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Aphids living on *Artemisia* and *Scorzonera* plants (Asteraceae) in Iran: *Macrosiphoniella vallesiacae* Jörg & Lample, 1988 and *Uroleucon pilosellae* (Börner, 1933) (Hemiptera: Aphididae) as new records

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ABSTRACT. In this study, two aphid species i.e. *Macrosiphoniella vallesiacae* Jörg & Lample, 1988 on *Artemisia aucheri* and *A. sieberi* and *Uroleucon pilosellae* (Börner, 1933) (Hem.: Aphididae) on *Scorzonera* sp. were collected which are reported here for the first time from Iran. The biometric data of the Iranian populations of these two aphid species are given. An identification key to the apterous viviparous female aphids of the genus *Macrosiphoniella* living on *Artemisia* in Iran is provided.

Key words: Macrosiphini, fauna, taxonomy, distribution, mugwort, wormwood

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Introduction

Artemisia is a large, diverse genus of plants with about 500 known species worldwide belonging to the family Asteraceae with the common name "mugwort"(Wright 2003; Bora & Sharma 2011). Plants belonging to this genus are hardy herbaceous or shrubs with considerable chemical components in their essential oils (Wright 2003). These plants grow in temperate climates, usually in dry or semi-arid habitats. There are about 34 *Artemisia* species occurred in Iran (Mozaffarian 1998; Ghahreman & Attar 1999). *Scorzonera* is a genus of flowering perennial herbs and shrubs in the dandelion tribe of the Asteraceae family (Bremer 1994) with wide distribution in Europe, Asia and Africa (Duran & Hamzaoglu 2004). This genus includes more than 160 species in the world (Duran & Hamzaoglu 2004).

So far, more than 260 aphid species are reported on *Artemisia* worldwide, which is by far the largest aphid fauna of any plant genus (Blackman & Eastop 2006; Holman 2009). Up to now, 32 aphid species are reported from Iran associated with *Artemisia* (Table 1) (Hodjat 1993; Mehrparvar & Rezwani 2007; Rezwani 2010). The genus *Macrosiphoniella* is originated in the

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Palaearctic with about 120 species in the world (Heie 1995; Remaudière & Remaudière 1997; Blackman & Eastop 2016), which at least half of them feed on *Artemisia*, so being the most abundant genus of aphids on *Artemisia* (Blackman & Eastop 2006). So far, 10 species of *Macrosiphoniella* have been recorded on *Artemisia* in Iran (Table 1) (Hodjat 1993; Mehrparvar & Rezwani 2007; Holman 2009; Rezwani 2010). Up to date, about 19 aphid species are reported on *Scorzonera* worldwide (Table 2)(Blackman & Eastop 2006, 2016). In Iran, only few aphid species are known in association with *Scorzonera* spp. (Table 3) (Hodjat 1993; Rezwani 2010).

With regard to the presence of a huge number of plant species in Iran, the aphid fauna of Iran has not yet been studied extensively and there is no complete information on different aphid species in most parts of Iran. Faunistic studies of aphids are very important because of their ability to cause economical damages and transmit virus diseases. Any effective control or developing any reliable management strategy for aphid pests requires a precise knowledge of their taxonomy and biology. The importance of aphid fauna in agriculture, horticulture and forestry is well known but aphid fauna of rangeland and wild plants have not been studied comprehensively. The aim of this study was to find out about the species composition, biodiversity and host plant association of aphids associated with rangeland and wild plants in Kerman province.

Material and methods

To collect aphid specimens, different methods were used. The most satisfactory way of obtaining aphids is by examining plants foliage carefully for colonies. The infested plant parts were cut and placed into plastic bags. In most cases, it is difficult to observe aphids directly on plants, so to find out the presence of aphids, some indicators such as existence of aphid's honeydew, ants attendance and predators were used. Later aphids on plants were collected by a paint brush. When there was no trace of aphids on plants, beating on to a white tray placed underneath the plant was done very carefully. Specimens either are preserved in ethanol 75% or slide mounted and deposited in the Aphid Collection of Aphidology Research Group, Institute of Science and High Technology and Environmental Sciences, Graduate University of Advanced Technology (KGUT), Kerman, Iran. The specimens were collected since 2006 and identified using related resources (Heie 1986, 1992, 1994, 1995; Blackman & Eastop 2006; Blackman 2010).

