



Article

Checklist of mites associated with stored products (Arachnida: Acari) of Iran

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ABSTRACT

The fauna of Iranian stored products' mites (Arachnida: Acari) is summarized based on data from published books and papers. A total of 144 species of the Acari belonging to 90 genera, 45 families, 27 superfamilies, three suborders, three orders and two superorders have been recorded in Iran. Species-richest families are Acaridae (17 species, 11.80%), Cheyletidae (16 species, 11.11%) followed by Laelapidae (12 species, 8.33%), Ameroseiidae (seven species, 4.86%), Bdellidae (six species, 4.16%), and each of the families Tydeidae, Cunaxidae and Ascidae (five species, 3.47%), Stigmaeidae, Erythraeidae, Melicharidae, Glycyphagidae and Oppiidae (four species, 2.77%), Trematuridae, Raphignathidae, Blattsociidae, Macrochelidae (three species, 2.08%), Dinychidae, Tarsonemidae, Caligonellidae, Pyemotidae, Acarophenacidae, Phytoseiidae, Histiostomatidae, Carpoglyphidae, Ereyetidae, Suidasiidae and Oribatulidae (each two species, 1.38%) and seventeen families have one species as follows: Achipteridae, Euphthiracaridae, Scheloribatidae, Cosmochthoniidae, Haplochthoniidae, Tectocephidae, Suctobelbidae, Pyroglyphidae, Chortoglyphidae, Smarididae, Eupodidae, Parholaspidae, Digamasellidae, Ologamasidae, Rhodacaridae, Tetranychidae, and Oplitidae.

KEY WORDS: Acariformes; fauna; Iran; Parasitiformes; species-richest; warehouse pest.

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INTRODUCTION

Fewer mite species (subclass Acari) than insect species have been reported to be associated with stored products. In general, with good pest management, mite infestations are less likely than insect infestations to result in economic losses. However, mites can damage products and reduce seed germination (Soloman 1946; Zdarkova and Reska 1976; White *et al.* 1979; Parkinson 1990; Zdarkova 1996; Gulati *et al.* 1999; Mahmood *et al.* 2011, 2012). Unlike beetles, these pests do not cause significant quantitative damage to stored products. However, their presence is no more acceptable due to the increasing demand for insect- and mite-free commodities by the consumers. Infested products can cause heavy economic losses through rejection by both domestic and international markets (Nayak 2006). In Iran, many studies have been conducted on stored products' mites. Apparently, the first checklist on stored products' pests was provided by Shahhosseini and Kamali (1989). Subsequently, the following lists were published: “*The 20 years researches of Acarology in Iran, List of agricultural pests and their natural enemies in Iran*” and “*A catalog of mites and ticks (Acari) of Iran*” (Sepasgozarian 1977; Modarres Awal 1997; Kamali *et al.* 2001).

During that period, many changes were introduced into the classification of Acari. Finally, considering the amount of new information available, we believe that a new edition of the checklist of Acari of stored products of Iran will help those interested in Acari fauna of Iran. Identified Iranian mite fauna related to stored products includes species belonging to the orders Mesostigmata, Trombidiformes and Sarcoptiformes. Investigation on stored products' mites of Iran has been done in various scattered studies, specifically research articles, abstracts, books, congress proceedings, Ph.D. dissertations and M.Sc. theses. The aim of this paper is to provide a checklist of Iranian stored product mites based on available literature data for Iran.

MATERIAL AND METHODS

The major part of the data has been extracted from the literature of Iranian Acari and cited for each species in the text. The published data on distribution of the families of stored products' mites in Iran are summarized by province. Species are listed in a systematic order by superorder, order, suborder, family and genus. Species are listed in alphabetical order. All the species are listed with their accepted names, correct spelling, author and year of description. When accurate data about local distribution in Iran are lacking in a quoted reference, the phrase "no locality cited" is used. The systematics used in the checklist predominantly follows Beaulieu *et al.* (2011), Schatz (2011), Zhang *et al.* (2011), and Mağkol and Wohltmann (2012).

Additional data, distribution in Iran, general distribution and collection place(s) are taken from atlas of stored insects and mites (Hagstrum *et al.* 2013), catalog of mites and ticks (Acari) of Iran (Kamali *et al.* 2001), proceedings of the Iranian Plant Protection Congresses, International Persian Congress of Acarology, several checklists and papers associated with stored products, i.e. Modarres Awal (1994, 1997), Shahhosseini and Kamali (1989), Akrami and Saboori (2012), Beyzavi *et al.* (2013), Kazemi and Rajaei (2013), Khaleghabadian *et al.* (2015), Ardeshtir (2017), Nemati *et al.* (2018), Salarzahi *et al.* (2018a, b, 2019a, b).

RESULTS

Superorder Acariformes Zakhvatkin, 1952

Order Sarcoptiformes Reuter, 1909

Suborder Oribatida van der Hammen, 1968

Superfamily Achipterioidea Thor, 1929

Family Achipteriidae Thor, 1929

Genus *Tectoribates* Berlese, 1910

***Tectoribates* sp. near *ornatus* (Schuster, 1958)**

Distribution in Iran – Guilan Province: Jurkuyeh (Noei 2007), **Mazandaran Province:** Behshahr (Akrami 2008).

General distribution – Palaearctic and Neotropical (Argentina and Uruguay) (Akrami 2015).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007).

Superfamily Euphthiracaroidae Jacot, 1930

Family Euphthiracaridae Jacot, 1930

Genus *Acrotrititia* Jacot, 1923

***Acrotrititia ardua* (C.L. Koch, 1841)**

Syn.: *Rhysotrititia ardua* C.L. Koch, 1841

Distribution in Iran – Isfahan Province: Region not mentioned (Hatami 1991), **East Azerbaijan Province:** Tabriz (Fathipour 1994; Rahbar Shahlan *et al.* 2014), Soofian, Marand, and Shabestar (Lotfollahi and Haddad Irani-Nejad 2010), Shendabad and Shabestar (Mirzaie *et al.* 2011), Arasbaran (Gheblealivand *et al.* 2013), Region not mentioned (Ahaniazad *et al.* 2016; Akrami and Shahedi 2020), **Hamadan Province:** Malayer (Khanjani 1996), **Ardabil Province:** Moghan plain (Haddad Irani-Nejad 1998), Region not mentioned (Akrami and Shahedi 2020), **Yazd Province:** Abarkouh (Bayartogtokh and Akrami 2000; Akrami and Shahedi 2020), **Mazandaran Province:** Region not mentioned (Akrami *et al.* 2006; Akrami and Shahedi 2020), **Fars Province:** Jahrom (Khademi and Saboori 2006), Shiraz (Behmanesh and Akrami 2012), Larestan (Majidi and Akrami 2013), Estahban (Daneshnia and Akrami 2013), Darab (Mohammadi Khoramabadi and Akrami 2007), **Markazi Province:** Arak (Bastan *et al.* 2007), Firoozabad (Hajian *et al.* 2007), Region not mentioned (Akrami and Shahedi 2020), **Guilan Province:** Rasht (Mortazavi *et al.* 2010), **Kordestan Province:** Region not mentioned (Baradaran *et al.* 2010), **Guilan Province:** Heyran (Gheblealivand *et al.* 2013), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2013a), **Zanjan Province:** Region not mentioned (Rajabi *et al.* 2014; Akrami and Shahedi 2020), **West Azerbaijan Province:** Region not mentioned (Khabir *et al.* 2014; Akrami and Shahedi 2020), **Khuzestan Province:** Ahvaz (Ramezani and Mossadegh 2014; Akrami 2015), Region not mentioned (Akrami and Shahedi 2020), **Hamadan, Fars, Razavi Khorasan, Guilan, Alborz, Kordestan, Tehran, Esfahan, Golestan, and Sistan and Baluchestan provinces:** Region not mentioned (Akrami and Shahedi 2020).

General distribution – Cosmopolitan. Canada, Europe, Iran, Japan, North America, Tahiti, Turkey (Hatami 1991; Fathipour 1994; Khanjani 1996; Haddad Irani-Nejad 1998; Bayartogtokh and Akrami 2000; Akrami *et al.* 2006; Khademi and Saboori 2006; Hajian *et al.* 2007; Bastan *et al.* 2007; Mohammadi Khoramabadi and Akrami 2007; Rahbar Shahlan *et al.* 2014; Baradaran *et al.* 2010; Lotfollahi and Haddad Irani-Nejad 2010; Mortazavi *et al.* 2010; Mirzaie *et al.* 2011; Behmanesh and Akrami 2012; Daneshnia and Akrami 2013; Hagstrum *et al.* 2013; Majidi and Akrami 2013; Gheblealivand *et al.* 2013; Khaleghabadian *et al.* 2013a; Rajabi *et al.* 2014; Ramezani and Mossadegh 2014).

Collection place(s) – Sweeping, wheat flour (Hagstrum *et al.* 2013).

Superfamily Oppioidea Grandjean, 1951
Family Oppiidae Sellnick, 1937
Genus *Brachioppia* Hammer, 1961

***Brachioppia* sp. nr. *cuscensis* Hammer, 1961**

Distribution in Iran – Fars Province: Kazerun (Ostovan 1993), **East Azarbaijan:** Tabriz (Fathipour 1994).

Collection place(s) – Stored rice, barley flour, wheat (Ostovan 1993).

Genus *Lasiobelba* Aoki, 1959

***Lasiobelba* sp.**

Distribution in Iran – Guilan Province: Fuman (Noei 2007).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007).

Genus *Oppiella* Jacot, 1937

***Oppiella* sp.**

Distribution in Iran – Alborz Province: Karaj (Sayedi *et al.* 2006).
Collection place(s) – Grain (Sayedi *et al.* 2006).

Genus *Ramusella* (*Rectoppia*) Subías, 1980

***Ramusella* (*Rectoppia*) sp.**

Distribution in Iran – Guilan Province: Khomam (Noei 2007).
Collection place(s) – Stored rice, rice dust and debris (Noei 2007).

Superfamily Oripodoidea Jacot, 1925

Family Oribatulidae Thor, 1929

Genus *Oribatula* Berlese, 1896

***Oribatula* sp.**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993), **Guilan Province:** Khomam (Noei 2007), **Alborz Province:** Karaj (Sayedi *et al.* 2006; Seiedy *et al.* 2012).

Collection place(s) – Stored onion, barley, stored rice, rice dust and debris (Ostovan 1993; Seiedy *et al.* 2006; Noei 2007).

Genus *Oribatula* (*Zygoribatula*) Berlese, 1916

***Oribatula* (*Zygoribatula*) sp.**

Distribution in Iran – Alborz Province: Karaj (Sayedi *et al.* 2006), Guilan Province (Hashtpar) (Noei 2007).

Collection place(s) – Grain, stored rice, rice dust and debris (Sayedi *et al.* 2006; Noei 2007).

Family Scheloribatidae Grandjean, 1933

Genus *Scheloribates* Berlese, 1908

***Scheloribates laevigatus* (C.L. Koch 1836)**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993), **East Azerbaijan Province:** Jolfa (Lotfollahi and Haddad Irani-Nejad 2010), Arasbaran, Heyran (Gheblealivand *et al.* 2013).

General distribution – England, France, Germany, Ireland, Japan, Netherlands, Russia, United States (Hagstrum *et al.* 2013).

Collection place(s) – Stored barley, rice, wheat and potato, floor debris, grain, grain (moldy) (Ostovan 1993; Hagstrum *et al.* 2013).

Superfamily Prothoplophoroidea Ewing, 1917

Family Cosmochthoniidae Grandjean, 1947

Genus *Cosmochthonius* Berlese, 1910

***Cosmochthonius ponticus* Gordeeva, 1980**

Distribution in Iran – West Azerbaijan Province: Urmia (Mirfakhraii 1994), **Guilan**

Province: Jafarabad, Roodsar (Noei 2007)

General distribution – Southern Palearctic (West-central Asia and Spain) (Akrami 2015).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007).

Family Haplochthoniidae van der Hammen, 1959

Genus *Haplochthonius* Willmann, 1930

***Haplochthonius simplex* (Willmann, 1930)**

Distribution in Iran – **Hamedan Province:** Malayer (Mirfakhraei 1994; Khanjani 1996), **West Azerbaijan Province:** Region not mentioned (Mirfakhraei 1994; Khanjani 1996) **Guilan Province:** Khomam (Noei 2007), **East Azerbaijan Province:** Shendabad, Shabestar (Mirzaie *et al.* 2011), **Fars Province:** Shiraz (Behmanesh and Akrami 2012), **Zanjan Province:** Region not mentioned (Rajabi *et al.* 2014; Akrami and Shahedi 2020), **Razavi Khorasan, Fars, East Azerbaijan** and (Region not mentioned) (Akrami and Shahedi 2020).

General distribution – Semi-cosmopolitan: Holarctic, Ethiopian (Senegal and Congo), Oriental and Brazil (Akrami 2015; Akrami and Shahedi 2020).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007).

Superfamily Tectocephoidea Grandjean, 1954

Family Tectocephidae Grandjean, 1954

Genus *Tectocephus* Berlese, 1913

***Tectocephus velatus* (Michael, 1880)**

Distribution in Iran – **Alborz Province:** Karaj (Khanjani 1996), Region not mentioned (Akrami and Shahedi 2020), Many places in **Hamadan Province** (Khanjani and Kamali 2000b), **East Azerbaijan Province:** Tabriz, Soofian, Marand, Zenooz, Shabestar, Jolfa (Fathipour 1994, Lotfollahi and Haddad Irani-Nejad 2010), Region not mentioned (Akrami and Shahedi 2020), **Yazd Province:** Abarkouh (Bayartogtokh and Akrami 2000), Many places in **Mazandaran Province** (Akrami 2006), Region not mentioned (Akrami and Shahedi 2020), **Fars Province:** Darab, Firoozabad, Shiraz, Estahban (Hajian *et al.* 2007; Mohammadi and Akrami 2007; Daneshnia and Akrami 2013; Akrami and Behmanesh 2015), Shabestar, Shendabad (Mirzaie 2010) Region not mentioned (Akrami and Shahedi 2020), **Markazi Province:** Arak (Bastan *et al.* 2007), Region not mentioned (Akrami and Shahedi 2020), **Guilan Province:** Rasht (Mortazavi *et al.* 2011), Heyran, Arasbaran, **East Azarbaijan Province:** Heyran and Arasbaran (Gheblealivand *et al.* 2013; Khabir *et al.* 2014), **Zanjan Province:** Region not mentioned (Rajabi *et al.* 2014; Akrami and Shahedi 2020), **Khuzestan province:** Ahvaz (Ramezani and Mossadegh 2014), **West Azerbaijan, Kerman, Kordestan, Tehran, Sistan and Baluchistan** and **Kermanshah provinces:** Regions not mentioned (Akrami and Shahedi 2020).

Collection place(s) – Grain, Chickpea, clover, bean, vetch; soil samples (Fathipour 1994; Khanjani 1996; Sayedi *et al.* 2006).

Superfamily Trizetoidea Ewing, 1917

Family Suctobelbidae Jacot, 1938

Genus *Flagrosuctobelba* Hammer, 1979

***Flagrosuctobelba* sp.**

Distribution in Iran – Alborz Province (Karaj) (Sayedi *et al.* 2006).

Collection place(s) – Grain (Sayedi *et al.* 2006).

Cohort Astigmatina Krantz & Walter, 2009

Syn.: Astigmata Canestrini, 1891

Superfamily Acaroidea Latreille, 1802

Family Acaridae Latreille, 1802

Genus *Acarus* Linnaeus, 1758

***Acarus farris* (Oudemans, 1905)**

Distribution and habitats – Generally distributed, **Alborz Province:** Karaj (Sepasgozarian 1978a; Sayedi *et al.* 2006).

General distribution – Canada, China, Czech Republic, England, Germany, Iran, Ireland, Japan, Kenya, Netherlands, Poland, Scotland, United Kingdom, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Barley, barley (germinating), bread, buckwheat, buckwheat product, cereal, cheese, Chinese medicine, grain, grain residue, grass seed, hay, insect (dried), oat, potato, poultry feed, radish seed, rapeseed, soybean, soya meal, sugar beet seed, sweeping, wheat (Hagstrum *et al.* 2013).

***Acarus siro* Linnaeus, 1758**

Distribution in Iran – Generally distributed (Farahbakhsh 1961; Sepasgozarian 1971, 1977, 1978a; Khalilmanesh 1973; Daneshvar 1978a; Shahhosseini and Kamali 1989; Mehrnejad and Daneshvar 1990; Faraji 1993a, b; Ostovan 1993; Mirfakhrai 1994; Mosaddegh 1997; Modarres Awal 1994, 1997), **Fars Province:** Region not mentioned (Ostovan 1993; Ardeshir and Khani 2015), **Eest Azerbaijan** and **Razavi Khorasan Provinces:** Region not mentioned (Ardeshir and Khani 2015), Mashhad (Khaleghabadian *et al.* 2012), **Kordestan Province:** Region not mentioned (Maroufpoor and Ostovan 2017), **Tehran Province:** Varamin (Ardeshir *et al.* 2006; Ardeshir and Khani 2015), **Alborz Province:** Karaj (Sayedi *et al.* 2006), **Guilan Province:** Masal, Sowme'eh Sara, Fuman (Noei 2007; Noei and Ostovan 2012), **Mazandaran Province:** Region not mentioned (Ardeshir 2011).

General distribution – Cosmopolitan. Australia, Canada, China, Croatia, Czech Republic, Egypt, England, Germany, Greece, Hong Kong, Iran, Iraq, Ireland, Japan, Philippines, Poland, Primorskiy Kray, Scotland, Singapore, Taiwan, Turkey, United Kingdom, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Aquatic products, baby food, barley, barley sweeping, bean curd, beet seed, biscuit, bread, buckwheat, buckwheat product, cake, castor bean, cereal, cereal debris, cereal product, chaff, cheese, chicken feed, chicory, Chinese medicine, cinnamon, clover seed, coltsfoot leaf and root, condiment, cottonseed, dill seed, dried fruit, dried vegetable, ergot, fenugreek, flax seed, fodder waste, grain, grain residue, grass seed, halva, hay, hemp seed, herb, kale seed, kohlrabi seed, lentil, lettuce seed, linseed, maize, lupine seed, maize groat, meat (dried), milk (dried), mint leaf, mushroom, nettle leaf, oat, oat flake, offal, oilseed cake, onion seed, pea (dried), pea flour, peanut, poppy seed, potato flour, processed food, protein poultry feed, radish seed, rapeseed, residue, rice, rice (husked), runch seed, sesame, shrimp (dried), soup (dried), soybean, soybean meal, spinach seed, squid, dried, straw, sugar beet seed, sunflower seed, sweeping wheat, wheat bran, wheat flour, wheat flour sweeping, wheat residue, stored rice, rice dust and debris (Farahbakhsh 1961; Sepasgozarian 1971, 1977, 1978a; Khalilmanesh 1973; Daneshvar 1978a; Shahhosseini and Kamali 1989; Mehrnejad and Daneshvar 1990; Ostovan 1993; Faraji 1993b;

Mirfakhraii 1994; Modarres Awal 1994, 1997; Mosaddegh 1997; Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Genus *Aleuroglyphus* Zachvatkin, 1940

***Aleuroglyphus ovatus* (Troupeau, 1879)**

Distribution in Iran – Mazandaran Province: Region not mentioned, **East Azerbaijan Province:** Region not mentioned (Faraji 1993a, b; Shahhosseini and Kamali 1892; Modarres Awal 1994, 1997), **Guilan Province:** Rezvanshahr, Khomam, Astaneh, Sowme'eh Sara, Masal, Anzali, Jafarabad, Fuman, Lahijan (Noei 2007), **East Azerbaijan, Fars, Razavi Khorasan, and Tehran provinces:** Region not mentioned (Ardeshir 2004, Ardeshir *et al.* 2006; Ardeshir and Khani 2015).

