

Heteroptera fauna in alfalfa fields of Ghaen and vicinity, South Khorasan province, with a new record for Iran

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Heteroptera as one of the most important insect orders with a significant ecological role is still scarcely known faunistically in several areas of Iran. In order to contribute to the knowledge of the Iranian Heteroptera fauna, a survey was carried out to provide detailed information on the distribution of true bugs in South Khorasan province (Ghaen and vicinity). Samples were collected using aspirator and sweeping net by irregular patterns. In total, 136 specimens were collected and identified. They consisted of 20 species and subspecies belonging to 15 genera of 7 families. Among the collected specimens, 19 taxa were new for South Khorasan fauna including *Orius albidipennis* (Reuter) (Anthracoridae); *Henestaris halophilus* (Burmeister), *Geocoris pallidipennis* (Costa) (Lygaeidae); *Lygus gemellatus* (Herrich-Schäffer), *Deraeocoris punctulatus* (Fallén), *Adelphocoris lineolatus* (Goeze), *Creontiades pallidus* (Rambur), *Stenodema calcarata* (Fallén), *Orthops campestris* (Linnaeus), *O. pilosulus* (Jakovlev) (Miridae); *Nabis palifera* (Seidenstücker), *N. pseudoferus orientarius* (Remane), *N. punctatus* (A. Costa), *N. capsiformis* (Germar) (Nabidae); *Camptopus lateralis* (Germar) (Alydidae); *Coranus angulatus* (Stål) (Reduviidae); *Brachycarenum tigrinus* (Schilling), *Liorhyssus hyalinus* (Fabricius) and *Stictopleurus abutilon* (Rossi) (Rhopalidae). *S. trispinosa* (Reuter) was a new record for the fauna of Iran. Among the collected specimens, 7 species were predators and 13 species were plant feeders. Regarding the rare faunistic studies of Heteroptera in South Khorasan province and concerning the variety of geographical elements in this area, it is expected that there are still a large number of true bugs species remain to be discovered in various parts of this province.

Key words: Alfalfa, Heteroptera, South Khorasan, New record

INTRODUCTION

Alfalfa, *Medicago sativa* (Family: Fabaceae), is a perennial crop with a high protein content and lush, dense foliage that is grown for both forage and seed. As a perennial legume, alfalfa provides a favourable habitat and food source for a large number of insects and arthropods (Schiller, 2003).

The Hemiptera, as the largest hemimetabolous group of insects, is currently ranked as the fifth most specious order after Coleoptera, Diptera, Hymenoptera and Lepidoptera (Wilson, 1992). As a suborder of Hemiptera, Heteroptera is considered as a significant taxon with nearly 42300 described species worldwide, which are placed in seven infraorders and 89 families (Küçükbasmaci, 2015). The suborder Heteroptera consists of some of the foremost economically important species, either negatively as pests of crops, or positively as biological control agents. The members of this suborder are a highly adaptable group that not only inhabit a broad diversity of habitats but also display a wide variety of lifestyles (Razmjoo, 2012). Although the Iranian Heteroptera fauna is fairly well studied (Linnavuori & Hossini, 2000; Gharaat et al., 2009; Razmjoo, 2012; Hosseini, 2013; Shamsi, 2014), all

regions have not been sampled attentively, hence, it is quite likely that some new records and probably even new species still await to be discovered and identified.

Khorasan area, as the most extensive province of Iran (313,335 km² area), located in North Eastern Iran, and divided into three provinces: North Khorasan, Khorasan-e-Razavi and South Khorasan. Both mountainous area and the fertile plains are surrounded by the low hills in South Khorasan province favored the conditions for inhabiting various vegetation and for development of agriculture (Barahoei et al., 2014). This can be a reason for variations in diversity of many insect groups in this region. Despite the extensive faunistic studies on the fauna of Heteroptera in various parts of Iran including North Khorasan and Khorasan-e-Razavi provinces (Modaress Awal, 2008; Havaskary et al., 2010; Malvandi, 2015), studying the fauna of these insects in South Khorasan province has been more neglected. Moreover, it is known, one of the most diverse and plentiful groups of insects in alfalfa fields are Heteroptera (Razmjoo, 2012). Therefore, the current study is focused on alfalfa fields in some regions of the South Khorasan province (Ghaen and vicinity) to determine the heteropteran species of this region and to make a contribution to the knowledge of Heteroptera fauna of this province.

