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A survey on Halictidae (Hymenoptera, Apoidea) species available in Iranian Pollinator Insects Museum of Yasouj University

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ABSTRACT. There is not a comprehensive checklist on Halictidae family in Iran yet. In this survey, 1179 specimens of the Halictid bees collected from various areas of Iran were examined. Among them, we found 78 species of Halictid bees as a major component of the Apoidea fauna in Iran. Herein, a list of the halictid bees, with localities name, geographical coordinations of localities, and number of male and female specimens is provided. Also, distribution of species in Iran, based on the material collected in this study and the worldwide distribution (where applicable) are presented. Five species are recorded for the first time from following provinces, respectively: *Lasioglossum (Ctenonomia) vagans* (Smith, 1857), from Sistan-o Baluchestan, *Halictus (Vestitohalictus) nasica* Morawitz, 1876, from Isfahan and Sistan-o Baluchestan, *Halictus tetrazoinus* (Klug, 1817) from Charmahal-o Bakhtiari, *Halictus fatsensis* Blüthgen, 1936, from Charmahal-o Bakhtiari, *Halictus (Seladonia) fuscicollis* Morawitz, 1876, from Sistan-o Baluchestan.

Key words: Distribution, Halictidae, Iran, Pollinator bees, Sampling localities

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Introduction

Bees (Hymenoptera, Apoidea, Apiformes) are one of the most diverse groups of insect with approximately 20,000 described species in the world (Michener, 2007; Ascher & Pickering, 2015). Bees have an especial importance for ecosystems. Almost 75% of agricultural production depends on pollination intensity (Kirkitadze & Japoshvili, 2015). Super family Apoidea is divided into seven families: Stenotritidae, Colletidae, Halictidae, Andrenidae,

Melittidae, Megachilidae and Apidae (Michener, 2007). Halictidae is the second largest group of bees. Faunistic studies on the pollinator bees of Iran are limited. Ebmer 1978 reported nearly 180 species of Halictidae from northern Iran with 123 new records to the Iranian fauna. The most important subfamilies are Halictinae and Nomiinae, which respectively including 80% and 12% of the species, compared with only 2% of the species in the Nomioidinae

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subfamily (Patiny et al., 2013). Danforth et al. (2008) recorded 257 species of Rophitinae, which are about 6% of the Halictidae. The subfamily Rophitinae is divided into 13 genera, which are scattered throughout the world (Danforth et al., 2006, 2008). Halictid bees nest in the soil or rarely in rotting wood. They have a diverse social structure such as solitary, communal, semisocial, and eusocial (Michener, 1974; Schwarz et al., 2007). The objective of this study is to improve our knowledge of the family Halictidae in Iran.

Material and methods

More than 5200 specimens collected which among 1179 identified material, 78 species were identified. Geographic coordinations including altitude, latitude and elevation recorded by a GPS eTrix HC series by Garmin Company. Identified species are conserved in Iranian Pollinator Insect Museum of Yasouj University (IPIM). Localities (Table 1), herein a list of identified species (Table 2) and a list of halictids of Iran (Table 3) are provided. Maps of species distributions based on records of genus *Halictus* (Fig. 1), *Lasioglossum* (Fig. 2) and subfamilies Nomiinae, Rophitinae and Nomioidinae (Figure 3), based on the material collected in this study are provided too.

Results

SUBFAMILY: ROPHITINAE

Rophites (Rophitoides) canus Eversmann, 1852

Material examined: Kerman, Jiroft, Sarbijan, 780m, 57°32'20.04" E, 29°6'43.92" N, 28.V.2010, 1♂.

General distribution: Eastern France, North as central Poland, Lithuania, Transbaikalia, Mongolia, Korean Peninsula, and north-

western China (Astafurova & Pesenko, 2006), France, Germany, Austria, Romania, Hungary, Uzbekistan, Kirgizia, Turkey, Iran (Pauly, 2007).

Systropha (Systropha) iranica Popov, 1967

Material examined: Fars, Arsenjan, Pierbasapha, 1637m, 53°20'11.56" E, 29°55'2.11" N, 7.V.2010, 12♀♀, 1♂; Fars, Kharameh, 1594m, 53°18'2.74" E, 29°30'26.65" N, 8.V.2010, 3♀♀.

General distribution: Iran (Pauly, 2007).

Systropha (Systropha) villosa Ebmer, 1978

Material examined: Fars, Kharameh, 1594m, 53°18'2.74" E, 29°30'26.65" N, 8.V.2010, 2♀♀.

General distribution: Iran (Pauly, 2007).

SUBFAMILY: NOMIINAE

Pseudapis bispinosa (Brullé, 1832)

Material examined: Sistan-o Baluchestan, Zahedan, Somaee, 1385m, 60°25'15.64" E, 29°1'19.52" N, 1.V.2010, 1♂; Fars, Neyriz, 1587m, 54°8'45.28" E, 29°12'17.87" N, 10.VII.2011, 2♀♀; Fars, Kazerun, Ghaleseied, 987m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 3♀♀; Sistan-o Baluchestan, Zabol, Sade Sistan, 480m, 61°30'04" E, 31°01'43" N, 16.VI.2010, 1♀; Isfahan, Chadegan, Zayanderud Dam, 2070m, 50°38' E, 32°46' N, 19.VII.2012, 1♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°51.46' E, 29°29'47" N, 2.V.2010, 2♂♂; Fars, Noorabad, Barmak, 1025m, 51°30'53.83" E, 30°8'33.07" N, 2.VII.2009, 1♀; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 2♀♀, 1♂; Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 3♂♂; Fars, Shiraz, 1750m, 52°44.774 E, 29°77.641 N, 21.VII.2013, 3♂♂; Fars, Kamfiroz, 1850m, 52°38.769 E, 30°33.0 N, 22.VIII.2013, 1♀; Charmahal-o Bakhtiari, Dehkohne, 2300m, 51°07'18.12" E, 31°11'48.10" N, 22.VIII.2013, 1♂; Sistan-o Baluchestan, Zahedan, Siahdak,

Table 1. Name of Localities in Iran, where the halictid bees were collected.

Provinces	Location	Altitude (m a.s.l.)	Longitude	Latitude
Charmahal-o Bakhtiari	Brujen	2197	52°29'55.27" E	29°37'24.01" N
	Bebahaydar	2243	50°28'15.17" E	32°19'47.70" N
	Malkhalife	2600	51°15'32.84" E	31°17'27.30" N
	Chelgerd	2390	50°07.00'23" E	32°28.00'00" N
	Shahrekurd exit way	2062	50°54'23.27" E	32°18'20.30" N
	Faradonbeh	2169	51°12'57.86" E	32°00'51.12" N
	Hoseinabad	2200	51°05'29.84" E	31°52'19.86" N
	Cheshmeh shykhalikhan	2755	49°59'18.39" E	32°33'04.87" N
	Sandegan	1761	51°17'07.58" E	31°15'22.99" N
	Dehkohne	2300	51°07'18.12" E	31°11'48.10" N
	Isfahan	Chadegan, Zayandehrud Dam	2070	50°38.00'00" E
Jaja		1959	50°39.54'00" E	32°45.12'00" N
Rud Abad		1794	51°40.51'00" E	32°37.71'00" N
30km Yasouj to Semirrom Road		1890	51°17'25.33" E	30°55'08.52" N
Dorcheh piaz		1608	51°31.75'00" E	32°35.10'00" N
Baharan		1581	51°32.38'00" E	32°37.44'00" N
Karvan, Nasim Abad		2062	50°57.17'00" E	32°48.13'00" N
Najaf Abad		1585	51°23.60'00" E	32°36.71'00" N
Nazhvan, park		1513	51°32.96'00" E	32°36.47'00" N
Dehaghan, Astaneh		2408	51°35.36'00" E	31°49.96'00" N
Jousheghan, Key Ab		2322	51°13.34'00" E	33°36.33'00" N
Shahreza		1817	51°53.16'00" E	32°02.99'00" N
Mobarakeh, Ghahnavyeh		1693	51°31.54'00" E	32°19.95'00" N
Chadegan, Abadchi		2179	50°43.74'00" E	32°45.08'00" N
Fereydan, Bazmeh		1482	52°33'25.95" E	32°24'9.800" N
Baharestan		1608	51°46.15'00" E	32°28.41'00" N
Kashan		1077	51°22.25'00" E	33°56.63'00" N
Falavarjan		1664	51°29.57'00" E	32°32.68'00" N
Najaf Abad, Ghaleh Sefid		1653	51°26.41'00" E	32°35.73'00" N
Aran-o Bidgol		947	51°28.98'00" E	34°02.55'00" N
Zazeran		1628	51°29.19'00" E	32°34.42'00" N
IUT		1676	51°31.70'00" E	32°43.24'00" N
Ostandari St		1570	51°40.31'00" E	32°39.18'00" N
Mobarakeh, Mohammadih	1665	51°32.21'00" E	32°22.00'00" N	
Mobarakeh, Sera Rud	1675	51°42.60'00" E	32°25.22'00" N	
Shahin Shahr	1558	51°30.75'00" E	32°21.92'00" N	
Marq	1556	51°42.22'00" E	32°31.40'00" N	
Mehdi Abad	1993	51°49.26'00" E	32°29.95'00" N	
Karvan	2185	50°51.43'00" E	32°52.78'00" N	
Semirrom	2627	51°37'23.24" E	31°27'23.61" N	
Mobarakeh, Nehchir	1711	51°32.48'00" E	32°21.91'00" N	
Mobarakeh	1695	51°30.97'00" E	32°20.85'00" N	

Table 1. Continued.

Provinces	Location	Altitude (m a.s.l.)	Longitude	Latitude
Isfahan	Sadegh Abad	1784	51°06.78'00" E	32°25.38'00" N
	Natanz, Kesheh	2473	51°46.33'00" E	33°24.69'00" N
	Dehsoor	2365	50°13.78'00" E	32°53.21'00" N
	Barf Anbar, Sadeghieh	2326	50°27.51'00" E	33°01.23'00" N
	Karvan, Jafar Abad	2035	51°00.51'00" E	32°48.07'00" N
	Meymeh	2059	51°09.83'00" E	33°29.20'00" N
	Natanz	1635	51°55.04'00" E	33°30.14'00" N
	Zazerun	1628	51°29.19'00" E	32°34.42'00" N
	Mourcheh Khort	1722	51°25.64'00" E	33°08.26'00" N
	Tiran, Khamiran	2018	51°01.17'00" E	32°47.79'00" N
	Soffe park	1800	51°38.47'00" E	32°34.28'00" N
	Lashotor	1612	50°58.52'00" E	32°48.85'00" N
	Kuh Payeh, Jebel	2011	52°25.47'00" E	32°48.55'00" N
	Tiranchi	1713	51°46.27'00" E	32°25.32'00" N
	Zodan	1606	51°34.33'00" E	32°26.25'00" N
	Mobarakeh, Industril Estate	1645	51°43.41'00" E	32°25.14'00" N
	Fars	Noorabad, Mahrenjan	1200	51°42'35.81" E
Noorabad, Javid		1400	51°37'38.31" E	30°10'51.32" N
Neyriz		1587	54°14.60'00" E	29°20.50'00" N
Estahban		1730	54°03'57.90" E	29°7'32.321" N
Shiraz, Eram		1569	52°31'32.33" E	29°38'09.35" N
Shiraz, Afifabad		1573	52°29'55.27" E	29°37'24.01" N
Kazerun, Ghaleseied		987	51°33.55'00" E	29°38.84'00" N
Kazerun, Bidzard		721	51°52.34'00" E	29°19.87'00" N
Noorabad, Dalum		1300	51°36'59.69" E	30°06'13.78" N
Kamfiroz		1850	52°38.77'00" E	30°33.00'00" N
Shiraz, Besat		1566	52°30'01.21" E	29°37'12.03" N
Kazerun, Ghaemeih		883	51°34'49.43" E	29°51'02.43" N
Kazerun, Hajiabad Ghauri		880	51°33'45.69" E	29°49'32.77" N
Abadeh		1800	52°39'02.00" E	31°09'39.00" N
Shiraz, Azadi		1539	52°32'22.45" E	29°37'46.51" N
Noorabad, Bavan		2150	51°38'47.57" E	30°02'37.66" N
Shiraz		1700	52°38.77'00" E	29°75.63'00" N
Shiraz, Entezar		1525	52°31'03.28" E	29°33'29.11" N
Noorabad, Basharjan		1100	51°16'40.15" E	29°57'01.44" N
Eqlid		2233	52°41'31.56" E	30°54'17.77" N
Sepidan		2235	52°16'34.44" E	30°02'42.21" N
Shiraz		1525	52°29'34.32" E	29°34'36.25" N
Jahrom		1404	52°57'44.67" E	29°01'51.35" N
Shiraz		1500	52°31'37.82" E	29°38'6.900" N
Sepidan, Bahr Ghan		2161	52°00.89'00" E	30°13.39'00" N
Firozabad, Jaidasht		1315	52°34'15.00" E	28°50'38.00" N
Shiraz, Bagh-e Jannat		1573	52°28'22.13" E	29°36'47.56" N
Darab	1105	54°28'48.82" E	28°44'51.24" N	
Evaz	917	54°01'53.03" E	27°45'30.32" N	
Lar	806	54°20'08.82" E	27°40'26.91" N	
Khonj, Mahmeleh	507	53°04'38.48" E	27°49'07.86" N	

Table 3. Continued.