General distribution – Canada, China, Croatia, Czech Republic, Egypt, England, France, Germany, Greece, Hong Kong, Indonesia, Ireland, Japan, Netherlands, Poland, Philippines, Primorskiy Kray, Russia, South Korea, Taiwan, Thailand, Turkey, United States (Hagstrum *et al.* 2013).

Collection place(s) – Aquatic product, barley, bean, bean curd, candied fruit, carcadic, cheese, chicken meal, Chinese medicine, condiment, coriander, fish (dried product), fodder, grain, herb, lentil, livestock feed, macaroni, maize, maize meal, oat, pepper, pollard, poultry diet, processed food, residue, rice, rye, shrimp (dried), sunflower seed, tiki-tiki, wheat, wheat bran, wheat bran (moldy), wheat flour, stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Genus *Cosmoglyphus* Oudemans, 1932

***Cosmoglyphus oudemansi* (Zachvatkin, 1937)**

Distribution in Iran – Alborz Province: Karaj (Sayedi *et al.* 2006; Seiedy *et al.* 2012), **East Azerbaijan Province:** Region not mentioned, **Ardabil Province:** Ardabil (Haddad Irani-Nejad 1998, Haddad Irani-Nejad *et al.* 1999), **Tehran Province:** Region not mentioned (Ardeshir 2004, Ardeshir *et al.* 2006; Yousefi Porshekeh 2006; Ardeshir and Khani 2015), **Razavi Khorasan Province:** Mashhad (Kordestani Mahani *et al.* 2014), Region not mentioned (Ardeshir 2004, Ardeshir *et al.* 2006; Ardeshir and Khani 2015), **East Azerbaijan, and Fars provinces:** Region not mentioned, (Ardeshir 2004, Ardeshir *et al.* 2006; Ardeshir and Khani 2015).

General distribution – Australia, Brazil, China, Czech Republic, England, Ethiopia, Greece, Indonesia, India, Italy, Java, Philippines, Russia, Sierra Leone, Sri Lanka, Thailand (Hagstrum *et al.* 2013).

Collection place(s) – Grain, storage products, nuts and dried fruit products, bean curd, Brazil nut (damp), Cereal, Chinese medicine, condiment, copra, dried vegetable, hay, mushroom, maize, peanut (damp), sweeping, tamarind, wheat bran (Sayedi *et al.* 2006; Hagstrum *et al.* 2013; Kordestani Mahani *et al.* 2014).

***Cosmoglyphus krameri* (Berlese, 1881)**

Distribution in Iran – Fars Province: Region not mentioned, **Hamadan Province:** Region not mentioned (Ostovan, 1993; Ostovan and Kamali 1995b; Khanjani 1996; Modarres Awal 1997).

General distribution – Angola, Australia, Brazil, Egypt, England, India, Ireland, Italy, South Korea, Taiwan, Ukraine, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Borecole, fungus (dried), grain, maize, onion, rice (husked), shallot, wheat, and wheat flour (Hagstrum *et al.* 2013).

Genus *Mycetoglyphus* Oudemans, 1932

***Mycetoglyphus fungivorous* Oudemans, 1932**

Distribution in Iran – Sistan and Baluchestan Province: Region not mentioned (Sayadi *et al.* 2012).

General distribution – China, England, Germany, Hungary, Russia, South Africa, United States (Hagstrum *et al.* 2013; Li *et al.* 2015).

Collection place(s) – Storage products, celery waste, Chinese medicine, lettuce, radish (decaying) (Sayedi *et al.* 2006, Hagstrum *et al.* 2013).

Genus *Rhizoglyphus* Claparède, 1869

***Rhizoglyphus echinopus* (Fumouze & Robin, 1868)**

Distribution in Iran – Isfahan, Khuzestan, Tehran, and West Azerbaijan provinces: Region not mentioned (Kaussari 1948; Farahbakhsh 1961; Sepasgozarian 1977, 1978a; Daneshvar 1978a, b, c; Behdad 1988; Shahhosseini and Kamali 1989; Sadeghi Namaghi 1990; Sadeghi Namaghi and Kamali 1993; Ostovan 1993; Mirfakhraii 1994; Modarres Awal 1994, 1997; Fathipour 1994; Ostovan and Kamali 1995a; 1996a), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012) and **Kordestan Province:** Region not mentioned (Maroufpoor and Ostovan 2017).

General distribution – Argentina, Australia, Brazil, Canada, China, Egypt, England, France, Germany, Greece, Hungary, India, Ireland, Japan, Korea, Netherlands, New Zealand, Poland, Romania, Russia, Scotland, Spain, Taiwan, Turkey, United Kingdom, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Bamboo shoots, bulb, Chinese medicine, fatty debris, flax seed, garlic, grain, herb, peanut, shallot, sunflower seed, wheat, wheat spillage (wet, decaying) (Hagstrum *et al.* 2013).

***Rhizoglyphus robini* Claparède, 1869**

Distribution in Iran – Ardabil Province: Ardabil, **Fars Province, Hamedan, Khuzestan, Mazandaran, West Azerbaijan, Isfahan, and Tehran provinces:** Region not mentioned (Rahimi 1991; Rahimi and Kamali 1991, 1992; Modarres Awal 1994, 1997; Mirfakhraii 1994; Fathipour 1994; Ostovan and Kamali 1996a; Khanjani 1996; Darvishzadeh 1997; Haddad Irani-Nejad 1998; Haddad Irani-Nejad *et al.* 1999), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012), **Kordestan Province:** Region not mentioned (Kordestani Mahani *et al.* 2014).

General distribution – Cosmopolitan. Canada, China, Egypt, England, Greece, Israel, Japan, Mexico, New Zealand, Philippines, Poland, Primorskiy Krai, South Korea, Taiwan, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Stored potato, onion, shallot, wheat and foodstuff, grape, liquorice, darnel, ornamental plants, date palm, saffron corn, cotton field soil samples; honeybee hive, bamboo shoot, bulb (decaying), Chinese medicine, condiment, garlic, gin trash, grain, rice (husked), sweet potato tuber (Rahimi 1991; Rahimi and Kamali 1991, 1992; Fathipour 1994; Khanjani 1996; Ostovan and Kamali 1996a; Darvishzadeh 1997; Mirfakhraii 1994; Mosaddegh 1997; Haddad Irani-Nejad 1998, Haddad Irani-Nejad *et al.* 1999; Hagstrum *et al.* 2013).

Genus *Sancassania* Oudemans, 1916

Sancassania berlesei (Michael, 1903)

Distribution in Iran– East Azerbaijan Province: Region not mentioned, **Fars Province:** Region not mentioned, **West Azerbaijan Province:** Region not mentioned (Daneshvar 1978a, b; Fathipour 1994; Mirfakhraii 1994; Modarres Awal 1994, 1997; Mosaddegh and Bahreini 1994; Ostovan and Kamali 1995b).

General distribution – Australia, Canada, China, Czech Republic, England, Germany, Iraq, Ireland, Italy, Netherlands, Philippines, Russia, Taiwan, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Banana, barley, biscuit, cereal spillage (decaying), Chinese medicine, condiment, confection, copra, fish (minced-dried), grain, grain residue (damp, moldy), linseed, maize, mushroom, orange, peanut, plum (dried), potato tuber (rotting), rice, rice (husked), wheat, wheat (rotting) (Hagstrum *et al.* 2013).

Sancassania mycophagus (Mégnin, 1874)

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993; Ostovan and Kamali 1995b, Modarres Awal 1997; Khanjani 1996).

General distribution – China, Egypt, England, France, Ireland, Taiwan, Turkey (Hagstrum *et al.* 2013).

Collection place(s) – Apricot (dried), Chinese medicine, condiment, garlic bulb (decaying), grain, mushroom, sugarcane (Hagstrum *et al.* 2013).

Sancassania redikorzevi (Zakhvatkin, 1937)

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993; Ostovan and Kamali 1995b; Modarres Awal 1997).

General distribution – England, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Grain, seed (damp, germinating) (Hagstrum *et al.* 2013).

Sancassania rhizoglyphoides (Zakhvatkin, 1937)

Distribution in Iran – West Azerbaijan Province: Region not mentioned (Mirfakhraii 1994), **Isfahan Province:** Region not mentioned, **Chaharmahal and Bakhtiari Province:** Region not mentioned (Moradi Faradonbeh *et al.* 2017).

General distribution – China, Egypt, Ireland, Japan, Russia, Taiwan (Hagstrum *et al.* 2013).

Collection place(s) – Houses, broad bean, Chinese medicine, flax, grain, grape wine, maize, wheat, wheat spillage (decaying) (Mirfakhraii 1994; Hagstrum *et al.* 2013).

Genus *Schwiebia* Oudemans, 1916

Schwiebia sp. near *elongatus* (Banks)

Distribution in Iran – Fars Province: Region not mentioned (Modarres Awal 1997; Ostovan 1993; Ostovan and Kamali, 1995b).

General distribution – Coronado and Coconino (Hofstetter *et al.* 2014).

Collection place(s) – Stored products and potato (Ostovan 1993; Ostovan and Kamali 1995b; Modarres Awal 1997).

Genus *Tyroborus* Oudemans, 1924

Tyroborus lini Oudemans, 1924

Distribution in Iran – Razavi Khorasan Province: Mashhad (Kordestani Mahani *et al.* 2014).

General distribution – China, Egypt, England, Indonesia, Japan, Netherlands, New Zealand, Turkey, and United States (Hagstrum *et al.* 2013).

Collection place(s) – Nuts and dried fruits, Chinese medicine, condiment, dried vegetable, grain, linseed (old), mushroom, processed food, wheat, wheat flour (old) (Hagstrum *et al.* 2013; Kordestani Mahani *et al.* 2014).

Genus *Tyrolichus* Oudemans, 1924

Tyrolichus casei Oudemans, 1910

Distribution in Iran – Tehran Province: Region not mentioned (Ardeshir *et al.* 2006).

General distribution – Cosmopolitan. Australia, Canada, China, Czech Republic, Germany, Ireland, Poland, Taiwan, United States (Hagstrum *et al.* 2013).

Collection place(s) – Barley, cheese, Chinese medicine, condiment, cottonseed, dogmeal, ergot of rye, grain, herb, honeycomb, honeycomb (old), insect (dried), meat (dried), peanut, pork (dried), rice (husked), sunflower seed, wheat, wheat flour (damp) (Ardeshir *et al.* 2006; Hagstrum *et al.* 2013).

Genus *Tyrophagus* Oudemans, 1924

Tyrophagus longior (Gervais, 1844)

Distribution in Iran – East Azerbaijan, and Lorestan provinces: Region not mentioned (Fathipour, 1994; Mosaddegh, 1997), **Alborz Province:** Karaj (Sayedi *et al.* 2006), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012).

General distribution – Cosmopolitan. Australia, Canada, China, Czech Republic, England, Germany, Greece, Iceland, India, Iran, Ireland, Japan, Netherlands, New Zealand, Poland, Primorskiy Kray, Scotland, Taiwan, United Kingdom, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Animal feed, barley, beet root, biscuit, buckwheat, buckwheat product, cheese, Chinese medicine, cow hoof (decaying), cucumber, currant, Cyclamen seed, fish (minced-dried), flax seed, grain, grain residue, grass seed, ham, hay, herb, herring meal, hyacinth bulb, melon, mushroom, oat offal (damp), peach (dried-rotten), stock fish, raisin, rape seed, rye grass seed, sugar beet seed, sugar (red), sugar (white), sweeping, table jelly (fermenting), tobacco (fermenting), wheat, wheat bran, wheat flour (Hagstrum *et al.* 2013).

Tyrophagus putrescentiae (Schrank, 1781)

Distribution in Iran – Generally distributed (Khalilmanesh 1973; Sepasgozarian 1978a; Shahhosseini and Kamali 1989; Sadeghi Namaghi 1990; Mehrnejad and Daneshvar 1990; Rahimi 1991; Lachinani and Ahmadi 1993; Faraji and Kamali 1993; Faraji 1993a; Sadeghi Namaghi and Kamali 1993; Ostovan 1993; Fathipour 1994; Mirfakhraei 1994; Modarres Awal 1994, 1997; Sadeghi Namaghi 1995; Mosaddegh *et al.* 1995; Taghavi 1996; Mosaddegh 1997; Sepasgozarian 1977; Darvishzadeh 1997; Ostovan and Kamali 1997; Mosaddegh 1998; Taghavi *et al.* 1998),

Alborz Province: Karaj (Sayedi *et al.* 2006), **Golestan Province:** Region not mentioned (Ardeshir 2014), **Kordestan Province:** Saqez (Maroufpoor and Ostovan 2017), **East Azerbaijan Province:** Region not mentioned (Ardeshir *et al.* 2012), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012; Kordestani Mahani *et al.* 2014), **Guilan Province:** Masal, Rezvanshahr, (Rice Research Institute of Iran, Anzali, Astaneh, Sowme'eh Sara, Jurkuyeh) (Noei 2007; Noei and Ostovan 2012).

General distribution – Cosmopolitan. Australia, Brazil, Canada, China, Croatia, Czech Republic, Egypt, England, Germany, Greece, Hong Kong, India, Indonesia, Iran, Iraq, Ireland, Japan, Kenya, Malawi, Nepal, Netherlands, Peru, Philippines, Poland, Singapore, South Korea, Swaziland, Taiwan, Thailand, Turkey, United Kingdom, United States, Venezuela, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Apple (rotten), apricot kernel, aquatic product, baby food, bacon, bamboo shoot, banana (dried), barley, barley (germinating), bean, bean curd, bee pollen, beet seed, biscuit, bread, broad bean, buckwheat, buckwheat product, cabbage (dried), cake, candied fruit, caraway, carob, carpet, carrot seed, cereal, cereal spillage (damp), cheese, chicken feed, chicory root, Chinese medicine, cocoa bean, common bean, condiment, copra, cotton fiber, cottonseed, cottonseed sweeping, cowpea, cumin, date, dried fruit, dried vegetable, egg (dried), feed pellet, fereek, fig (dried), fish (dried), flax seed, fungus (dried), garlic, garlic bulb, ginger, gin trash, gladiolus corm, gluten, grain, grass seed, ham, herb, herring meal, insect (dried), jelly, kaoliang, lettuce seed, lily (rotting), logan (dried), maize, maize flour, maize (old), malt, malt spillage, marmalade, meat product, milk (powdered), millet, mushroom (dried), narcissus, nut, oat, onion, onion seed, palm kernel, parsley (dried), parsnip seed, Paspalum seed, peanut, pepper, pine seed, pineapple fruit, plum (dried), poppy seed, potato (old), potato (rotten), potato (sprouting), processed food, radish seed, raisin, rape seed, rape seed sweeping, residue, rice, rice (husked), rice (milled), runch seed, rye, sausage, seaweed (dried), seed cotton, shark fin (dried), shrimp (dried), sorghum, soybean, soybean groat, soybean meal, squid (dried), starch, sugar beet seed, sugar (crude), sugar (red), sugar (white), straw mat, sultana, sunflower seed, sweeping, sweet potato tuber, tansy leaf, tea, tobacco, tobacco leaf (cured), tobacco seed, tomato relish, tulip, vegetable (pickled), vinegar, wheat, wheat bran, wheat flour, wheat flour sweeping, wheat spillage, yeast (dried), wool, stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Family Suidasiidae Hughes, 1948

Genus *Suidasia* Oudemans, 1905

Suidasia nesbitti Hughes, 1948

Distribution in Iran – Mazandaran Province: Region not mentioned (Sepasgozarian 1978a; Faraji, 1993a, b; Modarres Awal 1994, 1997), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012), **Guilan Province:** Sowme'eh Sara, Rice Research Institute of Iran, Fuman, Anzali, Jafarabad, Rezvanshahr, Kuchesfahan, Astaneh, Khomam (Noei 2007; Noei and Ostovan 2012).

General distribution – Australia, Belgium, China, Crete, Egypt, England, Finland, Greece, Hong Kong, Italy, Japan, North Africa, North America, Portugal, Senegal, Singapore, South Africa, South Korea, Taiwan, West Indies (Hagstrum *et al.* 2013).

Collection place(s) – Aquatic products, bird skin, caraway, carob, cayenne, cocoa, Chinese medicine, condiment, cottonseed, cowpea, date, dried fruit, dried vegetable, fereek (Cracked wheat with rice), fig (dried), fish (dried), macaroni, meat product, mushroom, poultry mash, processed food, rice, salep, seed cotton, shrimp (dried), whale meat infested dermestid, wheat bran, wheat flour, wheat pollard, yeast powder, stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

***Suidasia pontifica* Oudemans, 1905**

Distribution in Iran – Sistan and Baluchestan Province: Region not mentioned (Modarres Awal 1994, 1997; Sepasgozarian 1978a, Sayadi *et al.* 2012).

General distribution – Angola, Brazil, China, Colombia, Egypt, England, Germany, Greece, Hong Kong, India, Indonesia, Japan, North Africa, Philippines, Puerto Rico, Singapore, South Korea, Sumatra, Taiwan, Thailand, Yemen (Hagstrum *et al.* 2013).

Collection place(s) – Storage products, barley, bean, bean curd, bean pollard, bean sprout, biscuit, bread (fermenting), chilli powder, Chinese medicine, confection, copra, cowpea, feather, fish (dried), fish (minced-dried), fish (pickled), fungus (dried), garlic, garlic bulb, ginger (dried), ham, hog feed, honey, hyacinth, insect (dried), lily, logan (dried), maize, mango (rotting), meat (dried), milk (powdered), mungo, mushroom, onion, palay, peanut, pepper (pickled), pickle, residue, rice, rice bran, rice (milled), shallot, shark fin (dried), shrimp (dried), soybean meal, soybean sauce, sugar (red), sugar (white), tea, tiki-tiki, tulip, wheat, wheat bran, wheat flour (Sayadi *et al.* 2012; Hagstrum *et al.* 2013).