MATERIAL AND METHODS

Bugs in the present study were collected by sweeping net and aspirator from alfalfa fields of different regions of South Khorasan in during May to September of 2015. The collected specimens were killed promptly in the field in a cyanide bottle and then placed in a desiccator (with water in the base) for about 24 h in order to relax the specimens. Insect specimens of large and medium size were mounted on pins, while small insects were preserved in 75% alcohol. For identification of the species, the keys by Wagner (1974), Péricart (1998) and Pučkov & Moulet (2009) were used. All the specimens were identified by the third author, Armand Matocq, and were deposited in the Insect Ecology Laboratory, Ferdowsi University of Mashhad. Taxonomy and morphological terminology follows that of Aukema et al. (2013). Families, genera and species are listed alphabetically.

RESULTS

Totally, 20 species belonging to 15 genera and 7 families were collected and identified, of which, 19 species were new for the fauna of South Khorasan province and *Stenodema trispinosa* was new for the fauna of Iran. The list of species, their distribution in Iran and general distribution are given below.

Family Alydidae Amyot and Serville, 1843

Genus *Camptopus* Amyot and Serville, 1843

Camptopus lateralis (Germar, 1817)

Material examined: 5♀ (IELFUM), South Khorasan province, Mehdiabad (33°57' N, 59°41'E), 5.VI.2015, M. Mohammadpour.

Distribution in Iran: Ardabil, Baluchestan, East Azerbaijan, Fars, Guilan, Golestan, Khuzestan, Markazi, Mazandaran, Semnan, Tehran, Zanjan (Havaskary et al., 2010).

General distribution: Germany, India, Cyprus, Russia, Turkey (Hoberlandt, 1956).

Family Anthocoridae Fieber, 1836

Genus *Orius* Wolff, 1811

Orius albidipennis (Reuter, 1884)

Material examined: 1♂9♀ (IELFUM), South Khorasan province, Mehdiabad (33°57' N, 59°41'E), 5.VI.2015, M. Mohammadpour.

Distribution in Iran: Fars, Razavi Khorasan (Linnavuori, 2011), Isfahan (Razmjoo, 2012).

General distribution: Spain, North Africa, Saudi Arabia, Tropical Africa (Cape Verde Islands, Ethiopia, Nigeria), Pakistan (Péricart, 1998).

Family Lygaeidae Schilling, 1829

Genus *Geocoris* Fallén, 1814

***Geocoris pallidipennis* (A. Costa, 1843)**

Material examined: 2♂5♀ (IELFUM), South Khorasan province, Pahnai (33°39' N, 59°7'E), 20.V.2015, M. Mohammadpour.

Distribution in Iran: Isfahan (Razmjoo, 2012), Khuzestan, Fars, Kerman (Linnavuori, 2011).

General distribution: Albania, Bosnia and Herzegovina, Bulgaria, Canarias, Croatia, Cyprus, France, Greece, Italy, Macedonia, Portugal, Romania, Switzerland (Razmjoo et al., 2011).

Genus *Henestaris* Spinola, 1837

***Henestaris halophilus* (Burmeister, 1835)**

Material examined: 2♂3♀ (IELFUM), South Khorasan province, Esfeshad (33°46' N, 59°17'E), 10.VI.2015, M. Mohammadpour.

Distribution in Iran: Fars, West Azerbaijan (Linnavuori, 2011).

General distribution: Russia, Turkey, Albania, Austria, Bulgaria, Crimea, England, France, Germany, Greece, Holland, Hungary; Italy, Romania, Spain, Switzerland, Yugoslavia, Algeria, Morocco (Slater, 1964).

Family Miridae Hahn, 1833

Genus *Adelphocoris* Reuter, 1896

***Adelphocoris lineolatus* (Goeze, 1778)**

Material examined: 4♂ (IELFUM), South Khorasan province, Afriz (33°27' N, 59°0'E), 2.VIII.2015, M. Mohammadpour.