Abbreviations used in the text are as follows: ANT, antennae length; ANTI, ANTII, ANTIII, ANTIV, ANTV, ANTVIb, antennal segments I, II, III, IV, V, and the base of antennal segment VI, respectively; ANTIII Base, basal diameter of antennal segment III; PT, processus terminalis; URS, ultimate rostral segment; 2HT, second segment of hind tarsus; and SIPH, siphunculus; ABD TERG, abdominal tergites.

Results

Aphids living on *Artemisia* in Iran

During the studies on aphid fauna of Iran since 2006, one aphid species, *Macrosiphoniella vallesiacae* Jörg & Lampel, 1988, was collected on *Artemisia aucheri* and *A. sieberi* from Kerman province, south-east of Iran, which is reported here as a new record for aphid fauna of Iran.

Table 1. Aphid species living on *Artemisia* spp. in Iran.

Aphid species	Subfamily	Tribe	Host Plant	Distribution
Aphis fabae Scopoli, 1763	Aphidinae	Aphidini	*Artemisia* sp.	Wide distribution
Coloradoa abrotani (Koch, 1854)	Aphidinae	Macrosiphini	*Artemisia annua* *Artemisia chamaemelifolia*	Elika (Central Alborz)
Coloradoa absinthiella Ossiannielsson, 1962	Aphidinae	Macrosiphini	*Artemisia absinthium* *Artemisia annua*	Heyran(Astara) Mazandaran
Coloradoa absinthii (Lichtenstein, 1885)	Aphidinae	Macrosiphini	*Artemisia absinthium*	Torkeman
			Artemisia annua	Khuzestan
			Artemisia sp.	Tehran
			Artemisia chamaemelifolia	Urmia
Coloradoa artemisiae (Del Guercio, 1914)	Aphidinae	Macrosiphini	*Artemisia absinthium*	North Iran
Coloradoa heinzei (Börner, 1952)	Aphidinae	Macrosiphini	*Artemisia absinthium* *Artemisia aucheri* *Artemisia austriaca*	Mazandaran Chalous Sekonj (Kerman)
Coloradoa sp.	Aphidinae	Macrosiphini	*Artemisia sieberi*	
Coloradoa viridis (Nevsky, 1929)	Aphidinae	Macrosiphini	*Artemisia annua*	Tehran; Gorgan; Caspian sea region; Dasht-Nazir of Astara
Cryptosiphum artemisiae Buckton, 1879	Aphidinae	Macrosiphini	*Artemisia vulgaris* *Artemisia absinthium*	Urmia Varamin; Bandar-Abbas
Macropoda phisrechingeri Remaudière & Davatchi, 1958	Macropod -aphidinae		*Artemisia austriaca*	Ardebil
Macrosiphoniella abrotani (Walker, 1852)	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia annua*	Tehran Chalus; Nowshahr;Guilan; Lahijan; Astara; Taleghan
Macrosiphoniella absinthii (Linnaeus, 1758)	Aphidinae	Macrosiphini	*Artemisia absinthium*	Nowshahr; Elika; Heyran (Astara)
Macrosiphoniella artemisiae (Boyerde Fonscolombe, 1841)	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia absinthium* *Artemisia annua* *Artemisia chamaemelifolia* *Artemisia vulgaris*	Torkeman Dasht-nazir Astara Lahijan Molla road; Markazi; Tehran; Mazandaran; Hamedan
Macrosiphoniella chamaemelifoliae Remaudière & Leclant, 1972	Aphidinae	Macrosiphini	*Artemisia aucheri*	Central Alborz
Macrosiphoniella kermanensis Mehrparvar & Rezwani, 2007	Aphidinae	Macrosiphini	*Artemisia sieberi*	Kerman

