               |                    |          |           |    |     |                        |
| <i>Centeterus nigricornis</i> THOMPSON, 1891          | 1  | D             | July               | CAR      | E, WP     |    |     | ÖZDEMİR (1996)         |
| <i>Centeterus major</i> WESMAEL, 1845                 | 1  | D             | May                | CAR      | E, EP, WP |    |     | ÖZDEMİR (1996)         |
| <b><i>Epaures</i> FÖRSTER, 1869</b>                   |    |               |                    |          |           |    |     |                        |
| <i>Epaures grandiceps</i> THOMPSON,                   | 1  | A             | August             | MR       | E, WP     |    |     | YURTCAN (1999)         |
| <b><i>Dicaelous</i> WESMAEL 1845</b>                  |    |               |                    |          |           |    |     |                        |
| <i>Dicaelous montanus</i> (DE STEFANI 1885)           | 1  | H             | August             | CAR      | E, WP     |    |     | KOLAROV (1989)         |
| <i>Dicaelous morosator</i> AUBERT, 1969               | 1  | A             | ?                  | MR       | E, WP     | X  |     | ONAT (1974)            |
| <i>Dicaelous rufilimbatus</i> (GRAVENHORST,<br>1820)  | 1  | D             | July               | CAR      | E, WP     | X  |     | KOLAROV (1989)         |
| <b><i>Herpestomus</i> WESMAEL 1845</b>                |    |               |                    |          |           |    |     |                        |
| <i>Herpestomus aridens</i> (GRAVENHORST,<br>1829)     | 3  | E             | May, July          | MR       | E, EP, WP |    |     | ÖZDAN (2014)           |
| <i>Herpestomus bunnicornis</i><br>(GRAVENHORST, 1829) | 19 | C,D           | May, June,<br>July | CAR      | E, EP, WP | X  |     | IREN (1960)            |
| <b><i>Phaeogenes</i> WESMAEL, 1845</b>                |    |               |                    |          |           |    |     |                        |
| <i>Phaeogenes alternans</i> WESMAEL, 1845             | 1  | A             | June               | BSR      | E, WP     |    |     | KOLAROV et al. (2014b) |
| <i>Phaeogenes corcyrensis</i>                         | 1  | ?             | ?                  | Anatolia | E, WP     |    |     | KASPARYAN (1981)       |
| BERTHOLMIU, 1901                                      |    |               |                    |          |           |    |     |                        |
| <i>Phaeogenes nigridens</i> WESMAEL, 1844             | 2  | A             | ?                  | BSR, MR  | E, EP,    | X  |     | ÖZDEMİR (1981)         |
|   |    |               |                    |          | NEAR, WP  |    |     |                        |
| <i>Phaeogenes planifrons</i> WESMAEL, 1844            | 1  | A             | ?                  | MR       | E, EP, WP |    |     | KOLAROV (1989)         |
| <i>Phaeogenes rusticatus</i> WESMAEL, 1844            | 2  | A             | ?                  | MR       | E, EP, WP | X  |     | SOYDANBAY (1978)       |

| Names of Taxa  | IN | VD<br>(metre) | SD    | GR       | ZR                    | HR | PVR              | FRT                    |
|--|----|---------------|-------|----------|-----------------------|----|------------------|------------------------|
| <i>Senodontus BERTHOUMIEU, 1897</i>                  |    |               |       |          |                       |    |                  |                        |
| <i>Senodontus marginellus</i><br>(GRAVENHORST, 1829) | 1  | G             | June  | EAR      | E, EP, WP             |    |                  | KOLAROV et al. (2014b) |
| <b>TRIBE PLATYLABINI BERTHOUMIEU, 1904</b>           |    |               |       |          |                       |    |                  |                        |
| <i>Apneletius WESMAEL, 1844</i>                      |    |               |       |          |                       |    |                  |                        |
| <i>Apneleticus inimicus</i> (GRAVENHORST,<br>1820)   | 1  | G             | June  | EAR      | E, WP                 |    |                  | CORUH et al. (2011)    |
| <i>Cyclolabus HEINRICH, 1936</i>                     |    |               |       |          |                       |    |                  |                        |
| <i>Cyclolabus pector</i> (WESMAEL, 1845)             | 1  | H             | July  | EAR      | E, EP, WP             |    |                  | RIEDEL et al. (2010)   |
| <i>Linyxus CAMERON 1903</i>                          |    |               |       |          |                       |    |                  |                        |
| <i>Linyxus exhortator</i> (FABRICIUS, 1793)          | 3  | G,H           | July  | CAR, EAR | E, EP,<br>NEAR,<br>WP | X  | FAHRINGER (1922) |                        |
| <b>TRIBE ZIMMERININI HEINRICH, 1934</b>              |    |               |       |          |                       |    |                  |                        |
| <i>Contheresarches TELENGA, 1929</i>                 |    |               |       |          |                       |    |                  |                        |
| <i>Contheresarches dirus</i> (WESMAEL,<br>1853)      | 1  | A             | March | MR       | E, WP                 | X  |                  | KOLAROV (1991)         |

**Remarks:** Vertical distribution (VD) (metre); A: 0-500 m, B: 501-750 m, C: 751-1000 m, D: 1001-1250 m, E: 1251-1500 m, F: 1501-1750 m, G: 1751-2000 m, H: 2001-2500 m.

**Geographical regions (GR):** AR: Aegean Region, BSR: Black Sea Region, CAR: Central Anatolia Region, EAR: Eastern Anatolia Region, MR: Marmara Region, MTR: Mediterranean Region, SAR: Southeastern Anatolia.

**Zoogeographical regions (ZR):** AFR: Afrotropical Region, AUR: Australian Region, E: Europe, EP: Eastern Palaearctic, NEAR: Nearctic Region, NTR: Neotropical Region, OCR: Oceanic Region, ORR: Oriental Region, WP: Western Palaearctic Region.

**Table 2.** Provinces and references of collected species in Turkey.

| <b>Names of Taxa</b>   | <b>Distributions in Turkey</b>                               | <b>Reference (s)</b>  |
|--|--|---|
| <b>TRIBE: ALOMYINI FÖRSTER, 1869</b>                           |  |   |
| <b>Alomya Alomya PANZER, 1806</b>                              |  |   |
| <i>Alomya debellator</i> (FABRICIUS, 1775)                     | Istanbul   | FAHRINGER (1922), KOLAROV (1995)  |
| <b>Colpognathus WESMAEL, 1844</b>                              |  |   |
| <i>Colpognathus armatus</i> THOMSON, 1891                      | Ankara, Erzincan,<br>Erzurum                                 | ÖZBEK et al. (2003), ÇORUH & ÖZBEK (2008)   |
| <i>Colpognathus celerator</i> (GRAVENHORST, 1807)              | Giresun, Isparta, Ordu,<br>Trabzon                           | ÇORUH & ÖZBEK (2008), KOLAROV et al. (2014b), ÖZDAN (2014)  |
| <i>Colpognathus divisus</i> THOMSON, 1891                      | Erzurum, Rize, Trabzon                                       | KOLAROV (2007)  |
| <b>Diadromus WESMAEL, 1844</b>                                 |  |   |
| <i>Diadromus albinotatus</i> (GRAVENHORST, 1829)               | Isparta  | ÖZDAN (2014)  |
| <i>Diadromus collaris</i> (GRAVENHORST, 1829)                  | Ankara, Aydin, Erzurum,<br>Kırşehir, Konya, Muğla,<br>Yozgat | ÖZDEMİR (1996), KOLAROV et al. (2002), ÖZBEK et al. (2003), ÇORUH et al. (2013)                                 |
| <i>Diadromus subtilicornis</i> (GRAVENHORST, 1829)             | Ankara, Erzurum  | ÖZDEMİR (1996), ÖZBEK et al. (2003)   |
| <b>Dicaelotus WESMAEL, 1844</b>                                |  |   |
| <i>Dicaelotus erythrogaster</i> (HOLMGREN, 1890)               | Ankara   | ÖZDEMİR (1996)  |
| <i>Dicaelotus (Gnathichneumon) mandibulator</i> (AUBERT, 1958) | Erzurum  | ÇORUH et al. (2011)   |
| <i>Dicaelotus montanus</i> (DE STEFANI, 1885)                  | Eskişehir  | KOLAROV (1989), KOLAROV (1995)  |
| <i>Dicaelotus morosator</i> AUBERT, 1969                       | Adapazarı  | ONAT (1974), ÖNCÜER (1991),<br>KOLAROV (1995)   |
| <i>Dicaelotus pumilus</i> (GRAVENHORST, 1829)                  | Isparta  | ÖZDAN (2014)  |
| <i>Dicaelotus rufilimbatus</i> (GRAVENHORST, 1820)             | Ankara, Niğde  | KOLAROV (1989), KOLAROV (1995),<br>ÖZDEMİR (1996)   |
| <b>Dirophanes FÖRSTER, 1868</b>                                |  |   |
| <i>Dirophanes invisor</i> (THUNBERG, 1822)                     | Ankara   | ÖZDEMİR (1996)  |
| <b>Heterischnus WESMAEL, 1859</b>                              |  |   |
| <i>Heterischnus anomalus</i> (WESMAEL, 1857)                   | Artvin, Erzurum  | ÖZBEK et al. (2003)   |
| <i>Heterischnus excavatus</i> (CONSTANTINEANU, 1959)           | Giresun, Rize  | KOLAROV et al. (2014b)  |
| <i>Heterischnus ridibundus</i> COSTA, 1885                     | Kirkclareli, Tekirdağ  | YURTCAN et al. (1999)   |
| <i>Heterischnus schachti</i> DILLER, 1995                      | Erzurum  | KOLAROV et al. (2014b)  |
| <i>Heterischnus thoracicus</i> (GRAVENHORST, 1829)             | Erzurum, Kirkclareli,<br>Tekirdağ                            | YURTCAN et al. (1999), ÖZBEK et al. (2003)  |
| <i>Heterischnus truncator</i> (FABRICIUS, 1798)                | Isparta, İstanbul, Erzurum,<br>Giresun, Rize                 | KOLAROV (1989), KOLAROV (1995),<br>YURTCAN (1999), ÖZBEK et al. (2003), KOLAROV et al. (2014b),<br>ÖZDAN (2014) |
| <b>TRIBE: CTENOCALINI HEINRICH, 1938</b>                       |  |   |
| <b>Magwengiella BACHMAIER &amp; DILLER, 1985</b>               |  |   |
| <i>Magwengiella flavescens</i> BACHMAIER & DILLER, 1985        | Hakkari  | BACHMAIER & DILLER (1985),<br>KOLAROV (1995)  |

| Names of Taxa   | Distributions in Turkey           | Reference(s)   |
|---|-----------------------------------|--|
| <b>TRIBE: EURYLABINI HEINRICH, 1934</b>                                 |                                   |  |
| <b><i>Eurylabus</i> WESMAEL, 1845</b>                                   |                                   |  |
| <i>Eurylabus larvatus</i> (CHRIST, 1791)                                | Erzurum                           | RIEDEL et al. (2010), ÇORUH et al. (2011)  |
| <b>TRIBE: HERESIARCHINI ASMEAD, 1900</b>                                |                                   |  |
| <b><i>Amblyjoppa</i> CAMERON, 1902</b>                                  |                                   |  |
| <i>Amblyjoppa fuscipennis</i> (WESMAEL, 1844)                           | Artvin, Erzurum, İstanbul, Niğde  | FAHRINGER (1922), ÖZBEK et al. (2003), ÇORUH & ÇORUH (2008), RIEDEL et al. (2010), ÇORUH et al. (2011) |
| <b><i>Callajoppa</i> CAMERON, 1903</b>                                  |                                   |  |
| <i>Callajoppa cirrogaster</i> (SCHRANK, 1781)                           | Erzurum                           | ÖZBEK et al. (2003)  |
| <i>Callajoppa exaltatoria</i> (PANZER, 1804)                            | Niğde                             | FAHRINGER (1922), KOLAROV (1995)   |
| <i>Callajoppa exaltatoria armenica</i> HEINRICH, 1978                   | Kars                              | HEINRICH (1978), KOLAROV (1995)  |
| <b><i>Catadelphus</i> WESMAEL, 1854</b>                                 |                                   |  |
| <i>Catadelphus arrogator</i> (FABRICIUS, 1781)                          | Erzurum                           | ÖZBEK et al. (2003)  |
| <b><i>Coelichneumon</i> THOMSON, 1893</b>                               |                                   |  |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>bilineatus</i> (GMELIN, 1790)     | Giresun                           | RIEDEL et al. (2010), KOLAROV et al. (2014b)   |
| <i>Coelichneumon bohemani</i> (HOLMGREN, 1864)                          | Erzurum                           | RIEDEL et al. (2010)   |
| <i>Coelichneumon comitator</i> (LINNAEUS, 1758)                         | Ankara, Bayburt, Erzurum, Tunceli | ÖZBEK et al. (2003), RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014a)                 |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>consimilis</i> (WESMAEL, 1845)    | Tunceli                           | KOLAROV et al. (2014a)   |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>desinotorius</i> (THUNBERG, 1822) | Trabzon                           | KOLAROV et al. (2014b)   |
| <i>Coelichneumon dorsosignatus</i> BERTHOUMIEU, 1894                    | Antalya, Artvin, Erzurum, Niğde   | KOLAROV (1994), KOLAROV (1995), RIEDEL et al. (2010), ÇORUH & ÇORUH (2012)                             |
| <i>Coelichneumon falsificus</i> (WESMAEL, 1845)                         | Kırşehir                          | ? ÖZDEMİR (1996)   |
| <i>Coelichneumon fasciatus</i> (GMELIN, 1790)                           | Erzurum                           | ÖZBEK et al. (2003)  |
| <i>Coelichneumon erythromerus</i> (RUDOW, 1888)                         | Anatolia, Erzurum                 | HEINRICH (1978), ÇORUH et al. (2011), ÇORUH & ÖZBEK (2013)   |
| <i>Coelichneumon</i> ( <i>C.</i> ) <i>lacrymator</i> (FONSCOOMB, 1847)  | Tunceli                           | KOLAROV et al. (2014)  |
| <i>Coelichneumon leucocerus</i> (GRAVENHORST, 1820)                     | Erzurum, Niğde                    | FAHRINGER (1922), KOLAROV (1995), ÖZBEK et al. (2003), ÇORUH & ÇORUH (2008)                            |
| <i>Coelichneumon nigerrimus</i> (STEPHENNS, 1893)                       | Artvin                            | RIEDEL et al. (2010), ÇORUH et al. (2011)  |
| <i>Coelichneumon nigricornis</i> (WESMAEL, 1845)                        | Erzurum                           | ÖZBEK et al. (2003)  |
| <i>Coelichneumon nigritor</i> RIEDEL, ÇORUH & ÖZBEK, 2010               | Erzurum                           | RIEDEL et al. (2010), ÇORUH et al. (2011)  |
| <i>Coelichneumon nudicoxator</i> AUBERT, 1966                           | Eastern Anatolia, Erzurum         | RIEDEL (2008), RIEDEL et al. (2010), ÇORUH et al. (2011)   |