Superfamily Analgoidea Trouessart & Mégnin, 1884

Family Pyroglyphidae Cunliffe, 1958

Genus *Dermatophagoides* Bogdanov, 1864

***Dermatophagoides farinae* Hughes, 1961**

Distribution in Iran – Eastern Mazandaran Province: Region not mentioned (Faraji 1993a).

General distribution – Argentina, China, Czech Republic, Egypt, England, Greece, Japan, Netherlands, Russia, Sierra Leone, Thailand, United States (Hagstrum *et al.* 2013).

Collection place(s) – Rice, bean sauce, biscuit meal, Chinese medicine, maize, poultry and pig rearing meal, wheat, wheat bran, wheat flour, and wheat pollard (Faraji 1993a, Hagstrum *et al.* 2013).

Superfamily Glycyphagoidea Berlese, 1897

Family Chortoglyphidae Berlese, 1897

Genus *Chortoglyphus* Berlese, 1884

***Chortoglyphus arcuatus* (Troupeau, 1879)**

Distribution in Iran – West Azerbaijan Province: Region not mentioned, **Mazandaran Province:** Region not mentioned (Esmaili 1983; Faraji 1993b; Mirfakhraii 1994), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012), **Guilan Province:** Masal, Sowme'eh Sara, Rezvanshahr, Rice Research Institute of Iran, Anzali, Kuchesfahan, Fuman (Noei 2007; Noei and Ostovan 2012).

General distribution – Barbados, Belgium, Canada, China, Croatia, Czech Republic, Egypt, England, France, Germany, Greece, Hong Kong, Ireland, Italy, Netherlands, New Zealand, Poland, Russia, Taiwan, Thailand, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Houses, rice barley, barley sweeping, bean curd, cereal, Chinese medicine, clover seed (red), dried fruit, dried vegetable, grain, grass seed, hay, herb, lentil, maize, malt, millet, mushroom, oat, poppy seed, potato flour, poultry mix, residue, rice, rice (husked), rye, shrimp (dried), soya sweeping, squid (dried), sugar beet seed, sweeping, sweetpotato chip (dried), wheat, wheat flour, wheat flour sweeping, stored rice, rice dust and debris (Esmaili 1983; Faraji 1993b; Mirfakhraii 1994; Modarres Awal 1994; Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Family Glycyphagidae Berlese, 1897
Genus *Glycyphagus* Hering, 1838

***Glycyphagus domesticus* (De Geer, 1778)**

Distribution in Iran – Khuzestan Province: Region not mentioned, **Mazandaran Province:** Region not mentioned (Sepasgozarian 1971, 1977, 1978a; Shahhosseini and Kamali 1989; Bahreini 1993; Sahragard 1996; Modarres Awal 1994, 1997; Mosaddegh 1997).

General distribution – Cosmopolitan. Australia, Canada, China, Czech Republic, Egypt, England, Europe, Germany, Greece, Ireland, Japan, Philippines, Poland, Scotland, Taiwan, Turkey, United Kingdom, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Animal feed, aquatic product, baby food, barley, barley (germinating), bean, biscuit, bread, buckwheat, buckwheat product, calf stomach (dried), cereal, cheese, Chinese medicine, condiment, dried fruit, dried vegetable, flax seed, grain, grass seed, ham, hay, hemp seed, herb, herring meal, malt, malt flower (dried), mushroom, oat, peanut, poppy seed, processed food, rapeseed, rice, spillage, squid (dried), stock fish, sugar beet, sugar beet seed, sunflower seed, tobacco, wheat, wheat flour, wheat flour sweeping (Hagstrum *et al.* 2013).

***Glycyphagus* sp. near *privatus* Oudemans, 1903**

Distribution in Iran – Guilan Province: Masal (Noei 2007; Noei and Ostovan 2012).

General distribution – China, Czech Republic, Ireland, Japan, Poland (Hagstrum *et al.* 2013).

Collection place(s) – Aquatic product, barley, Chinese medicine, clover seed, condiment, dried fruit, dried vegetable, flax seed, grain, grass seed, mushroom, sweeping, wheat, Stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Genus *Gohieria* Oudemans, 1939

***Gohieria fusca* (Oudemans, 1902)**

Distribution in Iran – East Azerbaijan, Mazandaran, and West Azerbaijan provinces: Region not mentioned (Sepasgozarian 1978a; Shahhosseini and Kamali 1989; Faraji 1993b; Mirfakhraii 1994; Modarres Awal 1994, 1997; Sepasgozarian 1997), **Guilan Province:** Hashtpar (Noei 2007; Noei and Ostovan 2012).

General distribution – Belgium, Canada, China, Czech Republic, Egypt, England, France, Germany, Greece, Ireland, Japan, Netherlands, New Zealand, Poland, Russia, Scotland, Taiwan, Turkestan, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Barley, bean (red), buckwheat, buckwheat product, Chinese medicine, dried fruit, dried vegetable, fish (dried), flax seed, fungus (dried), grain, grass seed, hemp seed, herb, kaoliang, malt, mushroom, poppy seed, protein poultry feed, rice, rice (husked), soybean sauce, soybean sweeping, sugar (packaged), sugar beet seed, wheat, wheat bran, wheat flour (packaged), wheat pollard, wheat flour sweeping, stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Genus *Lepidoglyphus* Zachvatkin, 1936

***Lepidoglyphus destructor* (Schränk, 1781)**

Distribution in Iran – East Azerbaijan, Mazandaran, and West Azerbaijan provinces: Region not mentioned (Khalilmanesh 1973; Sepasgozarian 1978a; Shahhosseini and Kamali 1989;

Faraji 1993b; Mirfakhraii 1994; Modarres Awal 1994, 1997; Mosaddegh 1997; Ardeshir *et al.* 2012), **Guilan Province:** Rezvanshahr, Kuchesfahan, Jurkuyeh, Rice Research Institute of Iran, Sowme'eh Sara, Jafarabad, Roodsar, Anzali (Noei 2007; Noei and Ostovan 2012), **Golestan Province:** Region not mentioned (Ardeshir 2014), **Tehran Province:** Region not mentioned, **Alborz Province:** Karaj (Sayedi *et al.* 2006), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012).

General distribution – Cosmopolitan. Canada, China, England, Iran, Iraq, Poland, Turkey (Hagstrum *et al.* 2013).

Collection place(s) – Animal feed, aquatic product, baby food, barley, barley residue, bean (green), beet seed, biscuit, bread, buckwheat, buckwheat product, calf stomach (dried), candied fruit, cereal, cheese, Chinese medicine, cocoa bean, condiment, cottonseed, dried fruit, dried vegetable, flax seed, gin trash, grain, grass seed, hide (dried), hay, hemp seed, herb, insect (dried), kale seed, kaoliang, lettuce seed, linseed, maize, malt, millet spillage, mushroom, oat, onion seed, poppy seed, poultry diet, processed food, protein mix, radish seed, rapeseed, residue, rice, rice (husked), rye, seed cotton, sorghum residue, soybean, straw, sugar beet seed, sunflower seed, sweeping, sweet potato chip (dried), tea, vegetable (dried), wheat, wheat flour, wheat flour sweeping, wheat residue, stored rice, rice dust and debris (Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Superfamily Hemisarcoptoidea Oudemans, 1904

Family Carpoglyphidae Oudemans, 1923

Genus *Carpoglyphus* Robin, 1869

***Carpoglyphus lactis* (Linnaeus, 1758)**

Distribution in Iran– Guilan, and Tehran Province: Region not mentioned (Sepasgozarian 1978a, b; Shahhosseini and Kamali 1989; Modarres Awal 1994, 1997; Mosaddegh 1997; Ostovan and Kamali 1997; Ostovan and Mosaddegh 1999).

General distribution – Cosmopolitan. Argentina, Australia, Canada, China, Czech Republic, Egypt, Greece, Hong Kong, Indonesia, Ireland, Korea, Mexico, North America, Philippines, Poland, Singapore, Taiwan, and Turkey (Hagstrum *et al.* 2013).

Collection place(s) – Apricot (dried), bean curd, biscuit, buckwheat, buckwheat product, candied fruit, caramel, cheese, cocoa bean, coconut (fermented), confection, date (red), dried fruit, dried fruit (moldy), fig (dried), fish (minced-dried), grain, herb, honey, honeycomb, jam (fermenting), peanut, plum (dried), pollen, potato (rotting), processed food, prune (dried), raisin, shrimp (dried), soybean sauce, soybean paste, sugar (crude), sugar (red), sugar (white), tamarind, wheat flour, wheat flour (old), wine cork (Hagstrum *et al.* 2013).

***Carpoglyphus munroi* Hughes, 1952**

Distribution in Iran – Razavi Khorasan Province: Mashhad (Kordestani Mahani *et al.* 2014).

General distribution – England (Hagstrum *et al.* 2013).

Collection place(s) – Nuts and dried fruits (Kordestani Mahani *et al.* 2014).

Superfamily Histiostomatoidea Berlese, 1897

Family Histiostomatidae Kramer, 1876

Syn.: Anoetidae Oudemans, 1904

Genus *Histiostoma* Kramer, 1876

***Histiostoma feroniarum* (Dufour, 1839)**

Distribution in Iran – Fars Province: Region not mentioned, **West Azerbaijan Province:** Region not mentioned (Ostovan 1993; Mirfakhraii 1994; Ostovan and Kamali 1995b; Modarres Awal 1997; Mosaddegh 1997), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012), **Guilan Province:** Lahijan (Noei 2007; Noei and Ostovan 2012).

General distribution – Australia, Canada, China, England, France, Germany, Ireland, Italy, Netherlands, New Zealand, and United States (Hagstrum *et al.* 2013).

Collection place(s) – Chinese medicine, dried fruit, dried vegetable, grain (wet), mushroom (decaying), various stored products, putrid potato; honey bee hive, stored rice, rice dust and debris (Mirfakhraii 1994; Modarres Awal 1997; Mosaddegh 1997; Ostovan 1993; Ostovan and Kamali 1995b; Noei 2007; Noei and Ostovan 2012; Hagstrum *et al.* 2013).

Histiostoma sapromyzarum (Dufour, 1839)

Distribution in Iran – Razavi Khorasan Province: Mashhad (Khaleghabadian *et al.* 2012).

General distribution – Australia, Bolivia, Brazil, England, France, Germany, Italy, Netherlands, Philippines (Hagstrum *et al.* 2013).

Collection place(s) – Stored food products, fungi (decaying), hyacinth bulb (decaying), timber (damp) (Khaleghabadian *et al.* 2012; Hagstrum *et al.* 2013).

Order Trombidiformes Reuter, 1909

Suborder Prostigmata Kramer, 1877

Superfamily Pyemotoidea Oudemans, 1937

Family Acarophenacidae Cross, 1965

Genus *Acarophenax* Newstead & Duvall, 1918

Acarophenax rackae Mahunka & Zaki, 1990

Distribution in Iran – Sistan and Baluchestan Province: Region not mentioned (Sayadi *et al.* 2012), **West Azerbaijan Province:** Urmia (Hajiqaanbar *et al.* 2011).

General distribution – Egypt (Mahunka and Zaki, 1990).

Collection place(s) – Storage products (Hajiqaanbar *et al.* 2011; Sayadi *et al.* 2012).

Acarophenax tribolii Newstead & Duval 1918

Distribution in Iran – Guilan Province: Masal, Roodsar (Noei 2007; Noei *et al.* 2008b), **Tehran Province:** Varamin (Shiravi *et al.* 2013), **Alborz Province:** Karaj (Ardeshir *et al.* 2006).

General distribution – Australia, Brazil, Canada, Egypt, England, Greece, India, Indonesia, United States (Hagstrum *et al.* 2013).

Collection place(s) – Stored wheat, straw and dust in silos, flour meal grain, maize cob (rotting), peanut, rice, stored rice, rice dust and debris (Ardeshir *et al.* 2006; Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013).

Family Pyemotidae Oudemans, 1937

Genus *Pyemotes* Amerling, 1861

Pyemotes sp.

Distribution in Iran – West Azerbaijan Province: Region not mentioned (Ardeshir *et al.* 2012).

Collection place(s)– Dried fruits and nuts (Ardeshir *et al.* 2012).

***Pyemotes tritici* (La Greze-Fossot & Montagne, 1851)**

Distribution in Iran – Generally distributed (Ostovan 1997).

General distribution – Botswana (Hagstrum *et al.* 2013).

Collection place(s) – Stored products; human; parasitic on *Sitotroga* spp. and *Ephestia* spp., and cowpea (Hagstrum *et al.* 2013; Ostovan 1997).

Superfamily Bdelloidea Dugès, 1834

Family Bdellidae Dugès, 1834

Genus *Bdella* Latreille, 1795

***Bdella muscorum* Ewing, 1909**

Distribution in Iran – Alborz Province: Karaj (Ueckermann *et al.* 2007), **East Azerbaijan Province:** Region not mentioned (Abbasi *et al.* 2016).

General distribution – United States (California, Colorado, New Mexico, Kansas, Arkansas, Tennessee, Michigan, Minnesota, Illinois, Maryland), Alaska (Point Barrow, Chandler Lake Region, Umiat, District of Mackenzie), Germany (Ost-Holstein), Czech Republic and Iceland, Georgia, Japan, Bulgaria, Pakistan, Bohemia, Canada, Ukraine, Iran, Slovakia, China, Hungary (Atyeo 1960; Atyeo and Tuxen 1962; Gomelauri 1963; Sosnina *et al.* 1965; Shiba and Morikawa 1966; Lelláková-Dušková 1978; Tseng 1978; Kuznetsov and Livshits 1979; Chaudhri *et al.* 1979; Danks 1980; Lehman 1982; Lee *et al.* 1997; Lin and Zhang 2000; Ripka *et al.* 2005; Nakamura *et al.* 2006; Ueckermann *et al.* 2007; Kaluz 2008; Bednarskaya 2009, 2010, 2011; Abbasi *et al.* 2016).

Collection place(s) – Grain in storage, silos, and flour (Ueckermann *et al.* 2007; Abbasi *et al.* 2016).

Genus *Biscirus* Thor, 1913

***Biscirus iranensis* Paktinat-Saej & Bagheri, 2015**

Distribution in Iran – East Azerbaijan Province: Region not mentioned (Abbasi *et al.* 2016), **Mazandaran Province:** Region not mentioned (Hernandes *et al.* 2016).

General distribution – Iran (Abbasi *et al.* 2016; Hernandez *et al.* 2016).

Collection place(s) – Grain in storage, silos, flour (Abbasi *et al.* 2016).

Genus *Cyta* von Heyden, 1826

***Cyta latirostris* (Hermann, 1804)**

Distribution in Iran – East Azerbaijan Province: Region not mentioned (Abbasi *et al.* 2016).

General distribution – Cosmopolitan (Canestrini 1886; Berlese 1888; Voigts and Oudemans 1906; Trägårdh 1910; Halbert 1915; Hull 1918; Schweizer 1922; Summerhayes and Elton 1928; Thor 1930, 1931a, b; Womersley 1933; Willman 1939, 1951, 1952, 1956; Schmölzer 1956; Drummond 1957; Mihelčič 1958; Meyer and Ryke 1959; Atyeo 1960, 1963; Gomelauri 1961; Atyeo and Tuxen 1962; Schweizer and Bader 1963; Sosnina *et al.* 1965; Shiba and Morikawa 1966; Shiba 1969; Wallace and Mahon 1972; Soliman 1975; Soliman and Zaher 1975; Lelláková-Dušková 1978; Kuznetsov and Livshits 1979; Den Heyer 1981; Lehman 1982; Zaher 1986; Swift and Goff 1987; Michocka 1987; Lee *et al.* 1997; Lin and Zhang 2000; Kamali *et al.* 2001; Halliday

2005; Ripka *et al.* 2005; Nakamura *et al.* 2006; Ueckermann *et al.* 2007; Kaluz 2008; Abbaszadeh-Rad *et al.* 2010; Bednarskaya 2009, 2010, 2011; Abbasi *et al.* 2016).

Collection place(s) – Grain in storage, silos, flour (Abbasi *et al.* 2016).

Genus *Odontoscirus* Thor, 1913

***Odontoscirus kazeruni* (Ostovan & Kamali, 1995)**

Distribution in Iran – Fars Province: Kazerun (Ostovan 1993; Ostovan and Kamali 1995c, Hernandez *et al.* 2016).

General distribution – Iran (Ostovan 1993; Ostovan and Kamali 1995c, Hernandez *et al.* 2016).

Collection place(s) – Stored barley, hay, and wheat (Ostovan 1993; Ostovan and Kamali 1995c).

***Odontoscirus longirostris* (Hermann, 1804)**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan and Kamali, 1995c).

General distribution – Paraguay, Argentina, Brazil, Italy, Ireland, England, Canada (Herschel Island, Yukon Territory, Bering Island, The commander Islands), Alaska, Australia, Northern Bosnia (Balkan caves), Austria, Germany (Wangerooge Island), United States (Iowa, Missouri, Illinois, Indiana, Ohio, Texas, California, Kansas, Arkansas, Florida, Michigan, Montana), Mexico (Michoacán, Jalisco, Oaxaca, Guanajuato, México, Distrito Federal, Puebla, Nuevo León, Guerrero, Tamaulipas), Cuba, Costa Rica, Jamaica, Argentina, Denmark, Japan, Switzerland, Kure Island, Sainte-Hélène Island, Bohemia, Taiwan, Hawaii, Poland, China (Fujian), Iran, Crimea (Canestrini 1886; Berlese 1888; Hull 1915, 1918; Ewing 1917; Banks 1919, 1923; Womersley 1933; Willmann 1941, 1951, 1952; Atyeo 1960, 1977; Ehara 1961; Shiba 1969; Schweizer and Bader 1963; Butler and Usinger 1963; Garret and Haramoto 1967; Lelláková-Dušková 1978; Tseng 1978; Swift and Goff 1987; Michocka 1987; Ostovan and Kamali 1995c; Lin and Zhang 2000; Kamali *et al.* 2001; Ueckermann *et al.* 2007. Bednarskaya 2011).

Collection place(s) – Stored products (Ostovan and Kamali, 1995c).

Genus *Spinibdella* Thor, 1930

***Spinibdella cronini* (Baker & Balock, 1944)**

Distribution in Iran – Guilan Province: Masal, Astaneh, Fuman, Lahijan, Jafarabad, Roodsar (Noei 2007), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2015), **East Azerbaijan Province:** Region not mentioned (Abbasi *et al.* 2016).

General distribution – China, Japan, United States (California, Texas, Utah, Colorado, Washington, Alabama, Maryland), Mexico (Tamaulipas, Guerrero, Nevo León, San Luis Potosí), Australia, Bulgaria, Egypt, Syria (Lattakia), Ukraine, United States, Hawaii, Hungary, Iran, Brazil, Slovakia (Atyeo 1960, 1963; Sosnina *et al.* 1965; Wallace and Mahon 1972; Soliman 1975; Soliman and Zaher 1975; Kuznetsov and Livshits 1979; Lehman 1982; Swift and Goff 1987; Li *et al.* 1992; Ostovan and Kamali 1995c; Kamali *et al.* 2001; Jalaeian *et al.* 2005; Ripka *et al.* 2005; Li and Fan 2007; Ueckermann *et al.* 2007; Noei 2007; Kaluz 2008; Noei *et al.* 2008b; Abbaszadeh-Rad *et al.* 2010; Daneshnia and Akrami 2013; Majidi and Akrami 2013; Masoudian and Khanjani 2013; Hagstrum *et al.* 2013).