Provinces	Location	Altitude (m a.s.l.)	Longitude	Latitude
Fars	Sepidan	2250	51°59'32.70" E	30°04'33.10" N
	Kharestan	1992	51°55.00'00" E	30°38.39'00" N
	Shiraz, Jahan Nama	1865	52°33'31.14" E	29°37'44.87" N
	Noorabad, Gazorgah	920	51°30'12.69" E	30°06'56.02" N
	Noorabad, Doshmanzeyari	1966	52°04.74'00" E	30°01.85'00" N
	Shiraz, Shahzadeh Ghasem	1550	52°32'19.61" E	29°36'13.12" N
	Sepidan	2235	52°16'34.44" E	30°02'42.21" N
	Arsenjan, Pierbasapha	1637	53°20'11.56" E	29°55'02.11" N
	Fasa	1336	53°39'33.19" E	28°54'27.71" N
	Shiraz	1560	52°29'34.32" E	29°34'36.25" N
	Kazerun, Shahrakepardis	835	51°40'58.66" E	29°36'08.91" N
	Noorabad, Aalivand	980	51°30'42.20" E	30°04'47.14" N
	Noorabad, Chamegol	920	51°31'18.00" E	30°06'51.00" N
	Ghiro karzin	750	52°58'31.41" E	28°35'18.96" N
	Noorabad, Barmak	1025	51°30'53.83" E	30°08'33.07" N
	Shiraz	1750	52°44.77'00" E	29°77.64'00" N
	Shiraz	1570	52°29'34.32" E	29°34'36.25" N
	Noorabad, Ghandil	1100	51°34'46.64" E	29°52'59.98" N
	Estahban, Sahraye Serishk	1336	53°39'33.19" E	29°10'43.49" N
	Shiraz, Dasht Arzhan	2027	51°58'58.81" E	29°39'33.46" N
	Noorabad, Zirdu, Tolekohne	980	51°25'43.02" E	30°14'20.21" N
	Sarvestan	1544	53°12'04.41" E	29°16'52.36" N
	Shiraz	2100	52°04.76'00" E	30°17.36'00" N
Noorabad, Jenjan	1200	51°25'58.63" E	30°13'49.04" N	
Kazerun, Kacekan, Foroodgah	835	51°36'05.33" E	29°36'39.32" N	
Kazerun, Dadin	820	51°52'13.60" E	29°18'36.30" N	
Kazerun, Kamarej	852	51°28'36.87" E	29°36'37.93" N	
Firozabad, Farashband	787	52°05'54.17" E	28°51'15.58" N	
Khonj, Hanganooyeh	564	53°19'13.01" E	27°48'51.01" N	
Shiraz, Delgoshah	1500	52°34'29.19" E	29°37'9.700" N	
Kharameh	1594	53°18'02.74" E	29°30'26.65" N	
Kerman	Jirift	720	57°44'26.00" E	28°40'41.00" N
	Manujan	958	57°30'18.58" E	27°26'51.23" N
	Jiroft, Sarbijan	780	57°32'20.04" E	29°06'43.92" N
Sistan-o Baluchestan	Zahedan, Sornaee	1385	60°25'15.64" E	29°01'19.52" N
	Zabol, Sade systan	480	61°30'04.00" E	31°01'43.00" N
	Zahedan, Siahdak	1400	60°47'24.49" E	29°28'34.29" N
	Zahak	492	61°40'48.38" E	30°53'27.00" N
	Zabol, Kohekhajee	482	61°14'42.78" E	30°56'37.64" N
Kohgiluyeh-va Boyer-Ahmad	Yasouj, Kakan	2326	52°03'04.32" E	30°45'03.12" N

1400m, 60°47'24.49" E, 29°28'34.29" N, 23.IV.2010, 1♂; Charmahal-o Bakhtiari, Faradonbeh, 2169m, 51°12'57.86" E, 32°0'51.12" N, 24.VIII.2013, 1♀; Fars, Noorabad, Chamegol, 920m, 51°31'18" E, 30°06'51" N, 30.VI.2009, 1♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 4.IV.2010, 1♂; Kerman, Manujan, 958m, 57°30'18.58" E, 27°26'51.23" N, 6.V.2010, 1♀; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 8.VI.2010, 1♂; Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 2♂♂; Fars, Darab, 1105m, 54°28'48.82" E, 28°44'51.24" N, 9.VII.2011, 2♂♂.

General distribution: North Africa, Southwest Europe, South Ukraine, South of European Russia, Azerbaijan ([Astafurova & Pesenko, 2006](#)), Greece, Turkey, Turkmenistan, Kazakhstan, Uzbekistan, Iran, Afghanistan, Pakistan, Iraq, Israel ([Pauly, 2007](#)).

***Pseudapis diversipes* (Latreille, 1806)**

Material examined: Fars, Sepidan, 2210 m, 52°00.177' E, 30°14.278' N, 4.VIII.2010, 2♂♂; Fars, Kazerun, Ghaleseied, 987 m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 1♀; Charmahal-o Bakhtiari, Shahrekurd exit way, 2062m, 50°54'23.27" E, 32°18'20.30" N 24.VIII.2013, 2♂♂; Fars, Eqolid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 3.VIII.2010, 2♂♂; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 27.VII.2013, 8♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 10.VII.2013, 3♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 16.IX.2013, 2♀♀, 1♂; Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 1♀, 1♂; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 29.VII.2012, 1♂; Isfahan, Meymeh, 2059m, 51°9.835' E, 33°29.201' N, 31.VIII.2012, 3♀♀; Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 29.VI.2012, 1F/4M; Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 5.VII.2013, 3♀, 4♂; Isfahan, Tiranchi, 1713m, 51°46.269'

E, 32°25.322' N, 15.VII.2012, 2♂♂; Isfahan, Zazerun, 1628m, 51°29.190' E, 32°34.419' N, 15.VII.2012, 2♀♀, 5♂♂; Isfahan, Falavarjan, 1664m, 51°29.574' E, 32°32.676' N, 6.VII.2012, 20♂♂; Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 1♀, 3♂♂; Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 23.VIII.2013, 1♀, 3♂♂; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 29.VII.2012, 1♂; Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 21.VI.2013, 1♂; Isfahan, Baharestan, 1608m, 51°46.149' E, 32°28.409' N, 18.V.2012, 2♂♂; Fars, Sepidan, 2210m, 52°00.177' E, 30°14.278' N, 4.VIII.2010, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 2.IX.2013, 1♀, 2♂♂; Charmahal-o Bakhtiari, Cheshmeh shykhalikhan, 2755m, 49°59'18.39" E, 32°33'4.87" N, 23.VIII.2013, 2♀♀; Isfahan, Rud Abad, 1794m, 51°40.511' E, 32°37.711' N, 19.VII.2012, 1♂; Isfahan, IUT, 1676m, 51°31.697' E, 32°43.245' N, 16.V.2012, 1♂; Fars, Kharameh, 1594m, 53°18'2.74" E, 29°30'26.65" N 8.V.2010, 1♂; Fars, Shiraz, Besat, 1500m, 52°31'37.82" E, 29°38'6.90" N, 27.VIII.2011, 1♂; Fars, Shiraz, 1700m, 52°38.769' E, 29°75.635' N, 30.VI.2013, 1♂; Fars, Shiraz, Besat 1566m, 52°30'01.21" E, 29°37'12.03" N, 23.VII.2011, 1♀; Fars, Sepidan, 2210m, 52°00.177' E, 30°14.278' N, 4.VIII.2010, 2M; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 25.V.2012, 1♂; Charmahal-o Bakhtiari, Brujen, 2197m, 51°17'14" E, 31°57'55" N, 23.VIII.2013, 1♀; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 12.VIII.2012, 2♀♀, 3♂♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 2♂♂.

General distribution: North Africa (Algeria, Libya, Egypt), Moldova, Ukraine, Russia, Transcaucasia, Kyrgyzstan, Afghanistan, Pakistan, Mongolia ([Astafurova & Pesenko, 2006](#)), South France, Italy, Switzerland,

Austria, Poland, Slovakia, Croatia, Bulgaria, Greece, Turkey, Cyprus, Syria, Lebanon, Israel, Jordan, Uzbekistan, Kazakhstan, Turkmenistan, Iran, Pakistan, Mongolia (Pauly, 2007), Turkey and Ankara (Dikmen & Çağatay, 2007).

***Pseudapis nilotica* (Smith, 1875)**

Material examined: Sistan-o Baluchestan, Zabol, Kohekhajee, 482m, 61°14'42.78" E, 30°56'37.64" N 12.V.2010, 3♂♂; Sistan-o Baluchestan, Zabol, Sade systan, 480m, 61°30'04" E, 31°01'43" N, 16.VI.2010, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♂; Fars, Lar, 806m, 54°20'8.82" E, 27°40'26.91" N, 9.VII.2011, 1♂; Fars, Khonj, Mahmeleh, 507m, 53°4'38.48" E, 27°49'7.86" N, 9.VII.2011, 1♂.

General distribution: North of Africa to Pakistan; Egypt, Ethiopia, Sudan (loc. typ.: Khartoum), Djibouti, Saudi Arabia, Qatar, Oman, UAE, Pakistan, Turkmenistan, Afghanistan. (Dathe, 2009), Iran (Khodaparast & Monfared, 2012).

***Pseudapis bytinski* (Warncke, 1976)**

Material examined: Fars, Estahban, 1730m, 54°06'60.85" E, 29°12'56.45" N, 10.VII.2011, 1♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 1♂.

General distribution: Turkey, Israel, Egypt, Iran (Grace, 2010).

***Pseudapis edentata* (Morawitz, 1876)**

Material examined: Fars, Lar, 806m, 54°20'8.82" E, 27°40'26.91" N 9.VII.2011, 4♂♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 3♂♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 12.V.2010, 3♂♂; Fars, Shiraz, Jahan Nama, 1865m, 52°33'31.14" E, 29°37'44.87" N, 21.IX.2011, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 20.V.2010, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 19.V.2010, 1♂; Fars, Firozabad, Farashband, 787m, 52°5'54.17"

E, 28°51'15.58" N, 8.VII.2011, 1♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 24.V.2010, 3♂♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N 8.VI.2010, 2♂♂; Sistan-o Baluchestan, Zabol, Sade systan, 480m, 61°30'04" E, 31°01'43" N, 5.V.2010, 2♂♂.

General distribution: UAE (Abu Dhabi), Oman, Turkmenia, Turkestan, Pakistan (Baker, 2002). Arabian Peninsula and Turkestan to India (Saudi Arabia, Oman, Tadzhikistan, Turkmenistan, Uzbekistan, Azerbaijan, Iran, Afghanistan, Pakistan, India) (Pauly, 2007).

***Pseudapis lobata* (Olivier, 1812)**

Material examined: Isfahan, Mobarakeh, Ghahnaveh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 4♀♀, 10♂♂; Isfahan, Zolan, 1606m, 51°34.328' E, 32°26.255' N, 28.VIII.2012, 1♀; Fars, Kazerun, Ghaleseied, 987m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 1♀; Isfahan, Falavarjan, 1664m, 51°29.574' E, 32°32.676' N, 6.VII.2012, 3♂♂; Isfahan, Mobarakeh, 1695m, 51°30.970' E, 32°20.846' N, 18.VII.2013, 8♂♂; Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 3♂♂; Fars, Shiraz, Jahan Nama, 1865m, 52°33'31.14" E, 29°37'44.87" N, 21.VII.2012, 2♂♂; Fars, Shiraz, Afifabad, 1573m, 52°29'55.27" E, 29°37'24.01" N, 13.VIII.2012, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 3♂♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 1♂; Fars, Noorabad, Barmak, 1025m, 51°30'53.83" E, 30°8'33.07" N, 2.VII.2009, 1♂; Fars, Shiraz, Besat 1566m, 52°30'01.21" E, 29°37'12.03" N, 23.VII.2011, 1♂; Charmahal-o Bakhtiari, Dehkohne, 2300m, 51°07'18.12" E, 31°11'48.10" N, 22.VIII.2013, 1♂; Fars, Firozabad, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 1♂; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 29.VII.2012, 1♂; Fars, Noorabad, Aalivand, 980m, 51°30'42.20" E, 30°4'47.14"

N, 3.VII.2009, 2♀♀, 2♂♂; Chaharmahal- o Bakhtiari, Sandegan, 1760m, 51°17'7.58" E, 31°15'22.99" N, 2000, 1♀; Chaharmahal- o Bakhtiari, Sandegan, 1760m, 51°17'7.58" E, 31°15'22.99" N, 2001, 1♀.

General distribution: Turkey and Iran (Ascher & Pickering, 2016), Turkmenistan (Astafurova & Pesenko, 2006).

Pseudapis patellata (Magretti, 1884)

Material examined: Fars, Khonj, Hanganoooyeh, 564m, 53°19'13.01" E, 27°48'51.01" N 9.VII.2011, 5♂♂.

General distribution: Niger to India; Chad, Sudan, Saudi Arabia, Yemen, UAE (Wadi Bih, Khor Fakkan, Wadi Dibba, Hatta), Iran, India (Warncke, 1980; Baker, 2002).

Pseudapis fugax (Morawitz, 1877)

Material examined: Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 5.V.2010, 1♂; Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 23.VIII.2013, 1♂; Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♂.

General distribution: Europe and North Africa to Eastern Asia, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, and Xinjiang Uyghur of China in central Asia (Murao et al., 2017), Iran (Khodaparast & Monfared, 2012; Khodarahmi & Monfared, 2019).

Pseudapis platula (Warncke, 1976)

Material examined: Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♂; Charmahal-o Bakhtiari, Dehkohne, 2300m, 51°07'18.12" E, 31°11'48.10" N, 22.VIII.2013, 1♂.

General distribution: Tajikistan, Iran (Astafurova & Pesenko, 2006), Turkey (Grace, 2010).

SUBFAMILY: HALICTINAE

Halictus brunnescens (Eversmann, 1852)

Material examined: Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 10.II.2009, 1♀; Fars, Neyriz, 1587m, 54°14'59.12' E, 29°20'49.64' N, 10.VII.2011, 2♀♀; Fars, Jahrom, 1404m, 52°57'44.67" E, 29°1'51.35" N, 10.VII.2011, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 10.VII.2013, 1♀; Fars, Kazerun, Ghalesefid, 987m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 1♀; Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 11.II.2009, 1♀; Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 1♀; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 19.VII.2012, 7♀♀, 2♂♂; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 19.VII.2013, 1♀; Kerman, Jiroft, 720m, 57°44'26" E, 28°40'41" N, 21.IV.2010, 1♀; Charmahal-o Bakhtiari, Chelgerd, 2390m, 50°07'23" E, 32°28'00" N, 23.VIII.2013, 1♂; Charmahal-o Bakhtiari, Brujen, 2197m, 51°17'14" E, 31°57'55" N, 23.VIII.2013, 1♂; Charmahal-o Bakhtiari, Malkhalife, 2600m, 51°15'32.84" E, 31°17'27.30" N, 23.VIII.2013, 1♂; Charmahal-o Bakhtiari, Babaheydar, 2243m, 50°28'15.17" E, 32°19'47.70" N, 23.VIII.2013, 2♂♂; Charmahal-o Bakhtiari, Cheshmeh shykhalikhan, 2755m, 49°59'18.39" E, 32°33' 4.87" N, 23.VIII.2013, 1♀; Fars, Shiraz, Eram, 1569 m, 52°31'32.33" E, 29°38'09.35" N, 26.V.2012, 2♀♀; Isfahan, Karvan, Nasim Abad, 2062 m, 50°57.166' E, 32°48.131' N, 29.VI.2012, 1♀; Fars, Shiraz, Jahan Nama, 1865m, 52°33'31.14" E, 29°37'44.87" N, 4.VIII.2012, 1♂; Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 4♀♀, 7♂♂; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 8.VII.2012, 5♀♀.

