

Survey of aphids (Hem., Aphidoidea) and their host plants in central parts of Iran

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Abstract

A survey of aphids was carried out during 2008 to 2009 in central parts of Iran by collecting and identifying them and their host plants. Aphids were collected from 83 host plants. Seventy seven species from 37 genera, belong to 5 families include: Aphididae, Drepanosiphidae, Pemphigidae, Lachnidae, Phloeomyzidae were recorded. According to collected data, these families have the highest total identified species and distribution respectively. The greatest diversity of aphids was found on plants of the family Asteraceae. Furthermore, the family Asteraceae has the greatest host plant species for aphids. A list of aphids and their host plants is presented in this study.

Key words: Aphidoidea, faunestic, Host association, Markazi province, Iran

Introduction

There are about 4700 species of Aphididae in the world. Of these, about 450 species have been recorded from crop plants, of which 100 species have successfully exploited the agricultural environment to the extent that they are of significant economic importance (Van Emden & Harrington, 2007).

Although very efficient and highly productive systems for producing crops have been developed, still pests cause serious problems (Geneci & Gorur, 2007). Aphids as an important group of pests have a high biological potential with some of species having more than ten generations in a year (Kos *et al.*, 2008). They make direct (sucking) and indirect (transmission of viruses and honeydew secretion) damages on cultivated and wild-growing plants (Azize Toper *et al.*, 2008; Blackman & Eastop, 2000; Kos *et al.*, 2008).

Theobald published the first records of Iranian aphids. After that, some foreign researchers published papers on aphid fauna of Iran, e. g., Remudiere *et al.* since 1954; Bodenheimer & Swirski, 1957; Stroyan, 1970; Shaposhnikov, 1975; Canakcioglu, 1975; Holman & Szelegiewicz, 1979; Muller, 1980, 1987; Holman, 1980, 1987 (Rezwani, 2001).

The Iranian aphid fauna is now partly known thanks to the papers published by Davatchi *et al.*, since 1948; Hodjat; since 1981; Rezwani, since 1987 (Sary *et al.*, 2000). Hodjat (1998) gives a list of aphids and their host plants in Iran; in this important publication, 324 aphid species are listed and commented, and bibliography includes most of the previous papers concerning the aphid fauna of this country. Abaii (1984) recorded fifty species of aphids on trees and shrubs of Iran. Rezwani summarized the studies on aphids and recorded more than 70% of current Iranian Aphids. Rezwani published two specific books on Aphids (Rezwani, 2001, 2004). Until now about 480 species were identified from Iran.

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Prior to the beginning study, it was known that Aphids in Markazi province are poorly studied and we need more information about them. The aim of this study was to survey the aphid faunistic of a wide range of habitats to find out any possible connections between aphids, and their host plants.

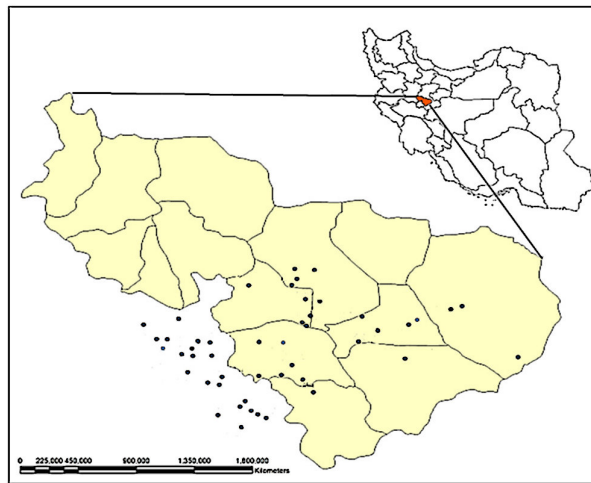


Fig. 1- Sampling locations in central parts of Iran

Material and Methods

Specimens were collected from wild and cultivated plants, tree and shrubs bearing aphid colonies. Forty eight different sampling sites of Markazi and Lorestan provinces were chosen during the growing seasons of 2008–2009 (Fig. 1). The aphids were preserved in 75% ethyl alcohol until prepared for slide-mounting.

The Aphid preserving techniques mainly based on the method of Hille Ris Lambers (1950). As the aim is to list only true host plants, we checked all of the aphid-host plant relations by wide variety of literature sources and misidentifications that are clearly spurious, e. g., tree-dwelling aphids have omitted. According to Blackman & Eastop (2006), Aphid nomenclature and the taxonomic status of the determined species were checked.