| Names of Taxa  | Distributions in Turkey      | Reference(s)   |
|--|------------------------------|--|
| <i>Coelichneumon orbitator</i> (THUNBERG, 1822)                | Erzurum<br>Anatolia          | ÖZBEK et al. (2003)<br>RIEDEL (2008)   |
| <i>Coelichneumon pararudis</i> RIEDEL, 2008                    | Anatolia                     | RIEDEL (2008)  |
| <i>Coelichneumon paraviolaceiventris</i> RIEDEL, 2008          |                              |  |
| <i>Coelichneumon problematicus</i> RIEDEL, ÇORUH & ÖZBEK, 2010 | Erzurum                      | RIEDEL et al. (2010)   |
| <i>Coelichneumon rufidorsum</i> (FONSCOLOMBE, 1847)            | Adana, Eskişehir<br>Anatolia | GÜRBÜZ et al. (2008), EROĞLU et al. (2011)   |
| <i>Coelichneumon rufigaster</i> RIEDEL, 2008                   |                              | RIEDEL (2008)  |
| <b><i>Lymantichneumon</i> HENRICH, 1968</b>                    |                              |  |
| <i>Lymantichneumon disparis</i> (PODA, 1761)                   | Niğde                        | FAHRINGER (1922), KOLAROV (1995)   |
| <b><i>Protichneumon</i> THOMSON, 1893</b>                      |                              |  |
| <i>Protichneumon coqueberti</i> (WESMAEL, 1848)                | Erzurum                      | ÖZBEK et al. (2003), ÇORUH & ÇORUH (2008)  |
| <i>Protichneumon fusorius</i> (LINNAEUS, 1761)                 | Artvin, Anatolia, Erzurum    | ROMAN (1910), TOWNES et al. (1965), KOLAROV (1995), ÇORUH et al. (2003), ÇORUH & ÇORUH (2008), RIEDEL et al. (2010), ÇORUH et al. (2011) |
| <i>Protichneumon pisoirus</i> (LINNAEUS, 1758)                 | Anatolia                     | ROMAN (1910), HEINRICH (1929), MORLEY (1915), TOWNES et al. (1965), KASPARYAN (1981), KOLAROV (1995)                                     |
| <i>Protichneumon simulatorius</i> (FABRICIUS, 1798)            | Ankara                       | ÖZDEMİR (1996)   |
| <b><i>Syspasis</i> TOWNES, 1965</b>                            |                              |  |
| <i>Syspasis carinator</i> (FABRICIUS, 1798)                    | Kars                         | RIEDEL et al. (2010)   |
| <i>Syspasis scutellator</i> (GRAVENHORST, 1829)                | Erzurum, Kars                | RIEDEL et al. (2010), ÇORUH et al. (2011)  |
| <b><i>Trogus</i> PANZER, 1806</b>                              |                              |  |
| <i>Trogus lapidator</i> (FABRICIUS, 1787)                      | Erzurum                      | ÖZBEK et al. (2003), ÇORUH & KESDEK (2008)   |
| <b>TRIBE: ICHNEUMONINI LATREILLE, 1802</b>                     |                              |  |
| <b><i>Amblyteles</i> WESMAEL, 1844</b>                         |                              |  |
| <i>Amblyteles armatorius</i> (FÖRSTER, 1771)                   | Istanbul, Tekirdağ           | FAHRINGER (1921-1922), KOLAROV (1990, 1995)  |
| <b><i>Aoplus</i> TISCHBEIN, 1874</b>                           |                              |  |
| <i>Aoplus castaneus</i> (GRAVENHORST, 1820)                    | Erzurum                      | ÇORUH et al. (2011), ÇORUH & ÖZBEK (2013)  |
| <b><i>Baranisobas</i> HEINRICH, 1972</b>                       |                              |  |
| <i>Baranisobas ridibundus</i> (GRAVENHORST, 1829)              | Erzurum                      | RIEDEL et al. (2010)   |
| <b><i>Barichneumon</i> THOMSON, 1893</b>                       |                              |  |
| <i>Barichneumon albicaudatus</i> (FONSCOLOMBE, 1847)           | Erzurum, Konya               | ÖZDEMİR (1996), RIEDEL et al. (2010)   |
| <i>Barichneumon bilunulatus</i> (GRAVENHORST, 1829)            | Anatolia, Erzurum            | AUBERT (1993), RIEDEL et al. (2010)  |

| Names of Taxa   | Distributions in Turkey          | Reference(s)  |
|---|----------------------------------|---|
| <i>Barichneumon chionomus</i> (WESMAEL, 1845)           | Eskişehir, Kars                  | ÖZDEMİR (1996), RIEDEL et al. (2010)  |
| <i>Barichneumon manni</i> (KRIECHBAUMER, 1888)          | Bursa                            | SCHMIEDEKNECHT (1927), MEYER (1933), AUBERT (1981), KOLAROV (1995)                              |
| <i>Barichneumon peregrinator</i> (LINNAEUS, 1758)       | İsparta                          | ÖZDAN (2014)  |
| <i>Barichneumon perversus</i> (KRIECHBAUMER, 1893)      | Eskişehir                        | ? ÖZDEMİR ((1996))  |
| <i>Barichneumon plagiarius</i> (WESMAEL, 1848)          | Erzurum                          | RIEDEL et al. (2010)  |
| <b><i>Cratichneumon</i> THOMSON, 1893</b>               |                                  |   |
| <i>Cratichneumon coruscator</i> (LINNAEUS, 1758)        | İçel, İstanbul, Konya, Niğde     | FAHRINGER (1921, 1922), KOLAROV (1995)  |
| <i>Cratichneumon fugitivus</i> (GRAVENHORST, 1829)      | Erzincan                         | RIEDEL et al. (2010)  |
| <i>Cratichneumon fabricator</i> FABRICIUS, 1793         | Erzurum, İstanbul, Kars          | FAHRINGER (1921), KOLAROV (1995)  |
| <i>Cratichneumon sexarmillatus</i> (KRIECHBAUMER, 1891) | Rize                             | KOLAROV et al. (2014b)  |
| <i>Cratichneumon versator</i> (THUNBERG, 1822)          | Trabzon                          | KOLAROV et al. (2014b)  |
| <i>Cratichneumon viator</i> (SCOPOLI, 1763)             | Bursa, İstanbul, Rize            | FAHRINGER (1922), KOLAROV (1995); KOLAROV et al. (2014b)  |
| <b><i>Ctenichneumon</i> THOMSON, 1894</b>               |                                  |   |
| <i>Ctenichneumon castigator</i> (FABRICIUS, 1793)       | Erzurum, Erzincan                | RIEDEL et al. (2010), RIEDEL et al. (2011)  |
| <i>Ctenichneumon divisorius</i> (GRAVENHORST, 1820)     | Ardahan, Erzurum, Manisa         | RIEDEL et al. (2010)  |
| <i>Ctenichneumon funereus</i> (GEOFFROY, 1785)          | Erzurum                          | RIEDEL et al. (2010)  |
| <i>Ctenichneumon inspector</i> (WESMAEL, 1845)          | Erzurum                          | RIEDEL et al. (2010)  |
| <i>Ctenichneumon melanocastanus</i> GRAVENHORST, 1829   | Bayburt, Erzurum, Kars           | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ctenichneumon nitens</i> (CHRIST, 1791)              | Erzurum                          | RIEDEL et al. (2011)  |
| <i>Ctenichneumon panzeri</i> (WESMAEL, 1845)            | Erzurum                          | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ctenichneumon repentinus</i> (GRAVENHORST, 1820)     | Bayburt, Erzurum                 | RIEDEL et al. (2010)  |
| <b><i>Diphysus</i> KRIECHBAUMER, 1890</b>               |                                  |   |
| <i>Diphysus amatorius</i> (MÜLLER, 1776)                | Erzincan, Erzurum, Kars, Trabzon | ?ÖZBEK et al. (2003), RIEDEL et al. (2010)  |
| <i>Diphysus fossorius</i> (LINNAEUS, 1758)              | Erzurum                          | RIEDEL et al. (2011)  |
| <i>Diphysus inopinus</i> HEINRICH, 1972                 | Erzurum                          | RIEDEL et al. (2011)  |
| <i>Diphysus longimanus</i> (WESMAEL, 1857)              | Erzurum                          | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Diphysus luctatorius</i> (LINNAEUS, 1758)            | İstanbul                         | FAHRINGER(1922), KOLAROV (1989), KOLAROV (1995)   |
| <i>Diphysus mercatorius</i> s.str. (FABRICIUS, 1793)    | Anatolia, Erzurum, Kars          | HEINRICH (1978), KOLAROV (1995), ÖZBEK et al. (2003), RIEDEL et al. (2010), ÇORUH et al. (2011) |
| <i>Diphysus mercatorius ponticus</i> HEINRICH, 1978     | Anatolia                         | HEINRICH (1978), KOLAROV (1995)   |

| Names of Taxa   | Distributions in Turkey          | Reference(s)  |
|---|----------------------------------|---|
| <i>Diphyus montivagans</i> BERTHOUMIEU, 1987              | Gümüşhane, Erzurum, Hatay, Sivas | HEINRICH (1978), SAWONIEWICZ (1985), KASPARYAN (1981), KOLAROV (1995), ÇORUH et al. (2011); ÇORUH et al. (2005), ÇORUH and ÇORUH (2012) |
| <i>Diphyus ochromelas</i> (CHRIST, 1790)                  | Erzurum, İstanbul                | FAHRINGER (1921), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Diphyus palliatorius</i> (GRAVENHORST, 1829)           | Artvin, İstanbul, Niğde          | FAHRINGER (1922), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Diphyus pseudomercator</i> HEINRICH, 1978              | Erzincan, Erzurum, Giresun       | HEINRICH (1978), KOLAROV (1995), ÖZBEK et al. (2003), RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014b)                 |
| <i>Diphyus pseudomercator hexaleucus</i> HEINRICH, 1978   | Diyarbakır, Erzurum              | HEINRICH (1978), KOLAROV (1995), ÖZBEK et al. (2003), ÇORUH & ÇORUH (2012)  |
| <i>Diphyus quadripunctarius</i> (MÜLLER, 1776)            | Artvin, Erzurum, İstanbul        | FAHRINGER (1922), KOLAROV (1989), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Diphyus quinquecinctus</i> s.str. (KRIECHBAUMER, 1891) | Kayseri                          | KOHL (1905), KOLAROV (1995)   |
| <i>Diphyus raptorius</i> LINNAEUS, 1758                   | Edirne                           | YURTCAN (1999)  |
| <i>Diphyus septemguttatus</i> (GRAVENHORST, 1829)         | Erzurum                          | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Diphyus trifasciatus</i> (GRAVENHORST, 1829)           | Isparta                          | ÖZDAN (2014)  |
| <i>Eupalamus</i> WESMAEL, 1845                            |                                  |   |
| <i>Eupalamus wesmaeli</i> (THOMSON, 1886)                 | Trabzon                          | KOLAROV et al. (2014b)  |
| <i>Eutanyacra</i> CAMERON, 1903                           |                                  |   |
| <i>Eutanyacra glauatoria</i> (FABRICIUS, 1793)            | Kars                             | RIEDEL et al. (2010)  |
| <i>Eutanyacra picta</i> (SCHRANK, 1776)                   | Erzurum                          | RIEDEL et al. (2010)  |
| <i>Eutanyacra ruficornis</i> (BERTHOUMIEU, 1894)          | Erzurum                          | ÇORUH & ÖZBEK (2013)  |
| <i>Exephanes</i> WESMAEL, 1844                            |                                  |   |
| <i>Exephanes ischioxanthus</i> (GRAVENHORST, 1829)        | Erzurum                          | RIEDEL et al. (2010)  |
| <i>Exephanes ulbrichti</i> HINZ, 1957                     | Erzurum                          | ÖZBEK et al. (2003)   |
| <i>Fileanta</i> CAMERON 1901                              |                                  |   |
| <i>Fileanta flavolaeta</i> BERTHOUMIEU, 1892              | Sivas, Van                       | HEINRICH (1978), KOLAROV (1995)   |
| <i>Fileanta radoszkowskii</i> THUNBERG, 1892              | Anatolia                         | HEINRICH (1978), KOLAROV (1995)   |
| <i>Hepiopelmus</i> WESMAEL, 1844                          |                                  |   |
| <i>Hepiopelmus melanogaster</i> (GMELIN, 1790)            | Artvin, Erzurum                  | RIEDEL et al. (2010)  |
| <i>Homotherus</i> FOESTER, 1868                           |                                  |   |
| <i>Homotherus locutor</i> (THUNBERG, 1824)                | Erzurum                          | RIEDEL et al. (2010)  |
| <i>Homotherus varipes</i> (GRAVENHORST, 1829)             | Trabzon                          | KOLAROV et al. (2014b)  |
| <i>Hoplismenus</i> GRAVENHORST, 1829                      |                                  |   |
| <i>Hoplismenus axillatorius</i> (THUNBERG, 1822)          | Tunceli                          | KOLAROV et al. (2014a)  |

