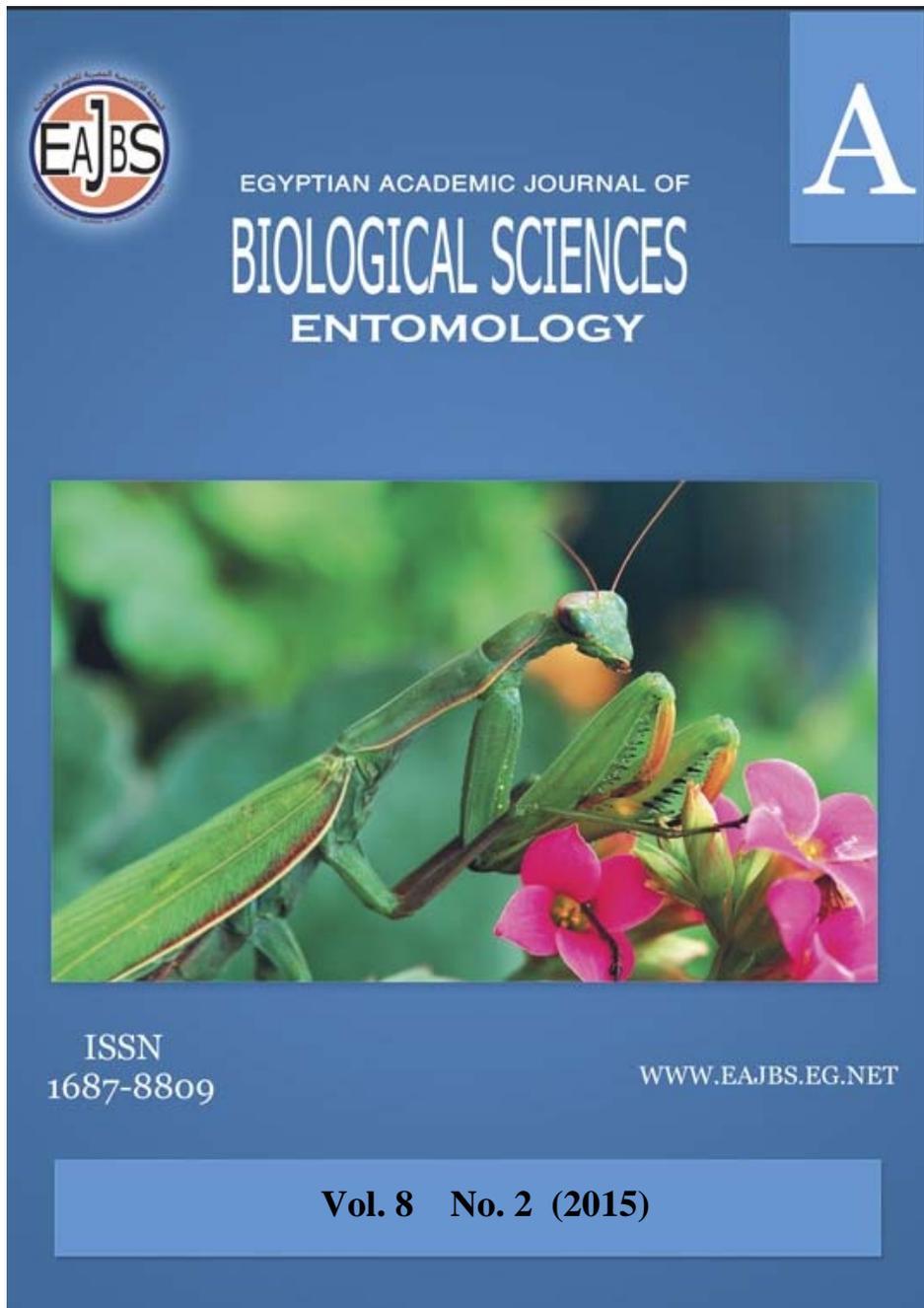


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**Snout Beetles (Coleoptera: Curculionoidea) Fauna from Northern Khorasan Province of Iran**

**Zahra Hoseini and Abu Fazel Dousti\***

Islamic Azad University, Jahrom Branch, Department of Entomology, Jahrom, IRAN

\* Corresponding Email: [fdousti@yahoo.com](mailto:fdousti@yahoo.com)

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**ABSTRACT**

Curculionoidea (snout beetles) with about 60000 species is known as the most diverser super-families of coleopteran beetles in the world. As for damages caused by snout beetles on crops, study on the species is very important. Therefore, sampling was collected from pastures, garden weeds (peach and plum) and fields (wheat, alfalfa, potato, lentil and onion) of different villages of Maaneh and Samalghan (Northern Khorasan) during April to September of 2013. Snout beetle species was captured by different methods; by hand, sweeping net and light trap. In this study, 9 species belonging to Curculionidae and 5 species belonging to Apionidae were collected and identified. Seven species are new reports for Northern Khorasan.