Table 1. Continued

Aphid species	Subfamily	Tribe	Host Plant	Distribution
Macrosiphoniella oblonga (Mordvilko, 1901)	Aphidinae	Macrosiphini	*Artemisia absinthium* *Artemisia annua*	Nowshahr
Macrosiphoniella pulvera (Walker, 1848)	Aphidinae	Macrosiphini	*Artemisia sieberi* *Artemisia spicigera*	Nowshahr Central Alborz; Shirvan
Macrosiphoniellas ubaequalis Narzikulov & Umarov, 1969	Aphidinae	Macrosiphini	*Artemisia campestris*	Baladeh
Macrosiphoniella sp.	Aphidinae	Macrosiphini	*Artemisia aucheri*	
Macrosiphoniella tapuskae (Hottes & Frison, 1931)	Aphidinae	Macrosiphini	*Artemisia* sp.	Bid-Khon (Kerman)
Macrosiphoniella tuberculatum artemisicola (Bozhko 1961)	Aphidinae	Macrosiphini	*Artemisia chamaemelifolia*	Central Alborz
Macrosiphoniella vallesiacae Jörg & Lample, 1988*	Aphidinae	Macrosiphini	*Artemisia aucheri* *Artemisia sieberi*	Bid-Khon (Kerman)
Macrosiphum euphorbiae (Thomas, 1878)	Aphidinae	Macrosiphini	*Artemisia* sp.	
Obtusicauda dolychosiphon (Umarov, 1964)	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia vulgaris*	Jabon
Pleotrichophorus glandulosus (Kaltenbach, 1846)	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia absinthium* *Artemisia vulgaris*	Tehran Dasht-Nazir Pol-Veresk; Farah-Abad; Caspian region; Anzali
Pleotrichophorus persimilis Borner, 1950	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia campestris* *Artemisia scoparia*	Tehran Tavalesh
Protaphis elatior (Nevsky, 1928)	Aphidinae	Aphidini	*Artemisia annua*	North Iran
Protaphis elongate (Nevsky, 1928)	Aphidinae	Aphidini	*Artemisia annua*	Amol
Protaphis sp.	Aphidinae	Aphidini	*Artemisia dracunculus*	
Rectinasus buxtoni Theobald, 1914	Eriosomatinae	Fordini	*Artemisia* sp.	
Titanosiphon bellicosum Nevsky, 1928	Aphidinae	Macrosiphini	*Artemisia* sp. *Artemisia dracunculus*	Ahwaz Sary; Galgatchi (near Urmia); Chalus
Xerobion cinae Nevsky, 1928	Aphidinae	Aphidini	*Artemisia* sp. *Artemisia absinthium* *Artemisia annua* *Artemisia sieberi*	Shahrood Ghazvin
Xerobion sp.	Aphidinae	Aphidini	*Artemisia dracunculus*	

Table 2. Aphid species living on *Scorzonera*, worldwide (Blackman & Eastop 2006, 2016)

Aphid species	Subfamily	Tribe
Acyrthosiphon ghanii Eastop, 1971	Aphidinae	Macrosiphini
Aphis craccivora Koch, 1854	Aphidinae	Aphidini
Aphis fabae Scopoli, 1763	Aphidinae	Aphidini
Aphis medicaginis Koch, 1854	Aphidinae	Aphidini
Aphis spiraecola Patch, 1914	Aphidinae	Aphidini
Brachycaudus tragopogonis (Kaltenbach, 1843)	Aphidinae	Macrosiphini
Brachyunguistaus aghyz (Nevsky ex Ivanoskaya, 1960)	Aphidinae	Aphidini
Neomyzus circumflexus (Buckton, 1876)	Aphidinae	Macrosiphini
Paracletuscimiciformis von Heyden, 1837	Eriosomatinae	Fordini
Protaphis aralensis Kadyrbekov, 2001	Aphidinae	Aphidini
Protaphis carthami (Das, 1918)	Aphidinae	Aphidini
Protaphis scorzonerae (Mordvilko, 1937)	Aphidinae	Aphidini
Rectinasus buxtoni Theobald, 1914	Eriosomatinae	Fordini
Rhopalosiphoninus latysiphon (Davidson, 1912)	Aphidinae	Macrosiphini
Smynthurodes betae Westwood, 1849	Eriosomatinae	Fordini
Titanosiphon neoartemisiae (Takahashi, 1921)	Aphidinae	Macrosiphini
Uroleucon scorzonerae Danielsson, 1973	Aphidinae	Macrosiphini
Uroleucon jaceae (Linnaeus, 1758)	Aphidinae	Macrosiphini
Uroleucon tortuosissimae Rezwani & Lampel, 1987	Aphidinae	Macrosiphini