| Names of Taxa                                    | Distributions in Turkey                        | Reference(s)  |
|--|--|---|
| <i>Hoplismenus bidentatus</i> (GMELIN, 1790)     | Erzurum, İstanbul, Tunceli                     | KOLAROV (1989), KOLAROV (1995), RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014b) |
| <b><i>Ichneumon</i> LINNAEUS, 1758</b>           |  |   |
| <i>Ichneumon albicollis</i> s.str. WESMAEL, 1857 | Anatolia                                       | HILPERT (1992), KOLAROV (1995)  |
| <i>Ichneumon alius</i> TISCHBEIN, 1879           | Anatolia                                       | ÖZBEK (1992), KOLAROV (1995)  |
| <i>Ichneumon balteatus</i> WESMAEL, 1845         | Ankara, Erzurum                                | ÖZDEMİR (1996), RIEDEL et al. (2010)  |
| <i>Ichneumon bucculentus</i> WESMAEL, 1845       | Bayburt, Erzurum, İstanbul, Niğde              | FAHRINGER (1922), HILPERT (1992), KOLAROV (1995), RIEDEL et al. (2010), ÇORUH et al. (2011)       |
| <i>Ichneumon caedator</i> GRAVENHORST, 1829      | Artvin   | ÇORUH et al. (2011)   |
| <i>Ichneumon caloscelis</i> WESMAEL, 1845        | Isparta  | ÖZDAN (2014)  |
| <i>Ichneumon cessator</i> MÜLLER, 1776           | Erzurum  | RIEDEL et al. (2010)  |
| <i>Ichneumon confusor</i> GRAVENHORST, 1820      | Kars   | RIEDEL et al. (2010)  |
| <i>Ichneumon coniger</i> TISCHBEIN, 1876         | Erzurum  | RIEDEL et al. (2010)  |
| <i>Ichneumon curtulus</i> KRIECHBAUMER, 1882     | Bayburt, Erzurum                               | ÇORUH & ÖZBEK (2011)  |
| <i>Ichneumon erythromerus</i> WESMAEL, 1857      | Erzurum  | RIEDEL et al. (2010)  |
| <i>Ichneumon exilicornis</i> WESMAEL, 1857       | Erzurum  | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ichneumon extensorius</i> LINNAEUS, 1758      | Erzurum, Niğde                                 | FAHRINGER (1921), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Ichneumon fulvicornis</i> GRAVENHORST, 1829   | Bayburt, Erzurum                               | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ichneumon gracilentus</i> WESMAEL, 1844       | Asia minor                                     | FAHRINGER (1922), KOLAROV (1995)  |
| <i>Ichneumon gracilicornis</i> GRAVENHORST, 1829 | Anatolia, Bayburt, Erzurum                     | HILPERT (1992), KOLAROV (1995), Riedel et al. (2010), Çoruh et al. (2011)                         |
| <i>Ichneumon gratus</i> WESMAEL, 1855            | Erzurum  | RIEDEL et al. (2010)  |
| <i>Ichneumon haematosfemur</i> HEINRICH, 1980    | Anatolia, Erzurum                              | HILPERT (1989), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Ichneumon ignobilis</i> WESMAEL, 1855         | Erzurum, Rize                                  | RIEDEL et al. (2010), KOLAROV et al. (2014b)  |
| <i>Ichneumon languidus</i> WESMAEL, 1845         | Erzurum  | RIEDEL et al. (2010)  |
| <i>Ichneumon lauatorius</i> DESVIGNES, 1856      | Erzurum, İğdir, Muğla                          | RIEDEL et al. (2010)  |
| <i>Ichneumon ligatorius</i> THUNBERG, 1822       | Anatolia                                       | HILPERT (1992), KOLAROV (1995)  |
| <i>Ichneumon minutorius</i> DESVIGNES, 1856      | Anatolia, Artvin, Erzurum                      | HILPERT (1992), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Ichneumon ostentator</i> HEINRICH, 1978       | Anatolia, Erzurum                              | HEINRICH (1978), HILPERT (1992), KOLAROV (1995), RIEDEL et al. (2010)                             |
| <i>Ichneumon phaeostigma</i> WESMAEL, 1857       | Erzurum  | RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ichneumon primatorius</i> FÖRSTER, 1771       | Erzurum  | ÇORUH et al. (2011), RIEDEL et al. (2011)   |
| <i>Ichneumon proletarius</i> WESMAEL, 1848       | Anatolia, Ardahan, Artvin, Erzurum, Kars, Rize | HILPERT (1992), KOLAROV (1995); ÇORUH et al. (2011), RIEDEL et al. (2010), KOLAROV et al. (2014b) |
| <i>Ichneumon quaestorius</i> LINNAEUS, 1761      | Erzurum  | ÇORUH et al. (2011)   |

| Names of Taxa  | Distributions in Turkey                              | Reference(s)   |
|--|--|--|
| <i>Ichneumon sarcitorius</i> s. str. LINNAEUS, 1758        | Anatolia, Çankırı, Bayburt, Erzurum                  | HILPERT (1992), KOLAROV (1995), ÖZDEMİR (1996), Kolarov et al. (1997), RIEDEL et al. (2010), ÇORUH et al. (2011)   |
| <i>Ichneumon sarcitorius caucasicus</i> MEYER, 1926        | Eastern Anatolia, Erzurum                            | HILPERT (1992), KOLAROV (1995), ÇORUH et al. (2011)  |
| <i>Ichneumon sexcinctus</i> GRAVENHORST, 1829              | Erzurum  | RIEDEL et al. (2010)   |
| <i>Ichneumon sexcinctoides</i> RIEDEL, ÇORUH & ÖZBEK, 2010 | Erzurum  | RIEDEL et al. (2010)   |
| <i>Ichneumon simulans</i> TISCHBEIN, 1873                  | Anatolia   | HILPERT (1992), KOLAROV (1995)   |
| <i>Ichneumon stramentarius</i> GRAVENHORST, 1820           | Bayburt, İstanbul                                    | FAHRINGER (1922), KOLAROV (1995), RIEDEL et al. (2010)   |
| <i>Ichneumon stramentor</i> RASNITSIN, 1984                | Anatolia   | HILPERT (1992)   |
| <i>Ichneumon suspiciosus</i> WESMAEL, 1845                 | Erzurum  | RIEDEL et al. (2010)   |
| <i>Ichneumon terminatorius</i> GRAVENHORST, 1820           | İstanbul, Erzincan, Erzurum, Niğde                   | FAHRINGER & FRIESE (1921), FAHRINGER (1922), HILPERT (1922), KOLAROV (1995), RIEDEL et al. (2010)  |
| <i>Ichneumon veressi</i> (KISS, 1915)                      | Anatolia   | HILPERT (1992)   |
| <i>Ichneumon tuberculipes</i> WESMAEL, 1848                | Amasya   | RIEDEL et al. (2010)   |
| <i>Ichneumon vafer meridionalis</i> HEINRICH, 1929         | Erzurum  | RIEDEL et al. (2010)   |
| <i>Ichneumon xanthorius xanthorius</i> FÖRSTER, 1771       | Anatolia, Denizli                                    | HILPERT (1992), ÖZBEK et al. (2003)  |
| <b>Limerodops HEINRICH, 1949</b>                           |  |  |
| <i>Limerodops subsericans</i> (GRAVENHORST, 1820)          | Artvin, Kars, Erzurum                                | RIEDEL et al. (2010), ÇORUH et al. (2011), ÇORUH & ÖZBEK (2013)  |
| <b>Melanichneumon THOMSON, 1893</b>                        |  |  |
| <i>Melanichneumon glaucatoriops</i> HEINRICH, 1972         | Erzurum  | ÇORUH et al. (2011), RIEDEL et al. (2011)  |
| <b>Obtusodonta HEINRICH, 1962</b>                          |  |  |
| <i>Obtusodonta equatoria</i> (PANZER, 1786)                | Anatolia, Ankara, Bayburt, Edirne, Erzurum, İstanbul | KHAN & ÖZER (1984), RASNITSIN (1984), KOLAROV (1989); ÖNCÜER (1991), ÖZDEMİR (1996), YURTCAN (1999); RIEDEL et al. (2010); ÇORUH et al. (2011), ÇORUH & ÖZBEK (2013) |
| <b>Patrocloides HEINRICH, 1961</b>                         |  |  |
| <i>Patrocloides sputator</i> (FABRICIUS, 1793)             | Hatay, İstanbul                                      | FAHRINGER (1922), SCHIMITSCHEK (1944), KOLAROV (1995)  |
| <b>Platylabops HEINRICH, 1950</b>                          |  |  |
| <i>Platylabops humilis</i> (WESMAEL, 1857)                 | Erzurum  | RIEDEL et al. (2011)   |
| <i>Platylabops iridipennis</i> (GRAVENHORST, 1829)         | Erzurum, Kars  | RIEDEL et al. (2010)   |
| <i>Platylabops neglectus</i> (FONSCOLOMBÉ, 1847)           | Erzurum  | ÇORUH et al. (2011)  |
| <i>Platylabops oehlkei</i> (HEINRICH, 1972)                | Erzurum  | RIEDEL et al. (2010)   |
| <i>Platylabops tricingulatus</i> (GRAVENHORST, 1820)       | Artvin, Eskişehir                                    | ÖZDEMİR (1996), RIEDEL et al. (2010)   |
| <i>Platylabops vibratorius</i> (THUNBERG, 1824)            | Erzurum  | RIEDEL et al. (2011)   |

| Names of Taxa   | Distributions in Turkey                                 | Reference (s)  |
|---|---|--|
| <i>Platylabus zagoriensis</i> HEINRICH, 1930              | Eskişehir, Kırşehir                                     | ÖZDEMİR (1996)   |
| <b><i>Probolus</i> WESMAEL, 1844</b>                      |   |  |
| <i>Probolus crassulus</i> HORSTMANN, 2000                 | Anatolia, Bayburt,<br>Erzurum, Rize, Trabzon            | RIEDEL et al. (2010)   |
| <b><i>Pseudoamblyteles</i> HEINRICH, 1926</b>             |   |  |
| <i>Pseudoamblyteles homocerus</i> (WESMAEL, 1857)         | Konya, Erzurum, Erzincan                                | AVCI & ÖZBEK (1990), ÖZDEMİR (1996), ÖZBEK et al. (2003), RIEDEL et al. (2010), ÇORUH et al. (2011)          |
| <b><i>Rictichneumon</i> HEINRICH, 1961</b>                |   |  |
| <i>Rictichneumon lombardi</i> (BERTHOUMIEU, 1897)         | Erzurum   | ÖZBEK et al. (2003), RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014b)                       |
| <b><i>Spilichneumon</i> THOMSON, 1894</b>                 |   |  |
| <i>Spilichneumon ammonius</i> (GRAVENHORST, 1820)         | Erzurum   | ÇORUH et al. (2011)  |
| <i>Spilichneumon limnophilus</i> (THOMSON, 1888)          | Erzurum   | ÇORUH et al. (2011)  |
| <i>Spilichneumon occisorius</i> (FABRICIUS, 1793)         | Bolu, Erzurum, Isparta,<br>Eskişehir, Erzurum,<br>Konya | ÖZDEMİR (1996), ÖZBEK et al. (2003), ÖZDAN (2014)  |
| <b><i>Spilothyrateles</i> HEINRICH, 1968</b>              |   |  |
| <i>Spilothyrateles illuminatorius</i> (GRAVENHORST, 1820) | Ankara, Erzurum,<br>Erzincan, Kırşehir                  | ÖZDEMİR (1996), ÖZBEK et al. (2003), RIEDEL et al. (2010), KOLAROV and CALMAŞUR, (2011); ÇORUH et al. (2011) |
| <i>Spilothyrateles nuptiatorius</i> (FABRICIUS, 1793)     | Erzurum, İğdır  | RIEDEL et al. (2010)   |
| <b><i>Stenichneumon</i> THOMSON, 1893</b>                 |   |  |
| <i>Stenichneumon culpator</i> (SCHRANK, 1802)             | Erzurum, Giresun  | RIEDEL et al. (2010), KOLAROV et al. (2014b)   |
| <b><i>Stenobarichneumon</i> HEINRICH, 1961</b>            |   |  |
| <i>Stenobarichneumon basiglyptus</i> KRIECHBAUMER, 1890   | İstanbul  | YURTCAN(1999)  |
| <b><i>Thyrateles</i> PERKINS, 1953</b>                    |   |  |
| <i>Thyrateles camelinus</i> (WESMAEL, 1845)               | Ardahan, Erzurum, Kars                                  | RIEDEL et al. (2010)   |
| <i>Thyrateles tardus</i> (BERTHOUMIEU, 1897)              | Ardahan   | ÖZBEK et al. (2003)  |
| <b><i>Triptognathus</i> BERTHOUMIEU, 1904</b>             |   |  |
| <i>Triptognathus atripes</i> (GRAVENHORST, 1820)          | Kayseri, Bayburt, Erzurum                               | KOHL(1905), KOLAROV (1995), RIEDEL et al. (2011)   |
| <i>Triptognathus cf. fumigator</i> (GRAVENHORST, 1820)    | Erzurum   | RIEDEL et al. (2011)   |
| <i>Triptognathus unidentatus</i> BERTHOUMIEU, 1894        | Erzurum, Niğde  | HEINRICH (1978), KOLAROV (1995)  |
| <i>Triptognathus unifasciatus</i> (SPINOLA, 1843)         | Anatolia, Bayburt, Erzurum                              | HEINRICH (1978), RIEDEL et al. (2011)  |
| <b><i>Virgichneumon</i> HEINRICH, 1977</b>                |   |  |
| <i>Virgichneumon albosignatus</i> (GRAVENHORST, 1829)     | Bayburt, Erzurum  | RIEDEL et al. (2010)   |