Collection place(s) – Grain in storage, silos, flour, barley, condiment, dried fruit, dried vegetable, mushroom, processed food, wheat, stored rice, rice dust, and debris (Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015; Abbasi *et al.* 2016).

Family Cunaxidae Thor, 1902
Genus *Armscirus* Den Heyer, 1978

***Armscirus hastus* Shiba, 1986**

Distribution in Iran – East Azerbaijan Province: Region not mentioned (Abbasi *et al.* 2016).
Collection place(s) – Food stores and grain (Abbasi *et al.* 2016).

Genus *Cunaxa* Von Heyden, 1826

***Cunaxa capreolus* (Berlese, 1890)**

Distribution in Iran – Guilan Province: Roodsar, Jurkuyeh (Noei 2007; Noei *et al.* 2008b),
Razavi Khorasan Province: Mashhad (Khaleghabadian *et al.* 2015).

General distribution – Cosmopolitan. China, Egypt, Italy, Hong Kong, Japan, Mexico, Philippines, Spain, United States (Hagstrum *et al.* 2013).

Collection place(s) – Storage products, aquatic products, barley, broad bean, condiment, cuttlefish (dried), dried fruit, dried vegetable, mushroom, onion, sorghum, soybean, sunflower seed, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

***Cunaxa setirostris* (Hermann, 1804)**

Distribution in Iran – East Azerbaijan, Ardabi, West Azerbaija, and Mazandaran provinces: Region not mentioned (Khalilmanesh 1973; Fathipour 1994; Modarres Awal 1994, 1997; Sepasgozarian 1977; Eslamizadeh 1996; Haddad Irani-Nejad 1998, Haddad Irani-Nejad *et al.* 1999). **Guilan Province:** Fuman, Sowme'eh Sara, Masal, Astaneh (Noei 2007; Noei *et al.* 2008b), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015).

General distribution – Cosmopolitan. Australia, Brazil, Germany, Greece, Guam, India, Indonesia, Israel, Italy, Madeira, Morocco, Philippines, United States (Hagstrum *et al.* 2013).

Collection place(s) – Apple, potato tuber, cotton, soil samples, barley meal, grain, wheat, stored rice, rice dust and debris (Khalilmanesh 1973; Modarres Awal 1994, 1997; Sepasgozarian 1977; Fathipour, 1994; Eslamizadeh, 1996; Haddad Irani-Nejad 1998, Haddad Irani-Nejad *et al.* 1999; Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013).

***Cunaxa* sp.**

Distribution in Iran – Guilan Province: Fuman, Jurkuyeh, Roodsar, Kuchesfahan, Hashtpar (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored products (Noei 2007; Noei *et al.* 2008b).

Genus *Coleoscirus* Berlese, 1916

***Coleoscirus simplex* (Ewing, 1917)**

Distribution in Iran – Guilan Province: Lahijan (Noei 2007; Noei *et al.* 2008b; Ghasemi and Hajizadeh 2021).

General distribution – Florida (Orlando), Pakistan: Faisalabad, Multan, Khanewal, Layyah, Lodhran, Toba Tek Singh, Lahore, Okara, Sahiwal, Gujranwala, Chine, Italy, Egypte (Walter and Kaplan 1991; Beyzavi *et al.* 2013; Corpuz-Raros 1996; Bashir *et al.* 2014)

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Superfamily Raphignathoidea Kramer, 1877
Family Caligonellidae Grandjean, 1944
Genus *Molothrognathus* Summers & Schlinger, 1955

***Molothrognathus mehrnejadi* Liang & Zhang, 1997**

Distribution in Iran – Kerman Province: Rafsanjan (Liang and Zhang 1997; Changizi *et al.* 2011a, b; Ueckermann and Khanjani 2003; Bagheri and Zarei 2012; Beyzavi *et al.* 2013), **Isfahan Province:** Region not mentioned (Jalaeian *et al.* 2005; Shamsi *et al.* 2008), **Hamedan Province:** Region not mentioned (Ueckermann and Khanjani 2003; Shamsi *et al.* 2008), **Razavi Khorasan Province:** Region not mentioned (Rahmdeli *et al.* 2011; Khaleghabadian *et al.* 2015), **Sistan and Baluchestan Province:** Region not mentioned (Sayadi *et al.* 2011), **West Azarbaijan Province:** Region not mentioned (Zarei *et al.* 2011), **Fars Province:** Region not mentioned (Majidi and Akrami 2011; Yazdanpanah *et al.* 2012a, b), **East Azarbaijan Province:** Region not mentioned (Gheblealivand *et al.* 2011a; Bagheri *et al.* 2011; Navaei-Bonab *et al.* 2012; Bagheri and Ahani-Azad 2012).

Collection place(s) – Storage products (Sayadi *et al.* 2012; Khaleghabadian *et al.* 2015).

Genus *Paraneognathus* Fan, 2000

***Paraneognathus oblongus* (Soliman, 1971)**

Distribution in Iran – Guilan Province: Fuman, Shaft, Roodsar, Hashtpar (Noei 2007; Noei *et al.* 2008b), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2015).

General distribution – Egypt, and Iran (Beron 2020).

Collection place(s) – Storage products, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b; Khaleghabadian *et al.* 2015).

Family Stigmaeidae Oudemans, 1931
Genus *Stigmaeus* Koch, 1836

***Stigmaeus candidus* Fan & Li, 1993**

Distribution in Iran – Guilan Province: Rezvanshahr, Masal (Noei 2007; Noei *et al.* 2007, 2008b; Hajizadeh *et al.* 2013).

General distribution – China, Iran (Noei *et al.* 2007; Hajizadeh *et al.* 2013).

Collection place(s) – Condiment, dried fruit, dried vegetable, mushroom, rice, rice bran (decaying) (Noei 2007; Noei *et al.* 2007, 2008b; Hajizadeh *et al.* 2013).

***Stigmaeus elongatus* Berlese, 1886**

Distribution in Iran – Fars Province: Region not mentioned (Khademi *et al.* 2006), **Guilan Province:** Region not mentioned (Noei *et al.* 2007, 2008b), **East Azarbaijan Province:** Region not mentioned (Bagheri *et al.* 2006, 2011; Akbari *et al.* 2010; Lotfollahi *et al.* 2010; Gheblealivand *et al.* 2011a, b; Navaei-Bonab *et al.* 2012), **Hamedan Province:** Region not mentioned (Khanjani and Ueckermann 2002a; Rostami *et al.* 2010 a, b, 2012), **West Azarbaijan Province:** Region not mentioned (Bagheri *et al.* 2011; Zarei *et al.* 2011), **Kerman Province:** Region not mentioned (Izadi

et al. 2010; Changizi *et al.* 2011), **Zanjan Province:** (Rahmani *et al.* 2011), **Razavi Khorasan Province:** Region not mentioned (Paktinat-Saej *et al.* 2012 a, b; Khaleghabadian *et al.* 2015).

General distribution – Argentina, China, Crimea, Egypt, England, Greece, Iran, Italy, Philippines, Turkey, and United States (Noei 2007; Noei *et al.* 2007; Hagstrum *et al.* 2013; Beron 2020).

Collection place(s)– Rice, food stored, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2007, 2008b; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

Genus *Storchia* Oudemans, 1923

***Storchia pacifica* (Summers, 1964)**

Distribution in Iran – Guilan Province: Jafarabad, Fuman, Hashtpar, Rezvanshahr (Noei 2007; Noei *et al.* 2007; 2008b).

General distribution – China, Indonesia, Iran, Panama and the Philippines (Summers 1964; Fan and Yan 1997; Miranda *et al.* 2002; Hagstrum *et al.* 2013).

Collection place(s) – Condiment, dried fruit, dried vegetable, mushroom, rice, rice bran, stored rice, rice dust and debris (decaying) (Noei 2007; Noei *et al.* 2007, 2008b; Hagstrum *et al.* 2013).

***Storchia robustus* (Berlese, 1885)**

Distribution in Iran – East Azarbaijan Province: Region not mentioned (Akbari *et al.* 2010; Gheblealivand *et al.* 2011a, b; Bagheri *et al.* 2011; Navaei-Bonab *et al.* 2012), **Hamedan Province:** Region not mentioned (Khanjani and Ueckermann 2002a), **Guilan Province:** Region not mentioned (Noei 2007; Noei *et al.* 2007, 2008b), **West Azarbaijan Province:** Region not mentioned (Bagheri *et al.* 2011; Zarei *et al.* 2011), **Kerman Province:** Region not mentioned (Izadi *et al.* 2010; Changizi *et al.* 2011a, b), **Ardabil Province:** Region not mentioned (Haddad Irani-Nejad *et al.* 1999), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015).

General distribution – China, France, Greece, Iran, Italy, Japan, Namibia, New Zealand, Pakistan, Solomon Islands, South Africa, Sweden, Turkey, Ukraine, and United States (Grandjean 1944; Meyer and Ryke 1960; Meyer 1969; Spain and Luxton 1971; Wood 1967, 1971, 1973; Vainstein and Kuznetsov 1978; Chaudhri *et al.* 1979; Ueckermann and Meyer 1987; Meyer and Ueckermann 1989; Swift 1996; Koç and Ayyıldız 1997; Khaustov and Kuznetsov 1997; Kapaxidi and Papadoulis 1999; Khanjani and Ueckermann 2002a; Doğan and Ayyıldız 2003; Fan and Zhang 2005; Kara 2005; Erman *et al.* 2007; Noei *et al.* 2007, 2008b; Cheng and Fan 2008; Palyvos *et al.* 2008; Kazakli 2008; Hagstrum *et al.* 2013).

Collection place(s) – Rice, rice bran (decaying), food stored, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2007; 2008b Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

Family Raphignathidae Kramer, 1877

Genus *Raphignathus* Dugès, 1834

***Raphignathus giselae* Meyer & Ueckermann, 1989**

Distribution in Iran – Guilan Province: Siahkhal, Shaft, Sowme'eh Sara, Sangar, Khomam, Jafarabad, Masal, Lahijan, Hashtpar, Fuman, Roodsar, Astaneh (Noei 2007; Noei *et al.* 2008b).

General distribution – Iran, South Africa, Turkey, Yemen, Zimbabwe (Akyol and Koç 2007; Beron 2020).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b)

***Raphignathus hecmatanaensis* Khanjani & Ueckermann, 2003**

Distribution in Iran – Guilan Province: Astaneh, Lahijan (Noei 2007; Noei *et al.* 2008b), **Hamedan Province:** Region not mentioned (Khanjani and Ueckermann 2002b), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015).

Collection place(s) – Storage products, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b; Khaleghabadian *et al.* 2015).

***Raphignathus zhaoi* Hu, Jing & Liang, 1995**

Distribution in Iran – Sistan and Baluchestan Province: Region not mentioned (Sayadi *et al.* 2012).

General distribution – China (Anhui, Fujian, Guangxi, Henan, Hubei, Jiangsu, Jiangxi, Shanghai, Sichuan and Zhejiang) (Fan and Yin 2000).

Collection place(s) – Storage products (Sayadi *et al.* 2012).

Superfamily Cheyletoidea Leach, 1815

Family Cheyletidae Leach, 1815

Genus *Acaropsellina* Summers, 1976

***Acaropsellina docta* (Berlese, 1886)**

Distribution in Iran – Khuzestan Province: Region not mentioned (Kamali 1990, 1995; Modarres Awal 1994, 1997; Sepasgozarian 1978b), **Fars Province:** Region not mentioned, **East Azerbaijan Province:** Region not mentioned (Ostovan 1993; Fathipour 1994; Fathipour *et al.* 1999).

General distribution – Czech Republic, England, Egypt, Greece, India, Iraq, Ireland, Italy, The Netherlands, Philippines, Poland, Russia, United States (Hagstrum *et al.* 2013).

Collection place(s) – Predacious on *Trogoderma* sp. eggs; stored products; soil samples, animal feed, barley, clover seed, cottonseed, cocoa bean, ginger, grain, herb, maize, oat, oat grass, protein mix, soybean, sweeping, wheat, wheat flour, wheat flour sweeping (Ostovan 1993; Fathipour, 1994; Fathipour *et al.* 1999; Hagstrum *et al.* 2013).

***Acaropsellina sollers* (Kuzin, 1940)**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993; Ardeshir and Khani 2015); **East Azerbaijan Province:** Region not mentioned (Fathipour *et al.* 1999; Ardeshir *et al.* 2012; Ardeshir and Khani 2015; Abbasi *et al.* 2016), **Guilan Province:** Roodsar (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011); **Alborz Province:** Region not mentioned (Sayedi *et al.* 2006; Seiedy *et al.* 2012), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2012; Kordestani Mahani 2014; Ardeshir and Khani 2015), **Mazandaran Province:** Region not mentioned (Ardeshir 2011), **West Azerbaijan Province:** Region not mentioned (Ardeshir *et al.* 2012), **Tehran Province:** Region not mentioned (Shiravi *et al.* 2013), **Kordestan Province:** Region not mentioned (Maroufpoor and Ostovan 2017), **Chaharmahal and Bakhtiari Province:** Region not mentioned, **Isfahan Province:** Region not mentioned, **Golstan Province:** Region not mentioned, **Khuzestan Province:** Region not mentioned, **Kohgiluyeh and Boyer-Ahmad Province:** Region not mentioned (Ardeshir 2017).

General distribution – Czech Republic, Egypt, England, Germany, Greece, India, Iran, Iraq, Poland, Russia, Scotland, Turkey, United States, Wales Scotland and Yemen (Hughes 1976; Mahmood 1992; Eliopoulos and Papadoulis 2001; Hajizadeh *et al.* 2011; Hagstrum *et al.* 2013).

Collection place(s) – Barley, broad bean, wheat, buckwheat, buckwheat product, chickpea, cottonseed, dried fruit, grain, maize, poultry diet, protein mix, residue, rice, wheat, wheat flour, sweeping, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013; Maroufpoor and Ostovan 2017).

Genus *Chelacheles* Baker, 1958

***Chelacheles strabismus* Baker, 1958**

Distribution in Iran – Guilan Province: Anzali (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011).

General distribution – Portugal (Baker 1958)

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011).

Genus *Cheletomorpha* Oudemans, 1904

***Cheletomorpha lepidopterorum* (Show, 1794)**

Distribution in Iran – Guilan Province: Sowme'eh Sara, Masal, Rice Research Institute of Iran, Kuchesfahan, Rasht Jafarabad, Roodsar (Sepasgozarian 1978a; Modares Awal 1994; Fathipour 1994; Noei 2007; Noei *et al.* 2008b).

General distribution – England, Peru, Taiwan, Pakistan, Turkey (Griffiths 1960; Caceres and Fain 1977; Tseng 1979; Genç and Özar 1986; Özer *et al.* 1986; Özkan *et al.* 1988; Aheer *et al.* 1997; Emekçi and Toros 1999; Akpınar *et al.* 2017).

Collection place(s) – Plant leaves, tree bark, soil, plant litters, food products, house dust, and bird nests, stored rice, rice dust and debris (Treat 1967; Van Eynhoven 1964; Summers and Price 1970; Bochkov and Fain 2001; Noei 2007; Noei *et al.* 2008b; Perotti and Braig 2009; Hajizadeh *et al.* 2011).

Genus *Cheyletus* Latreille, 1796

***Cheyletus bidentatus* Fain & Nadchatrum, 1980**

Distribution in Iran – Isfahan Province: Golpaygan, **Golestan Province:** Gorgan and Galikesh, **Razavi Khorasan Province:** Mashhad, **Mazandaran Province:** Chalus, Amol, Mahmoud Abad, Ghaemshahr, **Tehran Province:** Varamin, **West Azerbaijan Province:** Shot and poldasht (Ardeshir 2017).

General distribution – Malaysia (Fain and Nadchatrum 1980).

Collection place(s) – Flour-mill (dust), grain, broken wheat and dust, broken wheat, paddy, bran and brass scrap (Fain and Nadchatrum 1980, Ardeshir 2017).

***Cheyletus carnifex* Zachvatkin, 1935**

Distribution in Iran – Mazandaran Province: Region not mentioned (Faraji 1993b), **Fars Province:** Region not mentioned (Ostovan 1993), **East Azerbaijan Province:** Region not mentioned (Mirfakhraii 1994; Abbasi *et al.* 2016), **Guilan Province:** Astaneh, Sowme'eh Sara (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011), **Alborz Province:** Region not mentioned (Seiedy *et al.* 2012), **Razavi Khorasan Province:** Mashhad (Kordestani Mahani *et al.* 2014)

General distribution – Bulgaria, China, Czech Republic, Egypt, England, Germany, Greece, Iran, Ireland, Peru, Poland, Russia, Uganda, United States, Tadjikistan, Mongolia, Ukraine, Uzbekistan, Kirghizia, Egypt, Czech, United States (Zachvatkin 1935; Zaher and Soliman 1967; Hughes 1976; Fain and Bochkov 2001; Hagstrum *et al.* 2013).

Collection place(s) – Aquatic product, barley, beet seed, chicken feed, Chinese medicine, clover seed, condiment, cottonseed, flax seed, grain, grain product, grain residue, herb, maize flour, oat, protein mix, residue, rice, soya bran, sunflower seed, sweeping, wheat, wheat flour (Noei 2007; Noei *et al.* 2008b; Hagstrum *et al.* 2013; Kordestani Mahani *et al.* 2014; Abbasi *et al.* 2016).

Cheyletus eruditus (Schrank, 1781)

Distribution in Iran – Mazandaran, and East Azerbaijan provinces: Region not mentioned (Fathipour 1994; Fathipour *et al.* 1999; Modarres Awal 1994, 1997; Mosaddegh 1997; Sepasgozarian 1978a, b) **Alborz Province:** Karaj (Ardeshir *et al.* 2006), **Guilan Province:** Masal, Sowme'eh Sara, Anzali (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012; Khaleghabadian *et al.* 2015), **Tehran Province:** Varamin (Ardeshir 2017), **Kordestan Province:** Region not mentioned (Maroufpoor and Ostovan 2017).

General distribution – Cosmopolitan. England, Canada, Japan, Afrotropical, Taiwan, Croatia, China, Australia, Croatia, Czech Republic, Germany, Greece, India, Ireland, Poland, Scotland, Taiwan, Turkey, United States, and Wales (Griffiths 1960; Liscombe and Watters 1962; Sinha 1968; Fain 1979; Tseng 1979; Pagliarini 1979; Lung-Shut 1984; Hagstrum *et al.* 2013).