We have followed Karimi (2002) and Mozaffarian (1998) for generic names of plants. Names that could not be identified by reference to any available database of plant names have been included but are followed by '(?)'.

The studied and identified specimens were deposited in the insect collection of Department of plant protection, Islamic Azad University, Arak Branch, Arak, Iran and a minor part of aphids, in the collection of Dr. A. Rezwani, Insect Taxonomy Research Department, Iranian Research Institute Plant of Protection, Tehran, Iran for future reference or taxonomic treatment.

Results

During this study, about 215 samples were picked up from different parts of Markazi province. Seventy seven species from 37 genera, belong to 5 families include: Aphididae (52 species and 18 genera), Drepanosiphidae (10 species and 7 genera), Pemphigidae (10 species and 7 genera), Lachnidae (4 species and 4 genera), Phloeomyzidae (1 species and 1 genera), were recorded.

Aphid species were listed in systematic category alphabetically and sampling data for each aphid species include: host plant, locality and date.

List of aphids and collection data

Family: Aphididae

Acyrtosiphon cyparissiae (Koch, 1855)

Material examined: on *Euphorbia splendens*, Far, 19 Aug. 2008; on *Euphorbia* sp., Hafteh, 22 Sep. 2008.

Acyrtosiphon pisum (Harris, 1776)

Material examined: on *Medicago sativa*, Eskan, 26 Aug. 2008; Tooreh, 29 Aug. 2008; Hezaveh, 19 Aug. 2008; Jamal Abad, 19 Aug. 2008; Qadamgah, 22 Sep. 2008; Emarat, 22 Sep. 2008; Ban, 26 Sep. 2008; Marzijan, 19 Aug. 2008; Besri, 29 Aug. 2008; Hesar, 29 Aug. 2008; Hak Sofla, 19 Aug. 2008; Hak Olya, 19 Aug. 2008.

Acyrtosiphon malvae (Mosley, 1841)

Material examined: on *Erodium cicutarium*, Arak, 16 Apr. 2009; on (?), Arak, 20 Apr. 2009.

Anuraphis subterranea (Walker, 1852)

Material examined: on *Echinophora* sp., Mohajeran, 28 May 2009; Mohajeran, 2 Oct. 2009.

Aphis pomi De Geer, 1773

Material examined: on *Malus orientalis*, Hagi Abad, 23 Oct. 2008.

Aphis punicae Passerini, 1863

Material examined: on *Punica granatum*, Mohajeran, 27 May 2009.

Aphis (Protaphis) terricola Rondani, 1847

Material examined: on *Cirsium* sp., Hafteh, 7 May 2009.

Aphis affinis Del Guercio, 1911

Material examined: on *Mentha* sp., Far, 23 May 2009.

Aphis catalpae Mamontova, 1953

Material examined: on *Catalpa speciosa*, Mohajeran, 27 May 2009.

Aphis chloris Koch, 1854

Material examined: on *Hypericum vermiculare*, Sooraneh, 4 Jan. 2009.

Aphis craccivora Koch, 1854

Material examined: on *Euphorbia* sp., Eskan, 26 Aug. 2008; on *Solanum nigrum*, Aman Abad, 10 Oct. 2008; Roodbaran, 10 Oct. 2008; on *Cardus pycnocephalus*, Arak, 16 Apr. 2009; on *Lepidium draba*, Arak, 16 Apr. 2009; Hafteh, 7 May 2009; on *Medicago sativa*, Arak, 23 Apr. 2009; Mohajeran, 27 May 2009; on *Robinia pseudacacia*, Arak, 10 May 2009; on *Sophora pachycarpa*, Hassan Abad Mohajeran, 14 May 2009; on *Astragalus compactus*, Anbarth, 25 May 2009; on *Astragalus schistocalyx*, Anbarth, 25 May 2009; on *Astragalus ponticus*, Anbarth, 25 May 2009; on *Chaerophyllum macropodium*, Mohajeran, 27 May 2009; on *Rheum* sp., Mohajeran, 27 May 2009; on *Onobrychis altissima*, Far, 29 May 2009; on *Astragalus submitis*, Chepeqli, 2 Jan. 2009; on *Astragalus ovinus*, Chepeqli, 2 Jan. 2009; on *Astragalus brevidens*, Shanaq, 5 Jan. 2009; on *Astragalus podocarpus*, Shanaq, 5 Jan. 2009; on *Cousinia cylindracea*, Shanaq, 5 Jan. 2009; on *Vicia sativa*, Shanaq, 5 Jan. 2009.