General distribution: Morocco, Egypt, Tunisia, Spain, Austria, The Czech Republic, Israel, Georgia, Armenia, Azerbaijan, Iran, Afghanistan, Pakistan, Kazakhstan, Uzbekistan, Turkmenistan, Kirghizstan, Northern China and Northern India (Pesenko, 2005).

***Halictus resurgens* Nurse, 1903**

Material examined: Fars, Noorabad, Meherenjan, 1200m, 51°42'35.81" E, 30°13'48.55" N, 1.VII.2009, 1♀, 3♂♂; Fars, Noorabad, Javid, 1400m, 51°37'38.31" E, 30°10'51.32" N, 1.VII.2009, 4♀♀, 3♂♂; Keraman, Jiroft, 720m, 57°44'26" E, 28°40'41" N, 1.X.2009, 1♂; Fars, Estahban, 1730m, 54°06'60.85" E, 29°12'56.45" N, 10.VII.2011, 2♀♀; Fars, Neyriz, 1587m, 54°14'59.12" E, 29°20'49.64" N, 10.VII.2011, 7♀♀, 1♂; Isfahan, Najafabad, 1585m, 51°23.601' E, 32°36.711' N, 11.V.2013, 1♀; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 12.VIII.2012, 1♂; Fars, Shiraz, Afifabad, 1573m, 52°29'55.27" E, 29°37'24.01" N, 13.VIII.2012, 1♂; Isfahan, Nazhvan park, 1513m, 51°32.964' E, 32°36.471' N, 16.VI.2013, 1♀; Fars, Kazerun, Ghaleseied, 987m, 51°33.552' E, 29°38.841' N, 17.V.2010, 1♀, 3♂♂; Isfahan, Dehaghan, Astane, 2408 m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 1♀; Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 19.V.2010, 1♀; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 19.VII.2012, 3♀♀, 1♂; Isfahan, Jaja, 1959m, 50°39.539' E, 32°45.122' N, 19.VII.2012, 1♂; Isfahan, Rud Abad, 1794m, 51°40.511' E, 32°37.711' N, 19.VII.2012, 1♂; Fars, Noorabad, Dalun, 1300m, 51°36'59.69" E, 30°6'13.78" N, 2.IV.2010, 1♀; Kerman, Jiruft, 720m, 57°44'26" E, 28°40'41" N, 21.IV.2010, 1♀; Isfahan, 30Km Yasouj to Semirom Road, 1890m, 51°17'25.33" E, 30°55'8.52" N, 21.VIII.2012, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 22.III.2011, 1♀; Fars, Kamfirooz, 1850m, 52°38.769' E, 30°33.000' N, 22.VIII.2013, 2♂♂; Fars, Shiraz, Besat, 1566m, 52°30'01.21" E, 29°37'12.03" N, 23.VII.2011, 1♂; Fars, Shiraz, Afifabad, 1573m, 52°29'55.27" E, 29°37'24.01" N, 23.VII.2012, 3♂♂; Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 23.VIII.2013, 1♀♂; Charmahal-o Bakhtiari, Malkhalife, 2600m, 51°15'32.84" E, 31°17'27.30" N, 23.VIII.2013, 2♂♂;

Charmahal-o Bakhtiari, Brujen, 2197m, 51°17'14" E, 31°57'55" N, 23.VIII.2013, 1♂; Charmahal-o Bakhtiari, Bebahaydar, 2243m, 50°28'15.17" E, 32°19'47.70" N, 23.VIII.2013, 1♀; Charmahal-o Bakhtiari, Chelgerd, 2390m, 50°07'23" E, 32°28'00" N, 23.VIII.2013, 1♀; Fars, Kazerun, Ghaemeih, 883m, 51°34'49.43" E, 29°51'2.43" N, 24.III.2010, 1♀; Fars, Kazerun, HajiabadGhauri, 880m, 51°33'45.69" E, 29°49'32.77" N, 24.III.2010, 3♀♀; Charmahal-o Bakhtiari, Shahrekurd exit way, 2062m, 50°54'23.27" E, 32°18'20.30" N, 24.VIII.2013, 1♀♂; Charmahal-o Bakhtiari, Faradonbeh, 2169m, 51°12'57.86" E, 32°0'51.12" N, 24.VIII.2013, 1♂; Charmahal-o Bakhtiari, Hoseinabad, 2200m, 51°5'29.84" E, 31°52'19.86" N, 24.VIII.2013, 1♂; Fars, Shiraz, Azadi park, 1539m, 52°32'22.45" E, 29°37'46.51" N, 25.VIII.2011, 1♀; Fars, Abade, 1800m, 52°39'02" E, 31°09'39" N, 26.IV.2011, 6♀♀; Fars, Noorabad, Bavan, 2150m, 51°38'47.57" E, 30°2'37.66" N, 28.VI.2009, 1♀, 6♂♂; Isfahan, Baharan, 1581m, 51°32.382' E, 32°37.437' N, 28.VIII.2012, 1♀; Fars, Shiraz, 1700m, 52°38.769' E, 29°75.635' N, 28.VIII.2013, 1♀; Isfahan, Karvan, Nasim Abad, 2062m, 50°57.166' E, 32°48.131' N, 29.VI.2012, 1♂; Fars, Shiraz, Entezar, 1525m, 52°31'3.28" E, 29°33'29.11" N, 3.2012, 1♀; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 5♀♀; Fars, Eqlid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 3.VII.2010, 10♀♀, 10♂♂; Isfahan, Jousheghan, Key Ab, 2322m, 51°13.337' E, 33°36.326' N, 31.VIII.2012, 1♂; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 4.VI.2013, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2010, 1♀, 5♂♂; Fars, Shiraz, 1525m, 52°29'34.32" E, 29°34'36.25" N, 5.IV.2009, 1♀; Isfahan, NajafAbad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 5.VII.2013, 1♀; Fars, Shiraz, 1525m, 52°29'34.32" E, 29°34'36.25" N, 6.IV.2009, 1♀; Isfahan, Mobarakeh, Ghahnaveh, 1693m, 51°31.543' E, 32°19.948' N, 6.IX.2012, 1♂; Fars, Shiraz,

Afifabad, 1573m, 52°29'55.27" E, 29°37'24.01" N, 6.VIII.2012, 2♂♂; Fars, Jahrom, 1404m, 52°57'44.67" E, 29°1'51.35" N, 7.V.2010, 1♂; Fars, Shiraz, 1500m, 52°31'37.82" E, 29°38'6.90" N, 7.V.2011, 1♀; Isfahan, Chadegan, Abadchi, 2179m, 50°43'736' E, 32°45.085' N, 7.VII.2012, 2♀♀; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀; Fars, Firozabad, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 3♀♀; Fars, Firozabad, Jaidasht, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 1♂; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 8.VII.2012, 23♀♀; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 4♀♀; Fars, Darab, 1105m, 54°28'48.82" E, 28°44'51.24" N, 9.VII.2011, 1♂; Fars, Evaz, 917m, 54°1'53.00" E, 27°45'30.32" N, 9.VII.2011, 2♂♂; Fars, Lar, 806m, 54°20'8.82" E, 27°40'26.91" N, 9.VII.2011, 1♀; Fars, Khonj, Mahmeleh, 507m, 53°4'38.48" E, 27°49'7.86" N, 9.VII.2011, 1♂; Isfahan, Meymeh, 2059m, 51°09.835' E, 33°29.201' N, 9.VIII.2013, 1♀, 2♂♂.

General distribution: Northeast Africa to Central Asia (Pesenko, 2005).

Halictus sexcinctus albohispidus Blüthgen, 1923

Material examined: Fars, Eqlid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 23.IV.2010, 1♀.

General distribution: This species is represented by 2 subspecies: *H. sexcinctus sexcinctus* (F. 1775) is the European subspecies and *H. sexcinctus albohispidus* (Blüthgen, 1923) is the southern subspecies (Armenia, Israel, Iran, and Turkey), Georgia and Dagestan are reported as the transgression zone of these subspecies (Pesenko, 2005).

Halictus senilis (Eversmann, 1852)

Material examined: Sistan-o Baluchestan, Zahedan, Sornae, 1385m, 60°25'15.64" E, 29°1'19.52" N, 1.V.2010, 1♂; Fars, Estahban,

1730m, 54°3'57.90" E, 29°7'32.32" N, 10.VII.2011, 1♂; Fars, Neyriz, 1587m, 54°8'45.27" E, 29°12'17.87" N, 10.VII.2011, 1♂; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 2♀♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°51.46' E, 29°29'47" N, 2.V.2010, 2♀♀, 3♂♂; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 2♀♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°51.46' E, 29°29'47" N, 4.IV.2010, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♂; Fars, Firozabad, Jaidasht, 1315m, 52°34'15" E, 28°50'8" N, 8.VII.2011, 3♂♂.

General distribution: Europe, North Africa to Eastern Asia, Kazakhstan, Kyrgyzstan, Turkmenista, Uzbekistan, and Xinjiang Uyghur of China in central Asia (Murao et al., 2017).

Halictus submodernus Blüthgen, 1936

Material examined: Fars, Noorabad, Javid, 1400m, 51°37'38.31" E, 30°10'51.32" N, 1.VII.2009, 1♀; Fars, Noorabad, Mehrenjan, 1200m, 51°42'35.81" E, 30°13'48.55" N, 1.VII.2009, 3♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 12.VII.2013, 1♀; Fars, Shiraz, 1750m, 52°44.774 E, 29°77.641 N, 21.VII.2013, 1♀; Fars, Abadeh, 1800m, 52°39'02" E, 31°09'39" N, 26.IV.2011, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 27.VII.2013, 2♀; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 1♀; Fars, Eqlid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 3.VIII.2010, 1♀; Fars, Shiraz, 1500m, 52°31'37.82" E, 29°38'6.90" N, 7.V.2011, 1♀; Fars, Firozabad, Jaidasht, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 1♂.

General distribution: Iran, Turkey (Pesenko, 2005).

Halictus humkalensis Blüthgen, 1936

Material examined: Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♀; Fars, Noorabad, Besharjan,

1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 1♂.

General distribution: Iran, Turkmenistan, Uzbekistan, Tadjikistan, Northwest Pakistan to Eastern Afghanistan (Ebmer, 2009).

***Halictus maculatus priesneri* Ebmer, 1975**

Material examined: Isfahan, Fereydan, Bazmeh, 1482/01m, 52°33'25.95" E, 32°24'9.80" N, 24.V.2012, 1♀; Charmahal-o Bakhtiari, Hoseinabad, 2200m, 51°5'29.84" E, 31°52'19.86" N, 24.VIII.2013, 1♂; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀.

General distribution: Widely distributed in Western Palaearctic from Spain to Eastern Kazakhstan (Pesenko et al., 2000), Iran (Khodaparast & Monfared, 2012).

***Halictus asperulus* Pérez, 1895**

Material examined: Isfahan, Falavarjan, 1664m, 51°29.574' E, 32°32.676' N, 15.VII.2012, 1♂; Fars, Arsenjan, Pierbasapha, 1637m, 53°20'11.56" E, 29°55'2.11" N, 7.V.2010, 4♀♀.

General distribution: Armenia, Austria, Azerbaijan, Cyprus, Georgia, Iran, Israel, Syria, Spain, Turkey, Ukraine (Pesenko, 2005).

***Halictus fatsensis* Blüthgen 1936**

Material examined: Charmahal-o Bakhtiari, Brujen, 2197m, 51°17'14" E, 31°57'55" N, 23. VIII.2013, 1♂.

General distribution: Southwestern Turkey, Cyprus, Israel, Iraq (Pauly, 2007), Eastern Mediterranean, Cyprus, Iraq, Israel, Jordan, Turkey (Pesenko, 2005).

***Halictus patellatus* Morawitz, 1874**

Material examined: Isfahan, Natanz, Kesheh, 2473m, 51°46.326' E, 33°24.687' N, 20.IX.2013, 1♂; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 27.VII.2013, 2♀♀; Isfahan, Jousheghan, Key Ab, 2322m, 51°13.337' E, 33°36.326' N, 31.VIII.2012, 1♀;

Isfahan, Dehsoor, 2365m, 50°13.777' E, 32°53.214' N, 4.VII.2012, 1♀.

General distribution: France, Belgium, Slovakia, Slovenia, Italy, Austria, Macedonia, Azerbaijan, Israel, Lebanon, Russia, Caucasia (Polaszek, 2004), Morocco, Syria, Northern Iran, Turkey and Southwest Turkmenistan (Pesenko, 2005), Turkey: Ankara (Dikmen & Çağatay, 2007).

***Halictus tetrazonianellus* Strand, 1909**

Material examined: Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 2♀♀; Isfahan, Semirom, 2627m, 51°37'23.24" E, 31°27'23.61" N, 26.VI.2009, 1♀; Fars, Noorabad, Aalivand, 980m, 51°30'42.20" E, 30°4'47.14" N, 3.VII.2009, 2♂♂; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 1♂; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 4.VI.2013, 2♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2013, 1♀.

General distribution: Azerbaijan, Caucasia, Lebanon, Northern Russia, Turkey (Polaszek, 2004), Iran (Khodarahmi & Monfared, 2019).

***Halictus tetrazoimus* (Klug, 1817)**

Material examined: Charmahal-o Bakhtiari, Cheshmeh Shaykhalikhan, 2755m, 49°59'18.39" E, 32°33'4.87" N, 23.VIII.2013, 1♀.

General distribution: Eastern Austria, Bulgaria, Croatia, Georgia, Greece, Hungary, northwestern Italy, Iran, Israel, Macedonia, Moldova, Romania, Slovenia, southeastern Turkey, Ukraine (Pesenko, 2005).

***Halictus (Seladonia) cephalicus* Morawitz, 1873**

[Species name also has been synonymed as *Seladonia (Seladonia) cephalica* (Morawitz, 1873) by Ascher & Pickering, 2016].