Distribution in Iran: Alborz, Ardabil, East Azerbaijan, Guilan (Havaskary et al., 2012; Hosseini, 2014), Golestan (Karimian & Khormali, 2006), Hamadan (Mirab-balou et al., 2007), Semnan, North Khorasan (Modarres Awal, 1997b; Havaskary et al., 2010), Tehran (Modarres Awal, 1997b), West Azerbaijan, Fars, Ilam, Isfahan, Kermanshah, kordestan, Kohgiluyeh and Boyerahmad, Markazi, Lorestan, Mazandaran (Linnavuori, 2009), Yazd, Zanjan (Askari et al., 2009).

General distribution: Western Europe, Northern Africa, Afghanistan, Pakistan, China, Japan, Northern America (Mirab-Balou et al., 2007).

Comment: Living on numerous host-plants, a pest of alfalfa, particularly in flower stage (Mirab-Balou et al., 2007).

Genus *Creontiades* Distant, 1883

***Creontiades pallidus* (Rambur, 1839)**

Material examined: 1♂1♀ (IELFUM), South Khorasan province, Khatibi (33°35' N, 59°47'E), 19.VIII.2015, M. Mohammadpour.

Distribution in Iran: Bushehr, Fars, Zanjan, North Khorasan, Markazi, Khuzestan, Hormozgan, Tehran (Linnavuori, 2009), Golestan (Karimian & Khormali, 2006), Kerman, Sistan and Baluchestan (Kiritshenko, 1966; Linnavuori, 2009), West Azerbaijan (Gharaat et al., 2009).

General distribution: European and the Ethiopian region (Linnavuori, 2009).

Genus *Deraeocoris* Kirschbaum, 1856

***Deraeocoris punctulatus* (Fallén, 1807)**

Material examined: 5♂8♀ (IELFUM), South Khorasan province, Deheshk (33°54' N, 58°50'E), 11.VII.2015, M. Mohammadpour.

Distribution in Iran: Ardabil (Bilasevar), Guilan, Fars, Isfahan, Tehran, Zanjan (Havaskary et al., 2010), Kermanshah, Kohgiluyeh and Boyerahmad, kordestan, Lorestan, Markazi, Yazd, West Azerbaijan (Linnavuori, 2009).

General distribution: Euro-Siberian (Havaskary et al., 2010)

Genus *Lygus* Hahn, 1833

Lygus gemellatus (Herrich-Schäffer, 1835)

Material examined: 6♂ (IELFUM), South Khorasan province, Pahnai (33°39' N, 59°7'E), 20.V.2015, M. Mohammadpour; 2♂4♀ (IELFUM), South Khorasan province, Zul (33°36' N, 59°7'E), 25.V.2015, M. Mohammadpour.

Distribution in Iran: Ardabil, East Azerbaijan (Havaskary et al., 2012), Golestan (Karimian & Khormali, 2006), Hamadan (Mirab-balou et al., 2007), Isfahan (Razmjoo, 2012), North Khorasan (Modarres Awal, 1997b; Havaskary et al., 2010), kordestan (Linnavuori, 2009; Ebrahimi et al., 2012), Tehran (Kiritshenko, 1966), Yazd, Mazandaran, Zanjan, Kerman, Markazi, Fars, Guilan (Linnavuori, 2009)

General distribution: Belgium, England, France, Germany, Ireland, Netherlands, Portugal, Britain, Denmark, Madeira, Sweden, Turkey (Ebrahimi et al., 2012).

Comment: Living on numerous plants including, *Artemisia* spp. (Asteraceae) (Linnavuori, 2009), *Medicago sativa* L. (Fabaceae), *Onobrychis sativa* Lam. (Fabaceae), *Solanum tuberosum* L. (Solanaceae) and *Trifolium* sp. (Fabaceae) (Ebrahimi et al., 2012).

Genus *Orthops* Fieber, 1858

Orthops campestris (Linnaeus, 1758)

Material examined: 4♂3♀ (IELFUM), South Khorasan province, Farrokhi (33°50' N, 59°32'E), 25.VII.2015, M. Mohammadpour.

Distribution in Iran: North Khorasan (Modarres Awal, 1997b), kordestan (Ebrahimi et al., 2012), Mazandaran, Tehran, Guilan, West Azerbaijan (Linnavuori, 2009).