| Names of Taxa   | Distributions in Turkey  | Reference (s)  |
|---|--|--|
| <i>Virgichneumon callicerus</i> (GRAVENHORST, 1820)   | Bayburt, Bingöl, Erzincan, Erzurum, Trabzon                          | RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014b)  |
| <i>Virgichneumon digrammus</i> (GRAVENHORST, 1820)    | Erzurum, Isparta   | RIEDEL et al. (2010), ÖZDAN (2014)   |
| <i>Virgichneumon maculicauda</i> (PERKINS, 1953)      | Bayburt, Erzurum   | RIEDEL et al. (2010), ÇORUH et al. (2011)  |
| <b><i>Vulgichneumon</i> HEINRICH, 1962</b>            |  |  |
| <i>Vulgichneumon deceptor</i> (SCOPOLI, 1763)         | Erzurum, Nevşehir, Trabzon   | HEINRICH (1996), RIEDEL et al. (2010), ÇORUH et al. (2011), KOLAROV et al. (2014b)   |
| <i>Vulgichneumon saturatorius</i> (LINNAEUS, 1758)    | Adana, Ardahan, Erzurum, Giresun, Rize                               | RIEDEL et al. (2010); ÇORUH et al. (2013), KOLAROV et al. (2014b)  |
| <i>Vulgichneumon suavis</i> (GRAVENHORST, 1820)       | Erzurum, Giresun, Rize   | RIEDEL et al. (2010), KOLAROV et al. (2014b)   |
| <b>TRIBE JOPPOCRYPTINI VIERECK, 1918</b>              |  |  |
| <b><i>Pseudoplatylabus</i> SMITS VAN BURGST, 1920</b> |  |  |
| <i>Pseudoplatylabus violentus</i> (GRAVENHORST, 1829) | Iğdır  | RIEDEL et al. (2010)   |
| <b>TRIBE LISTRODROMINI FÖRSTER, 1869</b>              |  |  |
| <b><i>Anisobas</i> WESMAEL, 1845</b>                  |  |  |
| <i>Anisobas brombacheri</i> HEINRICH, 1933            | Erzurum  | ÖZBEK et al. (2003)  |
| <i>Anisobas cingulatellus</i> HORSTMANN, 1997         | Bayburt, Edirne, Isparta, Erzurum, Kayseri, Konya, Tekirdağ, Tunceli | KOHL (1905), SEDIVY (1959), ÖNCÜER (1991), KOLAROV (1995), YURTÇAN (1999), ÇORUH et al. (2005), RIEDEL et al. (2010); ÇORUH et al. (2013), KOLAROV et al. (2014a), KOLAROV et al. (2014b), ÇORUH et al. (2011), ÖZDAN (2014) |
| <i>Anisobas seyrigi</i> HEINRICH, 1933                | Anatolia   | SELFA et al. (1988), KOLAROV (1995)  |
| <i>Anisobas hostilis</i> (GRAVENHORST, 1820)          | Erzurum, Kars, Tekirdağ  | YURTÇAN (1999), ÖZBEK et al. (2003), RIEDEL et al. (2010)  |
| <i>Anisobas rebellis</i> WESMAEL, 1845                | Artvin, Bingöl, Erzurum, Konya, Tunceli                              | RIEDEL et al. (2010); KOLAROV et al. (2014b)   |
| <i>Anisobas seyrigi</i> HEINRICH, 1934                | Anatolia, Tunceli  | SELFA et al. (1988), KOLAROV (1995); KOLAROV et al. (2014b)  |
| <b><i>Listrodromus</i> WESMAEL, 1845</b>              |  |  |
| <i>Listrodromus nycthemerus</i> (GRAVENHORST, 1820)   | Erzurum  | ?ÖZBEK et al. (2003), RIEDEL et al. (2010)   |
| <b><i>Neotypus</i> FÖRSTER, 1868</b>                  |  |  |
| <i>Neotypus coreensis</i> UCHIDA, 1930                | Erzurum  | RIEDEL et al. (2010)   |
| <i>Neotypus nobilitator</i> (GRAVENHORST, 1807)       | Erzurum  | ÇORUH et al. (2011)  |
| <i>Neotypus melanocephalus</i> (GMELIN, 1790)         | Istanbul   | FAHRINGER (1922), KOLAROV (1995)   |
| <b><i>Pithotomus</i> KRIECHBAUMER, 1888</b>           |  |  |
| <i>Pithotomus rufiventris</i> KRIECHBAUMER, 1888      | Istanbul   | KOLAROV (1989), KOLAROV (1995)   |
| <b>TRIBE PHAEOGENININI FÖRSTER, 1869</b>              |  |  |
| <b><i>Centeterus</i> WESMAEL, 1845</b>                |  |  |
| <i>Centeterus nigricornis</i> THOMPSON, 1891          | Nevşehir   | ÖZDEMİR (1996)   |

| Names of Taxa                                       | Distributions in Turkey     | Reference (s)   |
|---|-----------------------------|---|
| <i>Centeterus major</i> WESMAEL, 1845               | Konya                       | ÖZDEMIR (1996)  |
| <b><i>Eparces</i> FÖRSTER, 1869</b>                 |                             |   |
| <i>Eparces grandiceps</i> THOMSON, 1891             | Tekirdağ                    | YURTCAN (1999)  |
| <b><i>Dicaelotus</i> WESMAEL 1845</b>               |                             |   |
| <i>Dicaelotus montanus</i> (DE STEFANI, 1885)       | Eskişehir                   | KOLAROV (1989), KOLAROV (1995)  |
| <i>Dicaelotus morosator</i> AUBERT, 1969            | Adapazarı                   | ONAT (1974), ÖNCÜER (1991), KOLAROV (1995)                              |
| <i>Dicaelotus rufilimbatus</i> (GRAVENHORST, 1820)  | Niğde                       | KOLAROV (1989), KOLAROV (1995)  |
| <b><i>Herpestomus</i> WESMAEL, 1845</b>             |                             |   |
| <i>Herpestomus arridens</i> (GRAVENHORST, 1829)     | Isparta                     | ÖZDAN (2014)  |
| <i>Herpestomus brunnicornis</i> (GRAVENHORST, 1829) | Ankara, Eskişehir, Nevşehir | IREN (1960), SOYDANBAY (1978), ÖNCÜER (1991), ÖZDEMIR (1996)            |
| <b><i>Phaeogenes</i> WESMAEL, 1845</b>              |                             |   |
| <i>Phaeogenes alternans</i> WESMAEL, 1845           | Rize                        |   |
| <i>Phaeogenes corcyriensis</i> BERTHOUMIEU, 1901    | Anatolia                    | KASPARYAN (1981), KOLAROV (1986), KOLAROV (1995), KOLAROV et al. (2014) |
| <i>Phaeogenes nigridens</i> WESMAEL, 1844           | Black Sea, İstanbul         | ÖZDEMIR (1981), KOLAROV (1989), ÖNCÜER (1991), KOLAROV (1995)           |
| <i>Phaeogenes planifrons</i> WESMAEL, 1844          | İstanbul                    | KOLAROV (1989), KOLAROV (1995)  |
| <i>Phaeogenes rusticatus</i> WESMAEL, 1844          | Bursa                       | SOYDANBAY (1978), KOLAROV (1995)  |
| <b><i>Stenodontus</i> BERTHOUMIEU, 1897</b>         |                             |   |
| <i>Stenodontus marginellus</i> (GRAVENHORST, 1829)  | Erzurum                     | KOLAROV et al. (2014b)  |
| <b>TRIBE PLATYLABINI BERTHOUMIEU, 1904</b>          |                             |   |
| <b><i>Apaeleticus</i> WESMAEL, 1844</b>             |                             |   |
| <i>Apaeleticus bellicosus</i> WESMAEL, 1845         | Bayburt, Erzurum            | RIEDEL et al. (2010), ÇORUH et al. (2011)                               |
| <i>Apaeleticus inimicus</i> (GRAVENHORST, 1820)     | Erzurum                     | RIEDEL et al. (2011)  |
| <b><i>Cyclolabus</i> HEINRICH 1936</b>              |                             |   |
| <i>Cyclolabus pactor</i> (WESMAEL, 1845)            | Erzurum                     | RIEDEL et al. (2010)  |
| <b><i>Linycus</i> CAMERON, 1903</b>                 |                             |   |
| <i>Linycus exhortator</i> (FABRICIUS, 1793)         | Erzurum, Niğde              | FAHRINGER (1922), KOLAROV (1995), ÖZBEK et al. (2003)                   |
| <b>TRIBE ZIMMERIINI HEINRICH, 1934</b>              |                             |   |
| <b><i>Cotheresiarches</i> TELENGA, 1929</b>         |                             |   |
| <i>Cotheresiarches dirus</i> (WESMAEL, 1853)        | South Trakia                | KOLAROV (1995)  |

Table 3: Parasitoid ichneumonines obtained from different hosts and references in Turkey.

| Names of Taxa  | Hosts Name<br>Hosts  | Order and Family of<br>Hosts | Reference (s)   |
|--|--|------------------------------|---|
| <b>TRIBE: ALOMYINI FÖRSTER, 1869</b>                     |  |                              |   |
| <b><i>Diadromus</i> WESMAEL, 1844</b>                    |  |                              |   |
| <i>Diadromus collaris</i> (GRAVENHORST, 1829)            | <i>Plutella maculipennis</i> CURT.<br><i>Plutella maculipennis</i> CURT. | Lepidoptera: Plutellidae     | ÖZDEMİR (1996), AVCI & ÖZBEK (1990)                   |
| <i>Diadromus subtilicornis</i> (GRAVENHORST, 1829)       |  |                              | ÖZDEMİR (1996), AVCI & ÖZBEK (1990)                   |
| <b><i>Dicaelous</i> WESMAEL, 1844</b>                    |  |                              |   |
| <i>Dicaelous erythrogaster</i> (HOLMGREN, 1890)          | <i>Lobesia botrana</i> DEN et.<br>SCHIFF.                                | Lepidoptera: Tortricidae     | ÖZDEMİR (1996)  |
| <i>Dicaelous morosator</i> AUBERT, 1969                  | <i>Scrobipalpa pcellatella</i><br>BOYD.                                  | Lepidoptera: Gelechiidae     | ÖNCÜER (1991), KOLAROV (1995)                         |
| <i>Dicaelous rufilimbatus</i> (GRAVENHORST, 1820)        | <i>Lobesia botrana</i> DEN et.<br>SCHIFF.                                | Lepidoptera: Tortricidae     | ÖZDEMİR (1996)  |
| <b><i>Dirophanes</i> FÖRSTER, 1868</b>                   |  |                              |   |
| <i>Dirophanes invisor</i> (THUNBERG, 1822)               | <i>Tortrix viridana</i> L.   | Lepidoptera: Tortricidae     | ÖZDEMİR (1996)  |
| <b>TRIBE: HERESIARCHINI ASHMEAD, 1900</b>                |  |                              |   |
| <b><i>Callajoppa</i> CAMERON, 1903</b>                   |  |                              |   |
| <i>Callajoppa exaltatoria exaltatoria</i> (PANZER, 1804) | <i>Agrius convolvuli</i> L.  | Lepidoptera: Sphingidae      | FAHRINGER (1922), KOLAROV (1995)                      |
| <b><i>Cratichneumon</i> THOMSON, 1893</b>                |  |                              |   |
| <i>Cratichneumon fabricator</i> FABRICIUS, 1793          | <i>Abraxas pantaria</i> (L.)   | Lepidoptera:<br>Geometridae  | ÖZBEK & CALMASUR (2010)                               |
| <i>Cratichneumon viator</i> (SCOPOLI, 1763)              | <i>Plusia gamma</i> L.   | Lepidoptera: Noctuidae       | FAHRINGER (1922), KOLAROV (1995)                      |
| <b><i>Obtusodonita</i> HEINRICH, 1962</b>                |  |                              |   |
| <i>Obtusodonita equitatoria</i> (PANZER, 1786)           | <i>Agrotis</i> sp.   | Lepidoptera: Noctuidae       | KHAN & ÖZER (1981), KOLAROV (1995),<br>ÖZDEMİR (1996) |