Material examined: Fars, Noorabad, Mehrenjan, 1200m, 51°42'35.81" E, 30°13'48.55" N, 1.VII.2009, 1♀; Fars,

Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2010, 1♀; Fars, Shiraz, Eram, 1569 m, 52°31'32.33" E, 29°38'09.35" N, 5.VIII.2012, 1♀; Fars, Shiraz, Afifabad, 1573m, 52°29'55.27" E, 29°37'24.01" N, 6.VIII.2012, 1♀; Chaharmahal-o Bakhtiari, Sandegan, 1760m, 51°17'7.58" E, 31°15'22.99" N, 12.VIII.2012, 3♀♀; Fars, Shiraz, Shahzadeh Ghasem, 1550m, 52°32'19.61" E, 29°36'13.12" N, 4.IX.2011, 2♀♀; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 1♀; Fars, Shiraz, 1700m, 52°38.769 E, 29°75.635 N, 29.VIII.2013, 1♀; Isfahan, Baharan, 1581m, 51°32.382' E, 32°37.437' N, 28.VIII.2012, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 27.VII.2013, 2♀♀; Fars, Kamfiroz, 1850m, 52°38.769 E, 30°33.000 N, 22.VIII.2013, 2♀♀; Fars, Noorabad, Doshmanzeyari, 1966m, 52°04.743' E, 30°01.851' N, 21.IV.2010, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 20.V.2010, 1♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 2.IX.2013, 3♀♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 19.V.2010, 1♀♂; Isfahan, Baharestan, 1608m, 51°46.149' E, 32°28.409' N, 18.V.2012, 1♀; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 1♀; Isfahan, Baharestan, 1608m, 51°46.149' E, 32°28.409' N, 11.IV.2013, 1♀.

General distribution: Greece, Turkey (Pauly, 2007), Bulgaria, Cyprus (Polaszek, 2004), Russia (Rostov Prov, Dagestan Rep, Crimea Rep), Southeastern Europe, Caucasus, Turkey, Syria, Israel, Iran, Iraq, Afghanistan (Astafurova & Pickering, 2017).

Halictus (Seladonia) lucidipennis (Smith, 1853)

Material examined: Fars, Khonj, Mahmeleh, 507m, 53°07'358" E, 27°81'8851" N, 9.VII.2011, 2♀♀; Fars, Shiraz, Bagh-e Jannat, 1573m,

52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 1♀; Sistan-o Baluchestan, Zahak, 492m, 61°40'48.38" E, 30°53'27.00" N, 5.V.2010, 1♀; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 5.V.2010, 3♀♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 4.VI.2013, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♀; Isfahan, Shahin Shahr, 1558m, 51°30.748' E, 32°21.920' N, 31.VIII.2012, 5♀♀; Fars, Shiraz, 1700m, 52°38.769 E, 29°75.635 N, 29.VIII.2013, 3♀♀; Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 29.VI.2012, 3♀♀; Isfahan, Sera Rud, 1675m, 51°42.599' E, 32°25.216' N, 29.IV.2013, 1♀; Isfahan, Baharan, 1581m, 51°32.382' E, 32°37.437' N, 28.VIII.2012, 2♀♀; Isfahan, Mobarakeh, Mohammadieh, 1665m, 51°32.209' E, 32°22.001' N, 27.V.2013, 3♀♀; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 25.VIII.2011, 1♀; Isfahan, Ostandari St, 1570m, 51°40.309' E, 32°39.179' N, 25.IX.2012, 1♂; Sistan-o Baluchestan, Zahedan, Siahdak, 1400m, 60°47'24.49" E, 29°28'34.29" N, 23.IV.2010, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 20.V.2010, 1♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 1♀; Isfahan, Ostandari St, 1570m, 51°40.309' E, 32°39.179' N, 19.VIII.2013, 2♀♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 19.IV.2013, 2♀♀; Isfahan, IUT, 1676m, 51°31.697' E, 32°43.245' N, 16.V.2012, 1♀; Isfahan, Zazeran, 1628m, 51°29.190' E, 32°34.419' N, 15.VII.2012, 1♀; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 12.IV.2010, 1♂; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 1♀♂; Isfahan, Aran-o Bidgol, 947m, 51°28.977' E, 34°02.554' N, 11.VIII.2013, 2♀♀; Isfahan, Najaf Abad, 1585m, 51°23.601' E, 32°36.711' N, 11.V.2013, 1♀; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 11.IV.2010, 1♀; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 10.IV.2010, 1♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E,

29°1'19.52" N, 1.V.2010, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2013, 1♀.

General distribution: Southern Palaearctic and Oriental regions; including North Africa, Asia from Palestine, Arabian Peninsula, Asia Minor, Iran, Iraq, Central Asia to Mongolia and China, south to Sri Lanka ([Astafurova & Pesenko, 2006](#)), Capa Verde Island, Algeria, Tunisia, Libya, Egypt, Sudan, Israel, Arabian Peninsula, Asia Minor, Iran, Iraq, Afghanistan, Turkmenistan, Kyrgyzstan, Mongolia, China, Pakistan, India, Sri Lanka, Nepal, Bangladesh, Myanmar, Thailand ([Muraio et al., 2013](#)).

Halictus (Seladonia) smaragdulus Vachal, 1895

Material examined: Isfahan, Karvan, 2185m, 50°51.429' E, 32°52.780' N, 23.V.2012, 1♀; Fars, Noorabad, Barmak, 1025m, 51°30'53.83" E, 30°8'33.07" N, 2.VII.2009, 1♀.

General distribution: West Palaearctic, mostly inhabiting steppes ([Pesenko et al., 2000](#)), East Palaearctic, Near East ([Polaszek, 2004](#)), Iran ([Khodarahmi & Monfared, 2019](#)).

Halictus (Seladonia*) fuscicollis Morawitz, 1876

Material examined: Sistan-o Baluchestan, Zahedan, Siahdak, 1400m, 60°47'24.49" E, 29°28'34.29" N, 22.IV.2010, 1♀.

General distribution: Middle East to central Asia (Turkestan) ([Muraio et al., 2017](#)).

(*Not: Ebmer who identify this species for us, has mentioned *Vistitohalictus* as subgenus while Ascher & Pickering, 2016 mentioned as *Seladonia*).

Halictus (Vestitohalictus) pollinosus Sichel, 1860

Material examined: Fars, Ghirokarzin, 750m, 52°58'31.41" E, 28°35'18.96" N, 8.VII.2011, 1♂;

Fars, Firozabad, 1315m, 52°34'15" E, 28°50'38" N, 8.VII.2011, 2♂♂; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀; Fars, Fasa, 1336m, 53°65922' E, 28°90770' N, 7.V.2010, 1♀; Isfahan, Najafabad, Ghale Sefid, 1653m, 51°26.412' E, 32°35.735' N, 5.VII.2013, 1♀; Sistan-o Baluchestan, Zabol, Sade systan, 480m, 61°30'04" E, 31°01'43" N, 5.V.2010, 3♂♂; Isfahan, Falavarjan, 1664 m, 51°29.574' E, 32°32.676' N, 31.V.2013, 2♂♂; Fars, Noorabad, Chamegol, 920m, 51°31'18" E, 30°06'51" N, 30.VI.2009, 1♀, 2♂♂; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E, 29°1'19.52" N, 30.IV.2010, 1♀♂; Fars, Eqbid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 3.VIII.2010, 1♀; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 1♂; Fars, Noorabad, Aalivand, 980m, 51°30'42.20" E, 30°4'47.14" N, 3.VII.2009, 1♀; Isfahan, Mobarakeh, Sera Rud, 1675m, 51°42.599' E, 32°25.216' N, 28.VIII.2012, 2♀♀; Isfahan, Baharan, 1581m, 51°32.382' E, 32°37.437' N, 28.VIII.2012, 1♀; Fars, Shiraz, Besat, 1500m, 52°31'37.82" E, 29°38'6.90" N, 27.VIII.2011, 1♀; Isfahan, Mobarakeh, Ghahnaveh, 1693m, 51°31.543' E, 32°19.948' N, 27.V.2013, 1♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 24.V.2010, 3♀♀; Fars, Kazerun, Shahrakepardis, 835m, 51°40'58.66" E, 29°36'8.91" N, 24.III.2010, 1♀; Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 23.VIII.2013, 3♀♀; Isfahan, Mehdi Abad, 1993m, 51°49.261' E, 32°29.949' N, 23.V.2012, 2♀♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E, 29°1'19.52" N, 22.IV.2010, 1♀; Sistan-o Baluchestan, Zahedan, Siahdak, 1400m, 60°47'24.49" E, 29°28'34.29" N, 22.IV.2010, 2♀♀; Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 6♀♀; Fars, Shiraz, Eram, 1569m, 52°31'32.33" E, 29°38'09.35" N, 2.VI.2012, 1♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E, 29°1'19.52" N, 2.V.2010, 1♀; Fars, Shiraz, 1560m, 52°29'34.32" E, 29°34'36.25" N, 19.V.2012, 1♀; Isfahan, Dahaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 2♀♀; Isfahan, IUT, 1676m, 51°31.697' E,

32°43.245' N, 16.V.2012, 1♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E, 29°1'19.52" N, 15.IV.2010, 1♀; Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♀; Sistan-o Baluchestan, Zabol, Kohekhajee, 482m, 61°14'42.78" E, 30°56'37.64" N, 12.V.2010, 2♀♀; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 2♀♀; Fars, Estahban, 1730m, 54°06'085' E, 29°12'5645' N, 10.VII.2011, 1♀; Fars, Fasa, 1336m, 53°65'922' E, 28°90'770' N, 10.VII.2011, 1♂; Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 10.IV.2010, 1♀; Fars, Noorabad, Mehrenjan, 1200m, 51°42'35.81" E, 30°13'48.55" N, 1.VII.2009, 1♂; Fars, Noorabad, Javid, 1400m, 51°37'38.31" E, 30°10'51.32" N, 1.VII.2009, 1♀; Sistan-o Baluchestan, Zahedan, 1385m, 60°25'15.64" E, 29°1'19.52" N, 1.VII.2011, 1♂; Sistan-o Baluchestan, Zahedan, Sornaee, 1385m, 60°25'15.64" E, 29°1'19.52" N, 1.VII.2011, 1♀, 3♂♂.

General distribution: Europe, North Africa to eastern Asia, Kyrgyzstan, Tajikistan, Uzbekistan, and Xinjiang Uyghur of China in central Asia (Murao et al., 2017).

Halictus (vestitohalictus) nasica Morawitz, 1876

Material examined: Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 7♀♀, 1♂; Sistan-o Baluchestan, Zahak, 492m, 61°40'48.38" E, 30°53'27.00" N, 5.V.2010, 1♀; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 6.IX.2012, 2♂♂.

General distribution: North Africa to central Asia, Turkmenistan in central Asia (Murao et al., 2017).

Halictus (Vestitohalictus) cypraicus (Blüthgen, 1937)

Material examined: Fars, Kazerun, Ghaleseied, 987m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 2♀♀; Isfahan, Mobarakeh, 1695m, 51°30.970' E, 32°20.846' N, 18.VII.2013, 1♂; Charmahal-o Bakhtiari,

Hoseinabad, 2200m, 51°5'29.84" E, 31°52'19.86" N, 24.VIII.2013, 1♂.

General distribution: Cyprus, Israel, Central Asia (Pauly, 2007).

Halictus (Vestitohalictus) tuberculatus Blüthgen, 1925

Material examined: Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 17.V.2013, 1♂; Fars, Arsenjan, Pierbasapha, 1637m, 53°20'11.56" E, 29°55'2.11" N, 7.V.2010, 1♀; Charmahal-o Bakhtiari, Hoseinabad, 2200m, 51°5'29.84" E, 31°52'19.86" N, 24.VIII.2013, 1♀♂; Charmahal-o Bakhtiari, Faradonbeh, 2169m, 51°12'57.86" E, 32°0'51.12" N, 24.VIII.2013, 1♀.

General distribution: Ukraine, Near East (Polaszek, 2004). Iran (Khodarahmi & Monfared, 2019).

Halictus (Vestitohalictus) pulvereus Morawitz, 1874

Material examined: Sistan-o Baluchestan, Zabol, Sade systan, 480m, 61°30'04" E, 31°01'43" N, 5.V.2010, 1♂; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 3♂♂; Isfahan, Sadegh Abad, 1784m, 51°06.783' E, 32°25.378' N, 3.VI.2012, 1♂; Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 27.V.2013, 1♀, 3♂; Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 27.IV.2012, 1♀; Charmahal-o Bakhtiari, Faradonbeh, 2169m, 51°12'57.86" E, 32°0'51.12" N, 24.VIII.2013, 1♀; Isfahan, Semirom, 2627m, 51°37'23.24" E, 31°27'23.61" N, 22.VI.2013, 1♀; Sistan-o Baluchestan, Zahedan, Siahdak, 1400m, 60°47'24.49" E, 29°28'34.29" N, 22.IV.2010, 1♀; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 21.VI.2013, 1♂; Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 2♀♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 20.V.2010, 3♂♂; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 19.V.2010, 1♂; Isfahan, Shahreza, 1817m,

51°53.156' E, 32°02.995' N, 19IV.2013, 1♀; Sistan-o Baluchestan, Zabol, Sade systan, 480m, 61°30'04" E, 31°01'43" N, 16.VI.2010, 1♀; Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♂; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 1♀; 5♂♂; Isfahan, Baharestan, 1608m, 51°46.149' E, 32°28.409' N, 11.IV.2013, 1♀; Sistan-o Baluchestan, Zahedan, Sornaee, 1385m, 60°25'15.64" E, 29°1'19.52" N, 1.V.2010, 1♀.

General distribution: Southern Europe, North Africa to Eastern Asia. Turkmenistan, Uzbekistan, and Xinjiang Uyghur of China in central Asia (Murao et al., 2017).

***Halictus (Thrincohalictus) prognathus* (Perez, 1911)**

Material examined: Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 5♀♀; Fars, Shiraz, 1570m, 52°29'34.32" E, 29°34'36.25" N, 18.II.2009, 1♂; Fars, Abadeh, 1800m, 52°39'02" E, 31°09'39" N, 26.IV.2011, 3♀♀.

General distribution: Greece (Aegean Islands), Turkey, Lebanon, Israel, Syria, Armenia, Iran (Pauly, 2007).