Table 3. Aphid species living on *Scorzonera* spp. in Iran.

Aphid species	Subfamily	Tribe	Host Plant	Distribution
Aphis fabae Scopoli, 1763	Aphidinae	Aphidini	*Scorzonera* sp.	Wide distribution
Aphis gossypii Glover, 1877	Aphidinae	Aphidini	*Scorzonera laciniata*	Wide distribution
Protrama flavescens (Koch, 1857)	Lachninae	Tramini	*Scorzonera* sp.	Karaj
Uroleucon pilosellae (Börner, 1933)*	Aphidinae	Macrosiphini	*Scorzonera* sp.	Madon, Kerman
Uroleucon tortuosissimae Rezwani & Lampel, 1987	Aphidinae	Macrosiphini	*Scorzonera tortuosissima*	Saveh

***Macrosiphoniella vallesiacae* Jörg & Lampel, 1988**

(Aphididae: Macrosiphini) (Fig.1, Table 4)

Apterous viviparous females*:* Body color in living specimens dark green with a light wax powder. Color in specimens mounted on slide: head pale brown; antennae dark brown, basal part of ANTIII paler; URS, trochanter and coxa brown; anal and genital plates pale brown; femora dark brown with pale basal part; tibiae and tarsi dark brown; SIPH and cauda brown with SIPH slightly darker than cauda; abdominal segments pale without pigmentation; dorsal hairs not arising from dark basal scleroites.

Morphological characters: Body oval-egg shaped, 1.8–2.68 mm long; head smooth; antennal tubercles developed with diverging inner sides; median tubercle absent. Antennae six-segmented. The longest hair on ANTIII longer than basal width of ANTIII. ANTIII bearing 3–8 secondary rhinaria. URS relatively long (0.14–0.18mm) and pointed passing hind coxa, bearing six fine accessory hairs; first tarsal segment with 3–3–3 hairs. Ante- and post-siphuncular sclerites in the base of the siphunculi absent. SIPH cylindrical, with (36) 42–73% reticulation on apex. Siphunculus flanges distinct. Cauda elongate, tongue-shaped and bearing 10–24 hairs. The proportional measurements are presented in Table 4.

Table 4. Biometric data of *Macrosiphoniella vallesiacae* Jörg & Lampel, 1988 (Hemiptera: Aphididae). The data of specimens collected in Iran are compared to original description by Jörg & Lampel, 1988.

Morph	Characters	*M. vallesiacae* (Iranian population)	*M. vallesiacae* (Original description)
Apterous viviparae	Body length (mm)	1.8–2.68	1.68–2.37
	ANTIII hairs /ANTIII Base	1.2–1.53	1.38–1.93
	PT/ANTVIb	2.0–2.78	
	PT/URS	(2.39) 2.82–3.75	
	URS/2HT	0.94–1.1 (1.27)	1.0–1.1
	SIPH/Body length	0.16–0.23	0.15–0.19
	SIPH/Cauda	0.93–1.22	1.0–1.23
	Reticulated zone on SIPH (%)	(36) 42–73	65
	Rhin. on ANTIII	3–8 (9)	1–8 (2–4)
	No. hairs on URS	6	6
	No. hairs on Cauda	10–24	10–17
Alate viviparae	Body length (mm)	2.56	1.95–2.11
	ANTIII hairs /ANTIII Base	1.17	1.18–1.69
	PT/URS	3.31	
	PT/ANTVIb	2.41	
	URS/2HT		1.02–1.04
	SIPH/Body length	0.14	0.16
	SIPH/Cauda	0.97	1.1–1.21
	Reticulated zone on SIPH (%)	59	
	No. hairs on Cauda	16	9–12
	Rhin. on ANTIII	15–16	13–22