General distribution: Britain, Germany; Italy, Mallorca, Siberia, Spain, Sweden, Turkey, (Modarres Awal, 1997b; Ebrahimi et al., 2012).

O. pilosulus (Jakovlev, 1877)

Material examined: 1♂1♀ (IELFUM), South Khorasan province, Farrokhi (33°50' N, 59°32'E), 25.VII.2015, M. Mohammadpour.

Distribution in Iran: Guilan, Kerman, North Khorasan, Semnan, Tehran, Zanjan (Linnavuori, 2009).

General distribution: Irano-Turanian (Linnavuori, 2009).

Comment: This species was collected on *Pteropyrum aucheri* Jaub. & Spach (Polygonaceae) (Linnavuori, 2009).

Genus *Stenodema* Laporte, 1833

Elongate, flattened, yellowish green species. Head straight, frons striate and flattened, vertex with longitudinal groove; Eyes touching the anterior margin of pronotum; carina between them absent. Pronotum trapeziform, pale yellow, punctate; lateral margins carinate and with longitudinal median carina. Hemelytra pubescent.

Stenodema calcarata (Fallén, 1807)

Material examined: 4♂4♀ (IELFUM), South Khorasan province, Korghond (33°48' N, 58°42'E), 12.VII.2015, M. Mohammadpour.

Distribution in Iran: Guilan, Ardabil (Hosseini, 2013), East Azerbaijan, Fars (Estahban), Zanjan, Tehran, Kermanshah, Kohgiluyeh and Boyerahmad (Linnavuori, 2009).

General distribution: Western Europe (Chaplin, 2009).

***Stenodema trispinosa* (Reuter, 1904)**

Material examined: 2♂7♀ (IELFUM), South Khorasan province, Korghond (33°48' N, 58°42'E), 12.VII.2015, M. Mohammadpour.

Distribution in Iran: New record for Iran from South Khorasan.

General distribution: Europe: Belgium, Denmark, Finland, France, Britain, Germany, Latvia, Netherlands, Norway, Poland, Romania, Russia, Sweden; Asia: Northeastern China, Korea, Mongolia, Russia (North, West and East Siberia); North America (Aubourg & Streito, 2013).

Description: Male: Body generally brown, elongated, covered with sparse short silvery pubescence (Fig. 1). Head entirely brown, triangular shape, covered with long silvery pubescence; vertex with longitudinal groove; ocelli absent; tylus entirely brown. Antennae generally brown, first antennal segments relatively thick, with brown setae. Rostrum entirely dark brown, rostrum not reaching to mid coxae. Pronotum entirely brown, with longitudinal stripe in the middle part and broadly tiny holes, covered with sparse silvery pubescence; scutellum brown, with longitudinal stripe in the middle part. Hemelytra entirely brown, with stripes pale brown with veins. Legs entirely brown, hind femur with scattered dark brown spots, with two big protuberances and one small protuberance. Abdomen almost brown. Left and right paramere with hypophysis and sensory lobe (Jung & Kim, 2015).

Female: as in male except for greenish body, reddish antennae, and developed brownish ovipositor through abdomen ventrally (Fig. 1).

Remarks: *S. trispinosa* hind femur and male genitalia are completely different from those of *S. calcarata*. While *S. trispinosa* has three short spines near the apex, *S. calcarata* has two spurs (Fig. 2). The right paramer is relatively thin and elongated in *S. trispinosa*, whereas it is comparatively more short and swollen at the apex in *S. calcarata* (Fig. 3). There are differences, however, less marked, at the level of the left paramer and the pygophore. Pygophore in lateral aspect tall in basal half, thereafter abruptly tapering in *S. trispinosa* (Fig. 3). Moreover, other specific taxonomical diagnostic characters between two species are shown in Table 1.

Family Nabidae Costa, 1852

Genus *Nabis* Latreille, 1802

***N. capsiformis* (Germar, 1838)**

Material examined: 5♀ (IELFUM), South Khorasan province, Deheshk (33°54' N, 58°50'E), 11.VII.2015, M. Mohammadpour.