Collection place(s) – Animal feed, aquatic product, barley, barley debris, beet seed, buckwheat, buckwheat product, candied fruit, cheese, Chinese medicine, clover (Ardeshir *et al.* 2006; Noei 2007; Noei *et al.* 2008b; Khaleghabadian *et al.* 2012; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

Cheyletus malaccensis Oudemans, 1903

Distribution in Iran – Tehran Province: Region not mentioned (Ardeshir 2004, 2014, 2017), **Kordestan Province:** Region not mentioned (Maroufpoor and Ostovan 2017), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2012; Khaleghabadian *et al.* 2015; Ardeshir 2017), **Khuzestan Province:** Region not mentioned (Sepasgozarian 1978a; Kamali 1990; Modarres Awal 1994, 1997; Ardeshir 2017), **Fars Province:** Region not mentioned (Ostovan 1993; Ardeshir 2017), **Alborz Province:** Karaj (Sayedi *et al.* 2006; Seiedy *et al.* 2012; Ardeshir 2017), **Guilan Province:** Khomam, Jurkuyeh, Masal, Kucheshfahan, Rezvanshahr, Astaneh, Anzali, Jafarabad, Sowme'eh Sara, Fuman (Noei 2007; Noei *et al.* 2008b; Hajizadeh *et al.* 2011; Ardeshir 2017), **Chaharmahal and Bakhtiari, Isfahan, Kohgiluyeh and Boyer-Ahmad, West Azerbaijan, and Mazandaran Provinces:** Region not mentioned (Ardeshir 2017), **Golstan Province:** Gorgan (Ardeshir 2017).

General distribution – Australia, Brazil, Canada, China, Colombia, Czech Republic, Ecuador, Egypt, England, Ethiopia, Germany, Greece, Grenada, India, Indonesia, Iran, Iraq, Ireland, Japan, Malaysia, Mali, Myanmar, New Guinea, Peru, Philippines, Poland, Portugal, Russia, Rwanda, Sierra Leone, Sri Lanka, Tajikistan, Taiwan, Turkey, United States, Uganda, Venezuela, Wales, Yemen (Hagstrum *et al.* 2013).

Collection place(s) – Stored barley, rice, wheat, shallot, honey bee hive, houses, soil, apple (dried), aquatic product, barley, biscuit, candied fruit, cereal, cocoa bean, coffee bean, condiment, copra, cotton seed, dried fruit, dried vegetable, fereek, fish (dried), fish (minced-dried), fishmeal, fodder, fungus (dried), garden bean, garlic, grain, grain spillage, grass seed, ham (dried), legume, lentil, macaroni, maize, maize grit, malt flower, milk, mungo, mushroom, nutmeg, oat, onion bulb, onion seed, palay, illipenut, pollard, poultry diet, processed food, radish seed, residue, rice, rice

(husked), rice (mled), rice (red), rice straw mat, seed cotton, shallot, sheanut, sorghum, soybean, soybean meal, soybean sauce, soybean spillage, sugar beet seed, sugar (red), sugar (white), sunflower seed, tiki-tiki, tulip bulb, wheat, wheat bran, wheat flour, wheat (milled) (Sepasgozarian 1978a; Shahhosseini and Kamali, 1989; Fathipour 1994; Sahragard 1996; Modarres Awal 1994, 1997; Mosaddegh 1997; Fathipour *et al.* 1999; Sayedi *et al.* 2006; Noei 2007; Noei *et al.* 2008b; Khaleghabadian *et al.* 2012; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

***Cheyletus malayensis* Cunliffe, 1962**

Distribution in Iran – Guilan Province: Kuchesfahan (Noei 2007; Noei *et al.* 2008b), **Fars Province:** Region not mentioned (Sepasgozarian 1978a; Ostovan 1993; Fathipour *et al.* 1999) and **Alborz Province:** Region not mentioned (Sayedi *et al.* 2006).

General distribution – Oriental region: Russia, Hawaii, Malaysia, Philippines (Cunliffe 1962; Summers and Price 1970; Corpuz-Raros 1988).

Collection place(s) – Stored barley, rice, flour and wheat; house dust (Sepasgozarian 1978a; Ostovan 1993; Fathipour *et al.* 1999; Sayedi *et al.* 2006).

***Cheyletus trouessarti* Oudemans, 1902**

Distribution in Iran – Fars Province: Region not mentioned (Sepasgozarian 1978a; Ostovan 1993; Modarres Awal 1994, 1997; Fathipour *et al.* 1999), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015), **East Azerbaijan Province:** Region not mentioned (Abbasi *et al.* 2016).

General distribution – Cosmopolitan. Azerbaijan, Canada, Czech Republic, England, France, Germany, Greece, Ireland, Japan, Netherlands, Poland, Russia, Scotland, Taiwan, Turkey, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Stored barley and wheat, animal feed, barley, flax seed, grain, grain residue, grass seed, herb, kaoliang, maize flour, protein feeding mixture, rice, rice (husked), soya sweeping, sugar beet seed, sweeping, wheat, wheat bran, wheat flour, wheat flour sweeping, wheat residue (Sepasgozarian 1978a; Ostovan 1993; Modarres Awal 1994, 1997; Fathipour *et al.* 1999; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015; Abbasi *et al.* 2016).

Genus *Cunlifella* Volgin, 1969

***Cunlifella variegata* (Barilo, 1985)**

Distribution in Iran – Isfahan Province: Region not mentioned (Ardeshir and Nematollahi 2008).

General distribution – Uzbekistan, Russia (Barilo 1985; Bochkov and Miranov 1997).

Collection place(s) – Flour (Ardeshir and Nematollahi 2008).

Genus *Lepidocheyla* Volgin, 1963

***Lepidocheyla gracilis* Volgin, 1963**

Distribution in Iran – Tehran Province: Region not mentioned (Ardeshir 2017), **East Azerbaijan Province:** Region not mentioned (Abbasi *et al.* 2016), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2015).

General distribution – Eastern Europe (Gerson *et al.* 1999).

Collection place(s) – Mill, food stores and grain (Bochkov *et al.* 2005; Khaleghabadian *et al.* 2015; Abbasi *et al.* 2016).

Genus *Neoeucheyla* Radford, 1950

***Neoeucheyla iranica* Fain & Ardeshir, 2000**

Distribution in Iran – Tehran Province: Region not mentioned (Ardeshir 2004), **Alborz Province:** Karaj (Fain and Ardeshir 2000; Ardeshir 2017), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2015) **Mazandaran Province:** Region not mentioned.

Collection place(s) – Floor debris, wheat grain, dust and straw (Fain and Ardeshir, 2000; Ardeshir 2004).

Genus *Nodele* Muna, 1964

***Nodele calamondin* Muma, 1964**

Distribution in Iran – Mazandaran Province: Sari, **Golestan Province:** Gorgan (Bochkov *et al.* 2001; Ardeshir 2017).

General distribution – United States, Egypt (Bochkov *et al.* 2001).

Collection place(s) – Silo and flour mills, grain (Bochkov *et al.* 2001).

***Nodele* sp.**

Distribution in Iran – Tehran Province: Region not mentioned (Khalilmanesh 1973; Sepasgozarian 1978a; Faraji and Kamali 1993; Ostovan 1993; Fathipour 1994; Modarres Awal 1994, 1997; Sepasgozarian 1977).

Collection place(s) – Various stored products (Khalilmanesh 1973; Sepasgozarian 1978a; Faraji and Kamali 1993; Ostovan 1993; Fathipour 1994; Modarres Awal 1994, 1997; Sepasgozarian 1977).

Genus *Zachvatkiniola* Volgin, 1969

***Zachvatkiniola reticulata* (Cunliffe, 1962)**

Distribution in Iran – Mazandaran Province: Neka (Bochkov *et al.* 2001; Ardeshir 2002; Ardeshir 2017).

General distribution – Russia, China, Taiwan (Volgin 1969; Hagstrum *et al.* 2013).

Collection place(s) – Dried fruit, dried vegetable, grain, kaoliang, maize, mushroom, peanut, processed food, rice (husked), and wheat (Hagstrum *et al.* 2013).

Superfamily Erythraeoidea Robineau-Desvoidy, 1828

Family Erythraeidae Robineau-Desvoidy, 1828

Genus *Erythraeus* Latreille, 1806

Subgenus *E. (Erythraeus)* Latreille, 1806

***Erythraeus (E.) garmsaricus* Saboori, Goldarazena & Khajeali, 2004**

Distribution in Iran – Tehran Province: Varamin, **Alborz Province:** Karaj (Ardeshir *et al.* 2006, 2008).

Collection place(s) – Stored wheat, straw and dust in silos, flour-mills, and mills (Ardeshir *et al.* 2006).

***Erythraeus (E.) shojaii* Saboori & Babolmorad, 2000**

Distribution in Iran– Kordestan (Maroufpoor and Ostovan 2017; Maroufpoor *et al.* 2017).

Collection place(s)– Wheat (Maroufpoor and Ostovan 2017).

***Erythraeus (E.) southcotti* Goldarazena & Zhang, 1998**

Distribution in Iran – Kordestan Province: Region not mentioned (Maroufpoor and Ostovan 2017; Maroufpoor *et al.* 2017).

General distribution – Spain (Khanjani *et al.* 2012).

Collection place(s) – Wheat (Maroufpoor and Ostovan 2017).

Subgenus *E. (Zaracarus)* Southcott, 1995

***Erythraeus (Z.) coleopterus* Mortazavi, Hajiqanbar & Saboori, 2012**

Distribution in Iran – Kordestan Province: Region not mentioned (Maroufpoor and Ostovan, 2017; Maroufpoor *et al.* 2017; Noei *et al.* 2017).

Collection place(s) – Wheat, dried fruits and nuts (Ardeshir *et al.* 2012; Maroufpoor and Ostovan 2017; Noei *et al.* 2017).

Family Smarididae Vitzthum, 1929

Genus *Smaris* Latreille, 1796

***Smaris* sp.**

Distribution in Iran – West Azerbaijan Province: Region not mentioned (Ardeshir *et al.* 2012).

Collection place(s) – Dried fruits and nuts (Ardeshir *et al.* 2012).

Superfamily Eupodoidea Koch, 1842

Family Eupodidae C. L. Koch, 1842

Genus *Eupodes* Koch, 1835

***Eupodes voxencollinus* Sig Thor, 1934**

Distribution in Iran – Fars, and Mazandaran provinces: Region not mentioned (Ostovan 1993; Taghavi 1996; Modarres Awal 1997; Taghavi *et al.* 1998).

General distribution – China (Hagstrum *et al.* 2013).

Collection place(s) – Stored potato, tea, and aquatic product (Ostovan 1993; Taghavi 1996; Modarres Awal 1997; Taghavi *et al.* 1998; Hagstrum *et al.* 2013).

Superfamily Tarsonemoidea Kramer, 1877

Family Tarsonemidae Kramer, 1877

Genus *Tarsonemus* Canestrini & Fanzago, 1876

***Tarsonemus granarius* Lindquist, 1972**

Distribution in Iran – Mazandaran Province: Region not mentioned (Faraji 1993b; Modarres Awal 1997).

General distribution – Brazil, British Isles, Canada, China, Czech Republic, England, Greece, Japan, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Rice (Faraji 1993b; Modarres Awal 1997).

***Tarsonemus* sp.**

Distribution in Iran – Guilan Province: Roodsar, Rezvanshahr (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Superfamily Tetranychoidae *Donnadieu, 1875*

Family Tetranychidae *Donnadieu, 1875*

Genus *Tetranychus* *Dufour, 1832*

Tetranychus urticae* *Koch, 1836

Distribution in Iran – Guilan Province: Sowme'eh Sara (Noei 2007; Noei *et al.* 2008b).

General distribution – Afrotropical, Australasian, Nearctic, Neotropical, Oriental, Palearctic (Migeon *et al.* 2011).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Superfamily Tydeoidea *Kramer, 1877*

Family Tydeidae *Kramer, 1877*

Genus *Lorryia* *Oudemans, 1925*

***Lorryia* sp.**

Distribution in Iran – Guilan Province: Roodsar, Masal, Anzali, Rezvanshahr (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Genus *Proctotydaeus* *Berlese, 1911*

Proctotydaeus sinhai* *Momen, 1990

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993), **Kermanshah Province:** Region not mentioned (Darbemamieh 2015).

General distribution – Canada (Hagstrum *et al.* 2013).

Collection place(s) – Stored barley and wheat (Hagstrum *et al.* 2013; Ostovan 1993).

Proctotydaeus* sp. near *sinhai* *Momen, 1990

Distribution in Iran – Guilan Province: Roodsar (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

***Proctotydaeus* sp.**

Distribution in Iran – Guilan Province: Roodsar (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Genus *Tydeus* Koch, 1836

***Tydeus* sp.**

Distribution in Iran – Guilan Province: Roodsar, Fuman (Noei 2007; Noei *et al.* 2008b), **West Azerbaijan:** (Ardeshir *et al.* 2012).

Collection place(s) – Stored product (Noei 2007; Noei *et al.* 2008b; Ardeshir *et al.* 2012).

Family Ereyinetidae Oudemans, 1931

Genus *Ereynetes* Berlese, 1883

***Ereynetes* spp.**

Distribution in Iran – Guilan Province: Anzali, Sowme'eh Sara, Fuman, Anzali (Noei 2007; Noei *et al.* 2008b).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008b).

Superorder Parasitiformes Leach, 1815

Order Mesostigmata G. Canestrini, 1891

Suborder Monogynaspida Camin & Gorirossi, 1955

Superfamily Ascoidea Voigts & Oudemans, 1905

Family Ameroseiidae Evans, 1961

Genus *Ameroseius* Berlese, 1903

***Ameroseius plumigerus* (Oudemans, 1930)**

Distribution in Iran – Generally distributed: (Sepasgozarian 1978a; Modarres Awal 1994, 1997), **Alborz Province:** Mallard, Mohammad Shahr (Kheradmand *et al.* 2007), **Tehran Province:** Shahryar (Kheradmand *et al.* 2007).

General distribution – Brazil, Canada, China, Egypt, England, Germany, Greece, Ireland, Netherlands, Poland, Taiwan, United Kingdom, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Stored products, buckwheat, buckwheat product, condiment, dried fruit, dried vegetable, grain, hay, maize, mushroom, oat sifting, rice, rice (husked) (Sepasgozarian 1978a; Modarres Awal 1994, 1997; Kheradmand *et al.* 2007).

***Ameroseius aegyptiacus* (Nasr & Abow-Awad, 1984)**

Distribution in Iran – Guilan Province: Rice Research Institute of Iran (Noei 2007; Noei *et al.* 2008a).

General distribution – Egypt (Hajizadeh and Karami, 2017).

Collection place(s) – Rice hulls, and woodchips (Hajizadeh and Karami, 2017).

***Ameroseius* sp.**

Distribution in Iran – Guilan Province: Roodsar, Shaft, Rasht, Astaneh, Jafarabad (Noei 2007; Noei *et al.* 2008a).

Collection place(s) – Stored product (Noei 2007; Noei *et al.* 2008a).

Genus *Kleemannia* Oudemans, 1930

***Kleemannia pavida* (C.L. Koch, 1839)**

Distribution in Iran – Razavi Khorasan Province: Mashhad (Khaleghabadian *et al.* 2013a; Khaleghabadian *et al.* 2015), **Kerman Province:** Sekonj (Arjomandi *et al.* 2013), **Kordestan Province:** Marivan, **North East of Iran:** Region not mentioned (Khaleghabadian *et al.* 2013b), **Guilan Province:** Somesara, Sangar City, Eslamabad Village; Shaft City, Jirdeh Village (Tajmiri and Hajizadeh 2013; Hajizadeh and Karami 2017; Karami *et al.* 2017b), **Chaharmahal and Bakhtiari Province:** Region not mentioned, **Isfahan Province:** Region not mentioned, **Khuzestan Province:** Region not mentioned and **Golestan Province:** Region not mentioned (Darvishzadeh and Kamali 2009; Khalili-Moghadam and Saboori 2016a), **West Azerbaijan Province:** Urmia (Naderi *et al.* 2016).

General distribution – Hungary, Germany (Szabo *et al.* 2010; Mašán 2017).

Collection place(s) – Straw caches, storage products (Khaleghabadian *et al.* 2015; Naderi *et al.* 2016).

***Kleemannia delicata* (Berlese, 1918)**

Distribution in Iran – North East of Iran (Khaleghabadian *et al.* 2013b), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015).

General distribution – Italy (Mašán 2017).

Collection place(s) – Storage products (Khaleghabadian *et al.* 2015).

***Kleemannia plumosa* (Oudemans, 1902)**

Distribution in Iran – Isfahan Province: Region not mentioned (Jalaeian *et al.* 2006), (Khalili-Moghadam and Saboori 2016a), **Khuzestan Province:** Ahvaz (Baharloo *et al.* 2006), Region not mentioned (Khalili-Moghadam and Saboori 2016a), **West Azerbaijan Province:** Miandoab (Mirfakhraii 1994; Haddad Irani-Nejad *et al.* 2003; Rezaie *et al.* 2011; Alizadeh and Shirdel 2012; Taher *et al.* 2012; Ardeshir *et al.* 2012), **Sistan and Baluchestan Province:** Region not mentioned (Sayadi *et al.* 2011), **Razavi Khorasan Province:** Region not mentioned (Khaleghabadian *et al.* 2015; Abbaspour *et al.* 2017), **Zanjan Province:** Region not mentioned (Bigdeli *et al.* 2014), **Chaharmahal and Bakhtiari Province:** Shahrekord (Khalili-Moghadam and Saboori 2014), **Golestan Provinces:** Region not mentioned (Khalili-Moghadam and Saboori 2016a).

General distribution – Australia, Canada, China, Czech Republic, Egypt, England, Germany, Greece, Iceland, Ireland, Israel, Japan, Netherlands, Poland, Scotland, Taiwan, Thailand, United Kingdom, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Dried fruits and nuts, animal feed, bamboo shoot, biscuit, buckwheat, buckwheat product, confectionery, dried fruit, dried vegetable, fish (minced-dried), gin trash, grain, hay, maize, mushroom, peanut, pork (minced-dried), poultry diet, rice, rice (husked), seed cotton, shrimp (canned), sugar (red), and tuna (canned) (Ardeshir *et al.* 2012; Hagstrum *et al.* 2013).

***Kleemannia pseudoplumosa* (Rack, 1972)**

Distribution in Iran – Kerman Province: Kerman (Arjomandi *et al.* 2013), **Chaharmahal and Bakhtiari Province:** Shahrekrod, Lordegan, **Khuzestan Province:** Ahvaz, **Isfahan,** and **Golestan provinces:** Region not mentioned (Khalili-Moghadam and Saboori 2016b), **Kordestan Province:** Marivan, **West Azerbaijan Province:** Urmia, **Zanjan Province:** Region not mentioned (Naderi *et al.* 2016), **Guilan Province:** Region not mentioned (Karami *et al.* 2017b)

General distribution – Germany, Russia, and South Africa (Mašán 2017).