**INTRODUCTION**

According the Hammond (1992) documentation, number of beetle was about 400,000 species and weevils estimated 62,000 species (Coleoptera: Curculionoidea) as approximately 15.5% of beetle species. It is unbelievable that Linnaeus 250 years ago documented same ratio. Comprehensively census of Curculionoidea were enumerated by Kuschel (1995), 5087 described genera and 56920 species (status at about 1988). With the acquisition, genera and species newly described in the last 20 years, number of genera and species increased to 5604 (10%) and 61868 (8.7%), respectively. Comprehensive catalogue of weevil genera at world published described 5,464 valid weevil genera including fossils (Alonso-Zarazaga and Lyal 1999, 2002; Lyal *et al.*, 2006) but excluding Scolytinae and Latypodinae, which number 225 genera (5837 species) and 41 genera (1,463 species), respectively (Wood and Bright 1992 ; Bright and Skidmore 1997). By excluding fossils (about 100 genera) and including two groups were added recently, give 5,630 genera of weevils, slightly more than the number introduced by Kuschel (1995) estimation but more accurate described after 1999. Best estimate of the described diversity of Curculionoidea are 5,800 genera and 62,000 species were similar earlier estimates of 60,000 and 65,000 by Lawrence (1982) and Watt (1982). At present, the family Curculionidae as an order of magnitude larger than any other in weevils possessing excess of 80% of all weevil species (with about 4,600 genera and 51,000 described species). Curculionidae recognized as cosmopolitan distributed from the arctic zone in the north to the sub Antarctic islands in the south, from beaches to mountaintops, from deserts to rainforests.

Feed polyphagia, mainly angiosperms but also gymnosperms, pteridophytes, bryophytes and lichens and occasionally feed even browse on algae and cyanobacteria. Curculionids, unlike all other weevil families, voraciously hosted on monocotyledons as well as subfamilies Dryophthorinae and Brachycerinae being predominantly associated with them and several taxa. It is therefore likely that monocotyledons constitute the ancestral hosts of Curculionidae and that they may have played a pivotal role in the diversification of the family (Marvaldi *et al.*, 2002; Oberprieler 2004).

## MATERIALS AND METHODS

The current study mostly based on specimens collected from Maaneh and Samalghan, North Khorasan province, Iran. The study area is an area of 6000 sq. kilometres and it is bounded on the northwest by republic of Turkmenistan and on the east by central part of Bojnourd during April to September of 2013. Most of the samples were collected directly by hands when feeding or resting on shrubs or clods. The collecting specimens also were made using sweeping net and light trap from different regions of the Maaneh and Samalghan. The study weevils were collected on alfalfa (*Medicago sativa*), marginal weed of prune orchards, meadows, potatoes, wheat, lentils and weeds under apple tree. In order to identifying and describing specimens, after Killed sampling by cyanide, the binocular microscope was used and labelled data including locations, dates and the name of specimens were recorded. Initial sorting was performed by Thompson (1992) and all identifies confirmed by Prof. Jiri Skuhrovec from Czech Republic. After identifying and describing morphologic properties of collected samples were categorized samples to subfamily and specious. Issuing samples were stored in insectarium collection of department.

## RESULTS AND DISCUSSION

This research designed as comprehensive collection and identifying project of Curculionidae species in Maaneh and Samalghan of North Khorasan. From 55 Curculionidae species on 8 plant hosts (pasture and weed), identified 14 species (on base on external morphology and host range). Result showed three new plant species hosted mention family and 10 new regional distributions.

### **Family: Apionidae**

#### **Subfamily: Apioninae**

#### **Genus: *Apion* (Herbst, 1797)**

##### **1. *Apoin frumentarium* (Linnaeus, 1758)**

Material examined: North Khorasan province, Kashank village, July 06, 2013, Weed of prune. 13 specimens, 9 female and 4 male.

Distribution: Western Palaearctic (Legalov *et al.*, 2010).

#### **Genus: *Aspidapion* (Schilsky, 1901)**

##### **2. *Aspidapion (Koestlinia) aenum* (Fabricius, 1775)**

Material examined: North Khorasan province, Kastan village, June 28, 2013, Weeds around the fountain. 20 specimens, 11 female and 9 male.

Distribution: western Palaearctic (Legalov *et al.*, 2010).

#### **Genus: *Ceratapion* Schilsky, 1901**

##### **3. *Ceratapion beckeri* (Desbrochers, 1874-1875)**

Material examined: North Khorasan province, Shirin darreh village, May 24, 2013, *Solanum tuberosum*. 8 specimens, 5 female and 3 male.

Distribution: Central Palaearctic (Legalov *et al.*, 2010).

**4. *Ceratapion (Echinostroma) scalptum caviceps* (Desbrochers, 1870)**

Material examined: North Khorasan province, Kashank village, July 06, 2013, Apple orchard weeds. 30 specimens, 16 female and 14 male.

Distribution: Central Asia and Asia Minor, Southern Europe, Kazakhstan and Caucasus (Legalov *et al.*, 2010).