***Lasioglossum discum* (Smith, 1853)**

Material examined: Fars, Neyriz, 1587m, 54°145912' E, 29°204964' N, 10.VII.2011, 1♀; Isfahan, Mobarakeh, 1695m, 51°30.970' E, 32°20.846' N, 12.VII.2013, 1♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 20.V.2010, 1♂; Fars, Shiraz, 1750m, 52°44.774 E, 29°77.641 N, 21.VII.2013, 1♂; Isfahan, Mobarakeh, 1695m, 51°30.970' E, 32°20.846' N, 27.V.2013, 1♀; Fars, Shiraz, 1700m, 52°38.769 E, 29°75.635 N, 28.VIII.2013, 1♀; Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 10♂♂; Fars, Noorabad, Chamegol, 920m, 51°31'18" E, 30°06'51" N, 30.VI.2009, 1♂; Fars, Noorabad, Zirdu, Tolekohneh, 980m, 51°25'43.02" E, 30°14'20.21" N, 31.III.2011, 1♀; Isfahan, Meymeh, 2059m, 51°09.835' E, 33°29.201' N,

31.VIII.2012, 1♀; Fars, Shiraz, 1500m, 52°31'37.82" E, 29°38'6.90" N, 7.V.2011, 1♀.

General distribution: Europe, North Africa to central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Xinjiang Uyghur of China in central Asia. (Murao et al., 2017). northern Mediterranean, Corsica, Sardinia, Israel, Asia Minor, Afghanistan, northwestern Africa, Morocco to Tunisia, Spain, Sicily and Calabria, southern France (Pauly, 2007).

***Lasioglossum aegyptiellum* (Strand, 1909)**

Material examined: Fars, Noorabad, Basharjan, 1100m, 51°16'40.15" E, 29°57'1.44" N, 3.VII.2009, 4♀♀, 23♂♂; Fars, Noorabad, Chamegol, 920m, 51°31'18" E, 30°06'51" N, 30.VI.2009, 3♀♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VIII.2010, 3♂♂; Fars, Noorabad, Gazorgah, 920m, 51°30'12.69" E, 30°6'56.02" N, 2.VII.2009, 1♂; Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 27.VII.2013, 1♀; Charmahal-o Bakhtiari, Hoseinabad, 2200m, 51°5'29.84" E, 31°52'19.86" N, 24.VIII.2013, 1♀♂; Fars, Shiraz, 1700m, 52°38.769 E, 29°75.635 N, 30.VI.2013, 1♀; Fars, Shiraz, 1750m, 52°44.774 E, 29°77.641 N, 21.VII.2013, 1♀; Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 6.IX.2012, 1♀; Fars, Kazerun, Ghaleseied, 987m, 51°33.552' E, 29°38.841' N, 10.VIII.2010, 2♀♀.

General distribution: Turkmenistan, Iran, Espana (Ornosa et al., 2013).

***Lasioglossum leucozonium* (Schrank, 1781)**

Material examined: Isfahan, Natanz, 1635m, 51°55.039' E, 33°30.136' N, 11.VIII.2013, 1♂; Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♀♂; Isfahan, Zazerun, 1628m, 51°29.190' E, 32°34.419' N, 15.VII.2012, 1♂; Isfahan, Nazhvan Park, 1513m, 51°32.964' E, 32°36.471' N, 16.VI.2013, 1♀; Isfahan, Chadegan,

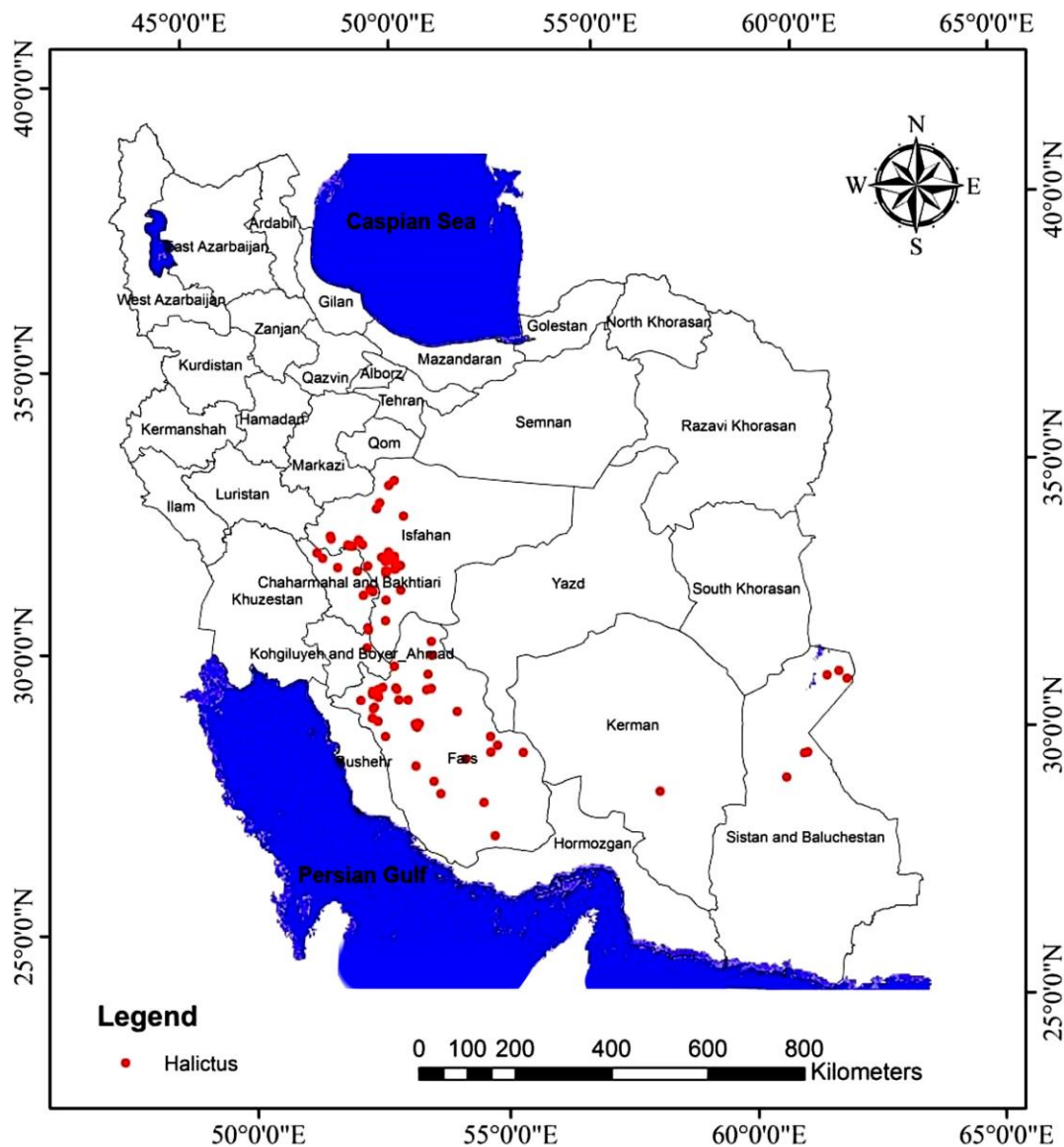


Figure 1. Records of genus *Halictus* in Iran, based on the material collected in this study.

Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 19.VII.2012, 1♂; Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 24.V.2012, 6♀♀; Fars, Shiraz, 1570m, 52°29'34.32" E, 29°34'36.25" N, 28.III.2011, 1♀; Isfahan, Karvan, Jafar Abad, 1585m, 51°23.601' E, 32°36.711' N, 29.VI.2012, 1♂; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 8.VII.2012, 1♀.

General distribution: Holarctic, Kyrgyzstan and Uzbekistan (Asia) (Muraó et al., 2017).

***Lasioglossum tadschicum* (Blüthgen, 1929)**

Material examined: Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♂; Isfahan, Fereydan, Bazmeh, 2555m, 50°15.468' E, 32°50.341' N, 24.V.2012, 2♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2010, 2♂♂.

General distribution: Eastern Turkey, Iran (Grace, 2010).

***Lasioglossum caspicum* (Morawitz, 1874)**

Material examined: Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 1♀; Fars, Noorabad, Doshmanzeyari, 1966m, 52°04.743' E, 30°01.851' N, 21.IV.2010, 2♀♀; Isfahan, Mehdi Abad, 1993m, 51°49.261' E, 32°29.949' N, 23.V.2012, 1♀; Fars, Shiraz, 1570m, 52°29'34.32" E, 29°34'36.25" N, 3.IV.2009, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 4.VI.2013, 2♀♀.

General distribution: Israel, Syria, Asia Minor, Armenia, Caucasus, Iran, Afghanistan (Pauly, 2007).

***Lasioglossum niveocinotum* (Blüthgen, 1923)**

Material examined: Isfahan, Dorcheh Piaz, 1608m, 51°31.7' E, 32°35.1' N, 23.VIII.2013, 2♀♀, 1♂.

General distribution: Western to Eastern Asia, Kazakhstan, Turkmenistan, and Uzbekistan in central Asia (Murao et al., 2017).

***Lasioglossum cristula donatum* (Warncke, 1975)**

Material examined: Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 1♀.

General distribution: Western species, Iran (Ornosa et al., 2013).

***Lasioglossum (Evylaeus) skorikovi* (Blüthgen, 1929)**

Material examined: Fars, Noorabad, Jenjan, 1200m, 51°25'58.63" E, 30°13'49.04" N, 1.IV.2011, 3♀♀; Fars, Noorabad, Zirdu, Tolekohneh, 980m, 51°25'43.02" E, 30°14'20.21" N, 31.III.2011, 1♀.

General distribution: Turkestan, Afghanistan (Pauly, 2007).

***Lasioglossum (Evylaeus) epipygiale* (Blüthgen, 1924)**

Material examined: Isfahan, Dahaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 2♀♀.

General distribution: Caucasus, Turkey, Israel, Iran (Pauly, 2007).

***Lasioglossum (Evylaeus) laeve* (Kirby, 1802)**

Material examined: Isfahan, Dahaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 1♀.

General distribution: Palearctica species, Iran (Ornosa et al., 2013).

***Lasioglossum (Evylaeus) ordubadense* (Friese, 1916)**

Material examined: Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 2.IV.2013, 2♀♀; Isfahan, Karvan, Jafar Abad, 2035M, 51°00.511' E, 32°48.071' N, 3.V.2013, 1♂; Isfahan, Mourcheh Khort, 1722m, 51°25.641' E, 33°08.258' N, 31.VIII.2012, 1♂; Isfahan, Tiran, Khamiran, 2018m, 51°01.168' E, 32°47.790' N, 7.VII.2012, 1♀♂; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀; Fars, Evaz, 917m, 54°03'1399' E, 27°758425' N, 9.VII.2011, 1♂.

General distribution: Turkey, Israel, Iran (Grace, 2010).

***Lasioglossum (Evylaeus) mose* Ebmer, 1974**

Material examined: Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 1♀; Isfahan, Lashotor, 1612m, 50°58.523' E, 32°48.848' N, 10.V.2013, 2♀♀; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 8.VII.2012, 1♂.

General distribution: Egypt, Israel, Jordan, Oman, UAE, Iran, Pakistan (Dathe, 2009).

***Lasioglossum (Evylaeus) obscuratum* (Morawitz, 1876)**

Material examined: Isfahan, Dahaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 5♀♀; Isfahan, Dehsoor, 2365m, 50°13.777' E, 32°53.214' N, 24.V.2012, 2♀♀; Fars, Kazerun, Kacekan, Foroodgah, 835m, 51°36'5.33" E, 29°36'39.32" N, 2.II.2010, 2♀♀; Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♂; Fars, Kazerun,

Bidzard, 721m, 51°52.339' E, 29°19.866' N, 19.V.2010, 1♀♂; Fars, Kazerun, Dadin, 820m, 51°52'13.60" E, 29°18'36.30" N, 13.II.2010, 1♀; Fars, Shiraz, 1500m, 52°31'37.82" E, 29°38'6.90" N, 7.V.2011, 1♀; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 4♀♀.

General distribution: Europe to central Asia. Turkmenistan in central Asia (Murao et al., 2017). Turkey, Cyprus, Iran to Central Asia and Afghanistan, Israel, Jordan (Pauly, 2007).

Lasioglossum (Evylaeus) setulellum (Strand, 1909)

Material examined: Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 4.VI.2013, 1♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 19.IV.2013, 1♀.

General distribution: Turkey, Syria, Iran (Grace, 2010).

Lasioglossum (Evylaeus) harputicum Ebmer, 1972

Material examined: Fars, Shiraz, Azadi park, 1539 m, 52°32'22.45" E, 29°37'46.51" N, 24.VIII.2011, 1♀; Fars, Shiraz, Entezar, 1525m, 52°31'3.28" E, 29°33'29.11" N, 27.VII.2011, 1♀; Fars, Shiraz, Jahan Nama, 1865m, 52°33'31.14" E, 29°37'44.87" N, 5.IX.2011, 1♀; Fars, Arsenjan, Pierbasapha, 1637m, 53°20'11.56" E, 29°55'2.11" N, 7.V.2010, 17♀; Fars, Sarvestan, 1544m, 53°12'4.41" E, 29°16'52.36" N, 8.V.2010, 2♀♀.

General distribution: Turkey, Iran (Pauly, 2007).

Lasioglossum (Evylaeus) pauxillum (Schenk, 1853)

Material examined: Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 2♀♀; Isfahan, Dahaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 7♀♀.

General distribution: Western palaeartic, from the South of England to the Urals, in the South, common from Morocco to Tunisia, from Iberia throughout Southern Europe to

Asia Minor, Israel, Iran, Georgia, east to Turkmenistan (Tschandyr) (Pauly, 2007), Turkey, Syria, Israel, Jordan, Iran (Grace, 2010).

Lasioglossum (Evylaeus) puncticolle (Morawitz, 1872)

Material examined: Isfahan, Dehsoor, 2365m, 50°13.777' E, 32°53.214' N, 24.V.2012, 1♀.

General distribution: Turkey, Iran (Grace, 2010).

Lasioglossum (Evylaeus) lineare (Schenk, 1870)

Material examined: Fars, Kazerun, Kamarej, 852m, 51°28'36.87" E, 29°36'37.93" N, 30.III.2010, 1♂.