Collection place(s) – Straw caches, and stored products (Naderi *et al.* 2016; Karami *et al.* 2017b).

Family Ascidae Voigts & Oudemans, 1905
Genus *Arctoseius* Thor, 1930

***Arctoseius cetratus* (Sellnick, 1940)**

Distribution in Iran – Hamedan Province: Region not mentioned (Kamali *et al.* 2001), **West Azerbaijan Province:** Miandoab, Salmas Plain (Haddad Irani-Nejad *et al.* 2003; Alizadeh and Shirdel 2012), **Alborz Province:** Karaj, Eshtehard (Kheradmand *et al.* 2007), **Semnan Province:** Damghan, Kalatehroudbar, Cheshmeh-Ali, Dibaj, Astaneh, Tooyehdarvar Haji Abad, Amiriyeh, Naim Abad, Dashtebou, Fouladmahalleh, Shams Abad, Abbas Abad, Bakhsh Abad, Hadadeh, Kalatehmolla, Tooyehdarvar (Shamsi *et al.* 2008), **Tehran Province:** Tehran, Sorkhe-Hesar Forest Park (Pakyari *et al.* 2006, 2008) (Tehran, Police Park) (Maleki *et al.* 2016), **Guilan Province:** Region not mentioned (Hajizadeh *et al.* 2009b, 2010a; Adeli *et al.* 2013), **Kohgiluyeh and Boyer-Ahmad Province:** Gachsaran (Moradian *et al.* 2011), **Isfahan Province:** Shahreza (Kavianpour *et al.* 2011) Esfahan (Kadkhodaei *et al.* 2013), Region not mentioned (Nemati *et al.* 2012), **Golestan Province:** Gorgan (Malek-Shahkouyi *et al.* 2011), **Fars Province:** (Jahrom) (Khademi *et al.* 2006) Estahban (Naghbinejad *et al.* 2011), Shiraz (Montazeri *et al.* 2011) Marvdasht (Soleimani *et al.* 2011) Larestan (Khadempour *et al.* 2012), Darab (Khorsand *et al.* 2012) Sepidan, Homayjan (Maneshi *et al.* 2012) Koohmare-Sorkhi (Kazemi and Yazdanpanah 2013), Koohmare-Sorkhi Region, oak forest (Yazdanpanah and Kazemi 2014), **Zanjan Province:** Region not mentioned (Zare *et al.* 2012a; Bigdeli *et al.* 2014); **Kerman Province:** Sirjan, Pariz, Gostueyeh, Shahrehabak, Marj (Masnavipour *et al.* 2011, 2014) Bam (Mehrzaad *et al.* 2012), Jiroft (Balooch Shahryari *et al.* 2012) Kerman City, parks and landscapes (Arjomandi and Kazemi 2014); **Chaharmahal and Bakhtiari Province:** Shahrekord (Nemati *et al.* 2012) Saman, Shahrekord (Khalili-Moghadam and Saboori 2015), **Khuzestan Province:** Baghmalek, Ghaletol, Izeh (Nemati *et al.* 2012), **Bushehr Province:** Asaluyeh Port (Kazemi and Alikhani 2013), **North East of Iran:** Region not mentioned (Khaleghabadian *et al.* 2013), **Yazd Province:** Region not mentioned (Kafi *et al.* 2014), **Markazi Province:** Saveh (Farmahiny Farahani *et al.* 2013), Arak (Jadidi and Joharchi 2014), **Lorestan Province:** Bishe and Badrabad Districts (Hasanvand *et al.* 2014b), Khorramabad (Hasanvand *et al.* 2015), Lordegan, Khanmirza, Salehat, Monj, Ghale madreseh, Pol borideh (Bagheri Kordeshami *et al.* 2015), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2015; Abbaspour *et al.* 2017).

General distribution – South Korea (Keum *et al.* 2015, Maleki *et al.* 2016).

Collection place(s) – Storage products (Khaleghabadian *et al.* 2015).

Genus *Asca* von Heyden, 1826

***Asca* sp.**

Distribution in Iran – Fars Province: Region not mentioned, **Hamedan Province:** Region not mentioned, **Tehran Province:** Region not mentioned, **Ardabil Province:** Region not mentioned, **Mazandaran Province:** Region not mentioned (Ostovan 1993; Soroush 1994; Khanjani 1996; Mosaddegh 1997).

Collection place(s) – Flour, barley, stored rice, pomegranate, cotton (Ostovan 1993; Soroush 1994; Khanjani 1996; Mosaddegh 1997).

Genus *Iphidozercon* Berlese, 1903

***Iphidozercon gibbus* (Berlese, 1903)**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993; Ostovan and Kamali 1994; Modarres Awal 1997; Kamali *et al.* 2001), Jahrom (Khademi *et al.* 2006), Estahban (Naghbinejad *et al.* 2011), **Isfahan Province:** Region not mentioned (Jalaeian *et al.* 2006), **Zanjan Province:** Region not mentioned (Zare *et al.* 2012a), **Kerman Province:** Region not mentioned (Masnavipour *et al.* 2011; Masnavipour *et al.* 2014), **Lorestan Province:** Khorramabad (Hasanvand *et al.* 2014b; Hasanvand *et al.* 2015), **Tehran Province:** Region not mentioned (Maleki *et al.* 2016)

General distribution – Europe, Asia, North America, New Caledonia, Australia, Russia and Ukraine (Berlese 1903; Chant 1963; Ishikawa 1969; Karg 1996; Gwiazdowicz 2003, 2007; Sklyar 2003; Gwiazdowicz and Halliday 2008; Gwiazdowicz and Marchenko 2012).

Collection place(s) – Stored decaying onion, starchy materials, animal manure, humus, stored bulbs, soil, bark, rotten wood, fungi and litter (Ostovan 1993; Ostovan and Kamali 1994; Modarres Awal 1997; Kamali *et al.* 2001; Jalaeian *et al.* 2006; Khademi *et al.* 2006; Masnavipour *et al.* 2011; Naghibinejad *et al.* 2011; Zare *et al.* 2012a).

Genus *Protogamasellus* Karg, 1962

***Protogamasellus hibernicus* Evans, 1982**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993), **West Azerbaijan Province:** Urmia (Mosavi *et al.* 2004; Taher *et al.* 2012).

General distribution – Ireland (Moraes *et al.* 2016).

Collection place(s) – Stored rice and barley (Ostovan 1993).

***Protogamasellus* sp. nr. *massula* (Athias-Henriot, 1961)**

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993), **Larestan** (Khadempour *et al.* 2012), **West Azerbaijan Province:** Miandoab (Haddad Irani-Nejad *et al.* 2003), Region not mentioned (Alizadeh and Shirdel 2012), **Tehran Province:** Sorkhe-Hesar forest Park (Pakyari *et al.* 2006, 2008) **Semnan Province:** Damghan (Shamsi *et al.* 2008), **Isfahan Province:** Shahreza (Kavianpour *et al.* 2011), **Kerman Province:** Jiroft (Balooch Shahryari *et al.* 2012).

General distribution– Algeria (Moraes *et al.* 2016).

Collection place(s)– Stored rice and barley (Ostovan 1993).

Family Melicharidae Hirschmann, 1962

Genus *Proctolaelaps* Berlese, 1923

***Proctolaelaps bickleyi* (Bram, 1956)**

Distribution in Iran – Fars Province: Kazerun (Ostovan and Kamali 1994; Kamali *et al.* 2001), Region not mentioned (Modarres Awal 1997; Ostovan and Mosaddegh 1999), Marvdasht (Soleimani *et al.* 2011), Shiraz (Granpayeh *et al.* 2012; Granpayeh and Ostovan 2014), **Tehran Province:** Tehran, Marsh (Ostovan and Kamali 1997; Kamali *et al.* 2001), Markazi Province Region not mentioned (Jadidi and Joharchi 2014).

General distribution – United States (Moraes *et al.* 2016; Silva *et al.* 2020).

Collection place(s) – Honeybee hive, stored onion and potato contaminated with *Schwiebia* spp. and *Rhizoglyphus* spp. (Sepasgozarian 1978a; Ostovan 1993; Mirfakhraii 1994; Modarres

Awal 1994, 1997; Khanjani 1996; Mosaddegh 1997; Ostovan and Mosaddegh 1999; Khaleghabadian *et al.* 2015).

Proctolaelaps pygmaeus (Müller, 1859)

Distribution in Iran – Fars Province: Kazerun (Ostovan and Kamali 1994; Kamali *et al.* 2001); Marvdasht (Soleimani *et al.* 2011), Shiraz (Montazeri *et al.* 2011), Larestan (Khadempour *et al.* 2012), Shiraz (Granpayeh *et al.* 2012; Granpayeh and Ostovan 2014), Marvdasht, Islamic Azad University, Fars Science and Research Branch (Amirazodi and Ostovan 2012), Darab (Khorsand *et al.* 2012), Doroodzan (Asadpoor *et al.* 2012), **Khuzestan Province:** Region not mentioned (Habibpour *et al.* 2002), Dezful (Malekzadeh *et al.* 2000), Region not mentioned (Nemati and Babaeian 2010), **Hamedan Province:** Region not mentioned (Kamali *et al.* 2001), **Lorestan Provinces:** Khorramabad (Hasanvand *et al.* 2014b; Hasanvand *et al.* 2015), **Kordestan Provinces:** Region not mentioned (Kamali *et al.* 2001), **West Azerbaijan Province:** Urmia (Kamali *et al.* 2001; Mosavi *et al.* 2004; Rezaie *et al.* 2011), Miandoab Plain (Haddad Irani-Nejad *et al.* 2003), **Isfahan Province:** Najaf Abad (Jalaeian *et al.* 2006) Shahreza (Kavianpour *et al.* 2011), **Semnan Province:** Tooyehdarvar Village, Dibaj, near Imamzadeh, Forat Village, Damghan (Shamsi *et al.* 2008), **Chaharmahal and Bakhtiari Province:** Region not mentioned (Nemati and Babaeian 2010; Khalili-Moghadam and Nemati 2014), **Bushehr Province:** Region not mentioned (Nemati and Babaeian 2010), **Guilan Province:** Region not mentioned (Hajizadeh *et al.* 2009b, 2010a; Karami *et al.* 2017a, b; Tajmiri and Hajizadeh 2013), **Kerman Province:** Sirjan, Zeidabad, Gostueyeh, Mani, Sarcheshmeh, Shahrebabak (Masnavipour *et al.* 2011, 2014) Bam (Mehrzaad *et al.* 2011, 2012) Rafsanjan (Mohammadi *et al.* 2012), **Yazd Province:** Region not mentioned (Kafi *et al.* 2014), **Zanjan Province:** Region not mentioned (Zare *et al.* 2012a; Bigdeli *et al.* 2014; Arjomandi *et al.* 2013; Arjomandi and Kazemi 2014), **East Azerbaijan Province:** Region not mentioned (Mohammad-Dustar-Sharaf *et al.* 2016), **Razavi Khorasan Province:** Mashhad (Khaleghabadian *et al.* 2013a, Khaleghabadian *et al.* 2015, Abbaspour *et al.* 2017), **Qom Province:** Region not mentioned (Agha Alikhani *et al.* 2017), **Khorasan Shomlai Province:** Region not mentioned (Rezaei *et al.* 2016).

General distribution – Cosmopolitan. Australia, Canada, China, Czech Republic, England, Iraq, Ireland, Japan, Taiwan, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Houses; danel, date palm, stored onion and potato contaminated to *Schwiebia* spp. and *Rhizoglyphus* spp., barley (moldy), bulb (rotting), condiment, cyclamen leaf (dried), grain, rice, sweeping, timber (moldy), wheat, wheat (moldy) (Sepasgozarian 1978a; Ostovan 1993; Mirfakhraii 1994; Modarres Awal 1994, 1997; Khanjani 1996; Mosaddegh 1997; Ostovan and Mosaddegh 1999; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015).

Proctolaelaps regalis De Leon, 1963

Distribution in Iran – Fars Province: Region not mentioned, **Alborz Province:** Karaj (Ostovan 1993; Ostovan and Kamali 1994; Modarres Awal 1997; Sayedi *et al.* 2006).

General distribution – United States (Moraes *et al.* 2016)

Collection place(s) – Stored onion, storage products (Ostovan 1993; Ostovan and Kamali 1994; Modarres Awal 1997; Sayedi *et al.* 2006).

Proctolaelaps ventrianalis Karg, 1971

Distribution in Iran – Razavi Khorasan Province: Mashhad (Khaleghabadian *et al.* 2013a; Khaleghabadian *et al.* 2015), **West Azerbaijan Province:** Miandoab Plain (Haddad Irani-Nejad *et al.* 2003), **Guilan Province:** Rice Research Institute of Iran, Anzali (Noei 2007; Noei *et al.* 2008a;

Karami *et al.* 2017a, b), **Fars Province:** Region not mentioned (Montazeri *et al.* 2011), Shahreza (Kavianpour *et al.* 2011).

General distribution – Central Europe (Moraes *et al.* 2016).

Collection place(s) – Storage products (Khaleghabadian *et al.* 2015).

Superfamily Dermanyssoidea Kolenati, 1859

Family Laelapidae Berlese, 1892

Genus *Androlaelaps* Berlese, 1903

Androlaelaps casalis (Berlese, 1887)

Distribution in Iran – **Ardabil Province:** Moghan plain (Haddad Irani-Nejad 1998), **Kordestan Province:** Marivan, **West Azerbaijan Province:** Urmia, **Razavi Khorasan Province:** Mashhad (Ghafarian *et al.* 2013; Khaleghabadian *et al.* 2015; Abbaspour *et al.* 2017), **Alborz Province:** Karaj (Keshavarz Jamshidian and Babaeian 2013; Seiedy *et al.* 2012), **East Azerbaijan Province:** Maragheh (Valizadeh *et al.* 2017) Arasbaran (Ordoukhanian *et al.* 2017), **North East of Iran:** Region not mentioned (Khaleghabadian *et al.* 2013b), **Khuzestan Province:** Region not mentioned, **Tehran Province:** Region not mentioned (Sayedi *et al.* 2006; Hamidi *et al.* 2013), Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region (Baroozeh *et al.* 2013), **Kerman Province:** Kerman (Arjomandi *et al.* 2013), **Fars Province:** Shiraz (Granpayeh and Ostovan 2014), Neyriz (Bazrafshan *et al.* 2013), **Zanjan Province:** Region not mentioned (Bigdeli *et al.* 2014; Arjomandi *et al.* 2013; Naderi *et al.* 2016), **Mazandaran Province:** Lavij Region of Nour County (Ghasemi-Moghadam *et al.* 2014), **Guilan Province:** Jafarabad, Khomam, Anzali, Masal, Astaneh, Sowme'eh Sara, Jurkuyeh, Fuman, Rice Research Institute of Iran, Rezvanshahr (Noei 2007; Noei *et al.* 2008a; Tajmiri and Hajizadeh 2013), Region not mentioned (Ramroodi *et al.* 2014), **Chaharmahal and Bakhtiari Province:** Saman (Shariati *et al.* 2017), Shahrekord (Nemati *et al.* 2017), **Qom Province:** Region not mentioned (Agha Alikhani *et al.* 2017), **Lorestan Province:** Region not mentioned (Heydari *et al.* 2013), Poledokhtar (Heydari *et al.* 2014b), Kuhdasht (Heydari *et al.* 2014a), **West Azerbaijan Province:** Region not mentioned (Ardeshir *et al.* 2012).

General distribution – Cosmopolitan. Australia, Canada, China, Czech Republic, Egypt, England, Greece, Indonesia, Iran, Ireland, Japan, Scotland, United Kingdom, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Straw caches, Storage products, aquatic products, barley, condiment, dried fruit, dried vegetable, grain, grain residue, grass seed, hay, mushroom, processed food, rice, sweeping, wheat, wheat residue Facilities: commercial grain storage, drier, empty grain bin, farm, mill, off-farm storage, provender mill, stored rice, rice dust and debris (Sayedi *et al.* 2006; Noei 2007; Noei *et al.* 2008a; Ardeshir *et al.* 2012; Hagstrum *et al.* 2013; Khaleghabadian *et al.* 2015; Naderi *et al.* 2016).

Androlaelaps fenilis (Méglin, 1876)

Distribution in Iran – **North East of Iran:** Region not mentioned (Khaleghabadian *et al.* 2013b), **Zanjan Province:** Region not mentioned (Bigdeli *et al.* 2014), **Chaharmahal and Bakhtiari Province:** Shahrekord (Khalili-Moghadam and Saboori 2015), Lordegan County, Felard Region, Poshtkouh, Pol e Gharah, Khanmirza Region, Salehat Village, Monj Region, Ghale madreseh Village, Pol borideh Village, Cheshmeh khani Village, Joub nesa Village (Bagheri Kordeshami *et al.* 2015), **Khorasan Razavi Province:** Mashhad (Khaleghabadian *et al.* 2015), **Khuzestan Province:** Region not mentioned (Nemati *et al.* 2017).

Collection place(s) – Storage products (Khalili-Moghadam *et al.* 2012; Khaleghabadian *et al.* 2013b; Bagheri Kordeshami *et al.* 2015; Khaleghabadian *et al.* 2015; Khalili-Moghadam and Saboori 2015; Nemati *et al.* 2017).

Androlaelaps shealsi Costa, 1968

Distribution in Iran – Sistan and Baluchestan Province: Sistan Region (Sayadi *et al.* 2012), **Khuzestan Province:** Region not mentioned (Farahi *et al.* 2020), **West Azerbaijan Province:** Urmia (Kavianpour *et al.* 2017), Miandoab Plain (Haddad Irani-Nejad *et al.* 2003), **Razavi Khorasan Province:** Kashmar (Salarzahi *et al.* 2011), **Tehran Province:** Shemiranat, Rudbar-Ghasran (Cheraghali *et al.* 2012), Tehran, Varamin, Shahr-e Rey, Damavand (Baroozeh *et al.* 2012, 2013) Region not mentioned (Maleki *et al.* 2016), **Fars Province:** Sepidan, Homayjan (Maneshi *et al.* 2012), Larestan (Khadempour *et al.* 2012), Koohmare-Sorkhi (Kazemi and Yazdanpanah 2013) Koohmare-Sorkhi Region, oak forest (Yazdanpanah and Kazemi 2014), **Lorestan Province:** Region not mentioned (Heydari *et al.* 2013), Poledokhtar (Heydari *et al.* 2014b), Kuhdasht (Heydari *et al.* 2014a), **Guilan Province:** Region not mentioned (Ramroodi *et al.* 2013, 2014; Mahjoori *et al.* 2014), **Chaharmahal and Bakhtiari Province:** Region not mentioned, Saman and Shahrekord (Amani *et al.* 2015), Saman (Shariati *et al.* 2017), Lordegan, Khanmirza, Salehat, Monj, Ghale madreseh, Pol borideh (Bagheri Kordeshami *et al.* 2015), **East Azerbaijan Province:** Maragheh (Valizadeh *et al.* 2017), **Isfahan Province:** Region not mentioned (Abolghasemi and Kazemi 2016).