Distribution in Iran: Ardabil, Guilan (Linnavuori & Hosseini, 2000), Bushehr (Kerzhner, 1996), Fars, Golestan, Hormozgan, Tehran, West Azerbaijan, Kohgiluyeh va Buyer Ahmad, kordestan, Lorestan, Sistan va Baluchestan, Ilam (Kerzhner, 1987), Kerman (Kiritshenko, 1966), Razavi Khorasan (Seidenstücker, 1957), Markazi (Modarres Awal, 1997a).

General distribution: USA from North Carolina to Texas and southward into South America (Kerzhner, 1996).

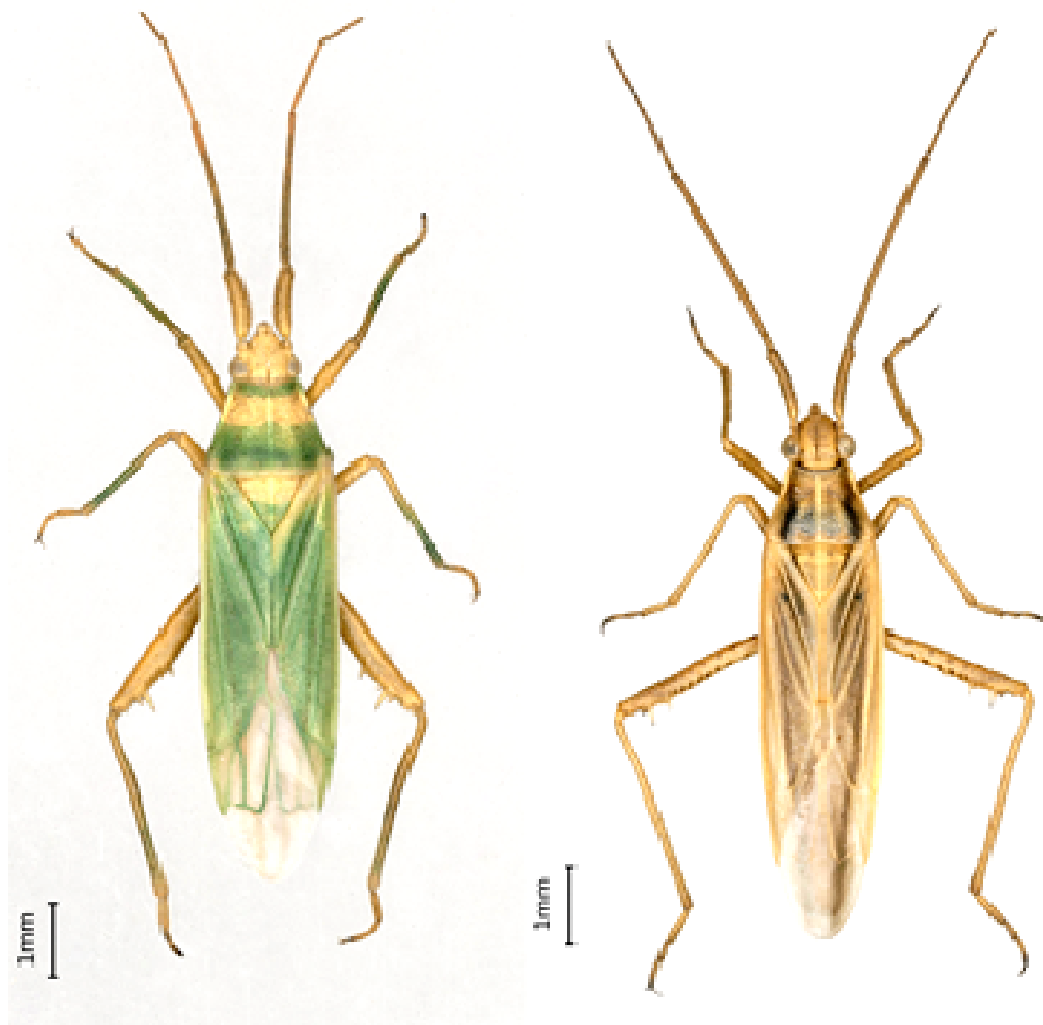


FIGURE.1. *Stenodema trispinosa*, left: female, right: male (Original)