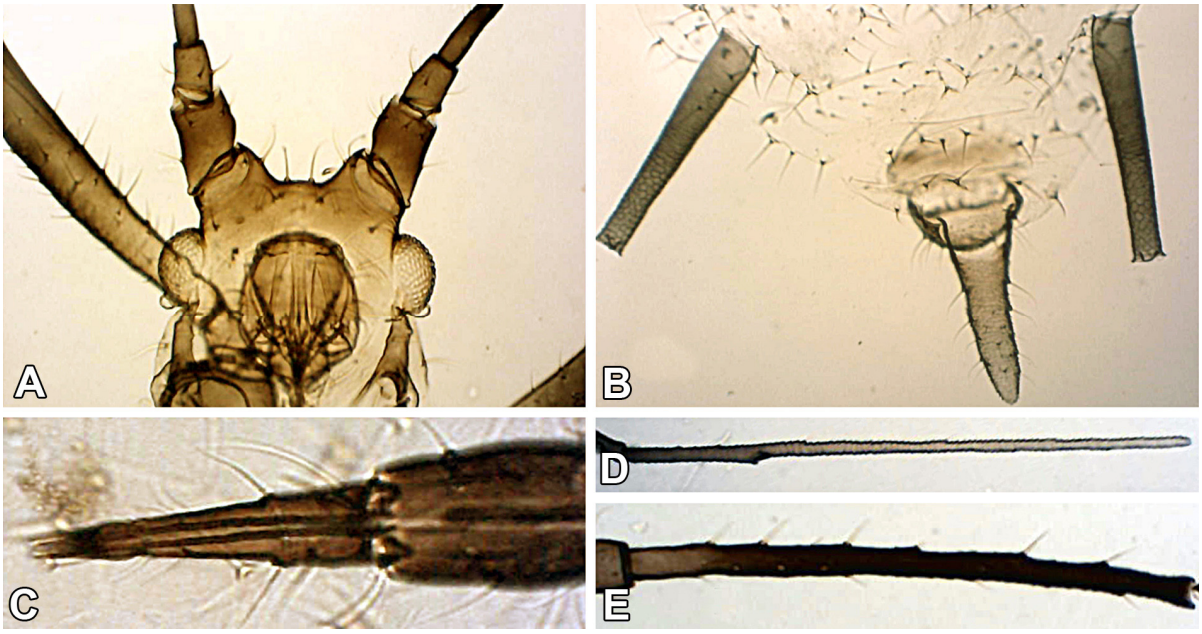

Figure1. *Macrosiphoniella vallesiacae* Jörg & Lample, 1988, Apterous viviparous female, **A**. ventral surface of head; **B**. cauda and siphunculus (SIPH); **C**. ultimate rostral segment (URS); **D**. antennal segment VI (ANTVI); **E**. antennal segment III (ANTIII).

Alate viviparous females: Color in living specimens is similar in appearance to apterous viviparous females. Color in macerated specimens: wings pale with pale brown veins. Otherwise, like apterous viviparous females.

Morphological characters: Body oval-egg shaped, 2.56 mm long. ANTIII bearing 15–16 secondary rhinaria. SIPH with 59% reticulation on apex. Cauda elongate, tongue-shaped, bearing 16 hairs. Otherwise, like apterous viviparous females. The proportional measurements are presented in Table 4.

Remarks: Iranian population of *M. vallesiacae* has some morphological differences with the original description of the species that occurs in Switzerland. Iranian population has longer body and more hairs on cauda of apterae (see Table 4).

Biology: This aphid lives in sparse colonies on shoots of *Artemisia aucheri* and *A. sieberi* (Asteraceae) and not visited by ants.

