



Aceria spp. of Maku County with two new records for Asia and eight new records for West Azerbaijan province of Iran

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Abstract. A survey on the eriophyid mite fauna of Maku County in West Azerbaijan province, Iran was carried out during summer 2020 and 2021. Sampling was done on the most abundant plant species of this area. Fourteen *Aceria* species were collected and identified: *Aceria balasi* Farkas, 1960, collected on *Carduus acanthoides* L. (Asteraceae), and *Aceria inturbida* Boczek, 1961, collected on *Arctium lappa* L. (Asteraceae), were new to the Asian mite fauna and a supplementary description of them was provided. Eight species including *A. khaniensis* Honarmand, Sadeghi & de Lillo, 2020, *A. chenopodia* Xue, Sadeghi & Hong, 2009, *A. longisolenidia* Lotfollahi, Haddad & de Lillo, 2015, *A. cichorii* Petanovic, Boczek & Shi, 2002, *A. verbenacae* de Lillo, Panzarino, Loverre & Valenzano, 2017, *A. zygofabae* Lotfollahi, de Lillo & Haddad, 2017, *A. tragopogonis* Xue, Sadeghi & Hong, 2012 and *A. lobolinguae* Lotfollahi & de Lillo, 2014 were new records to the fauna of West Azerbaijan province, Iran.

Keywords: Acerini, Elective, Eriophyidae, Eriophyinae, Non-elective

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Introduction

Eriophyoid mites are an important group of tiny tetrapodili mites, due to their direct damage to the hosts, ability to transmit serious plant diseases, and the possibility of using some of them as biological agents for weed control (de Lillo *et al.*, 2018).

Aceria Keifer (1969) is the genus with the highest number of species (more than 980 species worldwide) among the eriophyoid mites. The type genus is characterized by body vermiform, gnathosoma short and projecting obliquely downwards, dorsal palp genual setae *d* unbranched, prodorsal shield without a frontal lobe or with a short or a flexible one over gnathosomal base, tubercles of setae *sc* on the rear shield margin with setae directed posterior, legs with all usual segments and setae, empodium simple sometimes asymmetric, opisthosoma dorsally evenly rounded, posterior opisthosoma with annuli continuous and subequal dorsoventrally, prosternal apodeme entire, all coxal and opisthosomal setae present.

In Iran, 107 *Aceria* species have been found until now. This research was aimed at providing more information on the Iranian *Aceria* species by surveying plants in Maku County which have never been investigated before.

Materials and methods

A survey on the eriophyid mite fauna of Maku county in the West Azerbaijan province of Iran was carried out during summer of 2020 and 2021, and samplings were done in 164 locations of this area (Appendix 1. ;

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sampling in 2021 were marked by an asterisk *).

Eriophyoid mites were recovered from the plant material by means of a modified washing method developed by Monfreda *et al.* (2007).

We applied the methodology described in Mehri-Heyran *et al.* (2020) for slide mounting. All morphological measurements, taken by means of a phase contrast microscope Olympus BX53, 1,000 magnification (oil immersion) according to Amrine & Manson (1996) as modified by de Lillo *et al.* (2010), are given in micrometers. Counting of dorsal, ventral and coxigenital annuli follows Lotfollahi *et al.* (2020). Measurements and means are rounded off to the nearest integer when required, except for the characters with very short length. Measurements refer to the length of the morphological trait unless otherwise specified and are given in micrometers. In the descriptions, only the range values are given.

Line drawings were hand-drawn through a *camera lucida* according to de Lillo *et al.* (2010). The plates were edited with Adobe Photoshop CC 2017. The abbreviations labelling schematic drawings in figures follow mainly Amrine *et al.* (2003).

The genus classification follows Amrine *et al.* (2003) and comparisons were also made with new genera described since that publication.

Host plant names and their synonymies are in accordance with "The World Flora Online" (2022).

Type materials are deposited at the Acarology Laboratory, Department of Plant Protection, Faculty of Agriculture, Azarbaijan Shahid Madani University, Tabriz (Iran).

Results

During this study, 14 species belonging to the genus *Aceria* were identified, while no *Aceria* mites were found in 28 of the 164 locations. The highest number of mites belonged to the *A. tosichella* species complex, *A. inturbida* Boczek, 1961 and *A. kiefferi* (Nalepa, 1891), respectively with 1943, 1521, and 1254 individuals, and the lowest number of mites belonged to *A. zygofabae* Lotfollahi, de Lillo & Haddad, 2017 with just two individuals (Fig. 1). Information on the identified species is provided below.