General distribution: Russia, Europe, Caucasus, Turkey, Syria, Israel, Iran, Turkmenistan (Astafurova & Proshchalykin, 2015).

Lasioglossum (Evylaeus) limbellum (Morawitz, 1876)

Material examined: Isfahan, Nazhvan Park, 1513m, 51°32.96' E, 32°36.47' N, 16.VI.2013, 1♀.

General distribution: Continental Europe, Northern Africa (Morocco and Algeria) and the islands of Cyprus, Corsica and Sicily (Murao et al., 2017).

Lasioglossum (Evylaeus) gilanum (Blüthgen, 1931)

Material examined: Fars, Shiraz, Jahan Nama, 1865m, 52°33'31.14" E, 29°37'44.87" N, 21.VII.2012, 1♂; Fars, Shiraz, Dasht Arzhan, 2027m, 51°58'58.81" E, 29°39'33.46" N, 31.III.2010, 1♀; Fars, Shiraz, Besat, 1500m, 52°31'37.82" E, 29°38'6.90" N, 23.VII.2011, 1♀.

General distribution: Iran (Pauly, 2007).

Lasioglossum (Evylaeus) lucidulum (Schenk, 1861)

Material examined: Isfahan, Jousheghan, Key Ab, 2322m, 51°13.337' E, 33°36.326' N, 31.VIII.2012, 1♀.

General distribution: Europe, North Africa to Eastern Asia, Kazakhstan, Kyrgyzstan, and Turkmenistan in central Asia (Murao et al., 2017).

Lasioglossum (Evylaeus) nigripes
(Lepeletier, 1841)

Material examined: Charmahal-o Bakhtiari, Shahrekurd exit way, 2062m, 50°54'23.27" E, 32°18'20.30" N, 24.VIII.2013, 2♀♀, 3♂♂.

General distribution: Palaearctic (Polaszek, 2004), Iran (Nazari et al., 2019).

Lasioglossum (Evylaeus) malachurum
(Kirby, 1802)

Material examined: Isfahan, Meymeh, 2059m, 51°09.835' E, 33°29.201' N, 9.VIII.2013, 1♀; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 22♀♀; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 4♀♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 4.VIII.2010, 1♀; Fars, Sepidan, 2100m, 52°04.763' E, 30°17.359' N, 4.VII.2013, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 4.VI.2013, 1♀; Fars, Noorabad, Chamegol, 920m, 51°31'18" E, 30°06'51" N, 30.VI.2009, 1♂; Fars, Eqlid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 3.VIII.2010, 1♀; Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 29.VI.2012, 2♀♀; Fars, Shiraz, 1700m, 52°38.769' E, 29°07.635' N, 28.VIII.2013, 2♂♂; Fars, Shiraz, 1570m, 52°29'34.32" E, 29°34'36.25" N, 28.III.2011, 5♀♀; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 25.VIII.2011, 2F; Charmahal-o Bakhtiari, Feradonbeh, 2169m, 51°12'57.86" E, 32°0'51.12" N, 24.VIII.2013, 1♂; Charmahal-o Bakhtiari, Cheshmeh Sheykhlikhan, 2755/94m, 49°59'18.39" E, 32°33'4.87" N, 23.VIII.2013, 2♂♂; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 1♀; Isfahan, Mobarakeh, Ghahnavieh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♀.

General distribution: Continental Europe, North Africa and the Middle East (Iran, Georgia and Azerbaijan), Cyprus, Sardinia, and Sicily (Balzan et al., 2016), palaearctic west, from the Azores to Iran, in Europe to the North to England and Denmark; in the north very rare, in North Africa from the Canary Islands (Fuerteventura), Morocco, Tunisia, to Egypt, in the Near East very common in Turkey, rarer in Syria, Israel and Jordan, the easternmost locality is in Iran (Caspian coasts); Georgia, Azerbaijan (Pauly, 2007).

Lasioglossum (Evylaeus) truncaticolle
(Morawitz, 1877)

Material examined: Charmahal-o Bakhtiari, Cheshmeh shykhalikhan, 2755/94m, 49°59'18.39" E, 32°33'4.87" N, 23.VIII.2013, 3♀♀.

General distribution: Cyprus, Turkey, Syria, Israel, Iran (Grace, 2010).

Lasioglossum (Evylaeus) sociorum (Blüthgen, 1924)

Material examined: Isfahan, Lashotor, 1612m, 50°58.523' E, 32°48.848' N, 10.V.2013, 1♀.

General distribution: Turkey, Iran (Grace, 2010).

Lasioglossum (Evylaeus) pseudoleptorhynchum
(Blüthgen, 1931)

Material examined: Isfahan, Fereydan, Bazmeh, 2555m, 50°15.468' E, 32°50.341' N, 4.VII.2012, 1♀.

General distribution: Turkey, Iran (Grace, 2010).

Lasioglossum (Evylaeus) marginatum
(Brullé, 1832)

Material examined: Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 1♀; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 36♀♀; Fars, Shiraz, Dasht Arzhan, 2027m, 51°58'58.81" E, 29°39'33.46" N, 31.III.2010, 2♀♀; Isfahan, Karvan, Jafar Abad, 2035 m,

51°00.511' E, 32°48.071' N, 3.V.2013, 6♀♀; Fars, Shiraz, 1570m, 52°29'34.32" E, 29°34'36.25" N, 28.III.2011, 1♀; Isfahan, Barf Anbar, Sadeghieh, 2326m, 50°27.510' E, 33°01.229' N, 24.V.2012, 1♀; Isfahan, Karvan, 2185m, 50°51.429' E, 32°52.780' N, 23.V.2012, 13♀♀; Fars, Eqdid, 2233m, 52°41'31.56" E, 30°54'17.77" N, 21.IV.2010, 15♀♀; Fars, Noorabad, Doshmanzeyari, 1966m, 52°04.743' E, 30°01.851' N, 21.IV.2010, 35♀♀; Isfahan, Mobarakeh, Nehchir, 1711m, 51°32.481' E, 32°21.912' N, 2.IV.2013, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 21♀♀; Isfahan,

Semirom, 2627/29m, 51°37'23.24" E, 31°27'23.61" N, 18.V.2013, 2♀♀; Fars, Estahban, Sahraye Serishk, 1336m, 53°65922' E, 29°9'43.49" N, 17.III.2010, 6♀♀; Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 7♀♀; Fars, Noorabad, Ghandil, 1100m, 51°34'46.64" E, 29°52'59.98" N, 11.III.2010, 1♀.

General distribution: The Czech Republic, France, Germany, Greece, Hungary, Italy, Poland, Russia Northwest, Slovakia, Slovenia, Spain, Switzerland, East Palaearctic, Near East ([Polaszek, 2004](#)), Israel, Armenia, Pakistan, Nepal ([Pauly, 2007](#)).

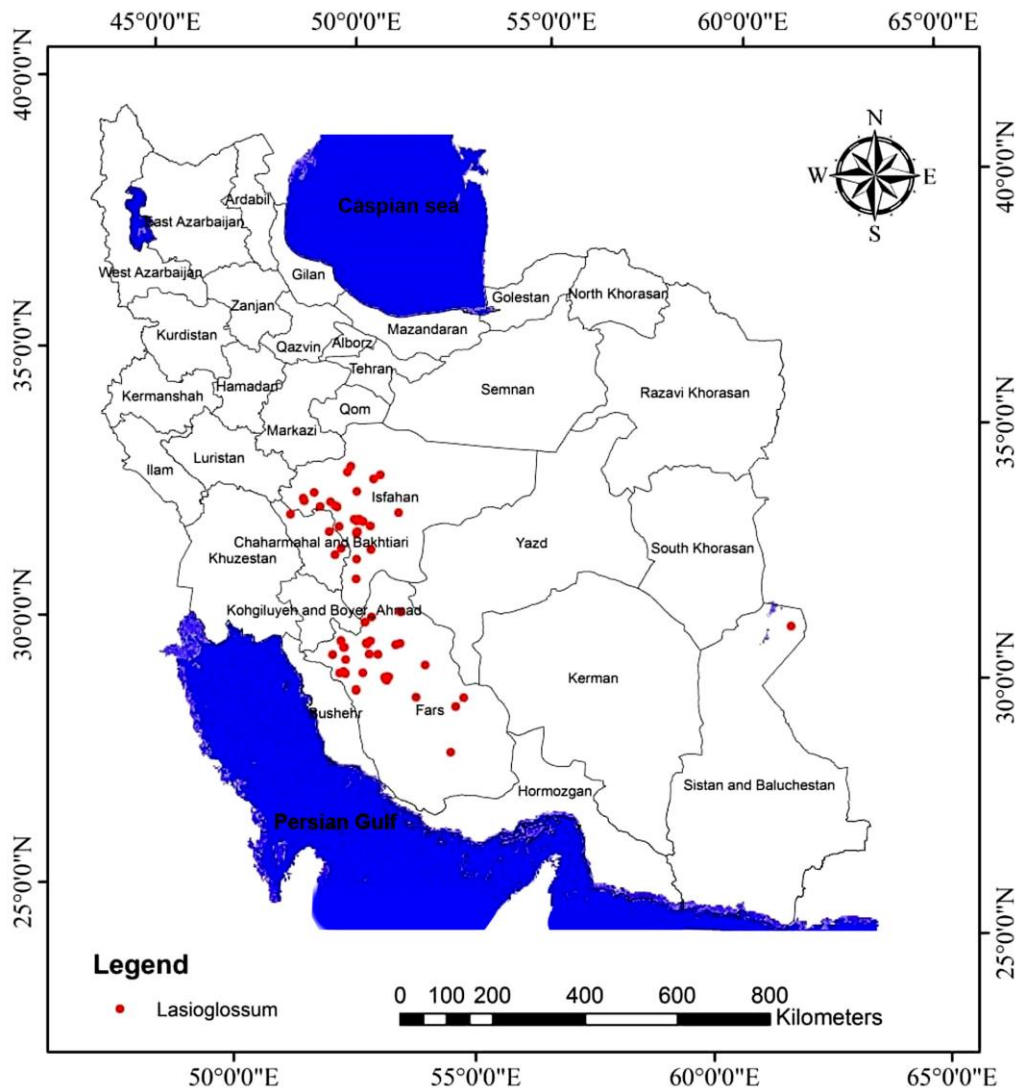


Figure 2. Records of genus *Lasioglossum* in Iran, based on the material collected in this study.

Lasioglossum (Evylaeus) griseolum (Morawitz, 1872)

Material examined: Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 5.VII.2013, 2♀♀.

General distribution: Europe, North Africa to Western Asia (Murao et al., 2017). Iran (Khodarahmi & Monfared, 2019).

Lasioglossum (Evylaeus) politum (Schenck, 1853)

Material examined: Isfahan, Kuh Payeh, Jebel, 2011m, 52°25.470' E, 32°48.546' N, 6.IX.2013, 1♂; Charmahal-o Bakhtiari, Cheshmeh Shykhlikhan, 2755m, 49°59'18.39" E, 32°33'4.87" N, 23.VIII.2013, 1♀.

General distribution: Turkey, Israel, Jordan, Iraq, Iran, Egypt (Grace, 2010).

Lasioglossum (Evylaeus) popovi (Blüthgen, 1631)

Material examined: Isfahan, Dorcheh piaz, 1608m, 51°31.754' E, 32°35.100' N, 16.VI.2013, 1♀.

General distribution: Central Asia (Murao et al., 2017).

Lasioglossum (Evylaeus) interruptum trispinosum (Alfken, 1907)

Material examined: Fars, Kharestan, 1992m, 51°55.001' E, 30°38.386' N, 12.V.2011, 1♀; Isfahan, Dehaghan, Astaneh, 2408m, 51°35.359' E, 31°49.957' N, 19.IV.2013, 1♀; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 8.VII.2012, 1♀; Kohgiluyeh and Boyer-Ahmad, Yasouj, Kakan, 2326/26m, 52°3'4.32" E, 30°45'3.12" N, 9.V.2010, 1♀.

General distribution: Western palaeartic, in Europe from Iberia to the Volga, in the rare North and located in warm biotopes (as far as Northern Germany in Thuringia), in Northern Africa from Morocco to Egypt, in Western Asia from Turkey to Armenia and Iran, Syria (Pauly, 2007).

Lasioglossum (Evylaeus) villosulum (Kirby, 1802)

Material examined: Isfahan, Dehsoor, 2365m, 50°13.777' E, 32°53.214' N, 24.V.2012, 6♀♀; Isfahan, Softe park, 1800m, 51°38.475' E, 32°34.278' N, 7.XI.2012, 1♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 19.IV.2013, 1♀; Fars, Shiraz, Bagh-e Jannat, 1573m, 52°28'22.13" E, 29°36'47.56" N, 9.IV.2010, 5♀♀; Fars, Sepidan, 2210m, 52°00.177' E, 30°14.278' N, 4.VIII.2010, 1♀; Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 12.IV.2013, 1♀; Charmahal-o Bakhtiari, Shahrekurd exit way, 2062m, 50°54'23.27" E, 32°18'20.30" N, 23.VIII.2013, 2♂♂.

General distribution: Japan, Russia, Manchuria and Taiwan to Malaysia (Ebmer, 2004), Cyprus, Turkey, Iran (Grace, 2010).

Lasioglossum (Evylaeus) angustipes Ebmer, 1972

Material examined: Fars, Kazerun, Bidzard, 721m, 51°52.339' E, 29°19.866' N, 4.VI.2010, 1♀.

General distribution: Western palearctica (Ornosa et al., 2013), Iran (Khodaparast & Monfared, 2012).

Lasioglossum (Evylaeus) damascenum (Pérez, 1911)

Material examined: Fars, Arsenjan, Pierbasapha, 1637m, 53°20'11.56" E, 29°55'2.11" N, 7.V.2010, 1♀.

General distribution: Ponto-Mediterranean; Hungary, Balkan, Greece, Turkey, Syria, Israel (Pauly, 2007), Iran (Khodaparast & Monfared, 2012).