Aphis euphorbiae Kaltenbach, 1843

Material examined: on *Euphorbia seguieriana*, Hafteh, 7 May 2009.

Aphis fabae Scopuli, 1763

Material examined: on *Capsella bursa-pastoris*, Hafteh, 7 May 2009; on *Rumex chalepensis*, Far, 23 May 2009; on *Torilis leptophylla*, Tooreh, 23 May 2009; on *Centaurea iberica*, Alborz, 27 May 2009; on *Astragalus ovinus*, Chepeqli, 2 Jan. 2009; on *Cirsium* sp., Shanaq, 5 Jan. 2009; on *Lycopersicum esculentum*, Kazaz Olya, 2 Oct. 2009; on *Beta vulgaris*, Kazaz Olya, 2 Oct. 2009.

Aphis gossypii Glover, 1977

Material examined: on *Hibiscus trionum*, Far, 19 Aug. 2008; Qadamgah, 22 Sep. 2008; on *Cucurbita* sp., Arak, 24 Aug. 2008; Emarat, 22 Sep. 2008; Bazeneh, 22 Sep. 2008; Gavar, 22 Sep. 2008; Shahveh, 4 Oct. 2008; on *Cucumis melo*, Mohammadi, 30 Sep. 2008; on *Cucumis sativus*, Kazaz Olya, 19 Aug. 2008; Gavar, 22 Sep. 2008; Mashhad-e Meiqan, 30 Sep. 2008; on *Malva neglecta*, Shahveh, 4 Oct. 2008; on *Sedum spectabile*, Arak, 10 May 2009.

Aphis intybi Koch, 1855

Material examined: on *Cichorium* sp., Bazeneh, 18 Jun. 2009.

Aphis nerii Boyer de Fonscolombe, 1841

Material examined: on *Nerium oleander*, Arak, 23 Jun. 2009.

Aphis salviae Walker, 1852

Material examined: on *Salvia nemorosa*, Kheir Abad, 23 Apr. 2009; Bazeneh, 7 May 2009.

***Aphis umbrella* (Börner, 1950)**

Material examined: on *Althaea* sp., Mehdi Abad, 25 Jun. 2009.

***Brachycaudus (Appelia) tragopogonis* (Kaltenbach, 1843)**

Material examined: on *Tragopogon graminifolius*, Qadamgah, 22 Sep. 2008; Arak, 15 Apr. 2009; Sar Sakhti Paein, 4 Jan. 2009.

***Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach, 1843)**

Material examined: on *Prunus domestica*, Hafteh, 7 May 2009; on *Cerasus avium*, Hassan Abad Mohajeran, 27 May 2009; on *Armeniaca vulgaris*, Mohajeran, 28 May 2009.

***Brachycaudus (Prunaphis) cardui* (Linnaeus, 1758)**

Material examined: on *Cardus pycnocephalus*, Mohajeran, 15 Apr. 2009; on (?), Arak, 16 Apr. 2009; on *Onopordon* sp., Arak, 4 May 2009; on *Cirsium arvense*, Tooreh, 23 May 2009.

***Brachycaudus (Thuleaphis) amygdalinus* (Schouteden, 1905)**

Material examined: on *Amygdalus communis*, Gavkhaneh, 18 Apr. 2009.

***Brevicoryne brassicae* (Linnaeus, 1758)**

Material examined: on *Brassica napus* var. *oleifera*, Gavkhaneh, 18 Apr. 2009; Shahrjerd, 23 Apr. 2009; Kheir Abad, 23 Apr. 2009; Sar Sakhti Paein, 4 Jan. 2009; on *Brassica oleraceae*, Arak, 10 May 2009; on *Descuriana sophia*, Alborz, 27 May 2009.

***Brevicoryne crambinistataricae* Bozhko 1953**

Material examined: on *Descuriana sophia*, Alborz, 27 May 2009.

***Capitophorus carduinus* (Walker, 1850)**

Material examined: on (?), Qadamgah, 22 Sep. 2008.

***Cavariella aegopodii* (Scopoli, 1763)**

Material examined: on *Petroselinum crispum*, Mohajeran, 2 May 2009; on *Salix alba*, Mehdi Abad, 29 May 2009; on (?), Shanaq, 5 Jan. 2009.

***Cavariella archangelicae* (Scopoli, 1763)**

Material examined: on *Anethum graveolens*, Mohajeran, 27 May 2009.

***Dysaphis (Dysaphis) devecta* (Walker, 1849)**

Material examined: on *Malus orientalis*, Hafteh, 7 May 2009.