| Names of Taxa                                      | Hosts Name                           | Order and Family of Hosts  | Reference (s)   |
|--|--------------------------------------|----------------------------|---|
| <b>Patrocloides HEINRICH, 1961</b>                 |                                      |                            |   |
| <i>Patrocloides spinator</i> (FABRICIUS, 1793)     | <i>Plutia gamma</i> L.               | Lepidoptera: Noctuidae     | FAHRINGER (1922), SCHIMITSCHEK (1944), KOLAROV (1995) |
| <b>Pseudamblytes HEINRICH, 1926</b>                |                                      |                            |   |
| <i>Pseudamblytes homocerus</i> (WESMAEL, 1857)     | <i>Autographa gamma</i> (L.)         | Lepidoptera: Noctuiidae    | AVCI & ÖZBEK (1996), ÖZDEMİR (1996)                   |
| <b>TRIBE PHAEOGENINI FÖRSTER, 1869</b>             |                                      |                            |   |
| <b>Dicaelotus</b> WESMAEL, 1844                    |                                      |                            |   |
| <i>Dicaelotus morosator</i> AUBERT, 1969           | <i>Scrobipalpa ocellatella</i> BOYD. | Lepidoptera: Gelechiidae   | ÖNCÜER (1991), KOLAROV (1995)                         |
| <b>Herpestomus</b> WESMAEL, 1845                   |                                      |                            |   |
| <i>Herpestomus brumicornis</i> (GRAVENHORST, 1829) | <i>Yponomeuta malinellus</i> ZELL.   | Lepidoptera: Yponomeutidae | SOYDANBAY (1978), ÖNCÜER (1991), ÖZDEMİR (1996)       |
| <b>Phaeogenes</b> WESMAEL, 1845                    |                                      |                            |   |
| <i>Phaeogenes nigridens</i> WESMAEL, 1844          | <i>Yponomeuta padellus</i> L.        | Lepidoptera: Yponomeutidae |   |
| <i>Phaeogenes rusticatus</i> WESMAEL, 1844         | <i>Yponomeuta rorellus</i> HB.       | Lepidoptera: Yponomeutidae |   |
|  | <i>Yponomeuta</i> sp.                | Lepidoptera: Yponomeutidae |   |
| <b>TRIBE ZIMMERINI HEINRICH, 1934</b>              |                                      |                            |   |
| <b>Cotilereiarches</b> TELENGA, 1929               |                                      |                            |   |
| <i>Cotilereiarches dirus</i> (WESMAEL, 1853)       | <i>Erigaster lanestris</i> L.        | Lepidoptera: Lasiocampidae | KOLAROV (1995)  |

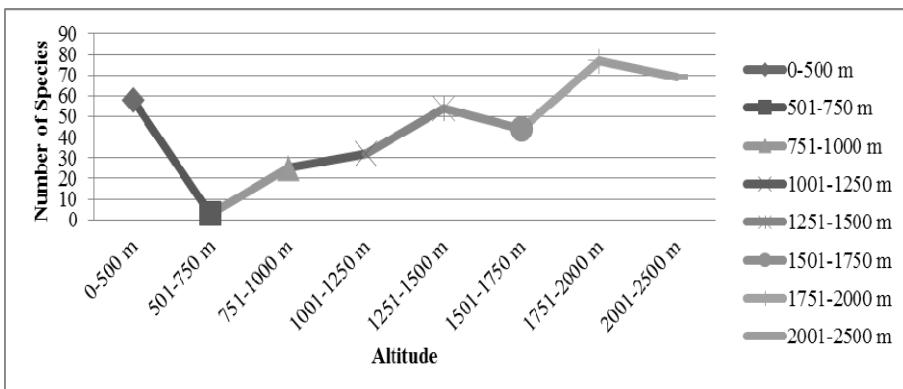
Table 4: Plants visited by ichneumonines adults in Turkey.

| Insect Species  | Plant Species   | Family of Plant Species                             | Reference (s)  |
|---|---|---|--|
| <b>TRIBE: ALOMYINI FÖRSTER, 1869</b>                  |   |   |  |
| <i>Alomya Alomya PANZER 1806</i>                      | <i>Ligustrum vulgare</i> L.<br><i>Eryngium maritimum</i> L.   | Oleaceae<br>Apiaceae                                | FAHRINGER (1922), KOLAROV (1995)   |
| <i>Alomya debellator</i> (FABRICIUS, 1775)            |   |   |  |
| <i>Colpognathus WESMAEL, 1844</i>                     | <i>Heracleum</i> sp.  | Apiaceae  | KOLAROV et al. (2014b)   |
| <i>Colpognathus divisus</i> THOMSON, 1891             |   |   |  |
| <i>Dicaelotus WESMAEL, 1844</i>                       | <i>Beta vulgaris</i> L.   | Chenopodiaceae                                      | ÖNCÜER (1991), KOLAROV (1995)  |
| <i>Dicaelotus monosator</i> AUBERT, 1969              |   |   |  |
| <i>Heterischinus WESMAEL, 1859</i>                    | <i>Seseli libanotis</i> (L.) W. KOCH  | Apiaceae  | KOLAROV et al. (2014b)   |
| <i>Heterischinus schachti</i> DILLER, 1995            |   |   |  |
| <b>TRIBE: HERESIARCHINI ASHMEAD, 1900</b>             |   |   |  |
| <i>Amblyjoppa CAMERON, 1902</i>                       | <i>Sambucus ebulus</i> L.<br><i>Seseli libanotis</i> (L.) W. KOCH   | Caprifoliaceae<br>Apiaceae                          | FAHRINGER (1922), KOLAROV (1995)<br>ÇORUH & ÇORUH (2008)                                     |
| <i>Amblyjoppa fuscipennis</i> (WESMAEL, 1844)         |   |   |  |
| <i>Codictiheumon THOMSON, 1893</i>                    | <i>Ferula communis</i> L.<br><i>Tanacetum armenum</i> (DC.) SCH. Bip.<br><i>Heracleum pastinacifolium</i> K. KOCH | Apiaceae<br>Asteraceae                              | ÇORUH & ÇORUH (2008)<br>FAHRINGER (1922), KOLAROV (1995)                                     |
| <i>Codictiheumon leucocerus</i> (GRAVENHORST, 1820)   |   |   |  |
| <i>Coelichneumon dorsostigmatus</i> BERTHOUMIEU, 1894 | <i>Mentha longifolia</i> (L.) HUDSON<br><i>Myricaria germanica</i> (L.) DESV.<br><i>Salix triandra</i> L.         | Apiaceae<br>Lamiaceae<br>Tamaricaceae<br>Salicaceae | ÇORUH & ÇORUH (2012)<br>ÇORUH & ÇORUH (2012)<br>ÇORUH & ÇORUH (2012)<br>ÇORUH & ÇORUH (2012) |
| <i>Lymantrichneumon HENRICH, 1968</i>                 |   |   |  |
| <i>Lymantrichneumon disparis</i> (PODA, 1761)         | <i>Acantholimon venustum</i> BOISS.   | Plumbaginaceae                                      | FAHRINGER (1922), KOLAROV (1995)   |
| <i>Protichneumon THOMSON, 1893</i>                    |   |   |  |
| <i>Protichneumon coqueberti</i> (WESMAEL, 1848)       | <i>Seseli libanotis</i> (L.) W. KOCH  | Apiaceae  | ÇORUH & ÇORUH (2008)   |

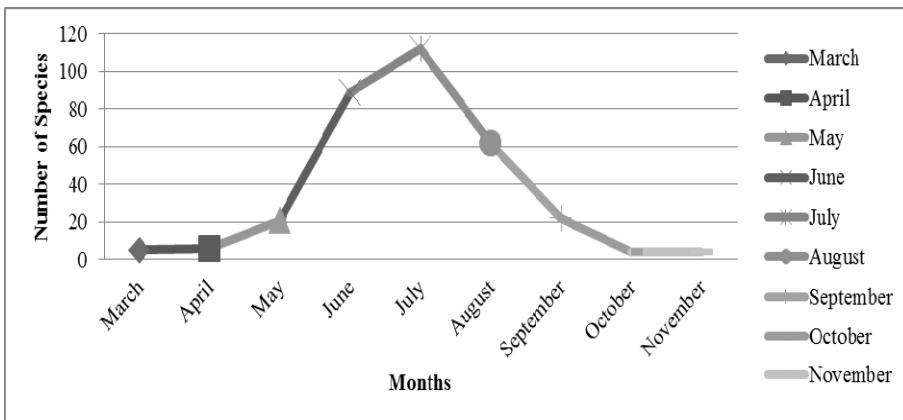
| Insect Species                                   | Plant Species                            | Family of Plant Species | Reference (s)                                    |
|--|--|-------------------------|--|
| <i>Protichneumon fuscarius</i> (LINNAEUS, 1761)  | <i>Seseli libanotis</i> (L.) W. KOCH     | Apiaceae                | ÇORUH & ÇORUH (2008)                             |
| <b>TRIBE: ICHNEUMONINI LATREILLE, 1802</b>       |  |                         |  |
| <i>Amblyteles Wesmael, 1844</i>                  |  |                         |  |
| <i>Amblyteles armatorius</i> (FÖRSTER, 1771)     | <i>Heracleum playtaenium</i> BOISS.      | Apiaceae                | FAHRINGER (1922), KOLAROV (1995)                 |
| <i>Cratichneumon Thomson, 1893</i>               |  |                         |  |
| <i>Cratichneumon corsicator</i> (LINNAEUS, 1758) | <i>Sambucus ebulus</i> L.                | Caprifoliaceae          | FAHRINGER (1922), KOLAROV (1995)                 |
|  | <i>Tanacetum armenum</i> (DC.) SCH. Bip. | Asteraceae              | FAHRINGER (1922), KOLAROV (1995)                 |
|  | <i>Sambucus ebulus</i> L.                | Caprifoliaceae          | FAHRINGER (1921), KOLAROV (1995)                 |
|  | <i>Fraxinus excelsior</i> (L.)           | Oleaceae                | ÖZBEK and CALMAŞUR (2010)                        |
| <i>Diphrys KREICHAUER, 1890</i>                  |  |                         |  |
| <i>Diphrys luctatorius</i> (LINNAEUS, 1758)      | <i>Sambucus ebulus</i> L.                | Caprifoliaceae          | FAHRINGER (1922), KOLAROV (1995)                 |
| <i>Diphrys monivagans</i> BERTHOUMEI, 1987       | <i>Epilobium angustifolium</i> L.        | Onagraceae              | ÇORUH & ÇORUH (2012)                             |
| <i>Diphrys ochromelas</i> (CHRIST, 1790)         | <i>Daucus carota</i> L.                  | Apiaceae                | FAHRINGER (1922), KOLAROV (1995)                 |
| <i>Diphrys pallianorius</i> (GRAVENHORST, 1829)  | <i>Daucus carota</i> L.                  | Apiaceae                | FAHRINGER (19229, KOLAROV (1995)                 |
| <i>Diphrys pseudomercurator</i> HEINRICH, 1978   | <i>Epilobium parviflorum</i> SCHREIB.    | Onagraceae              | KOLAROV et al. (2014b)                           |
|  | <i>Heracleum playtaenium</i> BOISS.      | Apiaceae                | ÇORUH & ÇORUH (2012)                             |
|  | <i>Heracleum pastinacifolium</i> K. KOCH | Apiaceae                | ÇORUH & ÇORUH (2012)                             |
|  | <i>Epilobium angustifolium</i> L.        | Onagraceae              | ÇORUH & ÇORUH (2012)                             |
|  | <i>Mentha longifolia</i> (L.) HUDSON     | Lamiaceae               | ÇORUH & ÇORUH (2012)                             |
|  | <i>Myricaria germanica</i> (L.) DESV.    | Tamaricaceae            | ÇORUH & ÇORUH (2012)                             |
|  | <i>Salix triandra</i> L.                 | Salicaceae              | ÇORUH & ÇORUH (2012)                             |
|  | <i>Sambucus ebulus</i> L.                | Caprifoliaceae          | FAHRINGER (1922), KOLAROV (1995)                 |
| <i>Diphrys quadripunctarius</i> (MÜLLER, 1776)   |  |                         |  |
| <i>Ichneumon LINNAEUS, 1758</i>                  |  |                         |  |
| <i>Ichneumon bucculentus</i> WESMAEL, 1845       | <i>Sambucus ebulus</i> L.                | Caprifoliaceae          | FAHRINGER (1922), HILPERT (1992), KOLAROV (1995) |
|  | <i>Daucus carota</i> L.                  | Apiaceae                | FAHRINGER (1922), HILPERT (1992), KOLAROV (1995) |