Materials examined: Totally 27 apterous viviparous females and one alate viviparous females were examined; (ARG00071), Iran: Kerman province, Bid-Khon, N29°39′E56°30′, 2565 m. a.s.l., *Artemisia aucheri* (Asteraceae), 14 June 2015, M. Mehrparvar; (ARG00080), Iran: Kerman province, Sirch, N30°11′E57°27′, 2250 m. a.s.l., *Artemisia sieberi* (Asteraceae), 7 April 2006, M. Mehrparvar; (ARG00081), Iran: Kerman province, Madon, N29°32′E 56°37′, 2702 m. a.s.l., *Artemisia aucheri* (Asteraceae), 21 May 2006, M. Mehrparvar.

Key to the apterous viviparous females of *Macrosiphoniella* species living on *Artemisia* (Asteraceae) in Iran (updated from the keys of Blackman & Eastop (2016) and Mehrparvar & Rezwani (2007)).

1- SIPH pale at base but darker distally, flared at apex, without any distinct flange, 1.7–2.3 × cauda, with reticulation over distal 0.12–0.20(–0.25) of length. ANT PT/BASE 4.2–5.3. ANT III with 6–26

rhinaria. URS with convex or straight sides and with hairs on basal half similar in length to subapical (primary) hairs. …… …….....***Macrosiphoniella tapuskae***

- SIPH pale or dark, 0.6–2.0 × cauda, with reticulation over distal 0.25–0.75 of length. ANT PT/BASE often less than 4.2. URS variable but often more-or-less stiletto-shaped, with straight or concave sides and a pointed apex. Hairs on basal half of URS often long and fine, longer than the subapical primary hairs. .....…….…**2**

2- SIPH pale, dusky or dark, if mainly dark then with basal section distinctly paler over at least 0.1 of length. **3**

- SIPH entirely or almost entirely dark, sometimes somewhat less dark at extreme base. ...…….…**6**

3- SIPH as long as or longer than head width across (and including) eyes. **4**

- SIPH shorter than head width across eyes. …….… **5**

4- URS stiletto-shaped, more than twice as long as its basal width. Cauda with 14–20 hairs. ANT III 1.05–1.33 × ANT IV. SIPH 1.0–1.3 × cauda. ANT PT/BASE 1.7–2.5. SIPH reticulated for 0.24–0.30 of length. ….. …….…... ***Macrosiphoniella kermanensis***

- URS short, less than twice as long as its basal width. Cauda with 18–33 hairs. URS 0.68–0.80 × 2HT. ABD TERG 8 with 6–12 hairs. ANTIV 0.9 x ANTIII; PT 1.2–1.3 x ANTIII. …….. ***Macrosiphoniella oblonga***

5- Longest hairs on ANT III 0.6–1.0 × BD III ……..…***Macrosiphoniella pulvera***

- Longest hairs on ANT III 1.1–1.8 × BD III. ABD TERG 3 with 10–14 hairs. URS 0.6–0.8 × 2HT. …..…..... ***Macrosiphoniella abrotani***

6- Tibiae with at least middle part pale, contrasting with dark apex and not clearly darker than body. SIPH 1.04–1.2 × cauda, which bears 11–13 hairs. ……..…. ..……***Macrosiphoniella subaequalis***

- Tibiae wholly dusky or dark, sometimes with middle section slightly less dark, but always clearly darker than body. …….. ……...……... **7**

7- Dorsal abdomen with a pattern of dark sclerotisation anterior to SIPH, usually involving some dark spinal and marginal sclerites that extend between hair-bases. ANT PT/BASE 3.0–3.5. SIPH short and thick, about 2x its basal width, 0.13–0.16 × BL with reticulation on distal 0.48–0.60. ANTIII with 24–50 rhinaria in basal half. Cauda with 12–18 hairs. ….……..…. ……..***Macrosiphoniella absinthii***

- Dorsal abdomen without a pattern of dark sclerotisation anterior to SIPH (presiphuncular sclerites excepted), although often there are separate or lightly pigmented scleroites at bases of some of the hairs. …….…..**8**

8 - Dorsal abdominal hairs mostly arising from papilli form tubercles. ……. ***Macrosiphoniella tuberculatum artemisicola***

- Dorsal abdominal hairs sometimes arising from sclerotic and slightly raised cuticular areas, but not from distinct tubercles. ……... **9**