***Dysaphis (Dysaphis) tulipae* (Boyer de Fonscolombe, 1841)**

Material examined: on *Iris* sp., Mohajeran, 6 May 2009.

***Dysaphis (Pomaphis) plantaginea* (Passerini, 1860)**

Material examined: on *Malus orientalis*, Arak, 15 Apr. 2009.

***Dysaphis angelicae* (Koch, 1856)**

Material examined: on (?), Far, 23 May 2009.

***Hyadaphis coriandri* (Das, 1918)**

Material examined: on *Petroselinum crispum*, Mohajeran, 28 May 2009.

***Hyalopterus amygdali* (E. Blanchard, 1840)**

Material examined: on *Armeniaca vulgaris*, Hafteh, 7 May 2009; Mohajeran, 27 May 2009.

***Hyalopterus pruni* (Geoffroy, 1762)**

Material examined: on *Prunus domestica*, Hafteh, 27 May 2009; on *Phalaris arundinacea*, Mehdi Abad, 19 Aug. 2008; on *Prunus persica*, Zamenjan, 3 Aug. 2008; Gavar, 3 Aug. 2008; Mohajeran, 6 May 2009.

***Lipaphis (Lipaphidiella) lepidi* (Nevsky, 1929)**

Material examined: on *Lepidium draba*, Hafteh, 7 May 2009.

***Lipaphis erysimi* (Kaltenbach, 1843)**

Material examined: on *Raphanus raphanistrum*, Qadamgah, 22 Sep. 2008.

***Macrosiphoniella (Papillomyzus) tuberculata* (Nevsky, 1928)**

Material examined: on *Cousinia cylindracea*, Shanaq, 5 Jan. 2009.

***Macrosiphoniella aktashica* (Nevsky, 1929)**

Material examined: on *Achillea micrantha*, Arak, 16 Apr. 2009.

***Macrosiphum euphorbiae* (Thomas, 1878)**

Material examined: on *Euphorbia* sp., Eskan, 26 Aug. 2008.

***Macrosiphum rosae* (Linnaeus, 1758)**

Material examined: on *Petunia* sp., Arak, 15 Sep. 2009.

***Metopolophium dirhodum* (Walker, 1849)**

Material examined: on *Rosa damascena*, Arak, 15 Apr. 2009.

***Myzus cerasi* (Fabricius, 1775)**

Material examined: on *Cerasus avium*, Hafteh, 27 May 2009.

***Ovatus crataegarius* (Walker, 1850)**

Material examined: on *Malus orientalis*, Arak, 20 Apr. 2009; on *Cydonia oblonga*, Mohajeran, 27 May 2009.

***Rhopalosiphum maidis* (Fitch, 1856)**

Material examined: on (?), Gavar, 3 Aug. 2008; on *Zea mays*, Tahte Mahal, 29 Aug. 2008.

***Rhopalosiphum padi* Linnaeus, 1758**

Material examined: on *Prunus domestica*, Hafteh, 27 May 2009; on *Triticum vulgare*, Mehdi Abad, 29 May 2009.

***Uroleucon (Uromelan) sonchi* (Linnaeus, 1767)**

Material examined: on *Senecio cineraria*, Mehdi Abad, 19 Aug. 2008; Tooreh, 29 Aug. 2008; Qadamgah, 22 Sep. 2008; Hagi Abad, 4 Oct. 2008; Shahveh, 4 Oct. 2008; Aman Abad, 10 Oct. 2008.

***Uroleucon (Uromelan) tortuosissimae* Rezwani and Lampel, 1987**

Material examined: on *Scorzonera calyculata*, Mohajeran, 28 May 2009.

***Uroleucon (Uromelan) aeneum* Hille Ris Lambers, 1939**

Material examined: on *Centaurea iberica*, Hafteh, 27 May 2009; on *Echinops* sp., Mohajeran, 28 May 2009.

***Uroleucon (Uromelan) carthami* (Hille Ris Lambers, 1948)**

Material examined: on *Centaurea iberica*, Varqa, 22 Sep. 2008.

***Uroleucon (Uromelan) cichorii* (Koch, 1855)**

Material examined: on *Senecio cineraria*, Arak, 15 Apr. 2009; on (?), Gavgodar, 26 Aug. 2008.

***Uroleucon (Uromelan) compositae* (Theobald, 1915)**

Material examined: on *Carthamus tinctorius*, Alborz, 27 May 2009; Gavar, 26 Sep. 2008; Kazaz Olya, 17 Sep. 2009.