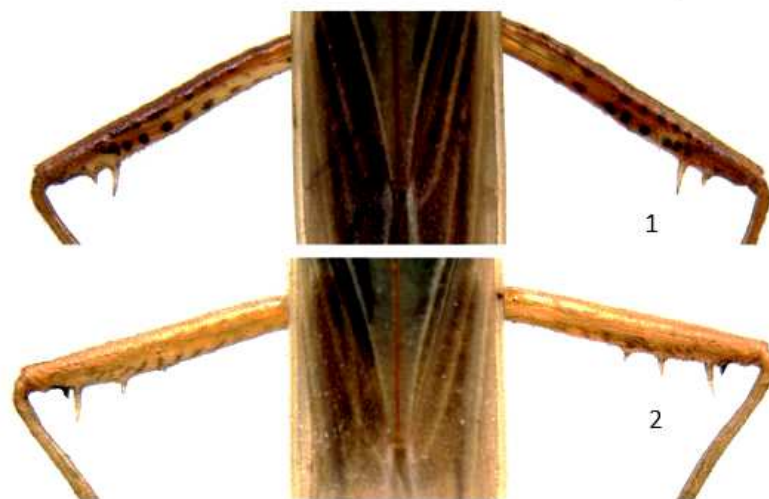


FIGURE 2. The number of spurs on the hind leg 1) *Stenodema calcarata*; 2) *Stenodema trispinosa* (Aubourg & Streito, 2013).

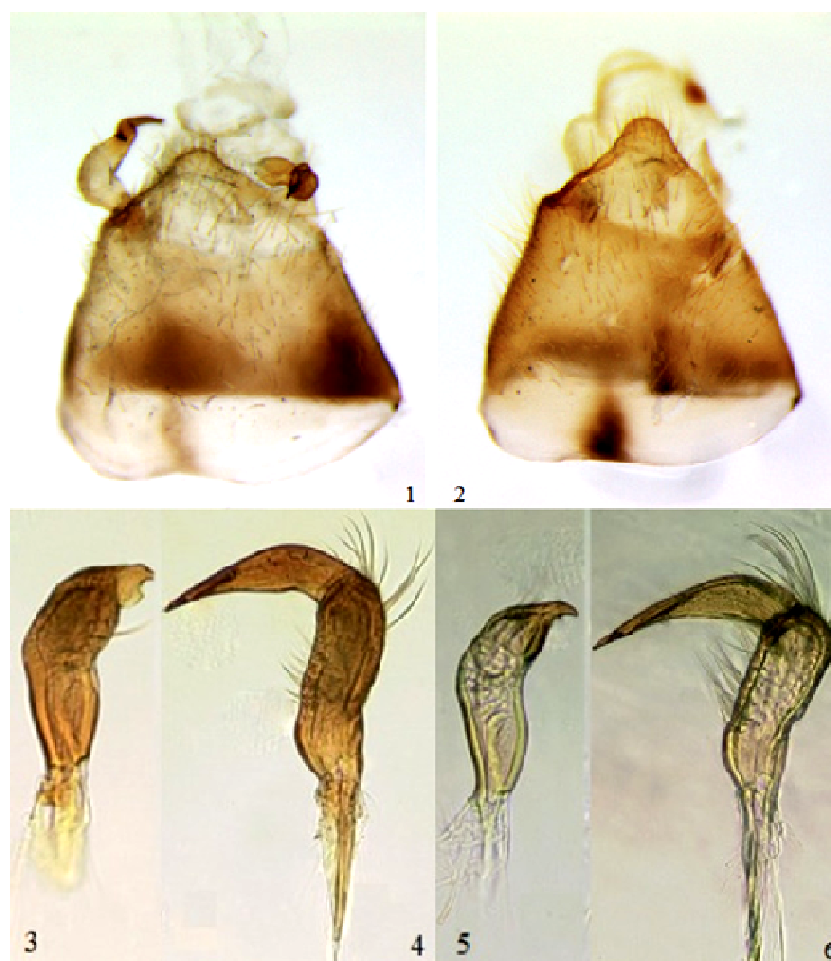


FIGURE 3. Male genitalia of *Stenodema calcarata* and *Stenodema trispinosa* 1) pygophore of *S. calcarata*; 2) pygophore of *S. trispinosa*; 3) Right paramere of *S. calcarata*; 4) Left paramere of *S. calcarata*; 5) Right paramere of *S. trispinosa*; 6) Left paramere of *S. trispinosa* (Aubourg & Streito, 2013).