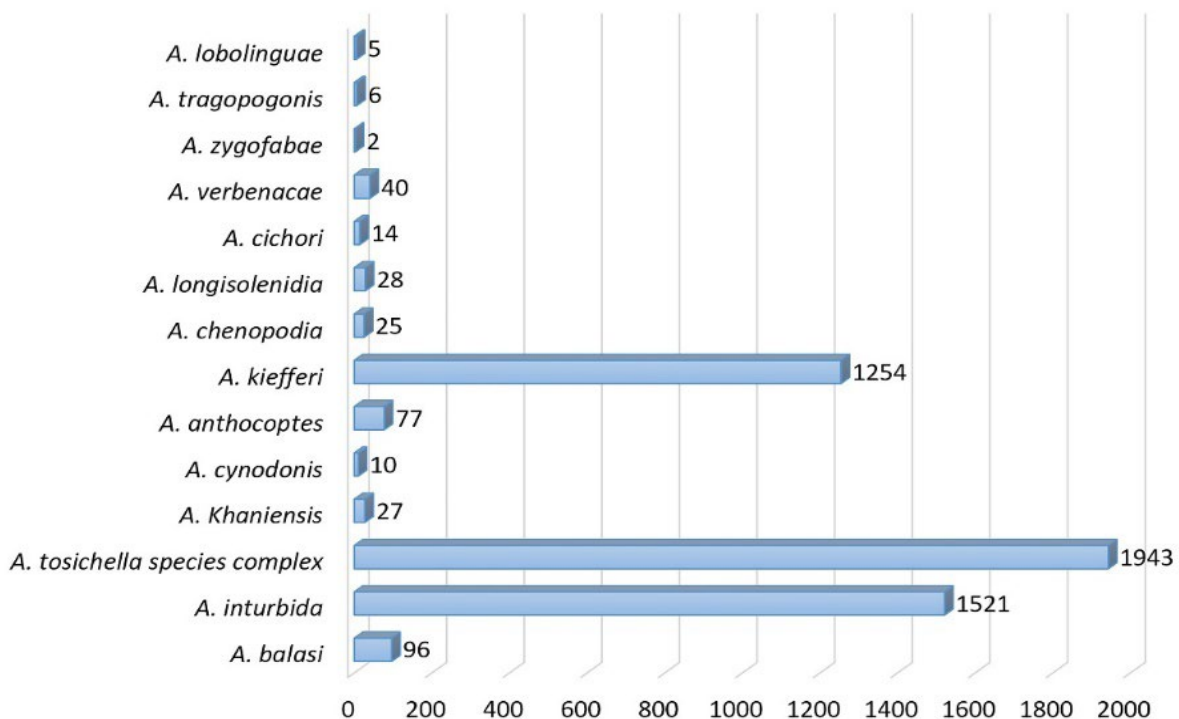


Fig. 1. The number of specimens collected for different *Aceria* species in Maku County.

Aceria balasi Farkas, 1960

Supplementary Description.

FEMALE (Fig. 2; measured specimens n = 10). **Body** vermiform, 180–215 (excluding gnathosoma), 40 thick, 48–58 wide. **Gnathosoma** projecting obliquely downwards, cheliceral stylets 18–30, palp 19–26, palp