9- SIPH 1.0–1.23 × cauda. ANT III with 1–8 (usually 2–4) secondary rhinaria. ……..…. ……..……***Macrosiphoniella vallesiacae***

- SIPH 0.6–1.05 × cauda, but if more than 0.95 × cauda then there are 4–15 secondary rhinaria (usually 6–8) on ANT III. ……... ……..…..…**10**

10 - URS 0.7–0.85 × 2HT. ……. ……...***Macrosiphoniella chamaemelifoliae***

- URS 0.8–1.3 × 2HT. …….....……... …...…… ***Macrosiphoniella artemisiae***

Aphids living on *Scorzonera* in Iran

Up to date, four aphid species are recorded on *Scorzonera* spp. (Asteraceae) in Iran (Table 3). In this study one aphid species, *Uroleucon pilosellae* (Börner, 1933) was collected on *Scorzonera* from Kerman province, south-east of Iran, which is reported here as a new record.

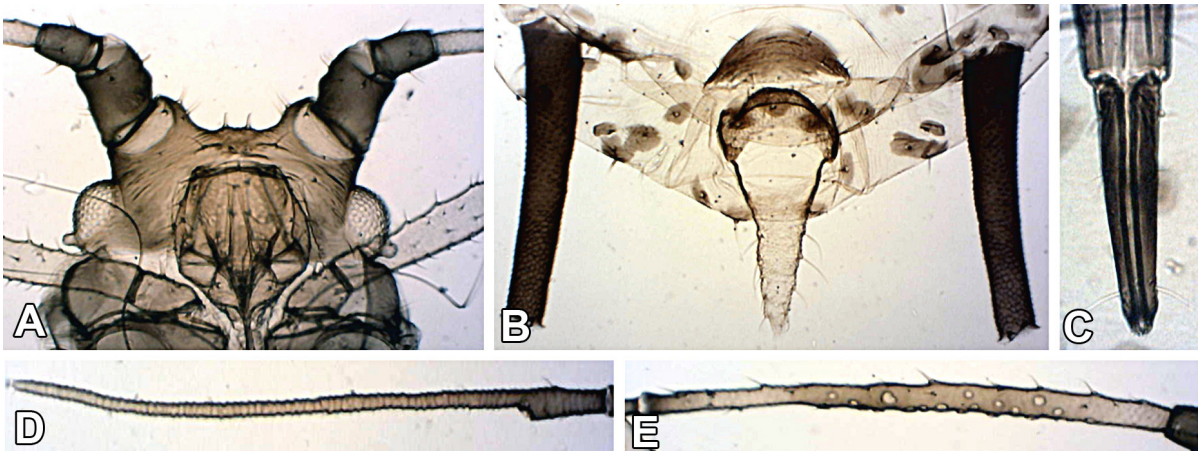

Figure 2. *Uroleucon pilosellae* (Börner, 1933), Apterous viviparous female, **A**. ventral surface of head; **B**.cauda and siphunculus (SIPH); **C**. ultimate rostral segment (URS); **D**. antennal segment VI (ANTVI); **E**. antennal segment III (ANTIII).

***Uroleucon pilosellae* (Börner, 1933)**

(Aphididae: Macrosiphini) (Fig. 2)

Apterous viviparous females: Body color in living specimens dark reddish brown. Color in specimens mounted on slide: head and antennae dark brown, basal part of ANTIII paler; ANTI and ANTII dark brown; URS and coxa dark brown; trochanter, anal and genital plates brown; femora and tibiae pale with dark brown distal part; tarsi and SIPH dark brown; cauda pale; dorsal hairs arising from dark basal scleroites.

Morphological characters: Body oval-egg shaped, 2.51–2.93 mm long; head smooth; antennal tubercles well developed with diverging inner sides. Antennae six-segmented. ANTIII bearing 20–37 secondary rhinaria. PT 4.2–5.7×ANTVIb. URS passing hind coxa, 1.08–1.31×2HT, first tarsal segment with 3–3–3 hairs. SIPH cylindrical, with 34–40% reticulation on apex, 1.62–2.04×Cauda. Cauda tongue-shaped and bearing 10–17 hairs.