General distribution – Israel (Costa 1968; Haddadirani-nejad *et al.* 2003).

Collection place(s) – Storage products (Sayadi *et al.* 2006).

Genus Eulaelaps Berlese, 1903

Eulaelaps stabularis (C. L. Koch, 1839)

Distribution in Iran – Guilan Province: Kuchesfahan, Rice Research Institute of Iran, Khomam, Sowme'eh Sara (Noei 2007; Noei *et al.* 2008a; Hajizadeh *et al.* 2010b), **West Azerbaijan Province:** Salmas (Alizadeh *et al.* 2011), **Tehran Province:** Shemiranat, Rudbar-Ghasran (Cheraghali *et al.* 2012), **Chaharmahal and Bakhtiari Province, Isfahan Province:** Region not mentioned (Keivani *et al.* 2012), **Golestan Province:** Gorgan (Kazemi *et al.* 2011a), **Fars Province:** Koohmare-Sorkhi Region (Kazemi and Yazdanpanah 2013) Koohmare-Sorkhi Region, oak forest (Yazdanpanah and Kazemi 2014), **Khuzestan Province:** Region not mentioned (Nemati *et al.* 2017).

General distribution – Cosmopolitan. Canada, Czech Republic, England, Ireland, Taiwan, United States (Hagstrum *et al.* 2013).

Collection place(s) – Stored products, sweeping, warehouse debris, wheat distributed, stored rice, rice dust and debris (Shahhosseini and Kamali 1989; Modarres Awal 1994, 1997; Ostovan and Mosaddegh 1999; Noei 2007; Noei *et al.* 2008a; Hagstrum *et al.* 2013).

Genus Gaeolaelaps Evans & Till, 1966

Gaeolaelaps aculeifer (Canestrini, 1883)

Distribution in Iran – East Azerbaijan Province: Tabriz (Kamali *et al.* 2001), **Fars Province:** Kazerun (Kamali *et al.* 2001) Jahrom (Ebrahimi *et al.* 2010) Marvdasht (Soleimani *et al.* 2011) Shiraz (Montazeri *et al.* 2011) Marvdasht, Islamic Azad University, Fars Science and Research Branch (Arabzadeh *et al.* 2012) Doroodzan (Asadpoor *et al.* 2012) Larestan (Khadempour *et al.* 2012) Sepidan, Homayjan (Maneshi *et al.* 2012), **Hamedan Province:** Region not mentioned (Khanjani and Kamali 2000a; Kamali *et al.* 2001), **Khuzestan Province:** Ahvaz (Nemati *et al.* 2000; Kamali *et al.* 2001) Safiabad (Kamali *et al.* 2001; Darvishzadeh and Kamali 2009), **West Azerbaijan Province:** Miandoab Plain (Haddad Irani-Nejad *et al.* 2003) Urmia (Mosavi *et al.*

2004) (Rezaie *et al.* 2011) Salmas (Alizadeh *et al.* 2011) Khoy (Taher *et al.* 2012), **Isfahan Province:** Isfahan (Jalalizand *et al.* 2004) (Ramezani and Nemati 2010) (Khalili-Moghadam *et al.* 2012) Goldasht (Jalaeian *et al.* 2006) Shahreza (Kavianpour *et al.* 2011) Kashan (Sekonji *et al.* 2011), **Tehran Province:** Tehran, Shahid Beheshti University Campus (Kamali *et al.* 2004) Tehran, Sorkhe-Hesar Forest Park (Pakyari 2008) Varamin, Mohammad Abad, Asgar Abad, Moein Abad, Pouinak, Jalil Abad, Ghalesin, Pishva Roadway (Kheradpir and Pakyari 2011) (Region not mentioned) (Baradaran *et al.* 2011) Tehran, Varamin, Shahr-e Rey, Damavand (Baroozeh *et al.* 2012) Tehran (Ghasemimoghadam *et al.* 2012) Shemiranat, Rudbar-Ghasran (Cheraghali *et al.* 2012), **Sistan and Baluchestan Province:** Sistan Region (Arjmandi Nejad *et al.* 2006, 2008), **Chaharmahal and Bakhtiari Province:** Shahrekord (Nemati *et al.* 2008) (Babaeian *et al.* 2010) Gachsaran (Moradian *et al.* 2011), **Yazd Province:** Region not mentioned (Dehghan *et al.* 2011), **Golestan Province:** Gorgan (Kazemi *et al.* 2011a) Golestan forest (Bahrami *et al.* 2011), **Kerman Province:** Sirjan, Mani, Shahrehabak, Maymand, Riseh, Raviz, Rafsanjan (Masnavipour *et al.* 2011) Baft (Rajaei *et al.* 2011a) Jiroft (Balooch Shahryari *et al.* 2011, 2012), **Zanjan Province:** Region not mentioned (Rahmani and Zare 2011), **Razavi Khorasan Province** (Region not mentioned) (Baradaran *et al.* 2011) (Torbat-e Jam) (Rahmdeli *et al.* 2011) Kashmar (Salarzahi *et al.* 2011) (Baradaran Anaraki *et al.* 2012), **Mazandaran Province:** Nowshahr. (Kazemi and Ahangaran 2011), **Markazi Province:** Region not mentioned (Baradaran Anaraki *et al.* 2012), **Guilan Province:** Anzali, Rice Research Institute of Iran (Noei *et al.* 2008a; Hajizadeh *et al.* 2010b).

General distribution – Canada, England, Germany, Ireland, Israel, Italy, Japan, Netherlands, North America, Russia, Sweden (Hagstrum *et al.* 2013).

Collection place(s) – Stored rice and barley, grape, darnel, liquorice, alfalfa, *Trifolium* sp., nest of small mammals, soil samples, rice dust and debris (Ostovan 1993; Fathipour 1994; Khanjani 1996; Darvishzadeh 1997; Noei 2007; Noei *et al.* 2008a).

Gaeolaelaps sp. nr. *glabrosimilis* (Hirschmann, 1969)

Distribution in Iran – West, and East Azerbaijan provinces: Region not mentioned (Mirfakhraii 1994; Kamali *et al.* 2001).

Collection place(s) – Stored wheat (Mirfakhraii 1994).

Genus *Haemogamasus* Berlese, 1910

Haemogamasus pontiger (Berlese, 1904)

Distribution in Iran – Generally distributed (Modarres Awal 1994, 1997; Ostovan and Kamali 1996b), **Alborz Province:** Karaj (Sayed *et al.* 2006), **Guilan Province:** Rasht (Jafarabad) (Noei 2007; Noei *et al.* 2008a) Region not mentioned (Hajizadeh *et al.* 2010b, c).

General distribution – Cosmopolitan. Argentina, Australia, Canada, China, Czech Republic, England, Ireland, Israel, Italy, Japan, Russia, Scotland, United Kingdom, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Barley, beet seed, grain, oat, rapeseed, sweeping, walnut, wheat, wheat flour, stored rice, rice dust and debris (Sayed *et al.* 2006; Noei 2007; Noei *et al.* 2008a; Hagstrum *et al.* 2013).

Genus *Hypoaspis* G. Canestrini, 1884

Hypoaspis linteyini Samšičák, 1964

Distribution in Iran – Sistan and Baluchestan Province: Sistan Region (Sayadi *et al.* 2012), **Yazd Province:** Region not mentioned (Dehghan *et al.* 2011), **Khuzestan Province:** Region not mentioned (Nemati *et al.* 2017), **Guilan Province:** Region not mentioned (Hajizadeh and Joharchi 2018), **West Azerbaijan Province:** Urmia (Kavianpour *et al.* 2017), **Fars Province:** Region not mentioned, Shiraz (Montazeri *et al.* 2011), **East Azerbaijan Province:** Maragheh (Valizadeh *et al.* 2017).

Collection place(s) – Storage products (Sayedi *et al.* 2006).

Hypoaspis lubrica Voigts & Oudemans, 1904

Distribution in Iran – Kordestan Province: Region not mentioned (Maroufpoor *et al.* 2017; Maroufpoor and Ostovan 2017), **Guilan:** Kuchesfahan, Fuman, Astaneh, Anzali, Sowme'eh Sara, Khomam, Shaft, Jurkuyeh, Roodsar (Noei 2007; Noei *et al.* 2008a; Tajmiri and Hajizadeh 2013) Jalalabad (Hajizadeh *et al.* 2010b, c) Region not mentioned (Ramroodi *et al.* 2014), **Kerman Province:** Kerman (Arjomandi *et al.* 2013), **Golestan Province:** Region not mentioned, **Lorestan Province:** Kuhdasht (Heydari *et al.* 2014a) Khorramabad (Hasanvand *et al.* 2014a).

General distribution– Canada, China, Czech Republic, England, Ireland, Russia, United States, Wales (Hagstrum *et al.* 2013).

Collection place(s) – Wheat, condiment, grain, grain debris, oat (rotting), rice (rotten), wheat, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a; Hagstrum *et al.* 2013; Maroufpoor and Ostovan 2017).

Hypoaspis sclerotarsus Costa, 1968

Distribution in Iran – Khuzestan Province: Ahvaz (Nemati *et al.* 2000), Region not mentioned (Habibpour *et al.* 2002), **Alborz Province:** Region not mentioned (Keshavarz Jamshidian and Babaeian 2013), **Kerman Province:** Kerman (Arjomandi *et al.* 2013), Jiroft (Balooch Shahryari *et al.* 2011, 2012), **Chaharmahal and Bakhtiari Province:** Gachsaran (Moradian *et al.* 2011), Region not mentioned (Babaeian *et al.* 2010), Shahrekord (Khalili-Moghadam and Saboori 2015), **Tehran Province:** Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region (Baroozeh *et al.* 2012, 2013) Tehran City, Police Park (Maleki *et al.* 2016), **Khorasan Razavi Province:** Mashhad (Abbaspour *et al.* 2017), **Guilan Province:** Region not mentioned (Hajizadeh and Joharchi 2018), Roodsar, Anzali, Rice Research Institute of Iran, Khomam, Astaneh (Noei 2007; Noei *et al.* 2008a), Jalalabad (Hajizadeh *et al.* 2010b, c), **Zanjan Province:** Region not mentioned (Naderi *et al.* 2016; Rahmani and Zare 2011), **Fars Province:** Sepidan, Homayjan (Maneshi *et al.* 2012), Larestan (Khadempour *et al.* 2012) and Marvdasht, Islamic Azad University, Fars Science and Research Branch (Amirazodi and Ostovan 2012; Arabzadeh *et al.* 2012), Shiraz (Montazeri *et al.* 2011), **Isfahan Province:** Shahreza (Kavianpour *et al.* 2011).

General distribution – Egypt (Hagstrum *et al.* 2013).

Collection place(s) – Rice, straw caches, stored rice, flour and barley, alfalfa, bean, astragalus, rice dust and debris (Ostovan 1993; Fathipour 1994; Khanjani 1996; Noei 2007; Noei *et al.* 2008a; Hagstrum *et al.* 2013; Naderi *et al.* 2016).

Genus Stratiolaelaps Berlese, 1916

Stratiolaelaps gurabensis (Fox, 1946)

Distribution in Iran – Fars Province: Region not mentioned (Ostovan 1993; Kamali *et al.* 2001).

Collection place(s) – Stored wheat, barley and rice (Ostovan 1993).

***Stratiolaelaps miles* (Berlese, 1892)**

Distribution in Iran – Kordestan Province: Marivan (Naderi *et al.* 2016), **West Azerbaijan Province:** Urmia (Kamali *et al.* 2001), **Khuzestan Province:** Ahvaz (Nemati *et al.* 2000), **Tehran Province:** Tehran, Shahid Beheshti University Campus (Kamali *et al.* 2004), **Guilan Province:** Sowme'eh Sara, Jafarabad, Astaneh, Anzali, Fuman, Kuchesfahan, Rice Research Institute of Iran (Noei 2007; Noei *et al.* 2008a; Hajizadeh *et al.* 2010c), **Chaharmahal and Bakhtiari Province:** Region not mentioned (Babaeian *et al.* 2010), **Isfahan Province:** Isfahan (Khalili-Moghadam *et al.* 2012).

General distribution – Italy, Russia, Scotland, United States, West Indies (Hagstrum *et al.* 2013).

Collection place(s) – Straw caches, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a; Naderi *et al.* 2016).

Superfamily Eviphidoidea Berlese, 1913

Family Macrochelidae Vitzthum, 1930

Genus *Macrocheles* Latreille, 1829

***Macrocheles merdarius* (Berlese, 1889)**

Distribution in Iran – East Azerbaijan Province: Tabriz (Kamali *et al.* 2001), **Fars Province:** Kazerun (Kamali *et al.* 2001) Jahrom (Khademi *et al.* 2006) Marvdasht (Soleimani *et al.* 2011) Ramjerd (Sobhani *et al.* 2011) Marvdasht, Islamic Azad University, Fars Science and Research Branch (Amirazodi and Ostovan 2012) Doroodzan (Asadpoor *et al.* 2012) Sepidan, Hodayan (Maneshi *et al.* 2012), **Tehran Province:** Tehran (Ostovan and Farzane 2004), **Markazi Province:** Arak (Seifori *et al.* 2006) (Region not mentioned) (Jadidi and Joharchi 2014), **Isfahan Province:** Dorcheh, Zarrinshahr (Jalaeian *et al.* 2006) Isfahan (Khalili-Moghadam *et al.* 2012) Kashan (Abutaleb Kermani *et al.* 2017), **Sistan and Baluchestan Province:** Sistan (Arjmandi Nejad *et al.* 2006, 2008; Sayadi *et al.* 2012), **Tehran Province:** Shahryar (Kheradmand *et al.* 2007), **Guilan Province:** Talish, Jokandan, Fouman, Lishavandan (Noei 2007; Noei *et al.* 2008a; Hajizadeh *et al.* 2009a; Arjmandi-Nezhad and Babaeian 2014), **Mazandaran Province:** Nowshahr (Ahangaran *et al.* 2010), **Chaharmahal and Bakhtiari Province:** Shahrekord (Babaeian *et al.* 2011; Arjmandi Nejad *et al.* 2006, 2008) Saman (Shariati *et al.* 2017), **Golestan Province:** Gorgan (Kazemi *et al.* 2011) Dangelan Village, Alang Darreh Forest, Roshan Abad (Bahrami *et al.* 2011), Galikesh, Kalale, Gonbad (Zakeri *et al.* 2011), **Zanjan Province:** Region not mentioned (Rahmani and Zare 2011), **Kerman Province:** Sirjan, Pariz, Shahrehabak, Rafsanjan (Masnavipour *et al.* 2011; Masnavipour *et al.* 2014), Kerman (Arjomandi *et al.* 2011; Hosseinpour and Latifi 2014), Baft (Rajaei *et al.* 2011b) Bam (Mehrzaad *et al.* 2012) Jiroft (Balooch Shahryari *et al.* 2012); **West Azerbaijan Province:** Khoy (Taher *et al.* 2012) Salmas (Alizadeh and Shirdel 2012), **North Khorasan Province:** Bojnurd (Mahpikaran *et al.* 2012), **Qom Province:** Region not mentioned (Agha Alikhani *et al.* 2017), **North Khorasan Province:** Region not mentioned (Rezaei *et al.* 2016), **Lorestan Provinces:** Khorramabad (Hasanvand *et al.* 2015) (Jadidi and Joharchi 2014).

General distribution – Widely distributed in the world (Bregotova and Koroleva 1960; Mašán, 2003, Kılıç *et al.* 2012).

Collection place(s) – Stored onion, storage products, stored rice, rice dust and debris (Ostovan 1993; Fathipour 1994; Ostovan 1999; Noei 2007; Noei *et al.* 2008a; Khaleghabadian *et al.* 2015).

***Macrocheles muscaedomesticae* (Scopoli, 1772)**

Distribution in Iran – Tehran Province: Tehran (Mosaddegh 1997; Kamali *et al.* 2001; Ostovan and Farzane 2004) Tehran City, Police Park (Maleki *et al.* 2016), **East Azerbaijan Province:** Region not mentioned (Kamali *et al.* 2001), **Khuzestan Province:** Ahvaz (Baharloo *et al.* 2006), Region not mentioned (Nemati and Babaeian 2010), **Guilan Province:** Sangar, Gil Pardehsar (Hajizadeh *et al.* 2009a; Arjimandi Nezhad and Babaeian 2014); **Chaharmahal and Bakhtiari Province:** Saman (Shariati *et al.* 2017) (Nemati and Babaeian 2010) Shahrekord (Babaeian *et al.* 2011), **Bushehr Province:** Region not mentioned (Nemati and Babaeian 2010), **Mazandaran Province:** Nowshahr (Ahangaran *et al.* 2010), **Kerman Province:** Kerman (Arjomandi *et al.* 2011, 2013; Hosseinpour and Latifi 2014) Baft (Rajaei *et al.* 2011b), **Golestan Province:** Roshan Abad, Ali Abad Katoul, Kaboud Val (Bahrami *et al.* 2011) Gonbad Kavus, Galikesh (Zakeri *et al.* 2011), **Fars Province:** Ramjerd (Sobhani *et al.* 2011) Shiraz (Granpayeh *et al.* 2012) Doroodzan (Asadpoor *et al.* 2012), **North Khorasan Province:** Bojnurd (Mahpikaran *et al.* 2012), **Isfahan Province:** Kashan (Abutaleb Kermani *et al.* 2017).

General distribution – Cosmopolitan. Australia, Canada, England, Philippines, Scotland, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Storage products, fish (dried), grain, maize trash, onion bulb, peanut (moldy), wheat residue (rotting) (Khaleghabadian *et al.* 2015; Hagstrum *et al.* 2013).

***Macrocheles robustulus* (Berlese, 1904)**

Distribution in Iran – Fars province: Region not mentioned (Kamali *et al.* 2001), Tehran Province: Tehran (Ostovan and Farzane 2004), Khuzestan Province: Ahvaz (Baharloo *et al.* 2006), Markazi Province: Arak (Seifori *et al.* 2006), Guilan Province: Masule, Maklovan, Fouman, Lishavandan, Rasht, Agriculture faculty of Guilen University field, Emamzade Hashem, Shaft, Rudbar, Ganje (Hajizadeh *et al.* 2009a), Mazandaran Province: Nowshahr (Ahangaran *et al.* 2010), Chaharmahal and Bakhtiari Province: Shahrekord (Babaeian *et al.* 2011), Kerman Province: Baft (Rajaei *et al.* 2011b), Golestan Province: Roshan Abad (Bahrami *et al.* 2011) Minudasht, Kalale, Gonbad Kavus, Galikesh (Zakeri *et al.* 2011).

General distribution – Ethiopia (Hagstrum *et al.* 2013).