TABLE 1. Diagnostic taxonomical characters of *Stenodema trispinosa* and *Stenodema calcarata*.

Taxonomic characters	Size (in mm)	
	<i>S. trispinosa</i>	<i>S. calcarata</i>
Body length	7.24	8.72
Head length	0.81	0.81
Head width (including compound eyes)	0.97	0.94
Vertex width	0.49	0.44
First antennal segment length	0.87	0.96
Second antennal segment length	2.17	2.67
Third antennal segment length	1	1.22
Fourth antennal segment length	0.7	0.69
Total antennal length	4.74	5.54
Mesal pronotal length	1.13	1.13
Basal pronotal maximal width	1.61	1.63
Anterior scutellum width	0.87	0.91
Mesal scutellum length	0.75	0.88
Outer embolial margin length	3.68	3.96
Outer cuneal margin length	0.96	1.27
Hemelytron width	0.94	0.99

***Nabis palifera* (Seidenstücker, 1954)**

Material examined: 10♂10♀ (IELFUM), South Khorasan province, Korghond (33°48' N, 58°42'E), 12.VII.2015, M. Mohammadpour.

Distribution in Iran: Fars, Golestan, Isfahan, Tehran, Kerman, Qazvin, Sistan va Baluchestan, Lorestan, Hormozgan, Razavi Khorasan (Kerzhner, 1987).

General distribution: Irano-Turanian, extending from the Balkan Peninsula to south-west China, North India (Kerzhner, 1996).

Comment: This species is a predator of pest insects in the alfalfa fields and lives on herbs in dry areas as well as in cultivated fields (Kerzhner, 1987).

***N. pseudoferus orientarius* (Remane, 1962)**

Material examined: 2♂2♀ (IELFUM), South Khorasan province, Hajiabad (34°52' N, 59°4'E), 5.IX.2015, M. Mohammadpour.

Distribution in Iran: East Azerbaijan, Esfahan, Fars, Tehran, Kerman, Tabriz (Kerzhner, 1987), Guilan (Linnavuori & Hosseini, 2000), Zanjan (Askari et al., 2009).

General distribution: East Turkey, Cyprus, Lebanon, Iraq (Kerzhner, 1996).

***N. punctatus* (A. Costa, 1847)**

Material examined: 9♂7♀ (IELFUM), South Khorasan province, Pahnai (33°39' N, 59°7'E), 20.V.2015, M. Mohammadpour.

Distribution in Iran: East Azerbaijan, Esfahan, Fars, Golestan, Guilan, Kerman, Kohgiluyeh va Buyer Ahmad, North Khorasan, Markazi, Mazandaran, Qazvin, Semnan (Kerzhner, 1987).

General distribution: Europe, extending to north-west Africa and Central Asia (Kerzhner, 1996).

Family Reduviidae Latreille, 1807**Genus *Coranus* Curtis, 1833*****Coranus angulatus* (Stål, 1874)**

Material examined: 1♂1♀ (IELFUM), South Khorasan province, Zul (33°36' N, 59°7'E), 25.V.2015, M. Mohammadpour.

Distribution in Iran: West Azerbaijan (Sakenin et al., 2010)

General distribution: Eremian, known in Tropical Africa, Arabian Peninsula, Indian, Turkey (Aukema et al. 2013)

Family Rhopalidae Amyot & Serville, 1843**Genus *Brachycarenum* Fieber, 1860*****Brachycarenum tigrinus* (Schilling, 1829)**

Material examined: 3♂ (IELFUM), South Khorasan province, Feizabad (33°59' N, 58°45'E), 14.VII.2015, M. Mohammadpour.

Distribution in Iran: Razavi Khorasan (Modarres Awal, 2008)

General distribution: Albania, Austria, Belarus, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Portugal, Romania, Russian, Spain, Sweden, Switzerland Turkey, Ukraine (Dolling, 2006).

