

## Weeds Visited by Ichneumonidae (Hymenoptera) Species

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**ABSTRACT:** This study was carried out between 2010-2011 to determine weed species which were visited by Ichneumonidae (Hymenoptera) species during vegetation period in Erzurum province in Turkey. In the study, eight weed species determined which were visited by 22 ichneumonids species including 60 individuals totally. Among the eight plant species, *Epilobium angustifolium* L. and *Mentha longifolia* (L.) Hudson was more attractive for ichneumonid species. Also, among 22 ichneumonid species, *Coelichneumon* (*Coelichneumon*) *dorsosignatus* (Berthoumieu & Eversmann), *Buathra laborator* (Thunberg) and *Meringopus calescens* (Gravenhorst) are most common species.

**Keywords:** Ichneumonidae, Weed, Host, Erzurum, Turkey

### Yabancı Otları Ziyaret Eden Ichneumonidae (Hymenoptera) Türleri

**ÖZET:** Erzurum'da 2010-2011 yılları arası vejetasyon periyodunda sürdürülen bu çalışmada Ichneumonidae türlerinin ziyaret ettiği yabancı ot türleri tespit edilmiştir. Toplam 60 bireyin oluşturduğu 22 ichneumonid türünün sekiz farklı yabancı ot türünü ziyaret ettiği belirlenmiştir. Sekiz bitki türü içerisinde *Epilobium angustifolium* L. ve *Mentha longifolia* (L.) Hudson'nın ichneumonid türleri için daha cezbedici olduğu belirlenirken, Ichneumonid türlerinden *Coelichneumon* (*Coelichneumon*) *dorsosignatus* (Berthoumieu & Eversmann), *Buathra laborator* (Thunberg) ve *Meringopus calescens* (Gravenhorst) en yaygın türlerdir.

**Anahtar Kelimeler:** Ichneumonidae, Yabancı Ot, Konukçu, Erzurum, Türkiye

### INTRODUCTION

The province of Erzurum is located in the Northeast Anatolia geographical region of Turkey (39° 55' N, 41 ° 16' E) covering a surface area of 25.066 square kilometers. The province is the fourth largest city in Turkey considering surface area. Mean altitude of the Erzurum city centre is 1859 m. Topography of the province is composed of mountains and deep and steep valleys (Toy *et al.* 2010). The province of Erzurum is one of the highest and colder places of Turkey.

Palandöken Mountain with an altitude of 3185 meter has a peak located in the south and east-west direction and extends from Erzurum. Konaklı village is located on the foothills of the Palandöken Mountain. Topography of the area is similar to Alps. In addition to, Konaklı Ski Center, which is located in 18 km (11 miles) southwest of Erzurum was established as a new ski area in the eastern Turkey. Steep sides of a shallow valley are suitable for several mechanical facilities and runs.

The Ichneumonidae, a huge group of hymenopter species and some of them are natural enemies of many economically important agricultural pests. According to Çoruh and Özbek (2005), Turkish fauna of the Ichneumonidae is currently represented by 731 species in 262 genera.

Plant-insect relationships are great importance to ecosystem (Petanidou and Lamborn, 2005) Pemberton and Hoover (1980) listed the records of insect (in 66 genera) associated with plants. Campobasso *et al.* (1999) compiled information on

palearctic insect that were collected or reared from 166 species of plants of Eurasian origin.

In Turkey, 21 species of Ichneumonids were determined associated with five species of Umbelliferae (Çoruh and Çoruh, 2008).

In this study, 22 species of Ichneumonids belonging to 6 subfamilies (Anomaloninae, Banchinae, Cryptinae, Diplazontinae, Ichneumoninae, Pimplinae and Tryphoninae) were collected from 8 weed species.

### MATERIAL AND METHODS

Samples were taken along with Konaklı (39° 48' " N, 41° 11' 21" E, at an altitude of 2000 m). Ichneumonidae specimens were collected from June to September during 2010–2011. The insect samples were killed in ethyl acetate, brought to the laboratory and prepared for identification. The insect materials are preserved in collection of Entomology Museum, Erzurum, Turkey (EMET). Plant samples were deposited at the Herbarium of Plant Protection Department, Atatürk University, Erzurum, Turkey.

The distributional records are given according to Yu *et al.* (2005).

### RESULTS

#### Anomaloninae

##### *Erigorgus cerinops* (Gravenhorst, 1829)

Material examined: Erzurum: Konaklı, 23.IX.2011, 1 ♂.

Distribution: Europe, Morocco, Tunisia, Turkey, Kazakhstan, Kyrgyzstan and Mongolia.

