



Checklist of Iranian stored product beetles (Insecta: Coleoptera)

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ABSTRACT. An extensive literature review was performed to determine the list of stored product beetles reported from Iran. A total of 122 species of stored product beetles belonging to 59 genera and 45 tribes have been recorded in Iran. Species–richest families are Dermestidae (24 species) and Tenebrionidae (24 species), followed by Chrysomelidae (15 species), Cryptophagidae (13 species), Ptinidae (10 species), Curculionidae (6 species), Staphylinidae (4 species), Nitidulidae (4 species), Bostrichidae (3 species), Laemophloeidae (3 species), Silvanidae (3 species), Trogossitidae (2 species), Anthicidae (2 species), Cleridae (2 species) and seven families are monospecific: Carabidae, Cerambycidae, Anthribidae, Erotylidae, Latridiidae, Melyridae and Mycetophagidae. The present study is not only a faunistic report but also help in design and development of integrated pest management of stored product beetles.

Key words: Coleoptera, Checklist, Iran, Stored product beetles

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Introduction

Insects are considered as the significant and primary pests of stored products such as vegetable and animal origins, raw and processed cereals, pulses, seeds, spices, dried fruit and nuts, and other dry, durable commodities, raw animal products, dried or smoked fish and meat, skins, hides and museum specimens that present damage to the grains through direct feeding during some of their lifecycles, resulting large populations and considerable damages (Haines, 1991; Weidner & Rack, 1984; Rees, 1990; Shires, 1982). The pests cause significant quantitative and qualitative losses to the multibillion-dollar grain, food, and retail industries each year through their feeding, product adulteration, customer complaints, product rejection at the time of sale, and cost associated with their management (Campbell et al., 2004; Hagstrum et al., 2013; Thind & Dunn, 2002; Olsen, 1998; Stejskal & Verner, 1996; Sinha & Watters, 1985). About 40 percent of insects belonging to order Coleopteran. Some Species great damage too many seeds in grain stores and reduce in the weight and seed quality (Borrer et al., 1989).

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Coleoptera (Insecta) indicates one of the largest orders of diversity on world with four suborders, 24 superfamilies, 211 families, and over 350,000 described species (Bouchard et al., 2011). Iran forms a large part of the Iranian plateau, and covers an area of 1,623,779 km². It is bordered in the north by the Caucasus Mountains, Middle Asian natural regions and the Caspian Sea (-27 m below sea level), in the west by the Anatolian and Mesopotamian regions, in the east by the eastern part of the Iranian plateau (Afghanistan and adjacent west Pakistan) and the Baluch-Sindian region; and finally in the south by the Persian Gulf and Oman Sea, which are connected by the latter to the Indian Ocean (Zehzad et al., 2002).

Checklists of species are important for any kind of question or investigation related to biodiversity. With this paper, we present a checklist of the beetles (Coleoptera) of stored product pest from Iran. Mound (1989) estimates that the number of beetle species associated with stocks worldwide exceeds 600. However, it is not clear which storage pests are indigenous or intensive species. More than thirty years have passed since the publication of the *Checklist of insects, mites and rodents affecting stored products in Iran* by Shahhosseini & Kamali (1989). During that period, many changes have been made in the classification of Coleoptera. For example, the Scydmaenines, Pselaphines, Scaphidiines, and Micropeplines, which formerly regarded as distinct families, are now part of the Staphylinidae, the Lyctines are included in the Bostrichidae, the Anobiines in the Ptinidae, the Languriines in the Erotylidae, the Bruchines in the Chrysomelidae, the Apionines and Ithycerines in the Brentidae, and the Scolytines and Platypodines in the Curculionidae (Bousquet et al., 2013). Finally, considering the amount of new information available, we believe that a new edition of the checklist of beetles of stored product pest of Iran will help those interested in beetles of the Iran fauna. The aim of this paper is to provide a checklist of Iranian stored product beetles based on available literature data for this area.

Material and methods

The checklist is mainly based on published literature of Iranian researchers. The published data on distribution of the stored product beetles in Iran are summarized by province. Family, subfamily, tribe, genus and species are listed in alphabetical order. All the species and subspecies are listed with their valid 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. Additional data were also provided for some species from Atlas of stored insects and mites (Hagstrum et al., 2013) and stored-product insect resource (Hagstrum & Subramanyam, 2009). Host data (where exist) and distribution data in Iran are taken from published literature especially Modarres Awal (1994, 1997), Shahhosseini & Kamali (1989), research articles, abstracts, books, congress proceeding, Ph. D. dissertations and M. Sc. theses.

Results

Data of 122 species of coleopteran are listed alphabetically below. The number of genera and species into families is (genus-species): from Anthicidae (1-2), Antribidae (1-1), Bostrichidae (2-3), Carabidae (1-1), Cerambycidae (1-1), Chrysomelidae (5-15), Cleridae (1-2), Cryptophagidae (2-13), Curculionidae (3-6), Dermestidae (6-24), Erotylidae (1-1), Laemophloeidae (1-3), Lathridiidae (1-1), Melyridae (1-1), Mycetophagidae (1-1), Nitidulidae (1-4), Ptinidae (7-10), Silvanidae (2-3), Staphylinidae (3-4), Tenebrionidae (16-

24) and Trogossitidae (2–2). The geographical scope of this checklist covers the Iranian provinces and information about each species are taken from the literature.

Checklist of the beetles of stored product pest from Iran

Family: Anthicidae Latreille, 1819

Subfamily: Anthicinae Latreille, 1819

Tribe: Anthicini Latreille, 1819

Omonadus floralis (Linnaeus, 1758)

Distribution in Iran: Mazandaran (Shahhosseini & Kamali, 1989), Iran (no locality cited) (Chandler et al., 2008).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Beverage crops, dried fruit, fresh fruit or vegetable, grain, grain product, nut, oilseed, oilseed product, pulse, pulse product, root, other seed, spoiled other commodities and vegetable material (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989).

Omonadus formicarius formicarius (Goeze, 1777)

Distribution in Iran: Hormozgan (Bonadona, 1970), Khorasan-e Razavi, Azarbayjan, Markazi, Lorestan (Telnov & Ghahari, 2018).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Empty grain bins (Hagstrum et al., 2013).

Family: Anthribidae Billberg, 1820

Subfamily: Choraginae Kirby, 1819

Tribe: Araecerini Lacordaire, 1866

Araecerus fasciculatus (De Geer, 1775)

Distribution in Iran: General distributed (Shahhosseini & Kamali, 1989), Mazandaran (Salehi Ardakani & Nasserzadeh, 2014).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Beverage crops (coffee bean), bake goods, dried fruit, fresh fruit or vegetable, grain (maize), grain product, medicine, nut, other commodities, oilseed, oilseed product, pulse, root (ginseng, yam) root product, other seed, seasoning, textile and vegetable material (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989).

Family: Bostrichidae Latreille, 1802

Subfamily: Dinoderinae Thomson, 1863

Rhyzopertha dominica (Fabricius, 1792)

Distribution in Iran: Golestan (Khormali et al., 2002; Eyidozehi et al., 2013), Tehran (Mehrabadi et al., 2011; Aref & Valizadegan, 2015), West Azarbaijan (Mahdneshin et al., 2009) and generally distributed (Modarres Awal, 1997; Ziaee et al., 2006; Ashouri & Shayesteh, 2009).

General distribution: Probably Indian or Malaysian origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit (apple), fresh fruit or vegetable, grain (barley, maize, millet, oat, paddy, rice, rye, sorghum, teff, wheat), grain product (broken barley, broken millet, broken sorghum, broken wheat, ground buckwheat, oat flake, polished rice, rice flour, wheat flour), medicine, nut (acorn), other commodities, oilseed (peanut, safflower), oilseed product, pulse (black gram, broad bean, chickpea, cowpea, kidney bean, lentil, moth bean, mung bean, pea, pigeon pea, soybean), pulse product (broken black gram, broken chickpea, broken cowpea, broken kidney bean, broken lentil, broken moth bean, broken mung bean, broken pea, broken pigeon pea, broken soybean, crushed broad bean, other commodities (ground dog biscuit), root (potato), residual commodities, root product, other seed, seasoning, vegetable material (dried parsle), wood and wood product (Hagstrum et al., 2013).

Subfamily: Lytinae Billberg, 1820

Tribe: Lyctini Billberg, 1820

Lyctus africanus Lesne, 1907

Distribution in Iran: Not exactly defined (Hagstrum et al., 2013)

General distribution: Africa, Asia and Middle East, Europe, Ethiopian origin, North America and Mexico, Oceania (Hagstrum et al., 2013).

Host range: Oilseed, root, root product, vegetable material and wood (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989).

Lyctus brunneus (Stephens, 1830)

Distribution in Iran: Tehran and other northern and central provinces (Adeli, 1972; Hedjazi & Soleimani, 1976; Abai, 1984; Niloufari, 1984; Behdad, 1988; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Caspian forests (Niloufari, 1985).

General distribution: Probably Neotropical origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host: Dried fruit, grain, medicine, root, seasoning, vegetable material and wood (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989).

Family: Carabidae Latreille, 1802

Subfamily: Harpalinae Bonelli, 1810

Tribe: Sphodrini Laporte de Castelnau, 1834

Laemostenus terricola (Herbst, 1784)

Distribution in Iran: East Azarbaijan (Shahhosseini & Kamali, 1989).

General distribution: Asia and Middle East, Europe and North America (Hagstrum & Subramanyam, 2009; Shahhosseini & Kamali, 1989).

Host: Animal feed, cereal and currant (Hagstrum & Subramanyam, 2009; Shahhosseini & Kamali, 1989).

Family: Cerambycidae Latreille, 1802

Subfamily: Cerambycinae Latreille, 1802

Tribe: Hesperophanini Mulsant, 1839

Stromatium unicolor (Olivier, 1795)

Distribution in Iran: Gilan, Mazandaran, Gorgan and Tehran (Afshar, 1944; Picard, 1949; Mirzayans, 1950; Farahbakhsh, 1961; Abai, 1969, 1984; Bagheri Zenouz, 1986; Behdad, 1988), Caspian region up to 1800 m altitude and parts of Azarbaijan (Soleimani & Knopf, 1976).

General distribution: Caucasus, the Black Sea coast, Crimea and the Ukraine (Gussakovskii, 1949; Plavilstshikov, 1940).

Host range: Oriental plane, ash, elm, alder, teil, beech, willow, chestnut, poplar, pyrus, wych elm and other hard wood fruit trees and dried wood of these plants Tehran (Afshar, 1944; Picard, 1949; Mirzayans, 1950; Farahbakhsh, 1961; Abai, 1969, 1984; Bagheri-Zenouz, 1986; Behdad, 1988).