coxal setae *ep* 2–3, dorsal palp genual setae *d* 6–8, unbranched. Suboral plate rounded anteriorly, ornamented with some granules. **Prodorsal shield** 28–31 including frontal lobe, 32–38 wide, semicircular; with a short blunt flexible frontal lobe, 5–7, over gnathosomal base. Shield pattern distinct, consisting of complete median and admedian lines, short interior submedian lines on anterior half of prodorsal shield, arched complete outer submedian lines and few dashes at the rear part of prodorsal shield and many dashes at lateral parts of prodorsal shield. Tubercles of scapular setae *sc* on rear shield margin, 18–22 apart, setae *sc* 46–58, directed posterior. **Legs** with all usual segments and setae. Leg I 21–32, trochanter 5–7, femur 9–10, genu 6–7, tibia 6–8, tarsus 8–10, tarsal solenidion ω 8–9, curved down, distally tapered, empodium simple, 5–7, 6-rayed; femoral setae *bv* 9–11, genual setae *l''* 21–33, paraxial tibial setae *l' 7–10*, located at the base of tibia, paraxial fastigial tarsal setae *ft'* 15–20, antaxial fastigial tarsal setae *ft''* 22–31, paraxial unguinal tarsal setae *u' 3–5*. Leg II 24–29, trochanter 5–6, femur 9–10, genu 5–6, tibia 4–5, tarsus 6–9, tarsal solenidion ω 10–11, curved down, distally tapered, empodium simple, 5–7, 6-rayed; femoral setae *bv* 11–13, genual setae *l''* 10–12, paraxial fastigial tarsal setae *ft'* 5–7, antaxial fastigial tarsal setae *ft''* 25–34, paraxial unguinal tarsal setae *u' 3–5*. **Coxisternal region.** Prosternal apodeme 5–6, entire (not divided anteriorly), anterior setae on coxisternum I *lb* 12–14, 10–13 apart; proximal setae on coxisternum I *la* 25–35, 7–10 apart; proximal setae on coxisternum II *2a* 50–53, 17–24 apart; 4–6 microtuberculate semiannuli between coxae and genital coverflap plus 2–4 transversal rows of lined granules at the base of the coverflap. Coxae with numerous distinct granules. **External genitalia** 13–16, 18–22 wide, coverflap with 14–19 longitudinal striae; setae *3a* 19–21, 14–17 apart. **Internal genitalia:** spermathecae ovoid, oriented posterolateral; spermathecal tubes relatively short; transverse genital apodeme trapezoidal, distally folded. **Opisthosoma** dorsally evenly rounded, with 79–84 dorsal semiannuli, 71–80 ventral semiannuli. **Microtubercles:** circular, on posterior part of dorsal and ventral semiannuli, spiny on the rear margin of the last 2–5 dorsal semiannuli and elongated and linear on last 3–4 ventral semiannuli. Setae *c2* 30–32 on ventral semiannulus 10–12, setae *d* 59–68 on ventral semiannulus 24–26; setae *e* 30–32 on ventral semiannulus 40–45; setae *f* 20–23 on ventral semiannulus 65–74; 5–6 annuli posterior to setae *f*. Setae *h2* 82–93 apically very fine, *h1* 8–10.

MALE (Fig. 2-GM; measured specimens $n = 2$). Similar in shape and prodorsal shield arrangement to female. Body smaller than female, 136–144, 38–42 wide; palp genual setae *d* 5–6; prodorsal shield 28–30, 22–23 wide; setae *sc* 48–49, 17–20 apart. Opisthosoma with 63–75 dorsal semiannuli and 62–71 ventral semiannuli; 6–7 semiannuli between coxae and genitalia, with microtubercles similar to that of female. Setae: *lb* 12, *la* 21–23, *2a* 41–43, *c2* 26–27, *d* 52–55, *e* 24, *f* 16–18, *h1* 5–8, *h2* 78–91. Male genitalia 18–19 wide, setae *3a* 16–17, 13–14 apart.

NYMPH (measured specimens $n = 2$). Body vermiform, 120–125 (excluding gnathosoma), 39–43 thick; palp genual setae *d* 5–6. Prodorsal shield 24–26 including frontal lobe, semicircular; with a short frontal lobe, 2–3, over gnathosomal base. Tubercles of *sc* setae on rear shield margin, setae *sc* 43–46, directed posterior. Opisthosoma with 66–68 dorsal semiannuli with circular microtubercles set on rear part of semiannuli, 61–63 ventral semiannuli with circular microtubercles, elongated on the posterior semiannuli. Setae: *lb* 9–10, *la* 18–20, *2a* 31–35, *c2* 23–24, *d* 42–43, *e* 18–20, *f* 15–16, *h2* 65–70, *h1* 7. Setae *3a* 9–12 on semiannulus 15 after coxae. Empodium of leg I 6-rayed, of leg II 5-rayed.

Type host plant. *Carduus acanthoides* L. (Asteraceae), Plumeless Thistle.

Type locality. Budapest, Hungary.

Locality and host plant. Collected by K. Aghazadeh during August 2021; on plant and locality listed in Table 1.

Material examined for description. 10 females, 3 males and 3 nymphs mounted singly on separate microscope slides (CA-IWA-MU-KN-2021A-1–15).

Other materials. Mites preserved in a vial (CA-IWA-MU-KN-2021A) of Oudemans' fluid (Walter & Krantz, 2009) as extracted from the same sample as the examined materials.

Relation to the host plant. Mites induce leaf galls (Farkas 1960). No symptoms were observed in this survey.