Lasioglossum (Evylaeus) pygmaeum patulum (Vachal, 1905)

Material examined: Isfahan, Nazhvan Park, 1513m, 51°32.964' E, 32°36.471' N, 11.V.2012, 1♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 19.IV.2013, 4♀♀; Isfahan, Karvan, Jafar Abad, 2035m, 51°00.511' E, 32°48.071' N, 29.VI.2012, 1♀; Isfahan, Karvan,

Jafar Abad, 2035m, 51°00.511' E, 32°48.071' N, 3.V.2013, 1♀; Isfahan, Sadegh Abad, 1784m, 51°06.783' E, 32°25.378' N, 3.VI.2012, 1♀; Isfahan, Najaf Abad, Ghaleh Sefid, 1653m, 51°26.412' E, 32°35.735' N, 5.VII.2013, 3♀♀; Fars, Shiraz, Eram, 1500m, 52°31'37.82" E, 29°38'6.90" N, 7.IV.2010, 1♀; Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀.

General distribution: Cyprus, Turkey, Syria, Israel, Palestine, Jordan, Iran (Grace, 2010).

Lasioglossum (Evylaeus) mesosclerum (Pérez, 1903)

Material examined: Fars, Sepidan, 2250m, 51°59'32.70" E, 30°14'33.10" N, 16.IX.2013, 1♀; Isfahan, Nazhvan Park, 1513m, 51°32.964' E, 32°36.471' N, 16.VI.2013, 1♀; Isfahan, Shahreza, 1817m, 51°53.156' E, 32°02.995' N, 19.IV.2013, 1♀; Isfahan, Karvan, 2185m, 50°51.429' E, 32°52.780' N, 23.V.2012, 1♀; Isfahan, Karvan, Jafar Abad, 2035m, 51°00.511' E, 32 48.071' N, 29.VI.2012, 1♂; Fars, Sarvestan, 1544m, 53°12'4.41" E, 29°16'52.36" N, 8.V.2010, 2♀♀.

General distribution: Eastern and Southern Europe and Eastern Asia (Ascher & Pickering, 2016), Turkey, Syria, Jordan, Iran, Egypt, Libya (Grace, 2010).

Lasioglossum (Evylaeus) clypeiferellum (Strand, 1909)

Material examined: Fars, Shiraz, 1700m, 52°38.769 E, 29°075.635 N, 29.VIII.2013, 1♀.

General distribution: Europe, North Africa to Eastern Asia, Tajikistan in central Asia (Muraó et al., 2017), Greece, Crete, Turkey, Cyprus, Israel, Egypt, Turkestan, Tajikistan, Iran, Afghanistan, Mongolia (Pauly, 2007).

Lasioglossum (Ctenonomia) vagans (Smith, 1857)

Material examined: Sistan-o Baluchestan, Zabol, 480m, 61°30'04" E, 31°01'43" N, 5.IV.2010, 1♂.

General distribution: South from Israel to Egypt and N Sudan, to the East in a wide arc

through the Arabian Peninsula and Iran, whole of India, Nepal, SE Asia including the Philippines, North to China and the Southern Japanese islands (Ebmer, 2004), Southern Turkey, Lebanon, Jordan, Israel, Egypt (Grace, 2010).

Lasioglossum (Dialictus) ituraeum Ebmer, 1972

Material examined: Isfahan, Natanz, Kesheh, 2473m, 51°46.326' E, 33°24.687' N, 20.IX.2013, 1♀.

General distribution: Lebanon, Turkey, Iran, Israel (Pauly, 2007).

Sphecodes (Sphecodes) puncticeps Thomson, 1870

Material examined: Fars, Sepidan, Bahr Ghan, 2161m, 52°00.889' E, 30°13.391' N, 8.IV.2010, 1♀; Fars, Shiraz, Delgosha, 1500m, 52°34'29.19" E, 29°37'9.70" N, 21.V.2012, 1♂.

General distribution: Mongolia, Russia, Europe (North to Finland and Sweden), Israel, Turkey, North Africa, Central Asia (Astafurova & Proshchalykin, 2015).

Sphecodes sp. Latreille, 1804

Material examined: Isfahan, Marq, 1556m, 51°42.224' E, 32°31.397' N, 21.VI.2013, 9♂♂; Isfahan, Mobarakeh, Ghahnaveh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♂; Isfahan, Dorcheh piazz, 1608m, 51°31.754' E, 32°35.100' N, 23.VIII.2013, 1♂; Isfahan, Fereydan, Bazmeh, 1482/01m, 52°33'25.95" E, 32°24'9.80" N, 24.V.2012, 1♀; Isfahan, Chadegan, Zayandehrud Dam, 2070m, 50°38' E, 32°46' N, 19.VII.2013, 1♀, 6♂♂.

General distribution: The genus of *Sphecodes* Latreille, 1804 distributes in Holarctic Region and North to the Subarctic (Astafurova & Proshchalykin, 2014).

SUBFAMILY: NOMIOIDINAE

Nomioides squamiger Saunders, 1908

Material examined: Isfahan, Mobarakeh, Ghahnaveh, 1693m, 51°31.543' E, 32°19.948'

N, 12.VII.2013, 1♀; Isfahan, Kashan, 1077m, 51°22.247' E, 33°56.631' N, 11.VIII.2013, 1♀.

General distribution: North Africa, Israel, Arabian Peninsula (Pauly, 2007), Iran (Khodarahmi & Monfared, 2019).

***Nomioides turanicus* Morawitz, 1876**

Material examined: Isfahan, Mobarakeh, Industrial Estate, 1645m, 51°43.413' E, 32°25.141' N, 27.V.2013, 1♀.

General distribution: Kyrgyzstan and Pakistan (Pesenko & Pauly, 2009), North Africa to Sudan, Djibouti, Senegal, and Mauritania in the South (Pauly, 2007), Iran (Khodarahmi & Monfared, 2019).

***Nomioides (Ceylalictus) varigatus* (Olivier, 1789)**

Material examined: Isfahan, Mobarakeh, Ghahnavyeh, 1693m, 51°31.543' E, 32°19.948' N, 12.VII.2013, 1♀, 2♂♂; Isfahan, Mobarakeh, Industrial Estate, 1645m, 51°43.413' E, 32°25.141' N, 29.IV.2013, 3♀♀.

General distribution: Mediterranean Basin, Eastern Europe, Middle East, Cyprus, Sardinia and Sicily (Balzan et al., 2016), North Africa to Kenya, Gambia, Burkina Faso, Cameroon and Senegal in the South, Southern Europe and warm places of middle Europe to Austria in the North, steppes and deserts of Western Asia to Northern China, Northern India and Mongolia in the East (Pauly, 2007), Iran (Khodarahmi & Monfared, 2019).

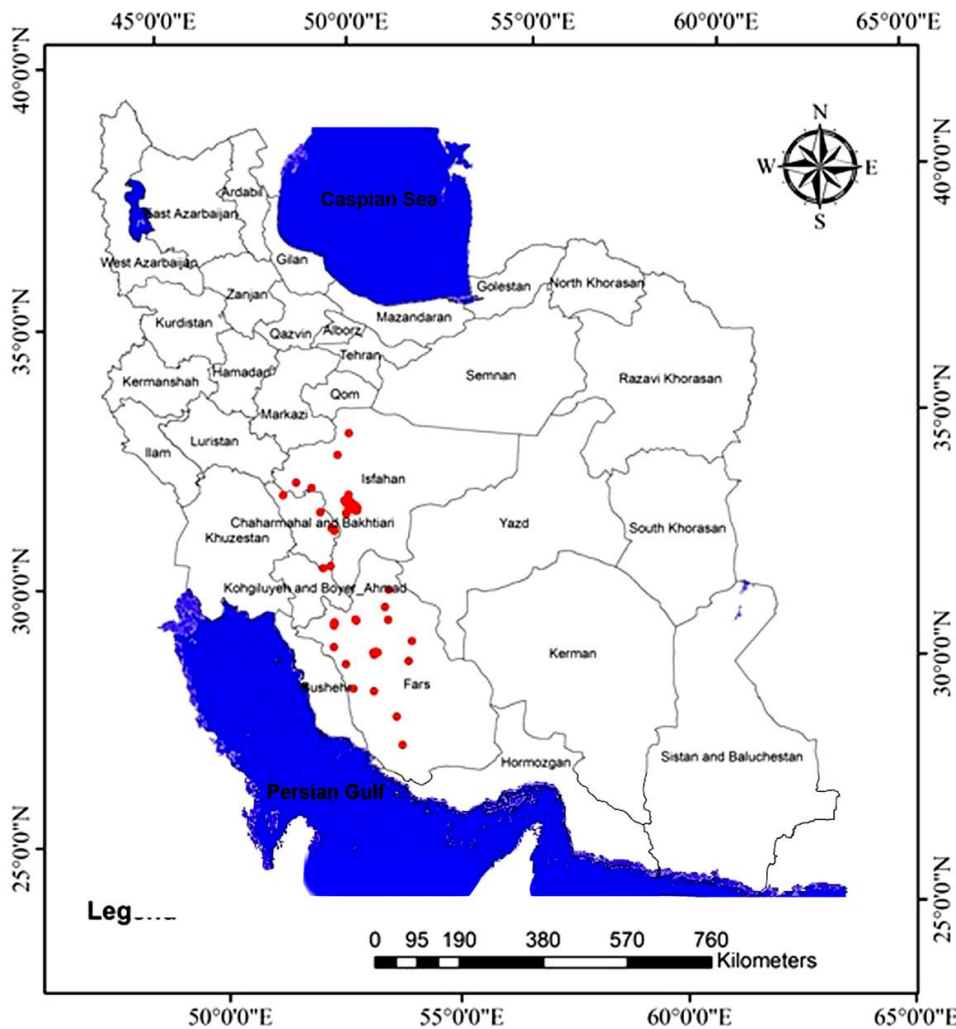


Figure 3. Records of Subfamilies Nomiinae, Rophitinae and Nomioidinae in Iran, based on the material collected in this study.

Table 2. List of Halictid bees of Iran deposited in "Iranian Pollinator Insect Museum" of Yasouj University.

Family	Subfamily	Tribe	Genus	Subgenus	Species
Halictidae	Halictinae	Halictini	<i>Halictus</i>		<i>H. (H.) brunnescens</i>
					<i>H. (H.) resurgens</i>
					<i>H. (H.) sexcinctus albohispidus</i>
					<i>H. (H.) senilis</i>
					<i>H. (H.) submodernus</i>
				<i>Halictus</i>	<i>H. (H.) humkalensis</i>
					<i>H. (H.) maculatus priesneri</i>
					<i>H. (H.) asperulus</i>
					<i>H. (H.) fatsensis</i>
					<i>H. (H.) patellatus</i>
					<i>H. (H.) tetrazonianellus</i>
					<i>H. (H.) tetrazoinus</i>
					<i>H. (V.) pollinosus</i>
					<i>H. (V.) nasica</i>
				<i>Vestitohalictus</i>	<i>H. (V.) cypraicus</i>
					<i>H. (V.) tuberculatus</i>
					<i>H. (V.) pulvereus</i>
					<i>H. (S.) fuscicollis</i>
				<i>Seladonia</i>	<i>H. (S.) smaragdulus</i>
					<i>H. (S.) lucidipennis</i>
					<i>H. (S.) cephalicus</i>
				<i>Thrincohalictus</i>	<i>H. (T.) prognathous</i>
			<i>Lasioglossum</i>		<i>L. (L.) discum</i>
					<i>L. (L.) aegyptiellum</i>
				<i>Lasioglossum</i>	<i>L. (L.) leucozonium</i>
					<i>L. (L.) tadschicum</i>
					<i>L. (L.) capsicum</i>
					<i>L. niveocinotum</i>
					<i>L. (E.) cristula donatum</i>
					<i>L. (E.) skorikovi</i>
					<i>L. (E.) epipygiale</i>
					<i>L. (E.) leaøe</i>
					<i>L. (E.) interruptum trispinosum</i>
					<i>L. (E.) pseudoleptorhynchum</i>
					<i>L. (E.) ordubadense</i>
					<i>L. (E.) mose</i>
					<i>L. (E.) obscuratum</i>
				<i>Evyllaëus</i>	<i>L. (E.) setulellum</i>
					<i>L. (E.) harputicum</i>
					<i>L. (E.) pauxillum</i>
					<i>L. (E.) puncticolle</i>
					<i>L. (E.) lineare</i>
					<i>L. (E.) limbellum</i>
					<i>L. (E.) gilanum</i>
					<i>L. (E.) lucidulum</i>
					<i>L. (E.) nigripes</i>
					<i>L. (E.) malachurum</i>
					<i>L. (E.) truncaticolle</i>

Table 2. Continued.

Family	Subfamily	Tribe	Genus	Subgenus	Species			
Halictidae	Halictinae	Halictini	<i>Lasioglossum</i>		<i>L. (E.) sociorum</i>			
					<i>L. (E.) marginatum</i>			
					<i>L. (E.) griseolum</i>			
					<i>L. (E.) politum</i>			
					<i>L. (E.) popovi</i>			
					<i>Eovylaeus</i>	<i>L. (E.) villosulum</i>		
						<i>L. (E.) angustipes</i>		
						<i>L. (E.) damascenum</i>		
						<i>L. (E.) mesosclerum</i>		
					<i>Ctenonomia</i>	<i>L. (E.) clypeiferellum</i>		
				<i>L. (E.) pygmaeum patulum</i>				
				<i>L. (C.) vagans</i>				
				<i>Dialictus</i>		<i>L. (D.) ituraeum</i>		
						<i>Sphecodes</i>	<i>S. (S.) puncticeps</i>	
				Nomiinae			<i>Pseudapis</i>	
					<i>P. (P.) nilotica</i>			
					<i>P. (P.) diversipes</i>			
					<i>P. (P.) bytinski</i>			
					<i>Pseudapis</i>	<i>P. (P.) edentata</i>		
						<i>P. (P.) lobata</i>		
<i>P. (P.) patellata</i>								
<i>P. (P.) fugax</i>								
	<i>P. (P.) platula</i>							
	<i>P. (P.) sp.</i>							
	Nomioidinae	<i>Nomioides</i>		<i>N. (N.) spuamiper</i>				
				<i>N. (N.) tuianicus</i>				
Rophitinae			<i>Rophites</i>	<i>N. (C.) varigatus</i>				
				<i>R. (R.) canus</i>				
			<i>Systropha</i>	<i>Systropha</i>	<i>S. (S.) iranica</i>			
					<i>S. (S.) villosa</i>			

Table 3. A list of halictid bees of Iran (based on data extracted from Warncke, 1982; Khodaparast & Monfared, 2012, Khaghaninia et al., 2013, Safi et al., 2017 and current study.)