Family: Chrysomelidae Latreille, 1802

Subfamily: Bruchinea Latreille, 1802

Tribe: Acanthoscelidini Bridwell, 1946

Acanthoscelides obtectus (Say, 1831)

Distribution in Iran: Khorasan-e Razavi (Akbari Asl et al., 2009), generally distributed (Balachowsky, 1969; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989), Iran (no locality cited) (Bagheri-Zenous, 2013).

General distribution: South American (origin). Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Beverage crops, grain, grain product, pulse (broad bean, broad bean crushed, chickling vetch, chickpea, common vetch, field pea, garden pea, kidney bean, lentil, lupine, scarlet runner bean, soybean, tepary bean) and other seed (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

Bruchidius cisti (Fabricius, 1775)

Distribution in Iran: Tehran (Borowiec, 1987 as *Bruchidius canus*) (Ghahari & Borowiec, 2017).

General distribution: Europe, Cyprus, Iran and Turkey (Ghahari & Borowiec, 2017).

Host range: Different cereals (Shahhosseini & Kamali, 1989).

Callosobruchus analis (Fabricius, 1781)

Distribution in Iran: Iran (no locality cited) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, Oceania and South America (Ghahari & Borowiec, 2017).

Host range: Pulse (black gram, chickpea, cowpea, garden pea, moth bean, mung bean, pea, pigeonpea) and seasoning (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

***Callosobruchus chinensis* (Linnaeus, 1758)**

Distribution in Iran: East Azarbaijan, Fars, Guilan, Isfahan, Razavi Khorasan, Khuzestan, Mazandaran, Tehran, Zanjan, central and southern provinces (Alavi, 1974; Frahbakhsh, 1961; Balachowsky, 1969; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Decelle & Lodos, 1989; Anton, 1998).

General distribution: African origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Grain (wheat), nut, pulse (black gram, broad bean, catjang, chickling vetch, chickpea, cluster bean, cowpea, garden pea, gram, grass pea, hyacinth bean, kidney bean, lentil, moth bean, mung bean, pea, pigeonpea, ricebean, soybean, sword bean), pulse product, other seed (gourd, okra) and seasoning (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

***Callosobruchus maculatus* (Fabricius, 1775)**

Distribution in Iran: Golestan (Khormali et al., 2002), Razavi Khorasan (Akbari Asl et al., 2009), Tehran (Modarres Awal, 1997 as *C. quadrimaculatus*; Anton, 1998, Kazemi et al., 2009), Iran (no locality cited) (Decelle & Lodos, 1989; Bagheri-Zenous, 2013), Generally distributed (Alavi, 1974; Balachowsky, 1969; Chokouhian, 1973; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Taheri, 1991; Hagstrum et al., 2013).

General distribution: African origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, dried fruit, grain, nut, oilseed (safflower), pulse (bambara groundnut, black gram, broad bean, chickpea, cowpea, grass pea, hyaciath bean, kidney bean, lentil, mung bean, pea, pigeonpea, soybean), pulse product, residual commodities, other seed, seasoning and vegetable material (Alavi, 1974; Balachowsky, 1969; Chokouhian, 1973; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Taheri, 1991; Hagstrum et al., 2013).

Tribe: Amblicerini Bridwell, 1932***Zabrotes subfasciatus* (Boheman, 1833)**

Distribution in Iran: Iran (no locality cited) (Anton, 1998, 2010)

General distribution: Central American, South American or West Indian origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and South America (Hagstrum et al., 2013).

Host range: Grain and pulse (cowpea, kidney bean) (Hagstrum et al., 2013).

Tribe: Bruchini Latreille, 1802***Bruchus atomarius* (Linnaeus, 1760)**

Distribution in Iran: southern provinces (Balachowsky, 1969; Modarres Awal, 1997), Iran (no locality cited) (Borowiec, 1983, 1987; Decelle & Lodos 1989; Anton, 1998).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Pulse (Hagstrum et al., 2013).

***Bruchus brachialis* Fahraeus, 1839**

Distribution in Iran: Iran (no locality cited) (Modarres Awal, 1997; Ghahari & Borowiec, 2017).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Pulse (Hagstrum et al., 2013).

***Bruchus dentipes* Baudi de Selve, 1886**

Distribution in Iran: Tehran (Balachowsky, 1969; Borowiec, 1987; Anton, 1998), East Azarbaijan (Farahbakhsh, 1961, Modarres Awal, 1997 as *B. dentipes ochreosignatus*).

General distribution: Eastern part of Mediterranean basin, Central Asia (Ghahari & Borowiec, 2017).

Host range: Bean, broad bean and other stored legumes, *Vicia* sp. (Fabaceae) (Farahbakhsh, 1961; Balachowsky, 1969; Modarres Awal, 1997).

***Bruchus emarginatus* Allard, 1868**

Distribution in Iran: East Azarbaijan (Nikdel et al., 2016), northwestern provinces (Modarres Awal, 1997; Shahhosseini & Kamali, 1989).

General distribution: Mediterranean basin, the Middle East and Central Asia (Ghahari & Borowiec, 2017).

Host range: Cowpea, pea and other legumes (Modarres Awal, 1997), *Vicia michauxii* Sprengel (Fabaceae) (Nikdel et al., 2016; Shahhosseini & Kamali, 1989).

***Bruchus ervi* Froelich, 1799**

Distribution in Iran: East Azarbaijan, Khuzestan (Hoffmann, 1945a; Alavi, 1974; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe and South America (Hagstrum et al., 2013).

Host range: Pulse (Hagstrum et al., 2013), lentil (Hoffmann, 1945a; Alavi, 1974; Modarres Awal, 1997).

***Bruchus lentis* Frolich, 1799**

Distribution in Iran: Kuhgiluyeh and Boyerahmad, Tehran (Anton, 1998; Khoobdel et al., 2011), Razavi Khorasan (Ghahari et al., 2010), Iran (no locality cited) (Decelle & Lodos 1989; Anton, 2010; Bagheri-Zenous, 2013), generalily distributed (Davatchi, 1946; Frahbakhsh, 1961; Balachowsky, 1969; Alavi, 1974; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Pulse (Hagstrum et al., 2013), lentil (Davatchi, 1946; Frahbakhsh, 1961; Balachowsky, 1969; Alavi, 1974; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989).

***Bruchus pisorum* (Linnaeus, 1758)**

Distribution in Iran: Golestan (Khormali et al., 2002), Tehran (Borowiec, 1987), generally distributed in Iran (Davatchi, 1946; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Behdad, 1982, 1988; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: West Asian origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Grain, pulse and vegetable material (Hagstrum et al., 2013), Lentil (Davatchi, 1946; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Behdad, 1982, 1988; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Bruchus rufimanus Boheman, 1833

Distribution in Iran: Tehran (Borowiec, 1987; Borowiec & Anton, 1993; Anton 1998; Khoobdel et al., 2011), generally distributed (Davatchi, 1946; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Behdad, 1982; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Bagheri-Zenous, 2013).

General distribution: West Asian origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Grain, medicine, pulse, other seed and seasoning (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

Bruchus tristis Boheman, 1833

Distribution in Iran: Kuhgiluyeh & Boyerahmad (Anton, 1998), Western provinces (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: South Europe, North Africa, Caucasian countries, Cyprus, Turkey and the Middle East (Ghahari & Borowiec, 2017).

Host range: Bean, pea (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Cleridae Latreille, 1802

Subfamily: Korynetinae Laport de Castelnau, 1836

Necrobia rufipes (De Gree, 1775)

Distribution in Iran: Hormozgan, Kerman, Sistan & Baluchestan (Brodský & Winkler, 1988), generally distributed (Farahbakhsh, 1961; Modarres Awal, 1997), Golestan (Khormali et al., 2002) and In Iran (Sepasgosarian, 1978).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate (insect larva), animal vertebrate (dried fish), beverage crops (cocoa), bake goods, dried fruit, fresh fruit or vegetable, grain (maize), grain product, medicine, nut, other commodities, oilseed (palm kernel, peanut), oilseed product (copra), pulse, root, root product, other seed, seasoning, spoiled other commodities, textile and vegetable material (Sepasgosarian, 1978; Hagstrum et al., 2013).

Necrobia violacea (Linnaeus, 1758)

Distribution in Iran: Mazandaran (Brodský & Winkler, 1988), Kermanshah and central provinces (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia, Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Animal vertebrate and grain (Hagstrum et al., 2013), Animal (skin, fat, egg powder, dried, smoked, meat and fish), cheese, bone, dried fruits, nuts, cocoon of silkworm (in granary) and predator of *Calliptamus italicus*, *Dociostaurus maroccanus* and other grasshopper (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989).

Family: Cryptophagidae Kirby, 1826

Subfamily: Atomariinae LeConte, 1861

Tribe: Atomariini LeConte, 1861

Atomaria (Atomaria) lewisi Reitter, 1877

Distribution in Iran: Iran (no locality cited) (Johnson et al., 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Grain and medicine (Hagstrum et al., 2013).

Subfamily: Cryptophaginae Kirby, 1826

Tribe: Cryptophagini, Kirby, 1837

Cryptophagus araxicola Reitter, 1889

Distribution in Iran: East Azarbaijan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Armenia and Azarbaijan (Johnson et al., 2007).

Host range: Fungus and on dried fruits (in damp granaries) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus cellaris (Scopoli, 1763)

Distribution in Iran: East Azarbaijan, Hamadan, Tehran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, bake goods, dried fruit, fresh fruit or vegetable, grain, grain product, nut, other commodities, oilseed, oilseed product, pulse, pulse product, residual commodities, spoiled other commodities, vegetable material and wood product (Hagstrum et al., 2013; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus distinguendus Sturm, 1845

Distribution in Iran: East Azarbaijan, Mazandaran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe and North America (Hagstrum & Subramanyam, 2009).

Host range: Dried fruit and residue (Hagstrum & Subramanyam, 2009), fungus and on dried fruits (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus hexagonalis Toumier, 1872

Distribution in Iran: Azarbaijan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Finland, Belarus, Russia, Turkey, Siberia, Mongolia, Kazakhstan, Turkmenistan (Johnson et al., 2007; Otero, 2013).

Host range: Fungus and on dried fruits (in damp granaries) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus simplex Miller, 1858

Distribution in Iran: East Azarbaijan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Asia and Middle East, Europe (Hagstrum & Subramanyam, 2009).

Host range: Flourmills, granaries (Hagstrum & Subramanyam, 2009), Fungus and on dried fruits (in damp granaries) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus laticollis P. H. Lucas, 1846

Distribution in Iran: East Azarbaijan, Mazandaran and Tehran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and South America (Hagstrum & Subramanyam, 2009).