| Insect Species                                   | Plant Species                          | Family of Plant Species | Reference (s)                                    |
|--|--|-------------------------|--|
| <i>Ichneumon extensorius</i> LINNÆUS, 1758       | <i>Heracleum platytaenium</i> BOISS.   | Apiaceae                | FAHRINGER (1922), HILPERT (1992), KOLAROV (1995) |
| <i>Ichneumon gracilentus</i> WESMAEL, 1844       | <i>Chrysanthemum argentatum</i> WILLD. | Asteraceae              | FAHRINGER (1921), KOLAROV (1995)                 |
| <i>Ichneumon stramentarius</i> GRAVENHORST, 1820 | <i>Sambucus ebulus</i> L.              | Caprifoliaceae          | FAHRINGER (1921), KOLAROV (1995)                 |
| <i>Ichneumon terminatorius</i> GRAVENHORST, 1820 | <i>Daucus carota</i> L.                | Apiaceae                | FAHRINGER (1921), KOLAROV (1995)                 |
| <i>Necydalis melanoccephalus</i> (GMELIN, 1790)  | <i>Heracleum platytaenium</i> BOISS.   | Apiaceae                | FAHRINGER (1921), HILPERT (1922), KOLAROV (1995) |
| <i>Necydalis melanoccephalus</i> (GMELIN, 1790)  | <i>Daucus carota</i> L.                | Apiaceae                | FAHRINGER (1922), KOLAROV (1995)                 |
| <b>TRIBE LISTRODROMINI FÖRSTER, 1869</b>         |  |                         |  |
| <i>Anisobas</i> WESMAEL, 1845                    |  |                         |  |
| <i>Anisobas cingulatellus</i> HORSTMANN, 1997    | <i>Daucus carota</i> L.                | Apiaceae                | KOLAROV et al. (204b)                            |
| <b>TRIBE PHAEOGENINI FÖRSTER, 1869</b>           |  |                         |  |
| <i>Dicaelotus</i> WESMAEL, 1845                  |  |                         |  |
| <i>Dicaelotus monosator</i> AUBERT, 1969         | <i>Beta vulgaris</i> L.                | Chenopodiaceae          | ÖNCÜER (1991), KOLAROV (1995)                    |
| <b>TRIBE PLATYLABINI BERTHOUMIEU, 1904</b>       |  |                         |  |
| <i>Linyxus</i> CAMERON, 1903                     |  |                         |  |
| <i>Linyxus exhortator</i> (FABRICIUS, 1793)      | <i>Daucus carota</i> L.                | Apiaceae                | FAHRINGER (1922), KOLAROV (1995)                 |

We analysed that ichneumonine species seasonal changes *Diadromus collaris*, *Barichneumon bilunulatus*, *Ctenichneumon repentinus*, *Ichneumon proletarius*, *Spilichneumon occisorius*, *Anisobas cingulatellus* and *Anisobas rebellis* were collected from four different months in a year. We can say that these species were more abundant in nature.



**Fig. 4:** Distributions of species according to altitude.



**Fig. 5:** Distributions of species according to months.

On the basis of the ecological data recorded in the present study, *Ichneumon proletarius* are adapted to both each altitude and different climatic conditions.

According to Chi-Square test, the ecological factors shown that there are significant differences between altitudes and months (Fig. 6-7).

|       | <b>Obsorved N</b> | <b>Expected N</b> | <b>Residual</b> |
|-------|-------------------|-------------------|-----------------|
| 3,00  | 3                 | 45,3              | -42,3           |
| 25,00 | 25                | 45,3              | -20,3           |
| 32,00 | 32                | 45,3              | -13,3           |
| 44,00 | 44                | 45,3              | -1,3            |
| 54,00 | 54                | 45,3              | 8,8             |
| 58,00 | 58                | 45,3              | 12,8            |
| 69,00 | 69                | 45,3              | 23,8            |
| 77,00 | 77                | 45,3              | 31,8            |
| Total | 362               |                   |                 |

### Test Statistics

|             | Number              |
|-------------|---------------------|
| Chi-Square  | 92,453 <sup>a</sup> |
| df          | 7                   |
| Asymp. Sig. | ,000                |

a 0 cell(0,0%)have ecpected frequencies less than 5. The minumum ecpected cell frequency is 45, 3  
**Fig. 6:** Altitude of species according to Chi-Square test.

### Zoogeographical distribution

Collected samples were found seven different regions in Turkey (Table 1). It is understood that 145 species were distributed in the Eastern Anatolia Region. The most important reason is that done a large part of the studies by researchers of the area in Turkey. Also, 34, 16, 43, 34, 2 and 2 species were distributed in Marmara, Mediterranean, Central Anatolia, Black Sea, Aegean and Southeastern Anatolia region respectively (Fig. 8). In addition to all this, Table 2 shows that the species collected from the province in seven different regions. Among them, *Heterischnus truncator*, *Amblyjoppa fuscipennis*, *Diphys montivagans*, *Ichneumon bucculentus*, *Spilichneumon occisorius*, *Anisobas cingulatellus* were collected from four regions. It is obvious that *I. bucculentus* is a common species that is widely distributed in the Turkey.

|       | <b>Obsorved N</b> | <b>Expected N</b> | <b>Residual</b> |
|-------|-------------------|-------------------|-----------------|
| 4,00  | 8                 | 40,6              | -32,6           |
| 5,00  | 5                 | 40,6              | -35,6           |
| 6,00  | 6                 | 40,6              | -34,6           |
| 21,00 | 21                | 40,6              | -19,6           |
| 22,00 | 22                | 40,6              | -18,6           |

|        | <b>Obsorved N</b> | <b>Expected N</b> | <b>Residual</b> |
|--------|-------------------|-------------------|-----------------|
| 62,00  | 62                | 40,6              | 21,4            |
| 89,00  | 89                | 40,6              | 48,4            |
| 112,00 | 112               | 40,6              | 71,4            |
| Total  | 325               |                   |                 |

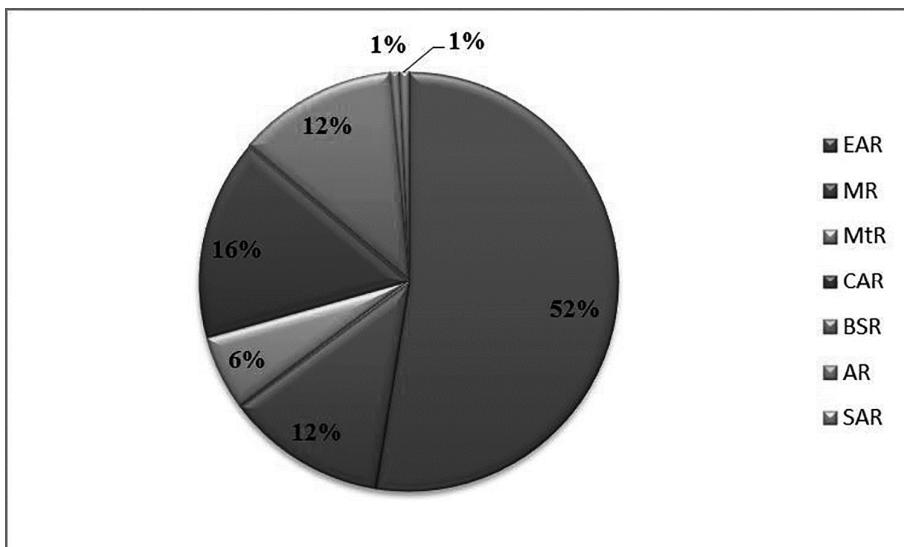
**Test Statistics**

|             | Number               |
|-------------|----------------------|
| Chi-Square  | 299,222 <sup>a</sup> |
| df          | 7                    |
| Asymp. Sig. | ,000                 |

a 0 cell (0,0%) have ecpected frequencies less than 5. The minumum ecpected cell frequency is 40,6

**Fig. 7:** Months of species according to Chi-Square test.

However, 141 species of 214 species were collected from a single region. When regions are compared, distributions are found heterogeneous between regions according to Chi-Square (Fig. 9).



**Fig. 8:** Distributions of species according to regions of Turkey.

**Remarks:** **AR:** Aegean Region, **BSR:** Black Sea Region, **CAR:** Central Anatolia Region, **EAR:** Eastern Anatolia Region, **MR:** Marmara Region, **MtR:** Mediterranean Region, **SAR:** Southeastern Anatolia.

|        | <b>Obsorved N</b> | <b>Expected N</b> | <b>Residual</b> |
|--------|-------------------|-------------------|-----------------|
| 2,00   | 4                 | 55,2              | -51,2           |
| 16,00  | 16                | 55,2              | -39,2           |
| 34,00  | 68                | 55,2              | 12,8            |
| 43,00  | 43                | 55,2              | -12,2           |
| 145,00 | 145               | 55,2              | 89,8            |
| Total  |                   |                   |                 |

**Test Statistics**

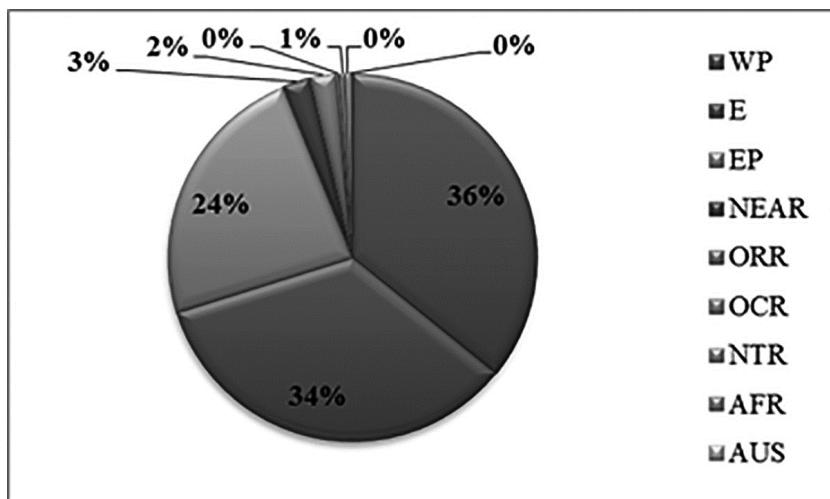
|             | Number               |
|-------------|----------------------|
| Chi-Square  | 227,080 <sup>a</sup> |
| df          | 4                    |
| Asymp. Sig. | ,000                 |

a 0 cell (0,0%) have ecpected frequencies less than 5. The minumum ecpected cell frequency is 55,2

**Fig. 9:** Distribution regions species according to Chi-Square test.

Distributions of the species according to zoogeographical regions are as follows: 203 species present Western Palaearctic, 195 species present European, 134 species present East Palaearctic, 14 species present Nearctic, 13 species present Oriental, two species present Oceanic, three species present Neotropical, one species present Afrotropical and one two present Australian. According to these results, Western Palaearctic and European have the highest numbers of species (Fig. 10 and Table 1).

Among this 215 species, *Trogus lapidator*, *Ctenichneumon panzeri* and *Neotypus nobilitator* showed distribution in five different regions. According to YU et al (2012), *Diadromus collaris* has the widest distribution areas (65 country and eight different regions) in the world. Same species distributed three regions in Turkey. This can be interpreted as follows: This wide range distribution is due to rich host availabilities of the species besides their eurytolerant nature (YU et al. 2007). Interestingly, *Coelichneumon paraviolaceiventris*, *Coelichneumon rufigaster*, *Heterischnus schachti*, *Magwengiella flavescens* and *Ichneumon sexcinctoides* are found only Turkey. They are marked by an asterisk (\*) endemic to Anatolia. Besides, *Coelichneumon nigritor* is distributed only Azerbaijan and Turkey; *Coelichneumon problematicus* is distributed Iran and Turkey and *Coelichneumon pararudis* is distributed Kyrgyzstan and Turkey. It is think that this three species are rarely species for the world. According to Table 1, eight species showed single distribution area in zoogeographical regions.



**Fig. 10:** Distributions of species according to zoogeographical regions.

**Remarks:** AFR: Afrortopikal Region, AUR: Australian Region, E: Europe, EP: Eastern Palaearctic, NEAR: Nearctic Region, NTR: Neotropikal Region, OCR: Oceanic Region, ORR: Oriental Region, WP: Western Palaearctic.