Plant Hosts: *Heracleum pastinacifolium* K. Koch (Apiaceae)

#### **Banchinae**

##### ***Exetastes fornicator* (Fabricius, 1781)**

Material examined: Erzurum: Konaklı, 17.IX.2011, 1 ♀.

Distribution: Holarctic and Oriental region and Mexico.

Plant Hosts: *Epilobium angustifolium* L. (Onagraceae)

##### ***Exetastes nigripes* Gravenhorst, 1829**

Material examined: Erzurum: Konaklı, 17.IX.2011, 2 ♀♀.

Distribution: Palaearctic and Oriental region.

Plant Hosts: *Epilobium angustifolium* L. (Onagraceae)

##### ***Exetastes rufifemur* Horstmann & Yu, 1999**

Material examined: Erzurum: Konaklı, 21.VII.2010, 3 ♀♀.

Distribution: Europe, Turkey and Mongolia.

Plant Hosts: *Epilobium angustifolium* L. (Onagraceae), *Heracleum pastinacifolium* K. Koch (Apiaceae)

##### ***Lissonota (Lissonota) sector* (Thunberg, 1824)**

Material examined: Erzurum: Konaklı, 17.VII.2010, 1 ♂.

Distribution: Sweden, France, Germany, Bulgaria and Turkey.

Plant Hosts: *Epilobium hirsutum* L. (Onagraceae)

##### ***Lissonota (Loxonota) cruentator* (Panzer, 1809)**

Material examined: Erzurum: Konaklı, 17.VII.2010, 1 ♀.

Distribution: Palaearctic region.

Plant Hosts: *Epilobium hirsutum* L. (Onagraceae)

##### ***Lissonota (Loxonota) lineata* Gravenhorst, 1829**

Material examined: Erzurum: Konaklı, 22.VI.2011, 1 ♂.

Distribution: Europe, Algeria, Turkey, Armenia, Iran and Mongolia.

Plant Hosts: *Epilobium hirsutum* L. (Onagraceae)

#### **Cryptinae**

##### ***Buathra laborator* (Thunberg, 1824)**

Material examined: Erzurum: Konaklı, 19.VIII.2011, 5 ♂♂, 3 ♀♀.

Distribution: Holarctic region.

Plant Hosts: *Phragmites australis* (Cav.) Trin. ex Steudel. (Poaceae), *Polygonum bistorta* L. (Polygonaceae), *Mentha longifolia* (L.) Hudson (Lamiaceae)

##### ***Cryptus viduatorius* Fabricius, 1804**

Material examined: Erzurum: Konaklı, 02.VIII.2011, 1 ♀.

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

Plant Hosts: *Mentha longifolia* (L.) Hudson (Lamiaceae)

##### ***Meringopus calescens* (Gravenhorst, 1829),**

Material examined: Erzurum: Konaklı, 27.VII.2010, 20 ♀♀.

Distribution: Holarctic and Oriental region.

Plant Hosts: *Phragmites australis* (Cav.) Trin. ex Steudel. (Poaceae), *Polygonum bistorta* L. (Polygonaceae), *Mentha longifolia* (L.) Hudson (Lamiaceae) *Myricaria germanica* (L.) Desv. (Tamaricaceae), *Salix triandra* L. (Salicaceae)

##### ***Meringopus pseudonymus* (Tschek, 1872)**

Material examined: Erzurum: Konaklı, 27.VII.2010, 1 ♀.

Distribution: Europe, Algeria, Turkey, Israel, Jordan and Tajikistan.

Plant Hosts: *Polygonum bistorta* L. (Polygonaceae)

##### ***Meringopus titillator rhodius* Dalla Torre, 1902**

Material examined: Erzurum: Konaklı, 15.IX.2011, 1 ♀.

Distribution: Morocco, former Yugoslavia, Bulgaria and China-Qinghai.

Plant Hosts: *Mentha longifolia* (L.) Hudson (Lamiaceae)

#### **Diplazontinae**

##### ***Diplazon tibiatorius* (Thunberg, 1824)**

Material examined: Erzurum: Konaklı, 17.IX.2011, 1 ♂.

Distribution: Holarctic region.

Plant Hosts: *Salix triandra* L. (Salicaceae)

#### **Ichneumoninae**

##### ***Coelichneumon***

##### **(*Coelichneumon*)**

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

Material examined: Erzurum: Konaklı, 23.IX.2011, 12 ♀♀.

Distribution: Algeria, Spain, Germany, Austria, Romania, Azerbaijan, Turkey, European Russia (Rostov region) and Kazakhstan.