Host range: Almond, apricot (dried), bean, currant, dried fruit, esparto grass (moldy), fig, grain residue, illipe nut, lentil, lotus, maize, mushroom, oat, oilcake, paddy residue, palm kernel, pollard, prune, raisin, rye, seaweed (dried), soybean meal, sultana, valonia spillage, vegetable refuse (decaying), walnut, wheat and wheat flour (Hagstrum & Subramanyam, 2009), Fungus and on dried fruits (in damp granaries) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cryptophagus acutangulus Gyllenhal, 1827

Distribution in Iran: East Azarbaijan, Fars and Northern Khorasan (Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Animal vertebrate, dried fruit, grain, grain product nut, other commodities, pulse product, spoiled other commodities and vegetable material (Hagstrum et al., 2013).

Cryptophagus dentatus (Herbst, 1793)

Distribution in Iran: Fars, Kuhgiluyeh-Boyerahmad and Mazandaran (Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Dried fruit, grain, grain product, medicine, oilseed, root product and vegetable material (Hagstrum et al., 2013).

Cryptophagus pilosus Gyllenhal, 1827

Distribution in Iran: Iran (No locality cited) (Hagstrum & Subramanyam, 2009).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Dried fruit, grain, grain product, grain spoiled, nut, pulse product and vegetable material (Hagstrum et al., 2013).

Cryptophagus scanicus (Linnaeus, 1758)

Distribution in Iran: Guilan, Mazandaran and Tehran (Modarres Awal, 1997) and Iran (no locality cited) (Majka & Langor, 2010).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Dried fruit, fresh fruit or vegetable, grain, grain product, nut and vegetable material (Hagstrum et al., 2013).

Cryptophagus scutellatus Newman, 1834

Distribution in Iran: Mazandaran (Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Grain (Hagstrum et al., 2013).

Cryptophagus subfumatus kraatz, 1856

Distribution in Iran: Iran (No locality cited) (Hagstrum & Subramanyam, 2009)

General distribution: Asia and Middle East, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Animal invertebrate, dried fruit, grain, nut and seasoning (Hagstrum et al., 2013).

Family: Curculionidae Latreille, 1802

Subfamily: Cossoninae Schönherr, 1825

Tribe: Onycholipini Wollaston, 1837

Hexarthrum exiguum (Boheman, 1838)

Distribution in Iran: Tehran (Sakenin et al., 2018).

General distribution: Not exactly defined (Sakenin et al., 2018).

Host range: Not exactly defined (Sakenin et al., 2018).

Subfamily: Rhynchophorinae Schönherr, 1833

Tribe: Litosomini Lacordaire, 1866

Sitophilus granarius (Linnaeus, 1758)

Distribution in Iran: Generally distributed (Afshar, 1944; Hoffmann, 1945b; Dvatchi, 1947; Shayesteh, 1957; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Guilan, Khuzestan (Legalov et al., 2010).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops (cocoa bean, coffee bean), dried fruit, fresh fruit or vegetable, grain (barley, buckwheat, maize, oat, paddy, rice, rye, sorghum, triticale, wheat), grain product (noodle, wheat bran, flour or meal), medicine, nut (acorn, almond,

chestnut), other commodities, oilseed (peanut, safflower, oilseed product, pulse (broad bean, lupine, pea, soybean), pulse product (crushed broad bean, soybean meal), root, residual commodities, root product, other seed, textile and vegetable material (alfalfa pellet, rye grass pellet) (Afshar, 1944; Hoffmann, 1945b; Dvatchi 1947; Shayesteh, 1957; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum et al., 2013).

Sitophilus oryzae (Linnaeus, 1763)

Distribution in Iran: Generally distributed (Afshar, 1944; Hoffmann, 1945b; Dvatchi 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Fars, Golestan, Guilan, Hamadan, Isfahan, Khorasan, Semnan (Legalov et al., 2010).

General distribution: Oriental origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit, fresh fruit or vegetable, grain (barley, buckwheat, maize, oat, rice, sorghum, teff, triticale, wheat), grain product, medicine, nut acorn, chestnut, other commodities, oilseed (safflower), oilseed product, pulse (broad bean), pulse product (crushed broad bean, split pea), root, residual commodities, root product, other seed, seasoning, textile and vegetable material (tamarind) (Afshar, 1944; Hoffmann, 1945b; Dvatchi, 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum et al., 2013).

Sitophilus zeamais Motschulsky, 1855

Distribution in Iran: Tehran and Balouchestan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Fars, Golestan, Isfahan, Mazandaran, Sistan & Baluchestan, Tehran (Legalov et al., 2010).

General distribution: Oriental origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops 2.8%, bake goods, dried fruit, dried fruit product, fresh fruit or vegetable (melon), grain (barley, buckwheat, maize, millet, oat, rice, sorghum, triticale, wheat, grain product (ground sorghum), medicine, nut (acorn, chestnut), nut product, other commodities, oilseed (peanut), oilseed product, pulse (broad bean, bambara groundnut, cowpea, soybean), pulse product (crushed broad bean), root, root product (cassava chip, yam chip), other seed, seasoning (pepper) and vegetable material (Hagstrum et al., 2013), corn (in granary) (Modarres Awal, 1997; Shahhosseini & Kamali, 1989).

Subfamily: Scolytinae Latreille, 1804

Tribe: Cryphalini Lindemann, 1876

Hypothenemus eruditus Westwood, 1836

Distribution in Iran: Northern provinces (Abai, 1984; Behdad, 1988; Modarres Awal, 1997), Guilan, Tehran, and other northern provinces (Amini et al., 2013; Modarres Awal, 1997 (as

Hypothenemus lezhavai Pjatnitskii, 1929 and *Hypothenemus aspericollis* Wollaston, 1860 (see Ghahari & Colonelli, 2012)), Iran (no locality cited) (Balachowsky, 1949; Mifsud & Knížek, 2009; Knížek, 2011).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Beverage crops, grain, other commodities, pulse, root, root product and vegetable material (Hagstrum et al., 2013), tree of heaven, apricot, almond (Abai, 1984; Behdad, 1988; Modarres Awal, 1997).

Hypothenemus hampei (Ferrari, 1867)

Distribution in Iran: Iran (No locality cited) (Hagstrum & Subramanyam, 2009; Knížek, 2011).

General distribution: Central African origin. Africa, Asia and Middle East, Central America and Caribbean, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Beverage crops, grain, nut, other commodities, pulse, vegetable material (Hagstrum et al., 2013).

Family: Dermestidae Latreille, 1804

Subfamily: Attageninae Laporte, 1840

Tribe: Attagenini Laporte, 1840

Attagenus bifasciatus (Oliver, 1790)

Distribution in Iran: No locality cited (Mroczkowski, 1968; Háva, 2003a, 2007, 2015; Tezcan et al., 2004).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Shops, residences (Hagstrum et al., 2013)

Attagenus fasciatus (Thunberg, 1795)

Distribution in Iran: Tehran (Modarres Awal, 1997), no locality cited (Mroczkowski, 1968; Zhantiev, 1976; Háva, 2007, 2015).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (dried milk), beverage crops, grain, grain product, grain spoiled, medicine, other commodities, oilseed, oilseed product, pulse, pulse product, other seed and seasoning, textile (Hagstrum et al., 2013).

Attagenus lobatus Rosenhauer, 1856

Distribution in Iran: Khuzestan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Mroczkowski, 1968; Zhantiev, 1976; Háva, 2003b, 2007, 2015).

General distribution: Africa, Asia and Middle East, Europe and North America and Mexico (Hagstrum et al., 2013).

Host range: Animal vertebrate and grain (Hagstrum et al., 2013), storage products (Shahhosseini & Kamali, 1989).

Attagenus pellio (Linnaeus, 1758)

Distribution in Iran: Alborz (Farahbakhsh, 1961), Tehran (Modarres Awal, 1997), no locality cited (Zhantiev, 1976; Abivardi, 2001; Háva, 2007, 2015).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, grain, grain product soybean meal, other commodities, oilseed, oilseed product, residual commodities, textile, vegetable material (Hagstrum et al., 2013; Farahbakhsh, 1961).

Attagenus unicolor (Brahm, 1791)

Distribution in Iran: Alborz (Farahbakhsh, 1961), Khorasan, Tehran and other areas (Modarres Awal, 1997), no locality cited (Abivardi, 2001; Háva, 2007, 2015).

General distribution: Oriental region origin. Africa, Asia and Middle East, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit, grain, grain product, medicine, nut, nut product, other commodities, oilseed, oilseed product, pulse, pulse product, residual commodities, other seed, seasoning, textile and vegetable material (Hagstrum et al., 2013).

Subfamily: Dermestinae Latreille, 1807**Tribe: Dermestini Latreille, 1807***Dermestes ater* De Gree, 1774

Distribution in Iran: Hormozgan (Bagh-e Tang), Sistan and Baluchestan (Chabahar) (Háva & Kalík, 1999), no locality cited (Mroczkowsky, 1968; Zhantiev, 1976; Háva, 2007).

General distribution: American origin. Africa, Central America and Caribbean, Europe, North America and Oceania (Hagstrum & Subramanyam, 2009).

Host range: Animal feed, animal product, bacon, basket ware, bone, Brazil nut, Chinese traditional medicine, cocoa, cotton seed, dried fish, fertilizer, fish air bladder (dried), fishmeal, grain residue, groundnut cake, hide, meat (dried), museum specimen, nut, oilcake, oyster (dried), sesame seed, shark fin (dried), tobacco and turtle shell (Hagstrum & Subramanyam, 2009).

Dermestes frischii Kugelann, 1792

Distribution in Iran: Ardabil (Khalkhal, Kivi Bala), East Azarbaijan (Mianeh, Tabriz), Fars (Háva & Kalík, 1999; Keshavarzi et al., 2015), Isfahan (Robat Tork), Kuhgiluyeh and Boyerahmad (Kooch-e-Dinar), Mazandaran (Alamdeh, Chalus, Kojur, Veresk), Sistan and Baluchestan (Bampur, Chabahar), Tehran (Darakeh, Evin, Golhak) (Háva & Kalík, 1999), generally distributed (Farahbakhsh, 1961; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Abivardi, 2001; Háva, 2007) .

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate (fishmeal), beverage crops, bake goods, dried fruit, grain, grain product (wheat flour, wheat germ), medicine, nut, other commodities, oilseed (peanut), oilseed product, pulse, pulse product (soybean, meal),

seasoning, wood product, chocolate, cacao, bone and cheese (in the granary and ship) (Farahbakhsh, 1961; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum et al., 2013).

Dermestes lardarius Linnaeus, 1758

Distribution in Iran: Tehran, West Azarbaijan (Khoy) (Háva & Kalík, 1999), no locality cited (Háva, 2007).

General distribution: Eurasian origin, Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (fishmeal), beverage crops (cocoa), bake goods, dried fruit, grain, grain product (wheat flour, wheat germ), nut (almond), other commodities, oilseed (peanut), oilseed product copra, pulse, pulse product (soybean meal), other seed, seasoning, spoiled other commodities and vegetable material (Hagstrum et al., 2013).