Remarks. The original description of *A. balasi* by Farkas (1960) provides few morphological information, which makes the comparison between that description and the Iranian specimens difficult.

There are similarities between Iranian specimens and Farkas description in the length of setae *sc*, *c2*, *d*, *f*, and *3a*, and the prodorsal shield ornamentation. However, there are differences in the length of setae *e* (17 in Farkas description versus 30–32 in Iranian specimens) and empodium rays number (5 in Farkas description versus 6 in Iranian specimens).

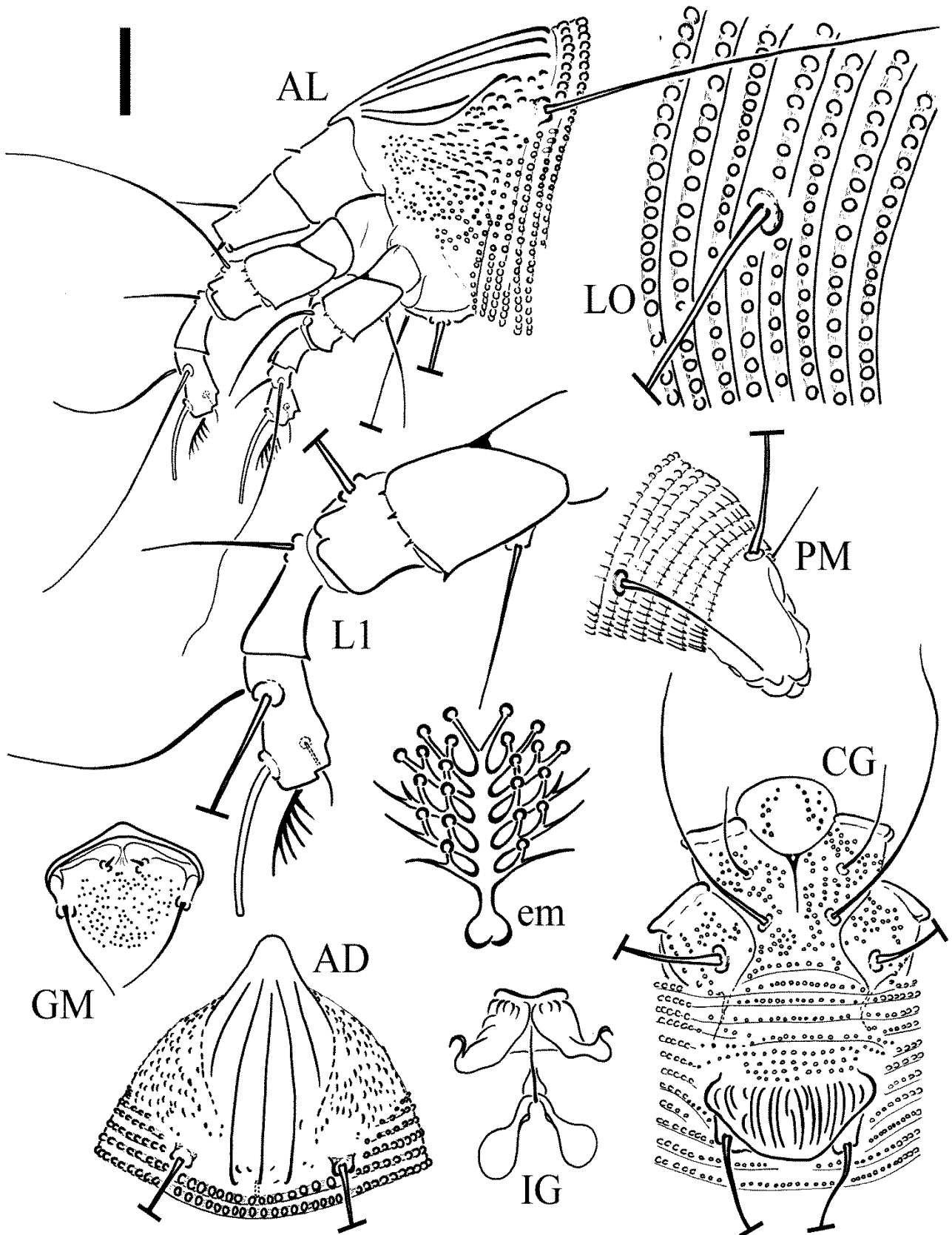


Fig. 2. Schematic drawings of *Aceria balasi* Farkas, 1960: AD. Prodorsal shield; AL. Lateral view of anterior body region; CG. Female coxigenital region; em. Empodium; GM. Male genital region; IG. Internal female genitalia; LO. Lateral view of annuli; L1. Leg; PM. Lateral view of posterior opisthosoma. Scale bar: 10 μ m for AD, AL, CG, GM, IG, PM; 5 μ m for LO, L1; 2.5 μ m for em.