Plant Hosts: *Heracleum pastinacifolium* K. Koch (Apiaceae), *Mentha longifolia* (L.) Hudson

(Lamiaceae) *Myricaria germanica* (L.) Desv.  
(Tamaricaceae), *Salix triandra* L. (Salicaceae)

***Diphyus montivagans* (Berthoumieu, 1897)**

Material examined: Erzurum: Konaklı,  
17.IX.2011, 1 ♂.

Distribution: Spain, France, Switzerland, Poland,  
former Czechoslovakia and Turkey.

Plant Hosts: *Epilobium angustifolium* L.  
(Onagraceae)

***Diphyus pseudomercator hexaleucos* Heinrich,  
1978 var. *caucasicus* Berthoumieu, 1896**

Material examined: Erzurum: Konaklı,  
23.IX.2011, 6 ♂♂, 3 ♀♀.

Distribution: European Russia, Turkey and  
Armenia.

Plant Hosts: *Heracleum pastinacifolium* K. Koch  
(Apiaceae), *Epilobium angustifolium* L.  
(Onagraceae), *Mentha longifolia* (L.) Hudson  
(Lamiaceae) *Myricaria germanica* (L.) Desv.  
(Tamaricaceae), *Salix triandra* L. (Salicaceae)

**Pimplinae**

***Itopectis viduata* (Gravenhorst, 1829)**

Material examined: Erzurum: Konaklı,  
21.VII.2010, 2 ♂♂.

Distribution: Holarctic region.

Plant Hosts: *Epilobium angustifolium* L.  
(Onagraceae), *Heracleum pastinacifolium* K. Koch  
(Apiaceae)

***Pimpla illecebrator* (Villers, 1789)**

Material examined: Erzurum: Konaklı,  
17.IX.2011, 1 ♂.

Distribution: Palaearctic region.

Plant Hosts: *Heracleum pastinacifolium* K. Koch  
(Apiaceae)

***Pimpla rufipes* (Miller, 1759)**

Material examined: Erzurum: Konaklı,  
19.IX.2011, 2 ♀♀.

Distribution: Palaearctic and Oriental region.

Plant Hosts: *Myricaria germanica* (L.) Desv.  
(Tamaricaceae), *Salix triandra* L. (Salicaceae)

***Scambus brevicornis* (Gravenhorst, 1829)**

Material examined: Erzurum: Konaklı,  
19.IX.2011, 1 ♂.

Distribution: Holarctic region.

Plant Hosts: *Mentha longifolia* (L.) Hudson  
(Lamiaceae)

***Scambus foliae* (Cushman, 1938)**

Material examined: Erzurum: Konaklı,  
17.VII.2010, 1 ♂.

Distribution: Europe, introduced into USA.

Plant Hosts: *Mentha longifolia* (L.) Hudson  
(Lamiaceae)

**Tryphoninae**

***Tryphon (Tryphon) abditus* Kasparyan, 1969**

Material examined: Erzurum: Konaklı,  
21.VII.2010, 1 ♀.

Distribution: Palaearctic region.

Plant Hosts: *Mentha longifolia* (L.) Hudson  
(Lamiaceae)

**DISCUSSION**

Weeds are very important nutrition source for all  
animals in nature. They are also very important  
resource as shelter for animals (Özer *et al.* 2001).

The weeds are very important as pollen and  
nectar sources for Ichneumonidae species Çoruh and  
Çoruh (2008) determined Ichneumonidae on oil of  
Caraway (*Carum carvi* Linnaeus), Carrot (*Daucus  
carota* L.), Giant fennel (*Ferula communis* L.),  
Burnet saxifrage (*Pimpinella tragium* Vill.) and  
Meadow saxifrage (*Seselis libanotis* (L.) W. Koch in  
Palandöken.

Konaklı village is located lower part of  
Palandöken Mountain which has has rich flora and  
fauna. There were 400 meter altitude differences  
between two locations and we determined below  
weed species: Common hogweed (*Heracleum  
pastinacifolium* K. Koch), Fire weed (*Epilobium  
angustifolium* L.), Cherrypie willow weed  
(*Epilobium hirsutum* L.), Common reed (*Phragmites  
australis* (Cav.) Trin. ex Steudel.), Bistort  
(*Polygonum bistorta* L.), Corn mint (*Mentha  
longifolia* (L.) Hudson), False tamarisk (*Myricaria  
germanica* (L.) Desv.) and Almond willow (*Salix  
triandra* L.).

As a result we determined more weed species in  
Konaklı compared to Palandöken. These weed  
species are also very different than Palandöken. It is  
also very important to determine hosts for  
Ichneumonidae.

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