Dermestes maculatus De Geer, 1774

Distribution in Iran: Tehran, West Azarbaijan (Khoy) (Háva & Kalík, 1999), no locality cited (Háva, 2007).

General distribution: Eurasian origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (blood meal, bone meal, fishmeal, fish (dried), sardine meal, hide), beverage crops (cocoa), bake goods, fresh fruit or vegetable, grain, grain product (wheat flour, wheat germ, medicine, nut (almond)), other commodities (dog chow), oilseed (peanut), oilseed product (copra, palm kernel meal), pulse, pulse product (soybean meal), root, other seed, seasoning, textile, vegetable material, wood product and vegetable material (alfalfa pellet, ryegrass pellet) (Hagstrum et al., 2013).

Dermestes murinus Linnaeus, 1758

Distribution in Iran: Guilan (Assalem), Mazandaran (Háva & Kalík, 1999), no locality cited (Háva, 2007).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Animal invertebrate (silk cloth), animal vertebrate (hog bristle, woolen) (Hagstrum et al., 2013).

Dermestes mustellinus Erichson, 1846

Distribution in Iran: East Azarbaijan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Europe, Asia (Hagstrum & Subramanyam, 2009).

Host range: Strong product (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Subfamily: Megatominiinae Leach, 1815

Tribe: Anthrenini Gistel, 1856

Anthrenus flavipes LeConte, 1854

Distribution in Iran: No locality cited (Háva, 2007; Herrmann et al., 2010), East Azarbaijan (Alavi, 1974; Khorramshahi, 1982).

General distribution: Oriental Region origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate (silk cloth), animal vertebrate (hog bristle, woolen), fresh fruit or vegetable, grain, grain product, other commodities, oilseed product, other seed, textile (cotton cloth), vegetable material and wood (Hagstrum et al., 2013), Goat wool (Alavi, 1974; Khorramshahi, 1982).

Anthrenus museorum (Linnaeus, 1761)

Distribution in Iran: Generally distributed (Farahbakhsh, 1961; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Háva, 2007; Herrmann et al., 2010).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania (Hagstrum & Subramanyam, 2009).

Host range: Apricot (dried), carpet, cereal, currant, feather, fig, fur, hide, insect (dried), museum specimen, rice, silk, sorghum, sultana, upholstery, wheat flour, wool and Predator gypsy moth eggs, herbarium (Farahbakhsh, 1961; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum & Subramanyam, 2009).

Anthrenus pimpinellae (Fabricius, 1775)

Distribution in Iran: Generally distributed (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Herrmann et al., 2010).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, other commodities (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

Anthrenus scrophulariae (Linnaeus, 1758)

Distribution in Iran: Generally distributed (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Háva, 2007; Herrmann et al., 2010).

General distribution: Eurasian origin. Africa, Asia and Middle East, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, grain, grain product, other commodities, other seed, textile and vegetable material (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

Anthrenus verbasci (Linnaeus, 1767)

Distribution in Iran: Fars (Ardakan, Shiraz) (Karami et al., 2004), Isfahan (Bagheri & Nasr Isfahani, 2011), Tehran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Háva, 2007; Herrmann et al., 2010).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit, grain, grain product, grain spoiled, medicine, nut, nut product, other commodities, oilseed, oilseed product, pulse, pulse product, root, other seed, seasoning, textile, vegetable material and wood product (Hagstrum et al., 2013), carpet and storage product (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Subfamily: Megatomini Leach, 1815

Tribe: Megatomini Leach, 1815

Phradonoma nobile (Reitter, 1881)

Distribution in Iran: Hormozgan (Isin), Kerman (Nosrat-Abad, Rafsanjan), Khuzestan (Ahwaz) (Háva, 2006), Sistan and Baluchestan (Nikshahr) (Herrmann et al., 2010, on flowers of *C. aurantifolia*), no locality cited (Modarres Awal, 1997; Háva, 2003b, 2007, 2015; Herrmann & Háva, 2008), in Iran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, dried fruit, grain, grain product, medicine, oilseed and oilseed product (Hagstrum et al., 2013), storage product (Shahhosseini & Kamali, 1989).

Trogoderma glabrum (Herbst, 1783)

Distribution in Iran: Iran (No locality cited) (Háva, 2007; Bulak et al., 2013).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico (Hagstrum et al., 2013).

Host range: Animal invertebrate (dried insect, pollen), animal vertebrate (fishmeal, dried milk), dried fruit (raisin), grain (barley, maize, oat, wheat), grain product (cracked maize, maize meal, noodle, oatmeal, polished rice, rolled oat, rolled barley, rye, sorghum, wheat flour, wheat flour with germ, wheat germ), nut (almond, walnut), other commodities (cat food, egg noodle, kibbled dog food, poultry laying mash), oilseed (peanut, safflower), oilseed product (broken safflower, safflower meal), pulse (cowpea, kidney bean, lima bean), pulse product and other seed (Hagstrum et al., 2013).

Trogoderma granarium Everts, 1898

Distribution in Iran: Golestan (Khormali et al., 2002), Semnan (Forghani & Marouf, 2015), Tehran (Mehrabadi et al., 2011), generally distributed (Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Taheri, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Abivardi, 2001; Háva, 2007).

General distribution: Indian origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal vertebrate (beef blood, dried milk), beverage crops (coffee bean), bake goods (cracker), dried fruit (apricot, date, prune, raisin), fresh fruit or vegetable (peach), grain (barley, maize, oat, rice, rye, shelled maize, wheat), grain product (barley cereal, cracked oat, cracked rice, ground barley, ground buckwheat, ground maize, ground rice, instant white rice, maize cereal, maize meal, malt, noodle, oatmeal, polished rice, precooked oatmeal, rice flake, rolled barley, rolled oat, wheat feed, wheat flour, germ or semolina), medicine, nut, nut product (almond meat, kola nut, pecan meat, walnut meat), other

commodities (egg noodle, ground dog food, gelatin, halvah, pablum, oilseed (flax, peanut, sesame seed), oilseed product (copra meal, cottonseed, ground flax), pulse (black gram, chickpea, cowpea, hyacinth bean, lentil, lima bean, mung bean, pigeonpea, pinto bean, soybean), pulse product (cracked pea, lentil flour, soybean meal), root, root product (tapioca), other seed (alfalfa, grass), seasoning, textile, vegetable material (herb, dried mushroom, yeast and wood product (cork , paper) (Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Taheri, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum et al., 2013).

Trogoderma inclusum Le Conte, 1854

Distribution in Iran: East Azarbaijan, Kerman, Kermanshah, Khuzestan, Semnan, Tehran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997), no locality cited (Háva, 2004, 2007; Háva & Herrmann, 2011).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate (dried insect, pollen), animal vertebrate (fishmeal, dried milk), bake goods, dried fruit (raisin), dried fruit product, grain (barley, maize, oat, rye, sorghum, wheat), grain product (maize meal, malt, noodle, oatmeal, polished rice, rolled barley, rolled oat, wheat flour or germ), nut (almond, walnut), other commodities (cat food, egg noodle, kibbled dog food, poultry laying mash), oilseed (peanut, safflower), oilseed product (broken safflower, safflower meal), pulse (cowpea, kidney bean, lima bean), pulse product, residual commodities, root product, other seed, seasoning, textile and vegetable material (Shahhosseini & Kamali, 1989; Hagstrum et al., 2013).

Trogoderma megatomoides Reitter, 1881

Distribution in Iran: East Azarbaijan, Fars, Khorasan, Mazandaran, Tehran (Modarres Awal, 1997, as *Entomotrogus megatomoides*), no locality cited (Abivardi, 2001; Háva, 2007, 2015).

General distribution: Africa, Central America, Europe, North America and Mexico (Hagstrum & Subramanyam, 2009).

Host range: Insect (dried) (Hagstrum & Subramanyam, 2009).

Trogoderma variabile Ballion, 1878

Distribution in Iran: Semnan (Forghani & Marouf, 2015), no locality cited (Somerfield, 1981; Stejskal et al., 2005; Háva, 2007; Bulak et al., 2013).

General distribution: Central Asia and Middle Eastian origin, Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate (dried insect, pollen), animal vertebrate (dried milk, fishmeal), beverage crops, bake goods, dried fruit (raisin), grain (barley, oat, maize, rice, rye, shelled maize, sorghum, wheat), grain product (barley cereal, instant oatmeal, maize cereal, maize meal, noodle, oatmeal, polished rice, rolled barley, rolled oat, wheat feed, wheat flour, wheat germ, white rice), medicine, nut, nut product, other commodities (cat food, kibbled or ground dog food, egg noodle, flax, gelatin, pablum, poultry laying mash), oilseed (safflower), oilseed product (copra meal, safflower meal), pulse (cowpea, kidney bean, lima bean, pinto bean), root, root product, other seed, seasoning, textile and vegetable material (Hagstrum et al., 2013).

Trogoderma versicolor (Creutzer, 1799)

Distribution in Iran: Generally distributed (Farahbakhsh, 1961; Sepasgosarian, 1978; Modarres Awal, 1997; Shahhosseini & Kamali, 1989), no locality cited (Abivardi, 2001; Háva, 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, dried fruit, fresh fruit or vegetable, grain (maize, wheat), grain product (oatmeal, wheat flour), nut, oilseed, oilseed product, pulse, root, other seed and seasoning (Hagstrum et al., 2013), entomological collections, legumes grains, dried fish (Farahbakhsh, 1961; Sepasgosarian, 1978; Modarres Awal, 1997; Shahhosseini & Kamali, 1989).

Subfamily: Thorictinae Agassiz, 1846**Tribe:** Thaumaphrastini Anderson, 1949*Thorictodes heydeni* Reitter, 1875

Distribution in Iran: Bandar Abbas (Shahhosseini & Kamali, 1989), not exactly defined (Hagstrum et al., 2013).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Animal vertebrate, grain, grain product, medicine, other commodities, oilseed, oilseed product, pulse, pulse product, root, residual commodities, root product and other seed (Hagstrum et al., 2013).

Family: Erotylidae Latreille, 1802**Subfamily:** Cryptophilinae Casey, 1900**Tribe:** Cryptophilini Casey, 1900*Cryptophilus integer* (Heer, 1841)

Distribution in Iran: Iran (No locality cited) (Hagstrum & Subramanyam, 2009).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Dried fruit, grain, grain product, medicine, pulse product, residual commodities, spoiled other commodities, vegetable material (Hagstrum et al., 2013).