#### Host and plant visited by adults' evaluations

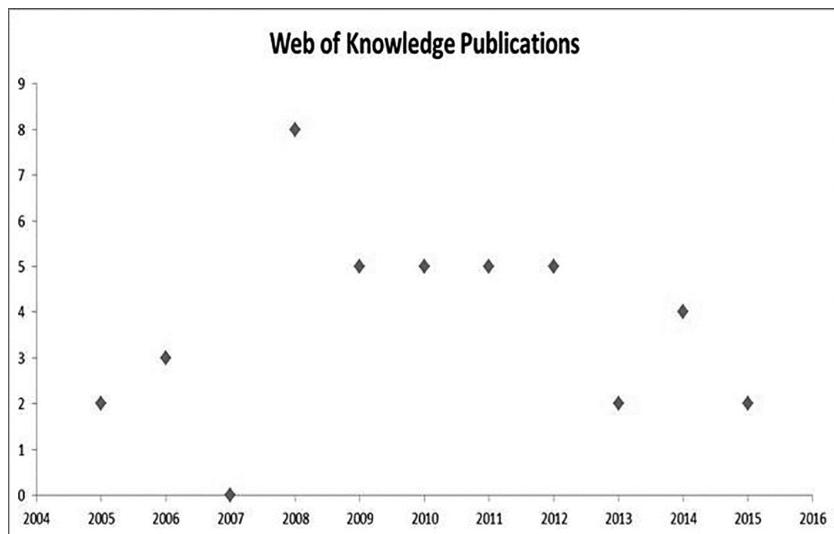
Parasitoid wasps occur worldwide and can be a significant mortality factor in pest populations. Most parasitoid species depend on floral nectar to complete part of their lifecycle (SYME 1975, IDRIS & GRAFIUS 1995). Parasitoid wasps need to eat frequently to avoid starvation, and many species have increased longevity and fecundity when provided with floral resources (BAGGEN & GURR 1998, SIEKMANN et al. 2001). A variety of crops, weeds, and wild plants can occur on agricultural landscapes, but not all of these species provide resources for parasitoid wasps. Some of the plant species do not produce nectar, while others may have long or complicated corollas that can limit nectar availability for small wasps and other short mouthed insects (VATTALA et al. 2006).

Ichneumoninae is an enormous but morphologically relatively uniform group that is nearly all larvae-pupal or pupal endoparasitoids of Lepidoptera. Our results showed that totally 17 ichneumonine species obtained from different hosts in Turkey (Table 3). All of these hosts belong to Lepidoptera order. According to these results, *Herpestomus brunnicornis* was obtained from 3 different *Yponomeuta* spp. (*Yponomeuta malinellus* Zell. Y. *padellus* L., Y. *rorellus* Hb.). According to YU et al. (2012), it abtoined from *Choristoneura murinana*, *Ethmia bipunctella*, *Plutella xylostella*, *Yponomeuta cagnagella*, *Yponomeuta euonymella*, *Yponomeuta evonymella*, *Yponomeuta malinella*, *Yponomeuta padella*, *Yponomeuta plumbeella*, *Yponomeuta rorrella*, *Yponomeuta variabilis*, *Yponomeuta vigintipunctata*. Therefore, it used as biological control agents for *Yponomeuta* spp. in the world (COSSENTINE 2002, UNRUH et al. 2003).

At the same time, *Diadromus collaris* (GRAVENHORST) (Hymenoptera: Ichneumonidae) is an important pupal endoparasitoid of the diamondback moth, *Plutella xylostella* (L.) (Lepidoptera: Plutellidae), one of the most destructive pests of cruciferous vegetables worldwide (WATERHOUSE et al. 1993). It has been recorded in many parts of the world as one of the major biological control agents of *P. xylostella* (WATERHOUSE & NORRIS 1987, MUSTATA 1992, WAKISAKA et al. 1992, ALI & KARIM 1995, HE et al. 1996, CHAUHAN et al. 1997, KFIR 1997, LIU et al. 2000). Our results confirm the literature.

Several plant species have been recorded as associated host plants for ichneumonid species (YU et al. 2012). Host plant associations are evaluated graphically, showing 29 ichneumonines were collected when feed with different plant species in Turkey. It appears from field studies, *Ichneumon bucculentus* was visited *Sambucus ebulus*, *Daucus carota*, *Heracleum platytaenium*. According to YU et al (2012) this species was visited nine plants. From among them, *Daucus carota* and *Heracleum platytaenium* are similar to our results for *Ichneumon bucculentus*. Plants compared listed in Table 4 that *Sambucus ebulus* and *Daucus carota* are the species most frequently visited by ichneumonines.

In conclusion, our study revealed that the faunistic knowledge of the Ichneumonidae from Turkey has received very little attention from researchers till 1995. After 1995, faunistic studies have increased and gained a new dimension. According to Science Station Index (SCI) during for last 10 years, published articles regarding Ichneumonidae from Turkey were indicated in graph (Fig. 11). We believe that this present study will be a base source for new investigations and promote to prepare a new Ichneumonidae catalogue for Turkey in near future.



**Fig. 11:** Publications according to Science Station Index in Turkey.

## Acknowledgement

The author would like to thanks following persons who kindly help in the collection of the material: Dr. Hikmet Özbebek (retired), Miktat Doğanlar (retired), Erol Yıldırım, İrfan Aslan, Önder Çalmaşur, (University of Atatürk, Erzurum), Coşkun Güclü (Eskişehir University). I am grateful to Dr. Janko Kolarov (Bulgaria) and Matthias Riedel (Amselweg, Fallingbostel) for identification of certain material. I am also kindly thankful to Mutlu Yağanoğlu (University of Atatürk, Erzurum) for their contributions in the analysis and İrfan Çoruh (University of Atatürk, Erzurum) for identification some wild species.

## Literature

- ALI M.I. & M.A. KARIM (1995): Host range, abundance and natural enemies of diamondback moth in Bangladesh. – *Bangladesh Journal Entomology* **5**: 25-32.
- ANDERSON A., MCCORMACK S., HELDEN A., SHERIDAN H., KINSELLA A. & G. PURVIS (2011): The potential of parasitoid Hymenoptera as bioindicators of arthropod diversity in agricultural grasslands. – *Journal of Applied Ecology* **48**: 382-390.
- AUBERT J.F. (1981): Syllogismes, illogismes et novations chez les Ichneumonides. – *Bulletin de la Société Entomologique de Mulhouse* (avril-juin): 17-22.
- AUBERT J.F. (1993) Notr préliminaire sur quelques *Barichneumon* THS. Tricolors. – *Bulletin de la Société Entomologique de Mulhouse*: 37-44.
- AVCI U. & H. ÖZBEK (1990): Cabbage lepidopterous pests and their parasitoids in Erzurum. – Proceedings of the Second Turkish National Congress of Biological Control, 26-29 September, Ankara, Turkey: 319-330.
- BACHMAIER F. & E. DILLER (1985): Zur Taxonomie der Gattung *Magwengiella* (Hymenoptera, Ichneumonidae, Ctenocalini). – *Entomofauna* **6**: 489-499.
- BAGGEN L.R. & G.M. GURR (1998): The influence of food on *Copidosoma koehleri* (Hymenoptera: Encyrtidae), and the use of flowering plants as a habitat management tool to enhance biological control of potato moth, *Phthorimaea operculella* (Lepidoptera: Gelechiidae). – *Biological Control* **11**: 9-17.
- CHAUHAN U., BHALLA O.P. & K.C. SHARMA (1997): Biology and seasonality of the diamondback moth, *Plutella xylostella* (Lepidoptera: Plutellidae) and its parasitoids on cabbage and cauliflower. – *Pest Management In Horticultural Ecosystems* **3**: 7-12.
- ÇORUH S., GÜRBÜZ M.F., KOLAROV J., YURTÇAN M. & A. BONCUKÇU ÖZDAN (2013): New and little known species of Ichneumonidae (Hymenoptera) for the Turkish fauna. – *Journal of the Entomological Research Society* **15**: 71-83.
- ÇORUH S. & M. KESDEK (2008): Ichneumonidae (Hymenoptera) collected from under stone in Eastern Anatolia Region of Turkey. – *Munis Entomology & Zoology* **3**: 763-764.
- ÇORUH S. & I. ÇORUH (2012): Weeds visited by Ichneumonidae (Hymenoptera) Species. – *Journal of Agricultural Faculty of Atatürk University* **43**: 13-16.
- ÇORUH S. & J. KOLAROV (2013): New data on Turkish Acaenitinae (Hymenoptera: Ichneumonidae) with description of a new species. – *Zoology in the Middle East* **59**: 261-265.

- ÇORUH S., KOLAROV J. & I. ÇORUH (2014a): Ichneumonidae (Hymenoptera) from Anatolia. II. – Turkish Journal of Entomology **38**: 279-290.
- ÇORUH S., KOLAROV J. & I. ÇORUH (2014b): *Probles microcephalus* (GRAVENHORST, 1829) a new record for the Turkish fauna (Hymenoptera: Ichneumonidae: Tersilochinae). – Munis Entomology & Zoology **9**: 451-456.
- ÇORUH S., KOLAROV J. & H. ÖZBEK (2014c): The fauna of Ichneumonidae (Hymenoptera) of eastern Turkey with zoogeographical remarks and host data. – Journal of Insect Biodiversity **2**: 1-21.
- ÇORUH S. & H. ÖZBEK (2008): New and rare species of Ichneumonidae (Hymenoptera) from Turkey. – Zoology in the Middle East **43**: 114-116.
- ÇORUH S. & H. ÖZBEK (2013): New and little known some Ichneumonidae species (Hymenoptera) from Turkey. – Munis Entomology & Zoology **8**: 135-139.
- ÇORUH S., ÖZBEK H. & J. KOLAROV (2005): A contribution to the knowledge of Ichneumonidae (Hymenoptera) from Turkey. – Journal of the Entomological Research Society **7**: 53-57.
- ÇORUH S., ÖZBEK H. & M. RIEDEL (2011): An additional contribution to the Ichneumoninae (Hymenoptera: Ichneumonidae) fauna of Turkey. – Turkish Journal of Entomology **35**: 603-613.
- COSSENTINE J. & U. KUHLMANN (2002) *Yponomeuta malinellus* ZELLER, apple ermine moth (Lepidoptera: Yponomeutidae): – In: MASON P.G. & J.T. HUBER (eds), Biological control programmes in Canada, 1981-2000. CAB Publishing, Oxon, U.K. and New York, U.S.A. 275-278.
- DAUBENMIRE R.F. (1943): Vegetational zonation in the Rocky Mountains. – Botanical Review **9**: 325-393.
- EROĞLU F., KIRAÇ A. & O. BIROL (2011): A faunistic study on Ichneumonidae (Hymenoptera) in Türkmen Mountain, Turkey. – Linzer Biologische Beiträge **43** (2): 1219-1228.
- FAHRINGER J. (1921): Ein neues Ichneumonidengenus aus Kleinasien. – Verhandlungen der Zoolisch-Botanischen Gesellschaft Wien **71**: 7-10.
- FAHRINGER J. & H. FRIESE (1921): Eine Hymenopteren-Ausbeute aus dem Amanusgebirge (Kleinasien und Nord-Syrien, südl. Armenien). – Archiv für Naturgeschichte **87**: 150-176.
- FAHRINGER J. (1922): Hymenopterologische Ergebnisse einer wissenschaftlichen Studienreise nach der Türkei und Kleinasien (mit Anschluss des Amanusgebirges). – Archiv für Naturgeschichte **9**: 149-222.
- FRAHM J.P. & S.R. GRADSTEIN (1991): An altitudinal zonation of tropical rain forests using byrophytes. – Journal Biogeography **18**: 669-678.
- GÜRBÜZ M.F., LJUBOMIROV T., KOLAROV J., YURTCAN M., TABUR M.A., ÇORUH S. & A. BUNCUKÇU (2008): Investigation of the Ichneumonidae, Ampulicidae, Crabronidae and Sphecidae (Hymenoptera, Insect) Fauna in Natural Protection Zones of East Mediterranean Region in Turkey. TBAGU/ **168** (106T189): 126.
- HE J.H., CHEN X.X. & Y. MA (1996): Economic insect fauna of China, Hymenoptera: Ichneumonidae. – Science Press, Beijing, China 697 pp.
- HEINRICH G. (1929): Beitrag zur Kenntnis der Insectenfauna Nordpersiens Ichneumonidae (Hymenoptera). – Deutsche Entomologische Zeitschrift **4**: 305-326.
- HEINRICH G. (1978): Eastern Palearctic Ichneumoninae. – Nauka, Leningrad 80 pp.