Collection place(s) – Stored potato, cereal residue (Ostovan 1993; Hagstrum *et al.* 2013).

Family Parholaspidae Evans, 1956

Genus *Holaspina* Berlese, 1916

***Holaspina alstoni* (Evans, 1956)**

Distribution in Iran – **Tehran Province:** Tehran, Shahid Beheshti University Campus (Kamali *et al.* 2004), Tehran City, Police Park (Hamidi *et al.* 2013; Maleki *et al.* 2016), Sorkhe-Hesar Forest Park (Pakyari *et al.* 2006, 2008), **Markazi Province:** Arak (Seifori *et al.* 2006); **Alborz Province:** Karaj (Sayedi *et al.* 2006), **Isfahan Province:** Khomeini Shahr (Jalaeian *et al.* 2006) Isfahan (Ramezani and Nemati 2010; Khalili-Moghadam *et al.* 2012), **Kerman Province:** Rafsanjan, Sirjan, Dochahi, Mani, Pariz, Shahrehabak (Masnavipour *et al.* 2011; Masnavipour *et al.* 2014), **Zanjan Province:** Region not mentioned (Bigdeli *et al.* 2014), **Mazandaran Province:** Nowshahr (Saber *et al.* 2016).

General distribution– Iran, Japan, Korean Peninsula, India, East- and South-Asia and Europe (Ishikawa 1980; Datta and Bhattacharjee 1989; Latifi *et al.* 2005; Kontschán *et al.* 2014).

Collection place(s) – Storage products (Sayedi *et al.* 2006).

Superfamily Phytoseioidea Berlese, 1916
Family Blattisociidae Garman, 1948
Genus *Blattisocius* Keegan, 1944

***Blattisocius dentriticus* (Berlese, 1918)**

Distribution in Iran – Gulian Province: Region not mentioned (Javadpour *et al.* 2018).

General distribution – China, England, Hawaii, India, Indonesia, Israel, Ireland, Italy, Japan, Netherlands, Sri Lanka, United Kingdom, United States, and Wales (Hagstrum *et al.* 2013).

Collection place(s) – Stored products aquatic product, condiment, dried fruit, dried vegetable, grain, maize, meat product, mushroom, pollard, processed food, potato (sprouting), rice, tea, wheat, wheat flour (Sepasgozarian 1978a; Modarres Awal 1994, 1997; Hagstrum *et al.* 2013).

***Blattisocius mali* (Oudemans, 1929)**

Distribution in Iran – Zanjan Province: Region not mentioned (Zare *et al.* 2012b).

General distribution – China, Egypt, England, Greece, India, The Netherlands, Poland, Taiwan, Turkey (Hagstrum *et al.* 2013).

Collection place(s) – Stored products, apricot (dried), bean, currant (dried), dried fruit, dried vegetable, grain (moldy), grass seed, mushroom, processed food, raisin, rice, sugar (red) (Sepasgozarian 1978a; Modarres Awal 1994, 1997; Hagstrum *et al.* 2013).

***Blattisocius keegani* Fox, 1947**

Distribution in Iran – Kordestan Province: Region not mentioned (Maroufpoor and Ostovan 2017; Maroufpoor *et al.* 2017), Marivan (Naderi *et al.* 2016), **West Azerbaijan Province:** Urmia (Modarres Awal 1994, 1997; Kamali *et al.* 2001), **Semnan Province:** Tooyehdarvar Village, Dibaj, near Imamzadeh, Forat Village, Damghan (Shamsi *et al.* 2008), **Guilan Province:** Roodsar, Anzali, Rice Research Institute of Iran, Jurkuyeh, Jafarabad, Kuchesfahan, Fuman (Noei 2007; Noei *et al.* 2008a; Hajizadeh *et al.* 2009b, 2010a).

General distribution – Brazil, Canada, China, Czech, Egypt, England, Greece, Hawaii, India, Indonesia, Iraq, Ireland, Israel, Malaya, Mexico, The Philippines, Poland, Puerto Rico, Senegal, South America, United States, Wales, West Africa (Hagstrum *et al.* 2013).

Collection place(s) – Straw caches, Wheat, apricot (dried), aquatic product, barley, beet seed, condiment, cotton, cottonseed, dried fruit, dried vegetable, feed mix, grain, maize (plate), mango, mushroom, nutmeg, processed food, rice bran, soybean, sunflower seed, wheat, wheat bran, wheat flour, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a; Hagstrum *et al.* 2013; Naderi *et al.* 2016; Maroufpoor and Ostovan 2017).

Family Phytoseiidae Berlese, 1916
Genus *Proprioiseiopsis* Muma, 1961

***Proprioiseiopsis bregetovae* (Abbasova, 1970)**

Distribution in Iran – Guilan Province: Fuman, Roodsar (Hajizadeh 2007; Noei *et al.* 2008a, 2009).

General distribution – Azerbaijan and Ukraine (Moraes 2004; Noei *et al.* 2009).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Genus *Typhlodromus* Scheuten, 1857

Subgenus *Typhlodromus (Anthoseius)* De Leon, 1959

***Typhlodromus (Anthoseius) transvaalensis* (Nesbitt, 1951)**

Distribution in Iran – Guilan Province: Rice Research Institute of Iran (Noei *et al.* 2008a, 2009).

General distribution – Argentina, Algeria, Australia, Azerbaijan, Brazil, Cameroon, China, Colombia, Costa Rica, Egypt, Guinea, Hawaii, Israel, Panama, Philippines, Singapore, South Africa, Taiwan, United States-Florida (Morales 2004; Noei *et al.* 2009; Cedola and Castresana 2014).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Superfamily Rhodacaroidea Oudemans, 1902

Family Digamasellidae Evans, 1957

Genus *Dendrolaelaps* Halbert, 1915

***Dendrolaelaps* sp.**

Distribution in Iran – Fars, West, and East Azerbaijan provinces: Region not mentioned (Ostovan 1993; Fathipour 1994; Mirfakhraii 1994).

Collection place(s) – Stored onion and potato, Soil samples (Ostovan 1993; Fathipour 1994; Mirfakhraii 1994).

Family Ologamasidae Ryke, 1962

Genus *Gamasiphis* Berlese, 1904

***Gamasiphis lanceolatus* Karg, 1987**

Distribution in Iran – Guilan Province: Khomam, Lahijan (Noei 2007; Noei *et al.* 2008a), **Kerman Province:** Kerman (Arjomandi *et al.* 2013), **Isfahan Province:** Region not mentioned (Abolghasemi and Kazemi 2016), **Mazandaran Province:** Nowshahr (Saber *et al.* 2016), **Fars Province:** Region not mentioned, **North Khorasan Province:** Region not mentioned (Rezaei *et al.* 2016), **Golestan Province:** Gorgan (Kazemi *et al.* 2011a).

General distribution – Germany (Castilho *et al.* 2016).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Family Rhodacaridae Oudemans, 1902

Genus *Protogamasellopsis* Evans & Purvis, 1987

***Protogamasellopsis posnaniensis* Wisniewski & Hirschmann, 1991**

Distribution in Iran – Guilan Province: Hashtpar (Noei 2007; Noei *et al.* 2008a).

General distribution – Poland (Wisniewski and Hirschmann 1991; Noei 2007).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Superfamily Uropodoidea Kramer, 1881

Family Dinychidae Berlese, 1916

Genus *Uroobovella* Berlese, 1903

***Uroobovella marginata* (C.L. Koch, 1839)**

Distribution in Iran – Guilan Province: Jurkuyeh, Fuman (Noei 2007; Noei *et al.* 2008a), **Tehran Province:** Region not mentioned (Sepasgozarian 1978b; Modarres Awal 1994, 1997; Kamali *et al.* 2001; Kazemi *et al.* 2003).

General distribution – Poland, France, Portugal, Finland, Denmark, Germany, Puerto Rico, Romania, The Netherlands (Gwiazdowicz and Gulvik 2005).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

***Uroobovella obovata* (G. Canestrini & Berlese, 1884)**

Distribution in Iran – Guilan Province: Hashtpar (Noei 2007; Noei *et al.* 2008a).

General distribution – Poland, Netherland, Romania, Germany (Creuwels and Pieterse 2022).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Family Oplitidae Johnston, 1968**Genus *Oplitis* Berlese, 1884*****Oplitis* sp.**

Distribution in Iran – Guilan Province: Rice Research Institute of Iran (Noei 2007; Noei *et al.* 2008a).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

Family Trematuridae Berlese, 1917**Genus *Trichouropoda* Berlese, 1916*****Trichouropoda elegans* (Kramer, 1882)**

Distribution in Iran – Kordestan Province: Marivan (Naderi *et al.* 2016), **West Azerbaijan Province:** Urmia (Mosavi *et al.* 2004), Salmas (Alizadeh and Shirdel 2012), Khoy (Taher *et al.* 2012), Tehran (Region not mentioned) (Kazemi *et al.* 2005; Kazemi *et al.* 2003), **Guilan Province:** Fuman (Noei 2007; Noei *et al.* 2008a), **Golestan Province:** Gorgan (Kazemi 2012) Roshan Abad, Ali Abad Katoul, Kaboud Val (Bahrami *et al.* 2011), **Mazandaran Province:** Sisangan Forest Park (Kazemi 2012).

General distribution – Germany, France, Great Britain, Sweden, Finland, Poland, Czech Republic, Slovakia, Ukraine, Hungary, Greece, and Iran (Błoszyk *et al.* 2018).

Collection place(s) – Straw caches, stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a; Naderi *et al.* 2016).

Trichouropoda patavina* (G. Canestrini, 1885)*Syn.: *Trematura jacksonia* (Hughes, 1948)**

Distribution in Iran – Fars Province: Region not mentioned (Kamali *et al.* 2001), **West Azerbaijan Province:** Urmia (Kamali *et al.* 2001), **Razavi Khorasan Province:** Torbat Heydariyeh, Feiz Abad (Kazemi *et al.* 2008), **Guilan Province:** Sowme'eh Sara, Astaneh (Noei 2007; Noei *et al.* 2008a); **Kerman Province:** Baft (Rajaei *et al.* 2011b).

General distribution – Egypt (Ismailia) (El-Sharabasy 2010, Metwally *et al.* 2014).

Collection place(s) – Stored rice, rice dust and debris (Noei 2007; Noei *et al.* 2008a).

***Trichouropoda orbicularis* (C.L. Koch, 1839)**
Syn.: *Leiodinychus krameri* (G. & R. Canestrini, 1882)

Distribution in Iran – East Azerbaijan Province: Region not mentioned, **Hamedan Province:** Region not mentioned, **Fars Province:** Sepidan, Hodayan (Maneshi *et al.* 2012) Doroodzan (Asadpoor *et al.* 2012) Marvdasht, Islamic Azad University, Fars Science and Research Branch (Amirazodi and Ostovan 2012) Marvdasht (Soleimani *et al.* 2011) Jahrom (Khademi *et al.* 2006), **Guilan Province:** Hashtpar, Anzali, Masal (Noei 2007; Noei *et al.* 2008a), **Tehran:** Region not mentioned (Kazemi *et al.* 2005; Kazemi *et al.* 2003) Tehran, Shahid Beheshti University Campus (Kamali *et al.* 2004), **West Azerbaijan Province:** Khoy (Taher *et al.* 2012) Salmas (Alizadeh and Shirdel 2012) Urmia (Mosavi *et al.* 2004), **Khuzestan Province:** Ahvaz (Baharloo *et al.* 2006), **North Khorasan Province:** Bojnurd (Mahpikaran *et al.* 2012), **Kerman Province:** Bam (Mehrzaad *et al.* 2012) Baft (Rajaei *et al.* 2011b), **Mazandaran Province:** Sisangan Forest Park (Kazemi 2012), **Razavi Khorasan Province:** Torbat Heydariyeh, Feiz Abad (Kazemi *et al.* 2008).

General distribution – Palearctic region (Belgium, Germany, France, Great Britain, Iceland, The Netherlands, Austria, Poland, Romania, Czech Republic, Slovakia, Ukraine, Hungary, Algeria, Italy, Spain), Oriental region (India), and Ethiopian region (Congo) and Turkish (Hirschmann and Wiśniewski 1993; Bal and Özkan 2007).

Collection place(s) – Stored products, stored rice, rice dust and debris (Sepasgozarian, 1978a; Modarres Awal 1994, 1997; Noei 2007; Noei *et al.* 2008a).

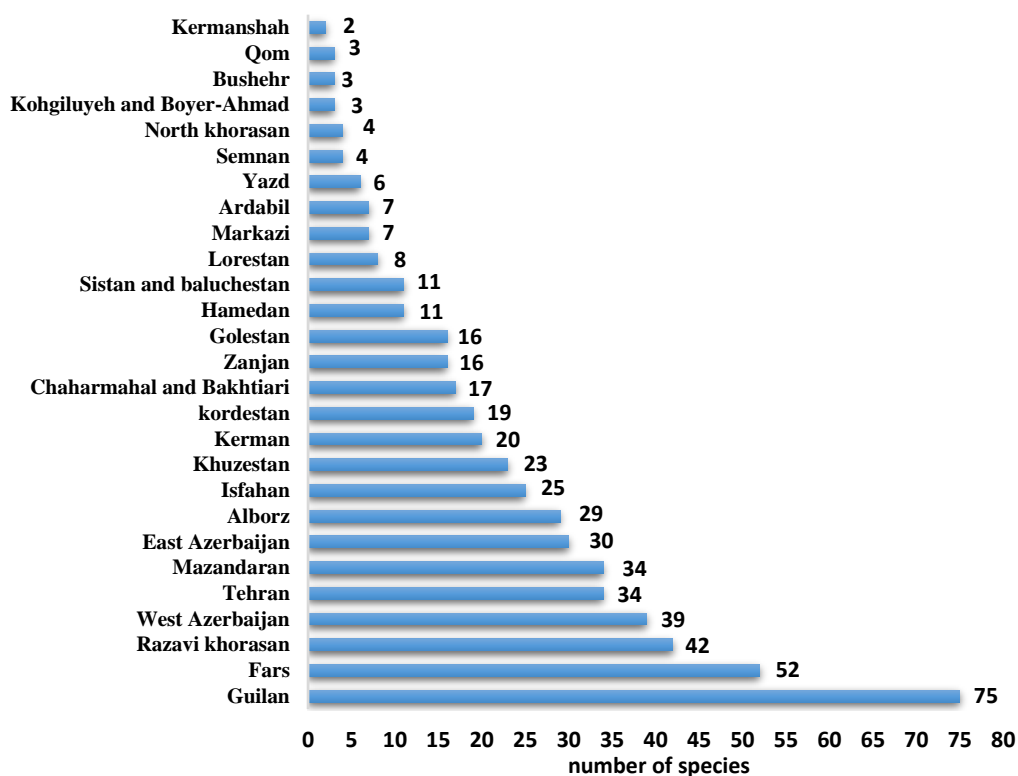


Figure 1. Number of reported species of stored product mites by province.

DISCUSSION

The majority of stored products' mites in Iran include the families Achipteriidae, Euphthiracaridae, Ooppiidae, Oribatulidae, Scheloribatidae, Cosmochthoniidae, Haplochthoniidae, Tectocepheidae,

Suctobelbidae, Acaridae, Suidasiidae, Pyroglyphidae, Chortoglyphidae, Glycyphagidae, Carpoglyphidae, Histiostomatidae, Ameroseiidae, Ascidae, Melicharidae, Bdellidae, Cunaxidae, Cheyletidae, Laelapidae, Erythraeidae, Smarididae, Eupodidae, Macrochelidae, Parholaspidae, Blattisociidae, Phytoseiidae, Acarophenacidae, Pyemotidae, Caligonellidae, Stigmaeidae, Raphignathidae, Digamasellidae, Ologamasidae, Rhodacaridae, Tarsonemidae, Tetranychidae, Tydeidae, Ereynetidae, Dinychidae, Oplitidae and Trematuridae. 144 species from 90 genera and three suborders are listed from Iran. Among them, *Cheyletus* (Cheyletidae) with six species is the most species-rich genus. Stored products' mites have been recorded from 27 provinces in Iran: Guilan, Fars, Razavi Khorasan, West Azerbaijan, Tehran, East Azerbaijan, Mazandaran, Alborz, Khuzestan, Isfahan, Kordestan, Kerman, Chaharmahal and Bakhtiari, Zanjan, Hamedan, Golestan, Sistan and Baluchestan, Markazi, Lorestan, Ardabil, Yazd, Semnan, Kohgiluyeh and Boyer-Ahmad, Bushehr, Qom, North Khorasan, and Kermanshah (Fig. 1). Hence, faunistic surveys are necessary to find new records, new species, new hosts and natural enemies in the various stored products in Iran.

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فهرست کنه‌های (Arachnida: Acari) مرتبط با محصولات انباری ایران

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چکیده

فون کنه‌های مرتبط با محصولات انباری در ایران (Arachnida: Acari) بر اساس داده‌های منتشر شده در کتاب‌ها و مقالات، خلاصه شده است. در مجموع ۱۴۴ گونه کنه‌های محصولات انباری متعلق به ۹۲ جنس، ۴۵ خانواده، ۲۷ بالاخانواده، سه زیرراسته، ۳ راسته و دو بالاراسته در ایران به ثبت رسیده است. خانواده‌های دارای بیش‌ترین گونه شامل Acaridae (۱۷ گونه، ۱۱/۸۰٪)، Cheyletidae (۱۶ گونه، ۱۱/۱۱٪) هستند و سپس Laelapidae (۱۲ گونه، ۸/۳۳٪)، Bdellidae (شش گونه، ۴/۱۶٪)، Ameroseiidae (هفت گونه، ۴/۸۶٪)، Tydeidae، Cunaxidae و Ascidae (پنج گونه، ۳/۴۷٪)، Stigmaeidae، Erythraeidae، Melicharidae، Glycyphagidae، Oppiidae (۴ گونه، ۲/۷۷٪)، Trematuridae، Raphignathidae، Blattisociidae و Macrochelidae (سه گونه، ۲/۰۸٪)، Dinychidae، Tarsonemidae، Ereynetidae، Carpoglyphidae، Histiosomatidae، Phytoseiidae، Acarophenacidae، Pyemotidae، Caligonellidae، Suidasiidae و Oribatulidae (دو گونه، ۱/۳۸٪) و ۱۷ خانواده: Achipteriidae، Euphthiracaridae، Scheloribatidae، Smarididae، Chortoglyphidae، Pyroglyphidae، Suctobelbidae، Tectocephidae، Haplochthoniidae، Cosmochthoniidae، Eupodidae، Parholaspidae، Digamasellidae، Ologamasidae، Rhodacaridae، Tetranychidae و Oplitidae دارای یک گونه، مرتبط با مواد انباری هستند.

واژگان کلیدی: بالاراسته Acariformes؛ فون، ایران، بالاراسته Parasitiformes؛ دارنده بیشترین گونه؛ آفت انباری.

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