Family: Laemophloeidae Ganglbauer, 1899**Subfamily:** Laemophloeinae Ganglbauer, 1899*Cryptolestes ferrugineus* (Stephens, 1831)

Distribution in Iran: Tehran (Farahbakhsh 1961 as *Laemophloeus ferrugineus* (Stephens, 1828)), generally distributed (Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Wegrzynowicz, 2007).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, dried fruit, fresh fruit or vegetable, grain (barley, maize, millet, oat, rice, rye, wheat), grain product (cracked barley, ground barley,

ground maize, ground millet, ground oat, ground rice, ground rye, ground wheat), medicine, nut, other commodities, oilseed (canola, flax, rape, sunflower, oilseed) product (ground flax, ground rape, ground sunflower), pulse (broad bean, soybean), pulse product, crushed broad bean, soybean meal, root, residual commodities, root product, other seed (clover, ground clover, mustard), seasoning, vegetable material (alfalfa pellet, rye grass pellet) (Hagstrum et al., 2013), Adults and larvae feed on cake and seeds (Farahbakhsh, 1961); on cotton, wheat, in granary (Farahbakhsh 1961; Modarres Awal, 1997; Shahhosseini & Kamali, 1989).

***Cryptolestes pusillus* (Schönherr, 1817)**

Distribution in Iran: Isfahan, Tehran, Tabriz, Rasht (Farahbakhsh 1961 as *Laemophloeus pusillus* (Schönherr, 1817)); (Shahhosseini & Kamali, 1989; Davatchi, 1950; Modarres Awal, 1997 as *Laemophloeus minutus* (Olivier, 1791)).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Beverage crops, bake goods, dried fruit, dried fruit product, fresh fruit or vegetable, grain (maize, rice, teff, wheat), grain product (maize meal, rice meal, wheat feed, wheat flour, wheat meal), medicine, nut, other commodities, oilseed (peanut, safflower), oilseed product (peanut meal, safflower meal), pulse (cowpea, pulse product (cowpea meal, lentil flour, soybean meal), root, root product, other seed, seasoning and vegetable material (Hagstrum et al., 2013).

***Cryptolestes turcicus* (Grouvelle, 1876)**

Distribution in Iran: Tehran (Farahbakhsh, 1961 as *Laemophloeus turcicus* Grouvelle, 1876), generally distributed (Davatchi, 1950; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Wegrzynowicz, 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, South America (Hagstrum et al., 2013).

Host range: Beverage crops, dried fruit, grain (maize, rice, wheat), grain product (cracked barley, cracked maize, cracked oat, cracked rice, cracked wheat, maize meal, rice meal, wheat meal), medicine, oilseed (peanut), oilseed product (cracked peanut, peanut meal), pulse (broad bean, cowpea), pulse product (cowpea meal, cracked cowpea, crushed broad bean, soybean meal), residual commodities, root product, seasoning, vegetable material (Hagstrum et al., 2013), Cacao, cotton, rice, wheat and other cereals and their products (in granary) (Davatchi, 1950; Sepasgosarian, 1978; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Lathridiidae Erichson, 1842

Subfamily: Corticariinae, Erichson, 1842

***Corticaria serrata* (Paykull, 1798)**

Distribution in Iran: In Iran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia, Europe, North America and Oceania (Hagstrum & Subramanyam, 2009).

Host range: Beverage crops, dried fruit, dried fruit product, grain, grain product, nut, oilseed product, pulse and wood product (Hagstrum et al., 2013), storage products (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Melyridae Leach, 1815

Subfamily: Melyrinae Leach, 1815

Tribe: Melyrini Leach, 1815

Melyris oblonga (Fabricius, 1775)

Distribution in Iran: Tehran (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Animal invertebrate, dried fruit, dried fruit product, grain, nut, pulse and root (Hagstrum et al., 2013), dry wood (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Mycetophagidae Leach, 1815

Subfamily: Mycetophaginae Leach, 1815

Tribe: Typhaeini Nikitsky, 1993

Typhaea stercorea (Linnaeus, 1758)

Distribution in Iran: Mazandaran, Gilan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, dried fruit, fresh fruit or vegetable, grain, grain product (kibbled wheat, medicine), nut, nut product, oilseed, oilseed product, pulse, pulse product (soybean meal), root, residual commodities, root product, other seed, seasoning, spoiled other commodities, vegetable material (Hagstrum et al., 2013), fungus on raisin, date and dried apricot (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Nitidulidae Latreille, 1802

Subfamily: Carpophilinae Erichson, 1842

Tribe: Carpophilini Erichson, 1842

Carpophilus dimidiatus (Fabricius, 1792)

Distribution in Iran: Khuzestan (Azimi et al., 1993), generally distributed in Iran (Esmaili, 1983; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, dried fruit, dried fruit product, fresh fruit or vegetable, grain, grain product (cracked rough rice, wheat bran), medicine, nut, nut product, other commodities, oilseed, oilseed product, pulse, pulse product, root, residual commodities, root product, other seed, seasoning, spoiled other commodities and vegetable material (Hagstrum et al., 2013), citrus and also rice and fruits (Esmaili, 1983; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Carpophilus hemipterus (Linnaeus, 1758)

Distribution in Iran: generally distributed in Iran (Farahbakhsh, 1961; Alavi, 1974; Khorramshahi, 1982; Esmaili, 1983; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Golestan (Khormali et al., 2002).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit, dried fruit product, fresh fruit or vegetable, grain, grain product, grain spoiled, medicine, nut, nut product, other commodities, oilseed, oilseed product, pulse, pulse product, root, residual commodities, root product, other seed, seasoning, spoiled other commodities and vegetable material (Hagstrum et al., 2013), date-palm, dried apricot, almond, citrus and other dried fruits and agricultural products (in granary) (Farahbakhsh, 1961; Alavi, 1974; Khorramshahi, 1982; Esmaili, 1983; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Carpophilus mutilatus Erichson, 1843

Distribution in Iran: Golestan (Khormali et al., 2002).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, beverage crops, dried fruit, fresh fruit or vegetable, grain, grain product, grain spoiled, nut, nut product, oilseed, oilseed product, pulse, root, residual commodities, root product, seasoning and vegetable material, flour and spaghetti (Hagstrum et al., 2013; Khormali et al., 2002).

Carpophilus obsoletus Erichson, 1843

Distribution in Iran: Khuzestan, Markazi (Shahhosseini & Kamali, 1989; Naeem & Akhyani, 1988; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Beverage crops, dried fruit, fresh fruit or vegetable, grain, grain product, medicine, nut, oilseed, oilseed product, pulse, root, residual commodities, root product, seasoning, and vegetable material (Hagstrum et al., 2013), fig and also date, dried apricot and raising (Shahhosseini & Kamali, 1989; Naeem & Akhyani, 1988; Modarres Awal, 1997).

Family: Ptinidae Latreille, 1802

Subfamily: Anobiinae Fleming, 1821

Tribe: Anobiini Fleming, 1821

Anobium punctatum (De Geer, 1774)

Distribution in Iran: Tehran, Gilan, central and northern provinces and probably other areas (Afshar, 1944; Farahbakhsh, 1961; Niloufari, 1984; Abai, 1984; Behdad, 1988; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Golestan (Abd-Rabou et al., 2005), Guilan, northern and central provinces (Modarres Awal, 1997), Tehran (Modarres Awal, 1997 as *Anobium domesticum* (Geoffroy, 1785)), Iran (no locality cited) (Zahradnik, 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Other commodities, root, other seed, wood (Hagstrum et al., 2013), pine, poplar, alder, oak, ash, walnut and other hard wood (Afshar, 1944; Farahbakhsh, 1961; Niloufari, 1984; Abai, 1984; Behdad, 1988; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Stegobiini White, 1982

Stegobium paniceum (Linnaeus, 1758)

Distribution in Iran: Largely distributed, no locality cited (Davatchi, 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Niloufari, 1984; Shahhosseini & Kamali, 1989; Modarres Awal, 1997, Zahradvik, 2007).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (meat meal, dried milk), beverage crops, bake goods, dried fruit, fresh fruit or vegetable, grain (barley, maize), grain product (oatmeal flour, polished rice, wheatfeed, wheat flour), medicine, nut, nut product, other commodities, oilseed (safflower), oilseed product (safflower meal), pulse, pulse product (ground pea, lentil flour, pea flour, soybean meal), root, root product, other seed (pomegranate, poppy), seasoning (aniseed, black mustard, caraway, cardamom, chili pepper powder, coriander, cumin, fennel powder, garlic, ginger, turmeric), textile, vegetable material (alfalfa pellets, onion, rye grass pellet) wood, wood product (Davatchi, 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Niloufari, 1984; Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Hagstrum et al., 2013).

Subfamily: Ptininae Latreille, 1802

Tribe: Ptinini Latreille, 1802

Niptus hololeucus (Faldermann, 1835)

Distribution in Iran: General distributed (Davatchi, 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Bagheri Zenouz, 1986; Khorramshahi, 1982; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Fars (Dashan et al., 2014), generally distributed (Farahbakhsh, 1961; Modarres Awal, 1997), Iran (no locality cited) (Borowski, 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (fishmeal), beverage crops, bake goods, fresh fruit or vegetable, grain, grain product (wheat flour, wheatfeed), medicine, other commodities, oilseed product, pulse product, root, other seed, seasoning, textile, vegetable material and wood product (Hagstrum et al., 2013), wool, skin, silk, linen, paper, flour, carpet, cotton and related products, tobacco, tea, medicinal plants, rice and other cereals, feather (Davatchi, 1947; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Bagheri Zenouz, 1986; Khorramshahi, 1982; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Ptinus (Ptinus) fur (Linnaeus, 1758)

Distribution in Iran: Northern and central provinces (Afshar, 1944; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Borowski, 2007).

General distribution: Africa, Asia and Middle East, Europe, North America and Mexico, Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (fishmeal), beverage crops, bake goods, dried fruit, fresh fruit or vegetable, grain, grain product (wheatfeed), medicine, nut, other commodities, oilseed, root, other seed, seasoning, textile, vegetable material, wood and wood product (Hagstrum et al., 2013), insect and other animal collections, wool, skin (Afshar, 1944; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Ptinus (Ptinus) latro Fabricius, 1775

Distribution in Iran: Widely distributed (Farahbakhsh, 1961, Modarres Awal, 1997 as *Ptinus brunneus* Duftschmid, 1825), Iran (no locality cited) (Modarres Awal, 1997 as *Ptinus clavipes* Panzer, 1805; Borowski, 2007).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico and Oceania (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, dried fruit, grain, grain product (wheatfeed), medicine, nut, other commodities, oilseed, oilseed product, pulse, pulse product, root, residual commodities, other seed, seasoning, spoiled other commodities, textile and vegetable material (Hagstrum et al., 2013).

