

**A CONTRIBUTION TO BRACONIDAE (HYMENOPTERA)
FROM RICE FIELDS AND SURROUNDING GRASSLANDS
OF NORTHERN IRAN**

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ABSTRACT: Braconids wasps (Hymenoptera: Ichneumonoidea: Braconidae) are one of the most powerful and important biological control agents in almost all agroecosystems. Braconids' fauna from rice fields of northern Iran is studied in this paper. In a total of 21 species of 12 genera and 8 subfamilies were collected and identified.

KEY WORDS: Braconidae, Rice Fields, Fauna, Iran.

The Braconidae constitute one of the most species-rich families of insects (Quicke et al. 1999). The family appears to date from early Cretaceous (assuming *Eobracon* is properly assigned to family (Rasnitsyn, 1983; Whitfield, 2002), diversifying extensively in the mid to late Cretaceous and early Tertiary, when flowering plants and their associated holometabolous herbivores, the main hosts for braconid parasitoids, radiated (Basibuyuk et al., 1999; Belshaw et al., 2000).

The vast majority of braconids are primary parasitoids of other insects, especially upon the larval stages of Coleoptera, Diptera, and Lepidoptera but also including some hemimetabolous insects (Aphids, Heteroptera, Embiidina). As parasitoids they almost invariably kill their hosts, although a few only cause their hosts to become sterile and less active. Both external and internal parasitoids are common in the family, and the latter forms often display elaborate physiological adaptations for enhancement of larval survival within host insects, including the co-option of endosymbiotic viruses for compromising host immune defenses (Whitfield, 1990; Beckage, 1993, Stoltz and Whitfield, 1992; Whitfield and Asgari, 2003).

The fauna of Iranian Braconidae and especially Iranian rice fields was studied very poorly so far, while Iran is a large country with various geographical regions. The only conducted work on braconids' fauna of Iranian rice fields is Ghahari et al. (2008) with three species including, *Bracon chivensis* Telenga 1936, *Cotesia flavipes* (Cameron 1861) and *Apanteles ruficrus* (Haliday 1834). With attention to the importance of these beneficial insects in biological control of key pests in rice fields, their fauna was studied in rice fields and surrounding grasslands of northern Iran and the results are presented in this paper.

MATERIAL AND METHOD

Specimens were collected by sweep netting and light traps from various rice fields and surrounding grasslands of four northern provinces including, East Azarbaijan (Arasbaran), Guilan, Golestan and Mazandaran. The samplings were conducted between July 2000 and September 2005, and the collected specimens were killed with ethyl acetate and mounted on triangular labels and were examined with a stereoscopic binocular microscope.

RESULTS

Totally 21 braconid species from 12 genera including, *Disophrys*, *Bracon*, *Glyptomorpha*, *Isomecus*, *Iphiaulax*, *Chelonus*, *Hormius*, *Homolobus*, *Meteoros*, *Zelex*, *Macrocentrus* and *Rogas* and 8 subfamilies including, Agathidinae, Braconinae, Cheloninae, Exothecinae, Homolobinae, Meteorinae, Neoneurinae and Rogadinae were collected from rice fields and surrounding grasslands of Northern Iran. The list of species is below:

Subfamily Agathidinae Haliday, 1833

Disophrys dissors Kokujev, 1903

Material: Mazandaran province, Ghaemshahr, 1♀, 2♂♂, July 2000.

Subfamily Braconinae Nees, 1811

Bracon fulvipes Nees, 1834

Material: East Azarbaijan province, Arasbaran, 2♀♀, 1♂, September 2005.

Bracon leptus Marshall, 1897

Material: Guilan province, Roodsar, 1♂, September 2001.

Bracon sabulosus Szépligeti, 1896

Material: East Azarbaijan province, Arasbaran, 1♀, September 2005.

Glyptomorpha discolor Thunberg, 1822

Material: Golestan province, Gorgan, 1♂, September 2001.

Isomecus mlokoszewiczi Kokujev, 1898

Material: Mazandaran province, Behshahr, 2♀♀, June 2002.

Iphiaulax impostor Scopoli, 1763

Material: East Azarbaijan province, Arasbaran, 2♀♀, 2♂♂, August 2004.

Subfamily Cheloninae Foerster, 1862

Chelonus asiaticus Telenga, 1941

Material: Golestan province, Gorgan, 1♀, October 2004.

Chelonus inanitus (Linnaeus, 1767)

Material: Mazandaran province, Savadkooh, 2♂♂, April 2005.

Chelonus scabrator (Fabricius), 1793

Material: Guilan province, Roodsar, 1♀, 1♂, September 2001.

Chelonus canescens Wesmael, 1835

Material: East Azarbaijan province, Arasbaran, 3♀♀, June 2005.

Subfamily Exothecinae Foerster, 1862

Hormius moniliatus (Nees, 1811)

Material: Mazandaran province, Amol, 2♀♀, September 2000.

***Hormius tatiannae* (Telenga, 1941)**

Material: Guilan province, Chaboksar, 1♀, July 2001.

Subfamily Homolobinae van Achterberg, 1979***Homolobus (Apatia) truncator* Say 1829**

Material: East Azarbaijan province, Arasbaran, 1♀, August 2004.

Subfamily Meteorinae Cresson, 1887***Meteorus pulchricornis* Wesmael, 1835**

Material: Mazandaran province, Galogah, 1♀, Fall 2001.

***Meteorus versicolor* Wesmael, 1835**

Material: Golestan province, Gorgan, 2♂♂, October 2003.

***Zele chlorophthalmus* Spinola, 1808**

Material: Guilan province, Rasht, 3♀♀, August 2001

Subfamily Macrocentrinae, Foerster, 1862***Macrocentrus (Amicroplus) collaris* Spinola, 1808**

Material: Mazandaran province, Sari, 1♂, October 2003.

Subfamily Rogadinae Foerster, 1862***Rogas bicolor* Spinola, 1808**

Material: Mazandaran province, Babol, 4♀♀, 2♂♂, May 2002.

***Rogas circumscriptus* Nees, 1834**

Material: Golestan province, Kordkoy, 1♀, Summer 2000.

***Rogas rossicus* Kokujev, 1898**

Material: East Azarbaijan province, Arasbaran, 2♀♀, August 2004.

DISCUSSION

The results of this survey indicated that there are very diverse fauna of braconid wasps in rice fields of northern Iran. Since there are several important pests in Iranian rice fields including, *Chilo suppressalis* Walker, *C. partellus* (Swinhoe), *Cnaphalocrocis medinalis* Gn. (Lepidoptera: Pyralidae), *Naranga aenescens* Moore, *Pseudaletia unipunctata* Haworth (Lepidoptera: Noctuidae), *Cicadella viridis* L. (Homoptera: Cicadellidae) and several others, these parasitoids can have very important role in pest control.

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