***Uroleucon (Uromelan) jaceae* (Linnaeus, 1758)**

Material examined: on *Centaurea virgata*, Hafteh, 7 May 2009; on *Cirsium* sp., Hafteh, 7 May 2009; on *Centaurea iberica*, Alborz, 27 May 2009.

Family: Drepanosiphidae

***Chaetosiphella stipae* Hille Ris Lambers 1947**

Material examined: on *Stipa hohenackeriana*, Sooraneh, 4 Jan. 2009; Chepeqli, 2 Jan. 2009.

***Chaitophorus leucomelas* Koch, 1854**

Material examined: on *Populus alba*, Arak, 23 Jun. 2009; Arak, 26 Jun. 2009.

***Chaitophorus pakistanicus* Hille Ris Lambers, 1966**

Material examined: on *Salix alba*, Bazeneh, 18 Jun. 2009.

***Chaitophorus populeti* (Panzer, 1804)**

Material examined: on *populus deltoides*, Far, 23 May 2009; Mohajeran, 20 Jul. 2009.

***Chaitophorus salijaponicus niger* Mordvilko 1929**

Material examined: on *Salix alba*, Eskan, 26 Aug. 2008.

***Chromaphis juglandicola* (Kaltenbach, 1843)**

Material examined: on *Juglans regia*, Alborz, 29 Aug. 2008; Zamenjan, 3 Aug. 2008; Gavgodar, 26 Aug. 2008; Hezaveh, 19 Aug. 2008; Jamal Abad, 19 Aug. 2008; Aqil Abad, 26 Sep. 2008; Gavar, 26 Sep. 2008; Arak, 2 Jun. 2009; Mohajeran, 20 Jul. 2009.

***Myzocallis (Myzocallis) coryli* (Goerze, 1778)**

Material examined: on *Corylus avellana*, Mohajeran, 28 May 2009.

***Panaphis juglandis* (Goetze, 1778)**

Material examined: on *Juglans regia*, Hezaveh, 19 Aug. 2009.

***Therioaphis trifolii* Monel, 1882**

Material examined: on *Medicago sativa*, Eskan, 26 Aug. 2008; Tooreh, 29 Aug. 2008; Marzijan, 19 Aug. 2008; Besri, 29 Aug. 2008; Hesar, 29 Aug. 2008; Hak Sofla, 19 Aug. 2008; Hak Olya, 19 Aug. 2008; Hezaveh, 19 Aug. 2008; Jamal Abad, 19 Aug. 2008; Qadamgah, 22 Sep. 2008; Emarat, 22 Sep. 2008; Ban, 26 Sep. 2008.

***Tinocallis (Sappocallis) saltans* (Nevsky, 1929)**

Material examined: on *Ulmus* sp., Arak, 26 Jun. 2009; Mohajeran, 20 Jul. 2009.

Family: Pemphigidae

***Baizongia pistaciae* (Linnaeus, 1767)**

Material examined: on *Poa bulbosa*, Anbarteh, 22 Apr. 2009.

***Eriosoma ulmi* (Linnaeus, 1758)**

Material examined: on *Ulmus* sp., Bazeneh, 18 Jun. 2009; Mohajeran, 20 Jul. 2009.

***Forda hirsuta* Mordvilko, 1923**

Material examined: on *Pistacia vera*, Shanaq, 5 Jan. 2009; Arak, 26 Jun. 2009.

***Geocia utricularia* (Passerini, 1856)**

Material examined: on *Hordeum spontaneum*, Arak, 15 Apr. 2009; Arak, 16 Apr. 2009; Arak, 20 Apr. 2009.

***Kaltenbachiella pallida* (Halliday, 1838)**

Material examined: on *Ulmus* sp., Mohajeran, 20 Jul. 2009.

***Pemphigus bursarius* (Linnaeus, 1758)**

Material examined: on *Populus deltoides*, Bazeneh, 18 Jun. 2009; Mohajeran, 20 Jul. 2009.

***Pemphigus immunitus* Buckton 1896**

Material examined: on *Populus deltoides*, Bazeneh, 18 Jun. 2009; Arak, 23 Jun. 2009; Mohajeran, 20 Jul. 2009; Tooreh, 6 Aug. 2009.

***Pemphigus spyrothecae* Passerini 1860**

Material examined: on *Populus deltoides*, Sar Sakhti Paein, 4 Jan. 2009; Gavgodar, 27 Jun. 2009; Kazaz Olya, 17 Sep. 2009; Arak, 15 Sep. 2009; Mohajeran, 20 Jul. 2009.