Genus *Liorhyssus* Stål, 1870***Liorhyssus hyalinus* (Fabricius, 1794)**

Material examined: 4♂2♀ (IELFUM), South Khorasan province, Khatibi (33°35' N, 59°47'E), 19.VIII.2015, M. Mohammadpour.

Distribution in Iran: North Khorasan, Ardabil, East Azerbaijan, Guilan, Golestan, Semnan, Tehran, Zanjan (Havaskary et al., 2010).

General distribution: The northern parts of Africa, Cyprus, Russia, China, Japan, Turkey (Hoberlandt, 1956).

Genus *Stictopleurus* Stål, 1872

***Stictopleurus abutilon* (Rossi)**

Material examined: 1♂1♀ (IELFUM), South Khorasan province, Esfeshad (33°46' N, 59°17'E), 10.VI.2015, M. Mohammadpour; 2♂ (IELFUM), South Khorasan province, Afriz (33°27' N, 59°0'E), 2.VIII.2015, M. Mohammadpour.

Distribution in Iran: Razavi Khorasan (Linnavuori, 2009).

General distribution: Germany, Sweden, Denmark, Finland, Austria, France, Italy, Hungary, Poland, Bulgaria, Greece, Ukraine, Afghanistan, Kazakhstan, Tajikistan, Uzbekistan (Moulet, 1995).

DISCUSSION

Compared to Khorasan-e-Razavi province which has been intensively investigated to explore its Heteropteran fauna, (Modaress Awal, 2008; Havaskary et al., 2010; Malvandi, 2015), there has been no serious attempt so far to investigate the heteropterans in the South Khorasan province; despite being neighbours of these two regions. The faunistic results of this research indicate that there is a diverse fauna of Heteroptera in South Khorasan alfalfa fields. Collected families in order of decreasing number of species were Miridae (9), Nabidae (4), Rhopalidae (3), Lygaeidae (2), Anthocoridae (1), Alydidae (1), Reduviidae (1). Among the collected specimens, the most abundant species based on the number of collected specimens was *Nabis palifer*. Nabids have a worldwide distribution and include approximately 386 species in 31 genera (Coscarón et al., 2015). They are active predators of various herbivorous insects, found in leaf litter (Prosthemmatinae) and on plants (Nabinae). Some authors provided some information on *N. palifer* distribution in specific areas close to the deserts of Iran with a hyper-arid climate (Solhjoui-Fard & Sarafrazi, 2014), deserts of Kazakhstan (Yesenbekova, 2011) and arid locations of Israel (Linnavuori, 1961). South Khorasan has a dry climate; therefore the geographical distribution of *N. palifer* specimens in the current study as well as its abundance in this area strongly support a more arid climate preference of this species.

In the investigation on Heteroptera fauna of Qaradag forests in East Azerbaijan province, Khaghaninia et al. (2010) collected 47 species belonging to 17 families which among them, the species *Anthocoris nemorum*, *N. pseudoferus*, *Notonecta viridis*, *Velia affinis*, *Gerris maculatus* and *Hydrometra stagnorum* were predators. Razmjoo et al. (2011) studied the fauna of Heteroptera of alfalfa fields in Isfahan province and reported 12 species belonging to 7 families. Likewise, in our study, most of the collected species were predatory bugs belonging to the genera *Nabis*, *Orius*, *Geocoris* and *Deracoris*. It seems that the fauna of predatory bugs (Heteroptera) in alfalfa fields of Iran is diverse. Some of them could be efficient biocontrol agents of different alfalfa pests and consequently would probably be applicable in biological control. All other species in these surveys were phytophagous which among them, *Lygus gemellatus*, *Stenodema trispinosa* and *S. calcarata* have very high population density. The *Lygus* bugs are the main pests of flowering stages of alfalfa leading to flower shattering, drying green terminal buds, shrinkage and weight loss of alfalfa seeds (Khanjani, 2005). From 5 species of *Stenodema* was reported from Iran, 3 species (*S. turanica*, *S. pilosa*, *S. calcarata*) was found in north of Khorasan province (Modarres Awal, 1997b). In this research all regions of South Khorasan were not sampled, and therefore it is expected that several other heteropteran species are remained to be found. Surely, continuing such faunistic surveys is necessary for completing the fauna of Heteroptera in different regions of Iran.

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