Species Names	Species Names
<i>Rophites (Rhophitoides) canus</i> Eversmann, 1852	<i>Halictus sinister</i> Bluthgen, 1934
<i>Systropha (Systropha) iranica</i> Popov, 1967	<i>Halictus sobrinus</i> Warncke, 1982
<i>Systropha (Systropha) villosa</i> Ebmer, 1978	<i>Halictus rusticolus</i> Warncke, 1982
<i>Pseudapis bispinosa</i> (Brullé, 1832)	<i>Halictus hyalinipennis</i> Morawitz, 1876
<i>Pseudapis diversipes</i> (Latreille, 1806)	<i>Halictus morbillosus</i> Kirechbaumer, 1873
<i>Pseudapis nilotica</i> (Smith, 1875)	<i>Halictus debilior</i> Perez, 1910
<i>Pseudapis bytinski</i> (Warncke, 1976)	<i>Halictus masculus</i> Perez, 1895
<i>Pseudapis edentata</i> (Morawitz, 1876)	<i>Halictus muganicus</i> (Ebmer, 1972)
<i>Pseudapis lobata</i> (Olivier, 1812)	<i>Halictus mediterraneus</i> Bluthgen, 1925
<i>Pseudapis patellata</i> (Magretti, 1884)	<i>Halictus antelicus</i> Warncke, 1975
<i>Pseudapis fugax</i> (Morawitz, 1877)	<i>Halictus calceatus</i> (Scopoli, 1763)
<i>Pseudapis Platula</i> (Warncke, 1976)	<i>Halictus reinigi</i> (Ebmer, 1978)
<i>Pseudapis sp.</i> Kirby, 1900	<i>Halictus aglyphus</i> Perez, 1895

Table 3. Continued.

Species Names	Species Names
<i>Halictus brunnescens</i> (Eversmann, 1852)	<i>Halictus glabriusculus</i> Morawitz, 1872
<i>Halictus resurgens</i> Nurse, 1903	<i>Halictus aramaeus</i> (Ebmer, 1974)
<i>Halictus sexcinctus albohispidus</i> Blüthgen, 1923	<i>Halictus bifidus</i> Warncke, 1975
<i>Halictus senilis</i> (Eversmann, 1852)	<i>Halictus saji</i> Blüthgen, 1923
<i>Halictus submodernus</i> Blüthgen, 1936	<i>Halictus falcinellus</i> Warncke, 1982
<i>Halictus humkalensis</i> Blüthgen, 1936	<i>Halictus morinellus</i> Warncke, 1975
<i>Halictus maculatus priesneri</i> Ebmer, 1975	<i>Halictus marchali</i> Vachal, 1891
<i>Halictus montivolans</i> (Ebmer, 1970)	<i>Halictus hyemalus</i> Warncke, 1982
<i>Halictus pangaeus</i> (Ebmer, 1978)	<i>Halictus varipes</i> Morawitz, 1876
<i>Halictus patulus</i> Kohl, 1905	<i>Halictus seladonius</i> (Fabricius, 1794)
<i>Halictus bublcus</i> Warncke, 1982	<i>Halictus subauratus</i> (Rossi, 1793)
<i>Halictus nitidiusculus</i> (Kirby, 1802)	<i>Halictus vestitus</i> Lepeletier, 1841
<i>Halictus minutus</i> (Schenck, 1868)	<i>Halictus sogdinus</i> Morawitz, 1876
<i>Halictus corvinus</i> Morawitz, 1878	<i>Halictus pici</i> Perez, 1895
<i>Halictus brevicornis</i> Schenck, 1868	<i>Halictus turkomannus</i> Lebedev, 1910
<i>Halictus katharin</i> (Ebmer, 1974)	<i>Halictus talyschenis</i> Blüthgen, 1925
<i>Halictus griseolus</i> Morawitz, 1872	<i>Halictus alfenellus</i> Strand, 1909
<i>Halictus salinus</i> Morawitz, 1876	<i>Halictus quadricinctus</i> (Fabricius, 1776)
<i>Halictus punctatissimus</i> (Schenck, 1853)	<i>Halictus indefinitus</i> Blüthgen, 1932
<i>Halictus isabellinus</i> Warncke, 1982	<i>Halictus morawitzi</i> Vachal, 1902
<i>Halictus convexiusculus</i> (Schenck, 1853)	<i>Halictus mucoreus</i> (Eversmann, 1852)
<i>Halictus buccalis</i> Perez, 1903	<i>Halictustarminicus</i> Strand, 1921
<i>Halictus longiristris</i> Morawitz, 1876	<i>Halictus bicallosus</i> Morawitz, 1874
<i>Halictus aerates</i> (Kirby, 1802)	<i>Halictus lativentris</i> (Schenck, 1853)
<i>Halictus annulipes</i> Morawitz, 1876	<i>Halictus pallens</i> Brulle, 1832
<i>Halictus georgicus</i> Blüthgen, 1936	<i>Halictus hazarani</i> Warncke, 1982
<i>Halictus dschulfensis</i> Blüthgen, 1936	<i>Halictus fallax</i> Morawitz, 1874
<i>Halictus asperulus</i> Pérez, 1895	<i>Halictus sexmaculatus</i> (Schenck, 1853)
<i>Halictus fatsensis</i> Blüthgen, 1936	<i>Halictus subbuteo</i> Warncke, 1982
<i>Halictus patellatus</i> Morawitz, 1874	<i>Halictus tinnunculus</i> Warncke, 1982
<i>Halictus tetrazonianellus</i> Strand, 1909	<i>Halictus sexnotatus</i> (Kirby, 1802)
<i>Halictus tetrazoinus</i> (Klug, 1817)	<i>Halictus solitaries</i> warncke, 1975
<i>Halictus (Seladonia) cephalicus</i> Morawitz, 1873	<i>Halictus subprasinus</i> Blüthgen, 1931
<i>Halictus (Seladonia) lucidipennis</i> (Smith, 1853)	<i>Halictus xanthopus</i> (Kirby, 1802)
<i>Halictus (Seladonia) smaragdulus</i> Vachal, 1895	<i>Halictus fahringeri</i> Friese, 1921
<i>Halictus (Seladonia) fuscicollis</i> Morawitz, 1876	<i>Halictus subequestris</i> Blüthgen, 1931
<i>Halictus (Seladonia) desertorum</i> (Morawitz, 1876)	<i>Halictus asiaticus</i> Dalla Torre, 1896
<i>Halictus (Seladonia) confuses</i> Smith, 1853	<i>Halictus persicus</i> Cockerell, 1918
<i>Halictus (Vestitohalictus) pollinosus</i> Sichel, 1860	<i>Halictus longipes</i> Blüthgen, 1923
<i>Halictus (Vestitohalictus) nasica</i> Morawitz, 1876	<i>Halictus quadric ignatus</i> (Schenck, 1853)
<i>Halictus (Vestitohalictus) cypraicus</i> (Blüthgen, 1937)	<i>Halictus carssepunctatus</i> Blüthgen, 1923
<i>Halictus (Vestitohalictus) tuberculatus</i> Blüthgen, 1925	<i>Halictus laevis</i> (Kirby, 1802)
<i>Halictus (Vestitohalictus) pulvereus</i> Morawitz, 1874	<i>Halictus limbelloides</i> Blüthgen, 1931
<i>Halictus (Thrincohalictus) prognathus</i> (Perez, 1911)	<i>Halictus anells</i> Kohl, 1905
<i>Halictus gibber</i> Vachal, 1892	<i>Halictus quadricinctoides</i> Blüthgen, 1936
<i>Halictus cavernifrons</i> Blüthgen, 1926	<i>Halictus laevigatus</i> (Kirby, 1802)

Table 3. Continued.

Species Names	Species Names
<i>Halictus picipes</i> Morawitz, 1867	<i>Lasioglossum (Evylaeus) gilanum</i> (Blüthgen, 1931)
<i>Lasioglossum (Evylaeus) malachurum</i> (Kirby, 1802)	<i>Lasioglossum (Evylaeus) griseolum</i> (Morawitz 1872)
<i>Lasioglossum (Evylaeus) truncaticolle</i> (Morawitz, 1877)	<i>Lasioglossum (Evylaeus) popovi</i> (Blüthgen, 1631)
<i>Lasioglossum (Evylaeus) pygmaeum patulum</i> (Vachal, 1905)	<i>Lasioglossum cristula donatum</i> (Warncke, 1975)
<i>Lasioglossum (Evylaeus) lucidulum</i> (Schenkck, 1861)	<i>Lasioglossum aegyptiellum</i> (Strand, 1909)
<i>Lasioglossum (Evylaeus) nigripes</i> (Lepelletier, 1841)	<i>Lasioglossum leucozonium</i> (Schrank, 1781)
<i>Lasioglossum (Evylaeus) interruptum trispinosum</i> (Alfken, 1907)	<i>Lasioglossum niveocinotum</i> (Blüthgen, 1923)
<i>Lasioglossum (Evylaeus) pseudoleptorhynchum</i> (Blüthgen, 1931)	<i>Lasioglossum tadschicum</i> (Blüthgen, 1929)
<i>Lasioglossum (Evylaeus) sociorum</i> (Blüthgen, 1924)	<i>Lasioglossum caspicum</i> (Morawitz, 1874)
<i>Lasioglossum (Evylaeus) marginatum</i> (Brullé, 1832)	<i>Lasioglossum discum</i> (Smith, 1853)
<i>Lasioglossum (Evylaeus) angustipes</i> Ebmer, 1972	<i>Lasioglossum (Ctenonomia) vagans</i> (Smith, 1857)
<i>Lasioglossum (Evylaeus) villosulum</i> (Kirby, 1802)	<i>Lasioglossum (Dialictus) ituraeum</i> Ebmer, 1972
<i>Lasioglossum (Evylaeus) politum</i> (Schenck, 1853)	<i>Lasioglossum (Dialictus) sp.</i>
<i>Lasioglossum (Evylaeus) puncticolle</i> (Morawitz, 1872)	<i>Sphecodes (Sphecodes) sp</i> Latreille 1804
<i>Lasioglossum (Evylaeus) pauxillum</i> (Schenck, 1853)	<i>Sphecodes (Sphecodes) puncticeps</i> Thomson, 1870
<i>Lasioglossum (Evylaeus) mesosclerum</i> (Pérez, 1903)	<i>Nomioides (Nomioides) squamiger</i> Saunders, 1908
<i>Lasioglossum (Evylaeus) limbillum</i> (Morawitz, 1876)	<i>Nomioides (Nomioides) turanicus</i> Morawitz, 1876
<i>Lasioglossum (Evylaeus) damascenum</i> (Pérez, 1911)	<i>Nomioides (Ceylalicus) varigatus</i> (Olivier, 1789)

Discussion

In this study, 78 species of family Halictidae were identified and reported. The bees of this family are among the most important pollinators of grassland, orchards and other crops. [Pesenko & Warncke \(1987\)](#) by examining more than 1518 samples from Iranian bees recorded 116 species of Halictid bees for Iran fauna. Although he has reported more species from Iran, the value of our report is that we have these species now in our collection and are available for review at any time. However, species reported by foreign researchers are deposited in private or public museums in Europe and the United States, and access to them is difficult and expensive. Studies on Halictidae family bees of Iran have been scattered and very limited. These studies merely led to the release of species names and samples or identified species mostly not deposited in Iran. A number of scientific names for Halictid bees' species by Warncke have now been modified or combined with each other, for example,

the 26 species which already were in the genus *Halictus* now known under the genus *Lasioglossum*. In current survey we found 41 species of Halictid bees the same as [Pesenko & Warncke](#) work in 1987. We also found the same 29 species of *Lasioglossum* which [Pesenko & Warncke \(1987\)](#) recorded as belong to genus *Halictus*. The later important work on Halictid bees of Iran carried out by [Khodaparast & Monfared \(2012\)](#), which among them 7 species were new records for Iran. Now we have more than 10,000 specimens of halictid bees collected from various provinces under study which may last for several years but we think in future we could announce new records and species for our rich fauna.

Due to the importance of pollinator bees in agricultural production and the survival of grassland plants in Iran, which has different climates, more researches are needed and also, due to the geographical expansive of country of Iran and the

presence of various climates from desert, sea and mountainous areas, we could expect a rich fauna of these bees in Iran. We should note that comparing of distribution pattern of species regarding to climate and topography in various provinces regions are needed to pollinators' ecology studies in future. Surely we cannot compare results of sampling of bees because samples are not still enough and sampling from many regions has not been done yet. A comprehensive project, for sampling of many areas in coming years would be necessary. We have a plan to gather as much as bees specimens especially Halictids and expand our collection as much as we can. Thus, we hope that we can complete and present a fairly comprehensive list of species of bees in this family in Iran which would be supported by our deposit specimens and identified ones for further studies in various aspects in future.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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بررسی زنبورهای خانواده (Hymenoptera, Apoidea) Halictidae موزه حشرات گرده افشان ایران - دانشگاه یاسوج

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چکیده: در این تحقیق، ۱۱۷۹ نمونه مربوط به زنبورهای Halictidae جمع‌آوری شده از مناطق مختلف ایران بررسی شد. ۷۸ گونه زنبور Halictidae به عنوان مؤلفه‌های اصلی فون زنبورهای Apoidea در ایران مشخص گردید. فهرست گونه‌های زنبورهای Halictidae بر اساس نمونه‌های جمع‌آوری شده در تحقیق حاضر همراه با نام مکان‌های جمع‌آوری، مختصات جغرافیایی و تعداد نمونه‌های نر و ماده ارائه شده است. همچنین پراکنش گونه‌ها در ایران با نقشه و پراکنش جهانی آن‌ها تاحد امکان فراهم شده است. در این تحقیق پنج گونه برای اولین بار از استان‌های زیر گزارش می‌شود: *Lasioglossum (Ctenonomia) vagans* (Smith, 1857)، از استان سیستان و بلوچستان، *Halictus (Vestitohalictus) nasica* Morawitz, 1876 از استان اصفهان و سیستان و بلوچستان، *Halictus tetrazoinus* (Klug, 1817) از استان چهارمحال و بختیاری، *Halictus fatsensis* Blüthgen, 1936 از استان چهارمحال و بختیاری، *Halictus (Seladonia) fuscicollis* Morawitz, 1876 از استان سیستان و بلوچستان.

واژگان کلیدی: پراکنش، Halictidae، ایران، زنبورهای گرده افشان