***Pemphigus vesicarius* Passerini, 1862**

Material examined: on *Populus deltoides*, Far, 29 May 2009; Gavgodar, 27 Jun. 2009; Kazaz Olya, 17 Sep. 2009; Arak, 1 Jul. 2009; Mohajeran, 20 Jul. 2009; Bazeneh, 18 Jun. 2009; Tooreh, 6 Aug. 2009.

***Tetraneura ulmi* (Linnaeus, 1758)**

Material examined: on *Ulmus* sp., Shahrestanak, 18 May 2009; Bazeneh, 18 Jun. 2009; Mohajeran, 20 Jul. 2009.

Family: Phloeomyzidae

***Phloeomyzus passerinii* (Signoret, 1875)**

Material examined: on *Populus deltoides*, Arak, 1 Jul. 2009; Mohajeran, 20 Jul. 2009; Kazaz Olya, 6 Aug. 2009; Mohammadi, 30 Sep. 2008; Tooreh, 6 Sep. 2009.

Family: Lachnidae

***Cinara* (*Cupressobium*) *tujafilina* (Del Guercio, 1909)**

Material examined: on *Thuja orientalis*, Arak, 16 Apr. 2009; Mohajeran, 6 May 2009; Hassan Abad Mohajeran, 6 May 2009.

***Pterochloroides persicae* (Cholodkovsky, 1899)**

Material examined: on *Amygdalus communis*, Qainarooq Paein, 8 Jul. 2008; on *Armeniaca vulgaris*, Kazaz Olya, 17 Sep. 2009; Mohajeran, 2 Oct. 2009; on *Prunus persica*, Aqil Abad, 26 Sep. 2008.

***Trama* (*Neotrama*) *caudata* (Del Guercio, 1909)**

Material examined: on *Centaurea virgata*, Mohajeran, 21 Apr. 2009; on *Chaerophyllum macropodum*, Mohajeran, 27 May 2009.

***Tuberolachnus salignus* (Gmelin, 1790)**

Material examined: on *Salix alba*, Arak, 15 Dec. 2009.

List of host plants

Achillea micrantha Willd. (Asteraceae) *Macrosiphoniella aktashica*

Althaea sp. (Malvaceae) *Aphis umbrella*

Amygdalus communis L. (Salicaceae) *Brachycaudus* (*Mordvilkomemor*) *amygdalinus*; *Pterochloroides persicae*

Anethum graveolens L. (Apiaceae) *Cavariella archangelicae*

Armeniaca vulgaris Lam. (Rosaceae) *Hyalopterus amygdale*; *Brachycaudus* (*Brachycaudus*) *helichrysi*; *Pterochloroides persicae*