Ptinus (Tectoptynus) tectus Boieldieu, 1856

Distribution in Iran: Not exactly defined (Borowski, 2007; Hagstrum et al., 2013).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate (dried insect), animal vertebrate (beef, casein, dried milk, egg, fishmeal, herring meal, meat meal), beverage crops, bake goods, dried fruit, fresh fruit or vegetable (cabbage, carrot, ground cabbage, ground carrot), grain (wheat), grain product (rice flour, wheat bran, flour, germ or meal, wheatfeed), medicine, nut, other commodities, oilseed, oilseed product (copra meal, cottonseed meal), pulse, pulse product (pea flour, soybean meal, root (beet, ground beet, ground potato, potato), root product, other seed, seasoning, textile, vegetable material (alfalfa pellet, grass meal, ground onion, ground swede, onion, rye grass pellet, swede, yeast) and wood (Hagstrum et al., 2013).

Subfamily: Gibbiinae Mulsant & Rey, 1868

Tribe: Gibbiini Jacquelin du Val, 1860

Gibbium aequinoctiale Boieldieu, 1854

Distribution in Iran: General distributed (Modarres Awal, 1997), Northern Iran (no locality cited) (Belles, 1985), Iran (no locality cited) (Borowski, 2007).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Grain, medicine, seasoning, spoiled other commodities, textile and vegetable material (Hagstrum et al., 2013).

Gibbium psylloides (de Czeppinski, 1778)

Distribution in Iran: General distributed (Afshar, 1944; Farahbakhsh, 1961; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Belles, 1985; Borowski, 2007).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (fishmeal), beverage crops, bake goods, grain, grain product (wheat flour, wheatfeed, medicine, other commodities, oilseed, oilseed product, pulse, pulse product, residual commodities, other seed, seasoning, textile, vegetable material and wood product (Hagstrum et al., 2013), wool, paper, animal and plant collections, cereals, seeds (in granary) (Afshar, 1944; Farahbakhsh, 1961; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Subfamily: Xyletininae Gistel, 1856

Tribe: Lasiodermini White, 1982

Lasioderma serricorne (Fabricius, 1792)

Distribution in Iran: General distributed (Modarres Awal, 1997; Afshar, 1944; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Niloufari, 1984; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989), Ardabil (Ghahari & Lim, 2012), Golestan (Khormali et al., 2002; Marouf et al., 2009), Kordestan (Allahvaisi, 2013), Mazandaran (Marouf et al., 2009), largely distributed (Modarres awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (dried sardine), beverage crops (cocoa bean, cocoa powder, crushed cocoa bean, roasted coffee bean), bake goods, dried fruit (carob), dried fruit product (crushed carob) fresh fruit or vegetable, grain (maize , wheat), grain product (maize flour, wheat bran, wheat flour, wheat feed), medicine, nut, nut product, other commodities, oilseed (coconut meal, cotton seed, peanut, safflower), oilseed product (cotton seed meal, safflower meal), pulse (bean, cowpea, horse bean, pea), pulse product (lentil flour, soybean meal), root (beet, carrot, licorice), root product, other seed, pomegranate, poppy, seasoning (allspice, anise, black pepper, caraway, caraway flour, cardamom, cayenne pepper, celery salt, chili pepper, cinnamon, clove, coriander, cumin, curry powder, fennel, fennel flour, garlic, ginger, mustard, nutmeg, oregano, paprika, thyme, turmeric), textile, vegetable material (chamomile , cigar tobacco, onion, roselle, rosemary leaf, tobacco, yeast) and wood product (Hagstrum et al., 2013), tobacco products especially cigarette and dried leaves (Modarres Awal, 1997; Afshar, 1944; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Niloufari, 1984; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989).

Tribe: Xyletinini Gistl, 1848

Xyletinus (Xeronthobius) pallens Germar, 1824

Distribution in Iran: Most of areas (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Iran (no locality cited) (Zahradnik, 2007).

General distribution: Not exactly defined (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Host range: Tobacco and related products (Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Family: Silvanidae Kirby, 1837

Subfamily: Silvaninae Kirby, 1837

Ahasverus advena (Waltl, 1834)

Distribution in Iran: Guilan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: American, Ethiopian or Oriental origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate (dried insect), animal vertebrate, beverage crops (cocoa), bake goods, dried fruit, fresh fruit or vegetable, grain (wheat), grain product (kibbled wheat, rolled oat, wheat flour, wheat germ), grain spoiled, medicine, nut, nut product, other commodities, oilseed (copra, palm kernel, peanut), oilseed product, pulse, pulse product (soybean meal), root, root product, other seed, seasoning and vegetable material (Hagstrum et al., 2013), grain and other storage products (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Oryzaephilus mercator (Fauvel, 1889)

Distribution in Iran: Generally distributed (Alavi, 1974; Sepasgosarian, 1978; Khorramshahi, 1982; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, bake goods, dried fruit (apricot, date, fig, mulberry, prune, raisin), dried fruit product (apricot meal, date meal, fig meal, raisin meal), fresh fruit or vegetable, grain (maize, millet, oat, wheat), grain product (cracked rice, cracked wheat, ground millet, maize meal, polished rice, rice meal, rolled oat, wheatfeed, wheat meal), medicine, nut (almond, cashew, hazelnut, pine nut, pistachio, walnut), nut product (almond meal, cashew meal), other commodities, oilseed (flax, peanut, rape), oilseed product (coconut meal, cottonseed meal, ground flax, peanut meal, soybean meal), pulse (broad bean, cowpea, soybean), pulse product (crushed broad bean), root, root product, other seed (clover, milled African mango seed, mustard, sunflower), seasoning, vegetable material (grass meal, sugar) (Hagstrum et al., 2013), dried apricot, raisin, date-palm and other storage products (Alavi, 1974; Sepasgosarian, 1978; Khorramshahi, 1982; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Oryzaephilus surinamensis (Linnaeus, 1758)

Distribution in Iran: Generally distributed (Afshar, 1944; Farahbakhsh, 1961; Alavi, 1974; Sepasgosarian, 1978; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997), Golestan (Khormali et al., 2002), Razavi Khorasan (Akbari Asl et al., 2009), Tehran (Alipour et al., 2020), Iran (no locality cited) (Abivardi, 2001; Khaleghizaden & Sehhatyabet, 2006; Valizadegan et al., 2009; Bagheri-Zenouz, 2010; Hosseinzadeh et al., 2010; Ratti & Nardi, 2011).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate, animal vertebrate (dried milk), beverage crops, bake goods 1, dried fruit (damaged prune, prune, raisin), dried fruit product, fresh fruit or vegetable, grain (maize, millet, oat, polished rice, teff, wheat), grain product (ground millet, maize meal, cracked barley, cracked oat, cracked rice, rice meal, rolled oat, wheat cracked, kibbled, meal or semolina, wheatfeed), medicine, nut (almond), nut product, other commodities, oilseed (damaged peanut, flax, peanut, rape, safflower, sunflower), oilseed product (broken safflower, coconut meal, cottonseed meal, cracked peanut, ground flax, ground rapeseed, ground sunflower, peanut meal, safflower meal), pulse (broad bean, soybean, pulse product (cracked cowpea, crushed broad bean, soybean meal), root, residual commodities, root product, other seed (clover, mustard), seasoning, ground mustard, vegetable material (alfalfa pellet, grass meal, ground clover, ryegrass pellet, sugar) (Hagstrum et al., 2013).

Family: Staphylinidae Latreille, 1802

Subfamily: Paederinae Fleming, 1821

Tribe: Paederini Fleming, 1821

Paederus fuscipes Curtis, 1826

Distribution in Iran: Fars, Gilan (Assalem, Bandar Pahlavi, Rasht), Golestan (Gorgan), Hormozgan (Minab), Kerman (Anbar-Abad, Djiroft), Khuzestan Mazandaran, Zanzan (Scheerpeltz, 1961; Jarrige, 1971; Bohac, 1981; Nikbakhtzadeh & Sadeghiani, 1999; Tirgari & Nikbakhtzadeh, 2002; Zargari et al., 2003; Smetana, 2004; Nikbakhtzadeh & Tirgari, 1999, 2008).

General distribution: Not exactly defined (Scheerpeltz, 1961; Jarrige, 1971; Bohac, 1981; Nikbakhtzadeh & Sadeghiani, 1999; Tirgari & Nikbakhtzadeh, 2002; Zargari et al., 2003; Smetana, 2004; Nikbakhtzadeh & Tirgari, 1999, 2008).

Host range: Not exactly defined (Scheerpeltz, 1961; Jarrige, 1971; Bohac, 1981; Nikbakhtzadeh & Sadeghiani, 1999; Tirgari & Nikbakhtzadeh, 2002; Zargari et al., 2003; Smetana, 2004; Nikbakhtzadeh & Tirgari, 1999, 2008), Predator on strong products (Shahhosseini & Kamali, 1989).

Paederus littoralis subsp. *ilsae* Bernhauer, 1932

Distribution in Iran: Ardabil (Zargari et al., 2003; Nikbakhtzadeh & Tirgari, 2008); Northern provinces (Afshar, 1944; Modarres Awal, 1997), the presence of this subspecies in Iran is doubtful. It should be confirmed.

General distribution: Not exactly defined (Afshar, 1944; Modarres Awal, 1997).

Host range: Predator on strong products (Afshar, 1944; Modarres Awal, 1997; Shahhosseini & Kamali, 1989).

Subfamily: Staphilininae Latreille, 1802

Tribe: Staphilinini Latreille, 1802

Creophilus maxillosus (Linnaeus, 1758)

Distribution in Iran: Northwest Iran (Talesh) (Fauvel, 1874; Herman, 2001; Smetana, 2004).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal vertebrate (Hagstrum et al., 2013).

Subfamily: Tachyporinae MacLeay, 1825

Tribe: Tachyporini MacLeay, 1825

Tachyporus hypnorum (Fabricius, 1775)

Distribution in Iran: Golestan, Sistan Baluchestan, Tehran (Fauvel, 1875; Scheerpeltz, 1961; Jarrige, 1971; Herman, 2001; Smetana, 2004; Anlas & Newton, 2010).

General distribution: Africa, Asia and Middle East, Europe (Hagstrum et al., 2013).

Host range: Flour milling areas (Hagstrum et al., 2013).

Family: Tenebrionidae Latreille, 1802

Subfamily: Diaperinae Latreille, 1802

Tribe: Diaperini Latreille, 1802

Alphitophagus bifasciatus (Say, 1823)

Distribution in Iran: Gilan and Markazi (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Mediterranean origin. Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Cellars, empty grain bins, feed mills, feed stores, flour mills, grain bins, grain elevators, growing floor at maltings, peanut shelling plants, peanut warehouses, pet stores, rabbit cages and residences (Hagstrum et al., 2013), fungus on stored cereals (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Sitophagus hololeptoides (Laporte de Castelnau, 1840)

Distribution in Iran: Boushehr (Sepasgosarian, 1968; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Europe, North America and South America (Hagstrum & Subramanyam, 2009).