- HILPERT H. (1992) Zur Systematik der Gattung *Ichneumon* LINNAEUS, 1758 in der Westpalaearktis (Hymenoptera, Ichneumonidae, Ichneumoninae). – Entomofauna **6**: 1-389.
- HORSTMANN K. (2000): Die europäischen Arten von *Probolus* WESMAEL, 1845 (Hymenoptera, Ichneumonidae). – Entomofauna **21**: 293-300.
- IDRIS A.B. & E. GRAFIUS (1995): Wildflowers as nectar sources for *Diadegma insulare* (Hymenoptera: Ichneumonidae), a parasitoid of diamondback moth (Lepidoptera: Yponomeutidae). – Environmental Entomology **24**: 1726-1735.
- IREN Z. (1960): Ankara bölgesinde ağ kurtları (*Yponomeuta*) türleri, arız olduğu bitkiler, bu turlerin kısa biyolojisi ve mücadele üzerinde araştırmalar. – Ziraat Vekaleti İlmi Raporlar ve Araştırma Serisi **4**: 141. [In Turkish]
- KASPARYAN D. (1981): Opredelitel nasekomie evropeiskie casti USSR. – Preponcatokrilie. III., Leningrad 688 pp.
- KFIR R. (1997): Parasitoids of *Plutella xylostella* (Lepidoptera: Plutellidae) in South Africa: an annotated list. – Entomophaga **42**: 517-523.
- KHAN S.M. & M. ÖZER 1984): *Agrotis* spp. (Lep.: Noctuidae) parazitlerinin saptanması ve önemli görülenlerin konukçuları ve biyolojik ilişkileri. Ankara Üniversitesi, Fen Bilimleri Enstitüsü Yayınları **7**: 1-19. [In Turkish]
- KOHL F.F. (1905): In: PENTHER A. & E. ZEDERBAUER (eds), Ergebnisse einer naturwissenschaftlichen Reise zum Erdschias-Dagh (Kleinasiyen): – Annalen des Naturhist Hofmus Hymenopteren **20**: 220-246.
- KOLAROV J. (1989): Ichneumonidae (Hymenoptera) from Balkan Peninsula and some adjacent regions. III. Ophiononae, Anomaloninae, Metopiinae, Mesochorinae, Acaenitinae, Oxytorinae, Orthopelmatinae, Orthocentrinae, Diplazontinae and Ichneumoninae. – Turkish Journal of Entomology **13**: 131-140.
- KOLAROV J. (1990): New and rare Ichneumonidae (Hymenoptera) species for the Bulgarian fauna. – History Natura Bulgaria **2**: 19-24.
- KOLAROV J. (1994): Nocturnal Ichneumonidae (Hymenoptera) from Bulgaria and Turkey with description of a new species. – Entomofauna **15**: 93-100.
- KOLAROV J. (1995): A Catalogue of the Turkish Ichneumonidae (Hymenoptera): – Entomofauna **7**: 137-188.
- KOLAROV J. (2007): A catalogue of the Ichneumonidae from Greece (Hymenoptera): – Entomofauna **28**: 405-452.
- KOLAROV J., BEYARSLAN B. & M. YURTCAN (1997): Ichneumonidae (Hymenoptera) from the Gokceada and Bozcaada Islands Turkey. – Acta Entomologica Bulgarica **3**: 13-16.
- KOLAROV J. & O. CALMAŞUR (2011): A study of Ichneumonidae (Hymenoptera) from North Eastern Turkey. – Linzer biologische Beiträge **43** (1): 777-782.
- KOLAROV J., ÇORUH I. & S. ÇORUH (2014b): Ichneumonidae (Hymenoptera) from Anatolia. I. – Linzer biologische Beiträge **46** (2): 1517-1524.
- KOLAROV J., ÇORUH S. & I. ÇORUH (2014c): Ichneumonidae (Hymenoptera) from Anatolia. III. – Turkish Journal of Entomology **38**: 377-388.
- KOLAROV J., ÇORUH S. & I. ÇORUH (2015a): Oxytorinae, a new subfamily for the Turkish fauna. – Turkish Journal of Zoology **39**: 832-835.

- KOLAROV J., ÇORUH S. & I. ÇORUH (2016): Contribution to the knowledge of the Ichneumonidae (Hymenoptera) fauna of Turkey from North Eastern Anatolia I. – Turkish Journal of Zoology **40**: 40-56.
- ÇORUH S., ÖZBEK H. & J. KOLAROV (2002): New and rare taxa of Ichneumonidae (Hymenoptera) from Turkey. – Journal of the Entomological Research Society **4**: 1-4.
- KOLAROV J., YILDIRIM E., ÇORUH S. & M. YUKSEL (2014a): Contribution to the knowledge of the Ichneumonidae (Hymenoptera) fauna of Turkey. – Zoology in the Middle East **60**: 154-161.
- LIU S.S., WANG X.G., GUO S.J., HE J.H. & Z.H. SHI (2000): Seasonal abundance of the parasitoid complex associated with the diamondback moth, *Plutella xylostella* (Lepidoptera: Plutellidae) in Hangzhou, China. – Bulletin of Entomological Research **90**: 221-231.
- MEYER N.F. (1933-1936): Table's systematiques des Hymenopteres parasites (fam. Ichneumonidae) de L'URSS et des pays limitrophes, Moskva-Leningrad. [In Russian]
- MUSTATA G. (1992): Role of parasitoid complex in limiting the population of diamondback moth in Moldavia. – In: TALEKAR N.S. (ed.), Diamondback Moth and Other Crucifer Pests. Proceedings of the Second International Workshop. AVRDC, Taiwan, Romania, 203-211.
- ONAT G. (1974): Adapazarı pancar ekim alanlarında pancar guvesinin (*Scrobipalpa ocellarella* BOYD.) biyokolojisi, zarar derecesi ve savası üzerinde çalışmalar. Türkiye Seker Fabrikası Yayınları **189**: 104 [In Turkish].
- ÖNCÜER C. (1991): A catalogue of the parasites and predators of insect pests of Turkey. Ege Üniversitesi Ziraat Fakültesi Yayınları **505**: 1-354.
- ÖZBEK H., ÇORUH S. & J. KOLAROV (2003): A contribution to the Ichneumonidae fauna of Turkey. Subfamily Ichneumoninae (Hymenoptera). – Entomofauna **24**: 157-164.
- ÖZDAN A. (2014): Gelincik Dağı Tabiat Parkı ve Kovada Gölü Milli Parkı (İsparta) Ichneumonidae (Hymenoptera) Faunası. Süleyman Demirel Üniversitesi, Fen Bilimleri Enstitüsü, 149 pp. [In Turkish].
- ÖZDEMİR Y. (1996): Ichneumonides Banchinae et Ichneumoninae d' Anatolie Centrale. – Plant Protection Bulletin **36**: 91-104.
- RASNITSYN A.P. & U.V. SIITAN (1981): Ichneumoninae. – In: D.R. KASPARYAN (ed.), A guide to the identification of insects of the European part of the USSR. Vol. 3. Hymenoptera. Nauka Press, Moscow, Nauka Press 668 pp. [In Turkish].
- RIEDEL M. (2008): Die *Coelichneumon*-Arten (Hymenoptera: Ichneumonidae: Ichneumoninae) des Biologiezentrums Linz, Austria. – Linzer biologische Beiträge **40** (2): 1839-1859.
- RIEDEL M., ÇORUH S. & H. ÖZBEK (2010): Contribution to the Ichneumoninae (Hymenoptera, Ichneumonidae) fauna of Turkey, with description of three new species. – Turkish Journal of Entomology **34**: 1-26.
- RIEDEL M., ÇORUH S. & H. ÖZBEK (2011): New Records and Little-known Ichneumoninae (Hymenoptera: Ichneumonidae) from Turkey, with description of the male of *Melanichneumon glaucatorius* HEINRICH. – Journal of the Entomological Research Society **13**: 105-112.
- RIEDEL M., KOLAROV J., ÇORUH S. & H. ÖZBEK (2014): A contribution to the Mesochorinae (Hymenoptera: Ichneumonidae) of Turkey. – Zoology in the Middle East **60**: 217-221.
- ROMAN A. (1910): Notizen zur Schlupfwesensammlung des schwedischen Reichsmuseums. – Entomologisk Tidsskrift **31**: 109-196.

- SAWONIEWICZ J. (1985): Revision of European species of the subtribe Endaseina (Hymenoptera, Ichneumonidae) I. – *Annales Zoologici* **39**: 131-146.
- SIEKMANN G., TENHUMBERG B. & M.A. KELLER (2001): Feeding and survival in parasitic wasps: sugar concentration and timing matter. – *Oikos* **95**: 425-430.
- SEDIVY J. (1959): Wissenschaftliche Ergebnisse der Zoologischen Expedition des National Museums in Prag nach der Türkei. – *Acta Entomologica Musei Nationalis Pragae* **33**: 107-116.
- SCHIMITSCHEK E. (1944): Forstinsecten der Türkei und ihre Umwelt. Volk und Reich Verlag Prag. Amsterdam, Berlin.
- SCHMIEDEKNECHT O. (1902-1927): Opuscula Ichneumonologica NF. 1-5, Blankenburg i. Thür.
- SELFA J., BORDERA S. & R. JIMINEZ (1988) Sobre algunos Ichneumoninae (Hymenoptera, Ichneumonidae) recolectados en los Pirineas Leridano y Oscense. *Actas III Congreso Iberico de Entomologia*: 365-372.
- SOYDANBAY M.T. (1978): Turkiye'de bitki zararlısı bazı böceklerin doğal düşman listesi. Kısım II. – *Turkiye Bitki Koruma dergisi* **2**: 61-92 [In Turkish].
- SYME P.D. (1975): The effects of flowers on the longevity and fecundity of two native parasites of the European pine shoot moth in Ontario. – *Environmental Entomology* **4**: 337-346.
- TALEKAR N.S. & A.M. SHELTON (1993): Biology, ecology, and management of the diamondback moth. – *Annual Review of Entomology* **38**: 275-301.
- TOWNES H., MOMOI S. & M. TOWNES (1965): A catalogue and reclassification of Eastern palaearctic Ichneumonidae. – *Memoirs of the American Entomological Institute* **5**: 1-661.
- UNRUH T., SHORT R., HERARD F., CHEN K., HOPPER K., PEMBERTON R., LEE J. HOON, ERTLE L., SWAN K., FUESTER R. & E. LAGASA (2003): Introduction and establishment of parasitoids for the biological control of the apple ermine moth, *Yponomeuta malinellus* (Lepidoptera: Yponomeutidae), in the Pacific Northwest. – *Biological Control* **28**: 332-345.
- VATTALA H., WRATEN S., PHILLIPS C. & F. WACKERS (2006): The influence of flower morphology and nectar quality on the longevity of a parasitoid biological control agent. – *Biological Control* **39**: 179-185.
- WAKISAKA S., TSUKUDA R. & F. NAKASUJI (1992): Effects of natural enemies, rainfall, temperature and host plants on survival and reproduction of the diamondback moth. – In: TALEKAR N.S., (ed.), Diamondback moth and other crucifer pests. Proceedings of the Second International Workshop, AVRDC, Taiwan, 15-26.
- WATERHOUSE D.F. & K.R. NORRIS (1987): Biological control. Pacific prospects. Inkata Press, Melbourne, Australia.
- YAMAN G. (2014): Türkiye Tryphoninae (Hymenoptera: Ichneumonidae) Türlerinin Kontrol Listesi. – Trakya Üniversitesi, Fen Bilimleri Enstitüsü 88 pp. [In Turkish].
- YU D.S. & K. HORSTMANN (1997): A catalogue of world Ichneumonidae (Hymenoptera): – *Memoirs of the American Entomological Institute*. **58**: 1558 pp.
- YU D.S., VAN ACHTERBERG C. & K. HORSTMANN (2012): Taxapad 2012, Ichneumonoidea 2011. – Database on flash-drive. [www.taxapad.com](http://www.taxapad.com), Ottawa, Ontario, Canada.

YURTCAN M., KOLAROV J. & A. BEYARSLAN (1999): Investigations on the Ichneumonidae (Hymenoptera) from fauna of Turkey. Diplazontinae and Ichneumonidae. – Acta Entomologica Bulgarica **1**: 34-36.

YURTCAN M. & J. KOLAROV (2015): A new species and additional records of the genus *Collyria* SCHIODTE, 1839 (Hymenoptera, Ichneumonidae) from Turkey. – Zootaxa **3985**: 17-124.

Author's address:

Asst. Prof. Saliha ÇORUH

Atatürk University, Faculty of Agriculture

Department of Plant Protection

TR-25240 Erzurum, Turkey

E-mail: [spekel@atauni.edu.tr](mailto:spekel@atauni.edu.tr)

---

Druck, Eigentümer, Herausgeber, Verleger und für den Inhalt verantwortlich:

Maximilian SCHWARZ, Konsulent f. Wissenschaft der Oberösterreichischen Landesregierung, Eibenweg 6, A-4052 Ansfelden, Austria; [maximilian.schwarz@liwest.at](mailto:maximilian.schwarz@liwest.at).

Redaktion: Fritz GUSENLEITNER, Biologiezentrum Linz, [f.gusenleitner@landesmuseum.at](mailto:f.gusenleitner@landesmuseum.at)

Roland GERSTMAYER, Lehrstuhl f. Zoologie, TU München, [gerstmei@wzw.tum.de](mailto:gerstmei@wzw.tum.de)

Thomas WITT, Tengstraße 33, D-80796 München, [thomas@witt-thomas.com](mailto:thomas@witt-thomas.com)

Berthold CLEWING, Akademischer Verlag München, [avm@druckmedien.de](mailto:avm@druckmedien.de)

Harald SULAK, Museum Witt München, [h.sulak@atelier-sulak.de](mailto:h.sulak@atelier-sulak.de).

Mitarbeiter: Karin TRAXLER, Biologiezentrum Linz, [bio.redaktion@landesmuseum.at](mailto:bio.redaktion@landesmuseum.at)

Heike REICHERT, Museum Witt München, [heike\\_reichert66@web.de](mailto:heike_reichert66@web.de)

Erich DILLER, Zool. Staatsammlung München, [erich.diller@zsm.mwn.de](mailto:erich.diller@zsm.mwn.de).

Adresse: Entomofauna, Redaktion und Schrifttausch Thomas WITT, c/o Museum Witt München, Tengstr. 33, 80796 München, Deutschland, [thomas@witt-thomas.com](mailto:thomas@witt-thomas.com)

Entomofauna, Redaktion c/o Fritz GUSENLEITNER, Lungitzerstr. 51, 4222 St. Georgen/Gusen, Austria, [f.gusenleitner@landesmuseum.at](mailto:f.gusenleitner@landesmuseum.at).

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Entomofauna](#)

Jahr/Year: 2017

Band/Volume: [0038](#)

Autor(en)/Author(s): Coruh Saliha

Artikel/Article: [Taxonomical and biogeographical evaluation of the subfamily Ichneumoninae \(Hymenoptera: Ichneumonidae\) in Turkey 425-476](#)