Alate viviparous females: Color in living specimens similar in appearance to apterous viviparous females. Color in macerated specimens: Wings pale with pale brown veins. Otherwise, like apterous viviparous females.

Morphological characters: Body oval-egg shaped, 2.37 mm long. ANTIII bearing 47–48 secondary rhinaria. URS 1.4× 2HT. SIPH with 44% reticulation on apex, 2.21×Cauda. Cauda tongue-shaped, bearing 12 hairs.

Biology: This aphid lives on shoots of *Scorzonera* sp. (Asteraceae) and is not visited by ants.

Materials examined: Totally four apterous viviparous females and one alate viviparous females were examined; (ARG00075), Iran: Kerman province, Madon, N29°32′E56°36′, 2748 m. a.s.l., *Scorzonera* sp. (Asteraceae), 25 April 2008, M. Mehrparvar.

Discussion

The observed morphological differences between the specimens of *M. vallesiacae* collected from Iran and the original description could be because of differences derive from different environmental conditions and geographical isolation of collected specimens as aphid's morphology depends greatly on the environment (e.g. Madjdzadeh & Mehrparvar 2009). In addition, the specimens of the original description were collected on *Artemisia vallesiaca*in Switzerland, while the Iranian specimens were collected on *A. sieberi* and *A. aucheri*. Since feeding on different host

plants could be the source of morphological differences between aphid populations (e.g. Madjdzadeh *et al.* 2009; Mehrparvar *et al.* 2012), it is likely that these differences are also because of different host plant. So far, *M. vallesiacae* is only reported on *A. vallesiaca* in alpine Switzerland and Italy (Jörg & Lampel 1990; Blackman & Eastop 2006; Holman 2009). Here it is the first report of the aphid species from Middle East so that it might be concluded that this species distributed in the Palearctic region. In Iran, only four aphid species (see Table 3) are reported on *Scorzonera* spp. (Hodjat 1993; Rezwani 2010), however, with this study the number of species increased to five.

The two aphid species reported here have been found on new host plants. *Macrosiphoniella vallesiacae* is found on *A. aucheri* and *A. sieberi* however, the previous studies reported it on *A. vallesiaca* (Jörg & Lampel 1990; Blackman & Eastop 2006; Holman 2009). Based on this, the species is probably oligophagous and specific to *Artemisia* plants nevertheless biological studies together with rearing to establish colonies on different relative plants is necessary to reveal the host range. This is true as well for *U. pilosellae* which is known from *Hieracium* spp. throughout Europe, and also in Turkey (Blackman & Eastop 2006; Holman 2009), but here it was collected on different host plant genus i.e. *Scorzonera* sp.

The aphid fauna of Iran has not been extensively studied and there is no comprehensive information on this important group of insects. It is expected that more aphid species are present in Iran so that with more extensive investigations the number of species will increase in the future.

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شته‌های گیاهان جنس *Artemisia* و *Scorzonera* در ایران: *Macrosiphoniella vallesiacae* Jörg & Lample, 1988 و *Uroleucon pilosellae* (Börner, 1933) (Hemiptera: Aphididae) به عنوان گزارش‌های جدید

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چکیده: در این مطالعه دو گونه شته (Hemiptera: Aphididae) با نام‌های *Macrosiphoniella vallesiacae* Jörg & Lample, 1988 از روی دو گونه درمنه، *Artemisia aucheri* و *A. sieberi* و *Uroleucon pilosellae* (Börner, 1933) از روی *Scorzonera* sp. جمع آوری شدند که برای اولین بار از ایران گزارش می‌شوند. در این پژوهش داده‌های بیومتری مربوط به جمعیت‌های ایران این دو گونه به همراه کلید شناسایی افراد بی‌بال بکرزای گونه‌های جنس *Macrosiphoniella* روی گیاهان درمنه در ایران نیز ارایه شده است.

واژگان کلیدی: Macrosiphini، فون، رده‌بندی، پراکنش، درمنه