Astragalus brevidens Freyn. Et Sint (Papilionaceae) *Aphis craccivora*

Astragalus compactus Reiche (Papilionaceae) *Aphis craccivora*

Astragalus ovinus Boiss. (Papilionaceae) *Aphis craccivora*

Astragalus podocarpus C. A. Mey (Papilionaceae) *Aphis craccivora*

Astragalus ponticus Pallas (Papilionaceae) *Aphis craccivora*

Astragalus schistocalyx Bunge (Papilionaceae) *Aphis craccivora*

Astragalus submitis Boiss. & Hohen. (Papilionaceae) *Aphis craccivora*

Astragalus trachyacantha Fischer (Papilionaceae) *Aphis craccivora*

Beta vulgaris L. (Chenopodiaceae) *Aphis fabae*
Brassica napus var. *oleifera* DC. (Brassicaceae) *Brevicoryne brassicae*
Brassica oleracea (L.) DC. (Brassicaceae) *Brevicoryne brassicae*
Capsella bursa-pastoris (L.) Medic. (Brassicaceae) *Aphis fabae*
Cardus pycnocephalus L. (Asteraceae) *Aphis craccivora*
Carthamus tinctorius L. (Asteraceae) *Uroleucon* (*Uromelan*) *compositae*
Catalpa speciosa Warder (Bignoniaceae) *Aphis catalpa*
Centaurea iberica Trevir et sp. (Asteraceae) *Aphis fabae*
Centaurea virgata Lam. (Asteraceae) *Uroleucon* (*Uromelan*) *jaceae*
Cerasus avium (L.) Moench (Rosaceae) *Brachycaudus* (*Brachycaudus*) *helichrysi*; *Myzus cerasi*
Chaerophyllum macropodum Boiss. (Apiaceae) *Aphis craccivora*
Cichorium sp. (Asteraceae) *Aphis intybi*
Cirsium arvense (L.) Scop. (Asteraceae) *Brachycaudus* (*Prunaphis*) *cardui*
Cirsium sp. (Asteraceae) *Aphis* (*Protaphis*) *terricola*
Corylus avellana L. (Coryllaceae) *Myzocallis* (*Myzocallis*) *coryli*
Cousinia cylindracea Boiss. (Asteraceae) *Aphis craccivora*
Cucumis melo L. (Cucurbitaceae) *Aphis gossypii*
Cucumis melo L. var. *Reticulatus* Naudin (Cucurbitaceae) *Aphis gossypii*
Cucumis sativus L. (Cucurbitaceae) *Aphis gossypii*
Cydonia oblonga Miller (Rosaceae) *Ovatus crataegarius*
Descuriana sophia (L.) (Brassicaceae) *Brevicoryne brassicae*; *Brevicoryne crambinistataricae*
Echinophora sp. (Apiaceae) *Anuraphis subterranean*
Echinops sp. (Asteraceae) *Uroleucon* (*Uromelan*) *aeneum*
Erodium cicutarium (L.) L'Hert. (Geraniaceae) *Acyrtosiphon malvae*
Euphorbia seguieriana Neck. (Euphorbiaceae) *Aphis euphorbiae*
Euphorbia splendens Boj ex Hook. (Euphorbiaceae) *Acyrtosiphon cyparissiae*
Hibiscus trionum L. (Malvaceae) *Aphis gossypii*
Hordeum spontaneum Koch. (Poaceae) *Geoica utricularia*
Hypericum vermiculare Boiss. & Hausskn. (Hypericaceae) *Aphis chloris*
Iris sp. (Iridaceae) *Dysaphis* (*Dysaphis*) *tulipae*
Juglans regia L. (Juglandaceae) *Chromaphis juglandicola*; *Panaphis juglandis*
Lepidium draba L. (Brassicaceae) *Aphis craccivora*
Lycopersicon esculentum Mill. (Solanaceae) *Aphis fabae*
Malus orientalis Ugl. (Rosaceae) *Aphis pomi*; *Dysaphis* (*Dysaphis*) *devectora*; *Dysaphis* (*Pomaphis*) *plantagi-*
nea; *Ovatus crataegarius*
Malva neglecta Wallr (Malvaceae) *Aphis gossypii*
Medicago sativa L. (Papilionaceae) *Aphis craccivora*; *Acyrtosiphon pisum*; *Therioaphis trifolii*
Mentha sp. (Lamiaceae) *Aphis affinis*
Nerium oleander L. (Apocynaceae) *Aphis nerii*
Onobrychis altissima Grossh. (Papilionaceae) *Aphis craccivora*
Onopordon sp. (Asteraceae) *Brachycaudus* (*Prunaphis*) *cardui*
Petroselinum crispum (Mill.) (Apiaceae) *Cavariella aegopodii*
Petunia sp. (Solanaceae) *Macrosiphum rosae*
Phalaris arundinacea L. (Poaceae) *Hyalopterus pruni*
Pistacia vera L. (Anacardiaceae) *Forda hirsute*
Poa bulbosa L. (Poaceae) *Baizongia pistaciae*
Populus alba L. (Salicaceae) *Chaitophorus leucomelas*
Populus deltoides Marsh (Salicaceae) *Phloeomyzus passerinii*; *Chaitophorus populeti*; *Pemphigus bur-*
sarius; *Pemphigus immunis*; *Pemphigus spyrothecae*; *Pemphigus vesicarius*
Prunus domestica L. (Rosaceae) *Hyalopterus pruni*; *Rhopalosiphum padi*; *Brachycaudus* (*Brachycaudus*)
helichrysi
Prunus persica (L.) Batsch. (Rosaceae) *Hyalopterus pruni*; *Pterochloroides persicae*
Punica granatum L. (Punicaceae) *Aphis punicae*
Raphanus raphanistrum L. (Brassicaceae) *Lipaphis erysimi*
Rheum sp. (Polygonaceae) *Aphis craccivora*
Robinia pseudacacia L. (Papilionaceae) *Aphis craccivora*
Rosa damascena Mill. (Rosaceae) *Metopolophium dirhodum*
Rumex chalepensis Miller (Polygonaceae) *Aphis fabae*