Host range: Avocado, cereal, cocoa, copra, maize, nut, nutmeg, peanut and yam (Hagstrum & Subramanyam, 2009), wheat, barley, groat, flour, bran (in granary) (Sepasgosarian, 1968; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Subfamily: Pimeliinae Latreille, 1802

Tribe: Akidini Billberg, 1820

Cyphogenia gibba Fischer de Waldheim, 1821

Distribution in Iran: Tehran, Gorgan (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Not exactly defined (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997)

Host range: Cigarette, dried fruit and bread (in granary) (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Cyphogenia lucifuga (Adams, 1817)

Distribution in Iran: East Azarbaijan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Not exactly defined (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Host range: Different storage product (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Tentyriini Eschscholtz, 1831

Mesostena puncticollis Solier, 1835

Distribution in Iran: Khozestan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum & Subramanyam, 2009).

Host range: Barley, bone, cotton seed, date, linseed, oilcake and rice bran (Hagstrum & Subramanyam, 2009), different storage products (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tentyria tessulata Tauscher, 1812

Distribution in Iran: East Azarbaijan, Tehran (Afshar, 1944; Baroughi, 1977; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, bake goods, dried fruit, grain, grain product, grain spoiled, medicine, nut, other commodities, oilseed, oilseed product, pulse, pulse product (soybean, meal), root, residual commodities, root product, other seed, seasoning, textile (Hagstrum et al., 2013), cigarette and bread (in granary) (Afshar, 1944; Baroughi, 1977; Modarres Awal, 1997).

Subfamily: Tenebrioninae Latreille, 1802

Tribe: Alphitobiini Reitter, 1917

Alphitobius laevigatus (Fabricius, 1781)

Distribution in Iran: West Azarbaijan, Kozestan, Gilan, Zanjan, Fars, Kermanshah and Khorasan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Tropical origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, bake goods, dried fruit, fresh fruit or vegetable, grain, grain product, grain spoiled, medicine, nut, other commodities, oilseed, oilseed product, pulse, root, other seed, seasoning and vegetable material (Hagstrum et al., 2013), flour, barley, wheat and other storage products (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Blaptini Leach, 1815*Blaps mortisaga* (Linnaeus, 1758)

Distribution in Iran: Markazi and Semnan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Zahradnik, 1977).

General distribution: Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Grain (Hagstrum et al., 2013), vegetable materials (Shahhosseini & Kamali, 1989; Modarres Awal, 1997; Zahradnik, 1977).

Blaps mucronata Latreille, 1804

Distribution in Iran: West Azarbaijan, Gilan and Fars (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Europe (Hagstrum et al., 2013).

Host range: Grain (damaged) and wheat (Karachi) (Hagstrum et al., 2013), flour and barely (in granary) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Opatrini Brulle, 1832*Gonocephalum rusticum* (Olivier, 1811)

Distribution in Iran: Mazandaran (Farahbakhsh, 1961; Modarres Awal, 1997).

General distribution: Not exactly defined (Farahbakhsh, 1961; Modarres Awal, 1997).

Host range: Potato, tomato, melon and other truck crops (Farahbakhsh, 1961; Modarres Awal, 1997).

Gonocephalum setulosum (Faldermann, 1837)

Distribution in Iran: Gilan and Khozestan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Not exactly defined (Farahbakhsh, 1961; Modarres Awal, 1997).

Host range: Different storage product (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Gonocephalum prolixum (Erichson, 1843)

Distribution in Iran: Not exactly defined (Hagstrum & Subramanyam, 2009).

General distribution: Africa, Europe (Hagstrum & Subramanyam, 2009).

Host range: Bone, cocoa bean, maize, palm kernel, peanut (Hagstrum & Subramanyam, 2009).

Opatroides punctulatus Brulle, 1832

Distribution in Iran: Mazandaran, Gorgan and other northern provinces (Salavatian, 1959; Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum & Subramanyam, 2009).

Host range: Almond, barley, residue, valonia beard and wheat (Hagstrum & Subramanyam, 2009), cotton, tobacco and storage products (Salavatian, 1959; Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Palorini Matthews, 2003***Palorus depressus* Fabricius, 1790**

Distribution in Iran: Mazandaran, Gorgan and other northern provinces (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Oceania, South America (Hagstrum et al., 2013).

Host range: Root (Hagstrum et al., 2013), flour, wheat (in granary) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

***Palorus ratzeburgi* (Wissmann, 1848)**

Distribution in Iran: Gilan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: North African origin. Africa, Asia and Middle East, Central America, Europe, North America, Oceania and South America (Hagstrum & Subramanyam, 2009)

Host range: Barley, carob, cassava root, cassava root flour, cassava root meal, Chinese traditional medicine, cocoa, cotton seed, cowpea, dried fruit, grain, grain product, illipenut, lentil, maize, maize meal, malt, millet, oilseed, palm kernel, peanut, peanut (shelled), pulse, rice, sago, sago flour, sesame seed, sorghum, spice, wheat, wheat flour, wheat meal and yam (Hagstrum & Subramanyam, 2009), grain and flour (in granary) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Tenebrionini Latreille, 1802***Alphitobius diaperinus* (Panzer, 1797)**

Distribution in Iran: Khuzestan, Azarbaijan, Tehran, Gilan, Mazandaran, Gorgan, Kordestan, Zanzan and Khorasan (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, grain (barley, barley flour, maize, maize flour, rice, rice flour, wheat, wheat broken, wheat flour, wheat ground), grain product, grain spoiled, medicine, nut, other commodities, oilseed (peanut), oilseed product, pulse (black gram, cowpea, pulse product, root, root product, other seed, seasoning and vegetable material (Hagstrum et al., 2013), peanuts, goat, cotton, seed, biscuit, skin, cocoon of silkworm, barley, wheat, bran, potato seed of flax (in granary) (Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

***Tenebrio molitor* Linnaeus, 1758**

Distribution in Iran: Azarbaijan, Tehran, Gilan, Mazandaran, Gorgan, Markazi, Khordestan, Semnan, Zanzan, Esfahan and Hormozgan (Afshar, 1944; Salavatian, 1959; Farahbakhsh, 1961; Alavi, 1974; Baroughi, 1977; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, bake goods, dried fruit, grain (barley, wheat), grain product (ground barley, ground buckwheat, ground millet, oat flake, wheat bran, flour or semolina), nut, other commodities, oilseed (safflower), oilseed product (safflower meal), pulse, pulse product (soybean meal, root, residual commodities, root

product, other seed, seasoning, textile and vegetable material (Hagstrum et al., 2013), entomological collections, flour and related products, dried fruits, tobacco products, meat, vegetable seeds, goat, wool (Afshar, 1944; Salavatian, 1959; Farahbakhsh, 1961; Alavi, 1974; Baroughi, 1977; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

***Tenebrio obscurus* Fabricius, 1792**

Distribution in Iran: Tehran, west Azarbaijan, Khorasan and other northern provinces (Salavatian, 1959; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia, Europe, Oceania, South America, Central America (Hagstrum & Subramanyam, 2009).

Host range: Entomological collections, flour and related products, dried fruits, tobacco products, meat and vegetable seeds (in granary) provinces (Salavatian, 1959; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

***Prosodes (Dilopersina) cribella* Baudi, 1874**

Distribution in Iran: Gorgan (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Not exactly defined (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Host range: Cigarette and dried fruits and bread (in granary) (Afshar, 1944; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Tribe: Triboliini Mulsant, 1854

***Latheticus oryzae* Waterhouse, 1880**

Distribution in Iran: Generally distributed (Davatchi, 1950; Salavatian, 1959; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Africa, Asia and Middle East and Europe (Hagstrum et al., 2013).

Host range: Beverage crops, grain and oilseed (Hagstrum et al., 2013), cotton, tobacco and storage products) (Davatchi, 1950; Salavatian, 1959; Farahbakhsh, 1961; Bagheri Zenouz, 1986; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

***Tribolium castaneum* (Herbst, 1797)**

Distribution in Iran: Generally distributed (Davatchi, 1947; Salavatian, 1959; Farahbakhsh, 1961; Balachowsky, 1969; Alavi, 1974; Bagheri Zenouz, 1986; Habibian, 1987; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: Oriental origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania and South America (Hagstrum et al., 2013).

Host range: Animal invertebrate and vertebrate, beverage crops, bake goods, dried fruit, dried fruit product, fresh fruit or vegetable, grain (hungary rice, maize, millet, rice, sorghum, teff, wheat), grain product (barley flour, cracked or ground barley, ground buckwheat, maize cracked, flour, grit or meal, millet flour, meal or semolina, oat cracked, flour or rolled, polished rice, rice flour, rice meal, sorghum flour or meal, wheat bran, flour,

meal or semolina, wheatfeed), grain spoiled, medicine, nut (walnut), nut product, other commodities, oilseed cottonseed, flax, peanut, rape, safflower, sesame, sunflower), oilseed product (broken peanut, broken safflower, cottonseed flour, ground flax, ground rape, ground sunflower, peanut meal, safflower meal), pulse, broad bean, soybean), pulse product (chickpea flour, cowpea flour, cracked cowpea, crushed broad bean, lentil flour, moth bean flour, mung bean flour, pea flour, pigeonpea flour, soybean cracked or flour, soybean meal), root (cassava flour), residual commodities, root product cassava meal, yam flour or meal, other seed (clover, ground clover, ground flax, ground mustard, mustard), seasoning, spoiled, other commodities, textile, vegetable material (cellulose, dried mushroom, dried parsley, hemp), wood and wood product ([Hagstrum et al., 2013](#)).

***Tribolium confusum* Jacquelin du Val, 1861**

Distribution in Iran: Generally distributed ([Davatchi, 1947](#); [Salavatian, 1959](#); [Farahbakhsh, 1961](#); [Balachowsky, 1969](#); [Alavi, 1974](#); [Bagheri Zenouz, 1986](#); [Habibian, 1987](#); [Shahhosseini & Kamali, 1989](#); [Modarres Awal, 1997](#)).

General distribution: Ethiopian origin. Africa, Asia and Middle East, Europe, North America and Mexico, Oceania, South America ([Hagstrum et al., 2013](#)).

Host range: Animal invertebrate and vertebrate, beverage crops (tea), bake goods (biscuit), dried fruit, dried fruit product, fresh fruit or vegetable, grain (hungary rice, maize, millet, rice, wheat), grain product (cracked barley, cracked maize, cracked oat, cracked soybean, crack wheat, graham flour, ground barley, ground buckwheat, ground millet, maize meal, millet flour or semolina, polished rice, rice flake, rice meal, rolled oat, wheat bran, flour or meal, wheat semolina , medicine, nut, nut product, other commodities, oilseed (flax, peanut, rape, safflower, sunflower), oilseed product (broken safflower, cracked peanut, ground flax, ground rape, ground sunflower, safflower meal, peanut meal), pulse (broad bean, soybean), pulse product (cracked cowpea, crushed broad bean, soybean meal), root, residual commodities, root product, other seed (clover, ground clover, ground mustard, mustard), seasoning, textile, vegetable material (dried mushroom, dried parsley, hemp, herb, malt coffee ([Hagstrum et al., 2013](#)).