**Genus: *Malvapion* Hoffmann, 1958**

**5. *Malvapion malvae* (Fabricius, 1775)**

Material examined: North Khorasan province, Gazabad village, May 10, 2013, pasture. 28 specimens, 18 female and 10 male.

Distribution: Western and Central Palaearctic (Legalov *et al.*, 2010).

**Family: Curculionidae**

**Subfamily: Baridinae**

**Genus: *Baris* Germar**

**1. *Baris coerulea* Scopoli (1763)**

Material examined: North Khorasan province, Eslamabad village, April 04, 2014, Canola. 31 specimens, 19 female and 12 male.

Distribution: western Palearctic.

**Subfamily: Ceutorhynchinae**

**Genus: *Ceutorhynchus* Germar, 1824**

**2. *Ceutorhynchus biseriatus* (Faust, 1885)**

Material examined: North Khorasan province, Khoramdareh village, May 27, 2013, Wheat. 29 specimens, 18 female and 11 male.

Distribution: Kazakhstan, Central Asia and Asia Minor (Legalov and *et al.*, 2010).

**Genus *Mogulones* Reitter 1916**

**3. *Mogulones t-album* (Gyllenhal, 1837)**

Material examined: North Khorasan province, Mehmanak village, 1392/2/18, Weed of prune. 8 specimens, 5 female and 3 male.

Distribution: Southeastern Europe, Kazakhstan and Asia Minor (Legalov and *et al.*, 2010)

**Genus *Prisistus* Reitter 1916**

**4. *Prisistus caucasicus* (Kirsch, 1879)**

Material examined: North Khorasan province, Mehmanak village, May 08, 2013, Weed of prune. 16 specimens, 10 female and 6 male.

Distribution: Russia, Kazakhstan, Georgia, Armenia, Azerbaijan, Kazakhstan, Central Asia, Iran and Afghanistan (Korotyayev and Cholokava, 1989)

**Subfamily: Entiminae**

**Genus *Eusomus***

**5. *Eusomus ovulum* (Germar, 1824)**

Material examined: North Khorasan province, Chakhmaghlou village, June 21, 2013, Potato. 18 specimens, 9 female and 9 male.

Distribution: Western and Central Palaearctic (Legalov *et al.*, 2010).

**Genus: *Sitona* (Germar, 1817)**

**6. *Sitona concaviostris* (Hochhuth, 1851)**

Material examined: North Khorasan province, Keshanak and Zardvillage, July 06, 2013 and June 28, 2013, *Medicago sativa*. 19 specimens, 11 female and 8 male.

Distribution: Eastern Mediterranean, Kazakhstan, Iran and southern Russia (Roudier, 1980).

**7. *Sitona lineatus* (Linnaeus, 1758)**

Material examined: North Khorasan province, Gazbashi village (April 26, 2013,

*Medicago sativa* ), Tajik village (April 26, 2013, *Medicago sativa*), Gaza bad village (May 10, 2013, *Medicago sativa*) and Havarvillage (June 13, 2013, *Lens culinaris*). 28 specimens, 18 female and 10 male.

Distribution: Great Britain and North Africa (Jackson, 1920 and Hoebeke and Wheeler, 1985)

#### **8. *Sitona macularius* (Marsham, 1802)**

Material examined: North Khorasan province, Khoramdareh village, April 26, 2013, *Medicago sativa*. 17 specimens, 12 female and 5 male.

Distribution: Palaearctic (Dieckmann, 1980).

#### **Subfamily: Hyperinae**

#### **Genus *Hypera***

#### **9. *Hypera postica* (Gyllenhal, 1813)**

Material examined: North Khorasan province, Gazbashiand Kastanvillage, April 26, 2013 and June 28, 2013, *Medicagosativa*. 46 specimens, 28 female and 18 male.

Distribution: Asia, Southern Europe, United States of America

## DISCUSSION

Weevils of Iranian fauna are rich but little research was conducted (Legalov *et al.*, 2010). General repertory of Iranian weevils published by Borumand (1998). New recorded by Legalov *et al.*, (2010) including 711 species which 651 species belonged with Cuculionoidea. According finding by Borumand (1998), *Malvapion malvae* in Khorasan niched in Malvaceae plant host and *Aspidapion aenum* not found in Khorasan province but this research found in pasture (Gazabad Village) and observed *A. aenum* in Maneh and Samalghan. *Ceratapion beckeri* reported by Wanat (1995) on *Lavatera* sp. but this current research found on potato (*Solanum tuberosum*) in Shirindareh village. Different plant hosting were observed with *Ceratapion scalptumon* weed of apple, *Apion frumentarium* on Orchards of peaches and plum weed but wanat (1995) reported on *Carthamus* spp., Legalov *et al.*, (2010) on *Rumex* sp.

Gonabad was only region in North Khorasan that hosted *Hypera postica* whereas this research added Maneh and Samalghan. *Sitona lineatus*, *Sitonia macularis*, *Prisistus caucasicus*, *Mogulones t-album*, *ceutorhynchus biseriatu*s, *Eusmus ovulum* and *Baris coerulescens* Scopoli (1763) as new records in North Khorasan.

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