Salix alba L. (Salicaceae) *Cavariella aegopodii*; *Chaitophorus pakistanicus*; *Chaitophorus salijaponicus*; *Tuberolachnus salignus*
Salvia nemorosa L. (Lamiaceae) *Aphis salviae*
Scorzonera calyculata Boiss. (Asteraceae) *Uroleucon (Uromelan) tortuosissimae*
Sedum spectabile Bor. (Crassulaceae) *Aphis gossypii*
Senecio cineraria D.C (Asteraceae) *Uroleucon (Uromelan) cichorii*
Solanum nigrum L. (Solanaceae) *Aphis craccivora*
Sophora pachycarpa C. A. Mey. (Papilionaceae) *Aphis craccivora*
Stipa hohenackeriana Trin. & Rupr (Poaceae) *Chaetosiphella stipae*
Thuja orientalis L. (Cupressaceae) *Cinara (Cupressobium) tujafilina*
Torilis leptophylla (L.)Reichneb. (Apiaceae) *Aphis fabae*
Tragopogon graminifolius D.C (Asteraceae) *Brachycaudus (Appelia) tragopogonis*
Triticum vulgare Vill. (Poaceae) *Rhopalosiphum padi*
Ulmus sp. (Ulmaceae) *Tinocallis (Sappocallis) saltans*; *Eriosoma ulmi*; *Kaltenbachella pallida*; *Tetraneura ulmi*
Vicia sativa L. (Papilionaceae) *Aphis craccivora*
Zea mays L. (Poaceae) *Rhopalosiphum maidis*

Discussion

Organization of the similar local studies is going to play an important role in applied entomological studies and may add species to Iranian aphid fauna.

There is a very large literature about all the major pest aphid species and the two factors that have the greatest influence on intraspecific variation in aphids, the life cycle and the host plant. There are 14 aphid species of most agricultural importance (Van Emden & Harrington, 2007). We found eight species of them in this area as listed below:

Acyrtosiphon pisum (pea aphid), *Aphis craccivora* (cowpea aphid), *Aphis fabae* (black bean aphid), *Aphis gossypii* (cotton or melon aphid), *Macrosiphum euphorbiae* (potato aphid), *Rhopalosiphum maidis* (corn leaf aphid), *Rhopalosiphum padi* (bird cherry–oat aphid), *Therioaphis trifolii* (spotted alfalfa and yellow clover aphids).

According to collected data, the families of Aphididae, Drepanosiphidae, Pemphigidae, Lachnidae and Phloeomyzidae respectively have the highest total identified species and distribution.

The plant family with a greater number of species colonized by aphids was Asteraceae, which agrees with Dixon (1998) who mentions Asteraceae as the first most popular aphids' plant hosts group in the world.

Among collected specimens of aphididae family, four species of *Aphis craccivora*, *A. fabae*, *A. gossypii* and *Hyalopterus pruni* have most host plant range, respectively (different species from various family) and can be categorized as polyphagous. Lachnidae: two species of *P. persicae* and *T. caudata* have most host plant range. Each identified aphids from three families of Phloeomyzidae, Pemphigidae, and Drepanosiphidae collected from only one host plant. These aphids can be categorized as monophagous. It seems that families of Aphididae and Lachnidae have the most polyphagous species.

Among all of the collected aphids, only one species of Lachnidae, *T.caudata*, and two species of Pemphigidae, *B. pistaciae* and *G. utricularia* found on roots. Among all of the collected aphids, from family of Aphididae (10 species), Drepanosiphidae (8 species), Pemphigidae (8 species), Lachnidae (2 species), Phloeomyzidae 1 species found on trees.

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بررسی شته‌ها (Hem., Aphidoidea) و روابط میزبانی آنها در نواحی مرکزی ایران

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چکیده

بررسی شته‌ها طی سال‌های ۱۳۸۷-۱۳۸۸ در مرکز ایران به‌ویژه استان‌های مرکزی و لرستان با جمع‌آوری شته‌ها و گیاهان میزبان‌شان انجام گرفت. در این مطالعه شته‌ها از روی ۸۳ گیاه میزبان جمع‌آوری شدند. هفتاد و هفت گونه شته از ۳۷ جنس، متعلق به ۵ خانواده Aphididae، Drepanosiphidae، Pemphigidae، Lachnidae و Phloomyzidae گزارش شد. طبق نتایج به‌دست آمده این خانواده‌ها به‌ترتیب دارای بیشترین پراکنش و تعداد گونه شناسایی شده هستند. بیشترین تعداد گونه‌های شته، روی گیاهان خانواده Asteraceae یافت شد. علاوه بر این خانواده Asteraceae بیشترین گونه گیاه میزبان را برای شته‌ها داشت. در این مطالعه لیستی از شته‌ها و گیاهان میزبان‌شان ارائه شده است.

واژه‌های کلیدی: Aphidoidea، فون، دامنه میزبانی، استان مرکزی، ایران

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