Tribe: Ulomini Blanchard, 1845

***Uloma culinaris* Linnaeus, 1758**

Distribution in Iran: Mazandaran Province, northern Iran ([Katlav et al., 2014](#)).

General distribution: Asia and Middle East, Europe ([Hagstrum et al., 2013](#)).

Host range: Granaries, hotels, meat shops ([Hagstrum et al., 2013](#)).

Family: Trogossitidae Latreille, 1802

Subfamily: Trogossitinae Latreille, 1802

Tribe: Trogossitini Latreille, 1802

***Tenebroides mauritanicus* (Linnaeus, 1758)**

Distribution in Iran: Generally distributed ([Davatchi, 1947](#); [Salavatian, 1959](#); [Alavi, 1974](#); [Behdad, 1984](#); [Shahhosseini & Kamali, 1989](#); [Modarres Awal, 1997](#)).

General distribution: African origin. Africa, Asia and Middle East, Central America and Caribbean, Europe, North America and Mexico, Oceania, South America (Hagstrum et al., 2013).

Host range: Animal vertebrate, beverage crops, bake goods, dried fruit, fresh fruit or vegetable, grain (rice, wheat), grain product (wheat flour), grain spoiled, medicine, nut, nut product, other commodities, oilseed, oilseed product, pulse, pulse product (soybean meal), root, residual commodities, root product, other seed, seasoning, vegetable material (Hagstrum et al., 2013).

Temnoscheila caerulea (Olivier, 1790)

Distribution in Iran: Northern provinces (Afshar, 1944; Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

General distribution: America, palaeartic region (Kolibáč, 2013).

Host range: Wheat, bread, dried fruits and other products (in granary) (Afshar, 1944; Farahbakhsh, 1961; Shahhosseini & Kamali, 1989; Modarres Awal, 1997).

Discussion

The majority of stored product pests in Iran include the families Anthicidae, Anthribidae, Bostrichidae, Carabidae, Cerambycidae, Chrysomelidae, Cleridae, Cryptophagidae, Curculionidae, Dermestidae, Erotylidae, Laemophloeidae, Latridiidae, Melyridae, Mycetophagidae, Nitidulidae, Ptinidae, Silvanidae, Staphylinidae, Tenebrionidae and Trogossitidae. One hundred twenty two species from 59 genera and 45 tribes are listed from Iran. Among the 60 genera, *Cryptophagus* (Cryptophagidae) with 12 species is the most species-rich genus. Iran is divided into 31 provinces of which stored-product beetles have been recorded from 22 provinces: Alborz, Boushehr, East Azarbaijan, Esfahan, Fars, Gilan, Golestan, Hamadan, Hormozgan, Kerman, Kermanshah, Khorasan, Khuzestan, Kordestan, Kuhgiluyeh and Boyer-Ahmad, Lorestan, Markazi, Mazandaran, Sistan and Baluchestan, Tehran, West Azarbaijan, Zanjan (Fig.1).

There is a broad range of natural enemies, including parasitoids, predators and pathogens that attack various developmental stages of stored product pests. For example *Xylocoris flavipes* (Reuter) (Hemiptera: Anthocoridae) (Lattin, 2000) and *Anisopteromalus calandrae* (Howard) (Hymenoptera: Pteromalidae) have been reported as parasitoid of the following pests: *Sitophilus granarius*, *Sitophilus zeamais*, *Rhyzopertha dominica*, *Stegobium paniceum*, *Lasioderma serricorne*, *Acanthoscelides obtectus* and *Callosobruchus maculatus* (Williams & Floyd, 1971; Arbogast & Mullen, 1990; Reichmuth, 2000; Reichmuth et al., 2007; Ngamo et al., 2007; Kazemi et al., 2008). *Theocolax elegans* (Westwood) (Hymenoptera: Pteromalidae) has been reported as a parasitoid of *S. granarius*, *S. oryzae*, *S. zeamais*, *R. dominica*, *S. paniceum*, *Callosobruchus* spp. and of the grain moth *Sitotroga cerealella* (Reichmuth et al., 2007), *Lariophagus distinguendus* (Förster) (Hymenoptera: Pteromalidae) has been reported as potential agent for biological control for a wide number of beetles that infest stored agricultural products (Steidle & Schöller, 1997): *S. oryzae* (Lucas & Riudavest, 2002), *S. granarius* (Wen & Brower, 1994; Steidle & Schöller, 2002), *R. dominica* (Menon et al., 2002), *L. serricorne* (Steidle et al., 2006), *S. paniceum*, *A. obtectus* and *Ptinus clavipes* (Reichmuth, 2000). *Habrobracon hebetor* (Say) (Hymenoptera: Braconidae) develops on larvae of many Lepidoptera, mainly members of the family Pyralidae (Schöller, 1998; Kovalenkov

& Meschcheryakova, 1983; Balevsky, 1984; Gerling, 1971; Amir-Maafi & Chi, 2006; Shoukat, 2012; Payne et al., 2011; Farag et al., 2012; Ba et al., 2013; Huang, 1986; Hopper, 2003; Grieshop et al., 2006). Generally, establishment of biological control agents in stored products is difficult and this is the reason for limited research in this area of biological control involving stored product pests (e.g. Bostrichidae, Bruchinae, Curculionidae, Dermestidae, Tenebrionidae, etc.). Hence, faunistic surveys are necessary to find new country records, new species, new host and natural enemies in the various stored products in Iran.

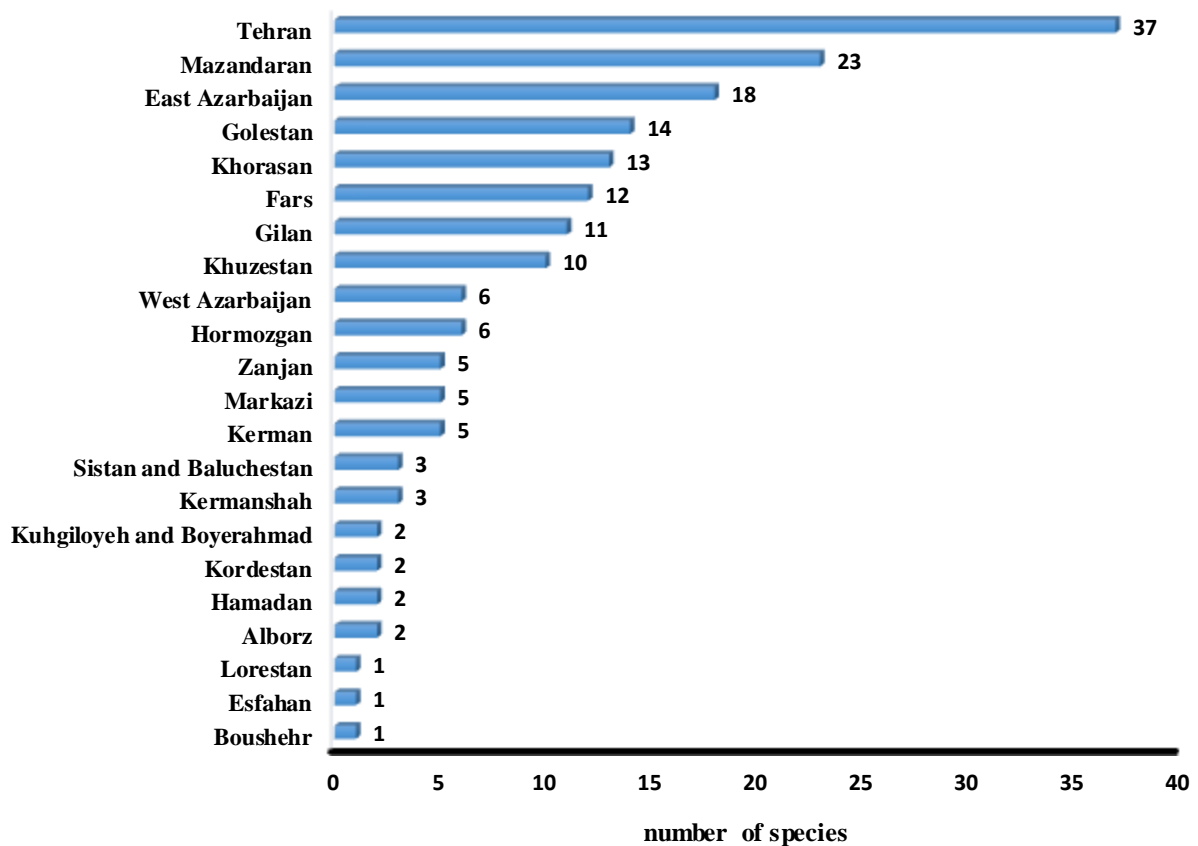


Figure 1. Number of reported species of stored product beetles by province.

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Conflict of Interests

The author declares that there is no conflict of interest regarding the publication of this paper.

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چک لیست سوسک‌های محصولات انباری ایران (Insecta: Coleoptera)

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چکیده: مطالعه گسترده‌ای برای تعیین لیست سوسک‌های محصولات انباری در ایران انجام شد. از مجموع ۱۲۲ گونه سوسک‌های محصولات انباری، ۵۹ جنس و ۴۵ قبیله در ایران به ثبت رسیده است. خانواده‌های دارای بیشترین گونه شامل Dermestidae (۲۴ گونه) و Tenebrionidae (۲۴ گونه) هستند و سپس Chrysomelidae (۱۵ گونه)، Cryptophagidae (۱۳ گونه)، Ptinidae (۱۰ گونه)، Curculionidae (۶ گونه)، Staphylinidae (۴ گونه)، Nitidulidae (۴ گونه)، Bostrichidae (۳ گونه)، Laemophloeidae (۳ گونه)، Silvanidae (۳ گونه)، Trogossitidae (۲ گونه)، Anthicidae (۲ گونه)، Cleridae (۲ گونه) و خانواده‌های Carabidae، Cerambycidae، Anthribidae، Erotylidae، Latridiidae، Melyridae و Mycetophagidae دارای یک گونه می‌باشند. مطالعه حاضر هم یک گزارش فونستیک بوده و هم در طراحی و توسعه مدیریت تلفیقی سوسک‌های محصولات انباری بسیار مفید است.

واژگان کلیدی: سخت‌بالپوشان، چک لیست، ایران، سوسک‌های محصولات انباری