Table 1. List of locality, host plant, and number of collected specimens of *Aceria balasi* Farkas, 1960.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Karvangran 01*	<i>Carduus acanthoides</i> L.	59	17	20	Elective
Total collected specimens: 96					

Natcheff (1982) also provided the drawings for this mite species and its prodorsal shield is very similar to the Iranian specimens. He drew the empodium with 5 rays, too. In his drawings, coxae and genitalia coverflap are smooth, while in Iranian specimens, coxae are ornamented with granules and coverflap has longitudinal striae. It could be hypothesized that differences could be due to the consequence of intraspecific variability, geographic differences, host plant genotype differences, and/or the not so good quality of the microscopes. This mite species has so far been recorded from Bulgaria, Hungary, and Serbia (Amrine and de Lillo unpublished database) and this is a first record of this species from Asia.

Aceria inturbida Boczek, 1961

Supplementary Description.

FEMALE (Fig. 3; measured specimens n = 10). **Body** vermiform, 245–269 (excluding gnathosoma), 60 thick, 53–64 wide. **Gnathosoma** projecting obliquely downwards, cheliceral stylets 18–21, palp 20–24, palp coxal setae *ep* 2–3, dorsal palp genual setae *d* 5–6, unbranched. Suboral plate rounded anteriorly, with some dashes at its basal part. **Prodorsal shield** 37–40 including frontal lobe, 30–34 wide, sub-triangular with a short, distally pointed frontal lobe, 5–7, over gnathosomal base. Shield pattern distinct, consisting of complete median and admedian lines and shorter inner submedian lines with some dashes at their base and one pair of lateral lines; median line with V-shaped mark at its base; several distinct dashes present between inner submedian and lateral lines and between lateral side of prodorsal shield and coxal region in lateral view. Tubercles of scapular setae *sc* 22–24 apart, setae *sc* 55–62, directed backward. **Legs** with all usual segments and setae. Leg I 32–35, trochanter 7–8, femur 9–11, genu 5–6, tibia 6–8, tarsus 7–8, tarsal solenidion ω 10–11, curved down, distally a bit enlarged and tapered, empodium simple, 7–8, 6-rayed; femoral setae *bv* 9–10, genual setae *l''* 28–32, paraxial tibial setae *l'* 7–9, located at the base of tibia, paraxial fastigial tarsal setae *ft'* 15–18, antaxial fastigial tarsal setae *ft''* 27–30, paraxial unguinal tarsal setae *u'* 3–5. Leg II 30–33, trochanter 5–8, femur 9–11, genu 6–7, tibia 6–7, tarsus 7–9, tarsal solenidion ω 10–12, curved down, distally a bit enlarged and tapered, empodium simple, 6–8, 6-rayed; femoral setae *bv* 11–12, genual setae *l''* 11–13, paraxial fastigial tarsal setae *ft'* 6–7, antaxial fastigial tarsal setae *ft''* 25–30, paraxial unguinal tarsal setae *u'* 3–5. **Coxisternal region.** Prosternal apodeme 6–9, entire, anterior setae on coxisternum I *lb* 10–11, 11–13 apart; proximal setae on coxisternum I *la* 22–27, 8–10 apart; proximal setae on coxisternum II *2a* 47–54, 24–25 apart; 5–8 microtuberculate semiannuli between coxae and genital coverflap plus 1–3 transversal rows of lined granules at the base of the coverflap. Coxae with dense lined dashes. **External genitalia** 18–23, 27–30 wide, coverflap with 16–23 longitudinal striae; setae *3a* 21–23, 19–24 apart. **Internal genitalia:** spermathecae ovoid, oriented posterolateral; spermathecal tubes relatively short as long as third of spermathecae diameter; spermathecal process present but often masked by folded spermathecal tube if spermathecal apparatus was deformed; transverse genital apodeme trapezoidal, distally folded. **Opisthosoma** dorsally evenly rounded, with 58–68 dorsal semiannuli, 78–81 ventral semiannuli. **Microtubercles:** elliptical, on posterior margin of dorsal semiannuli; sharp conical, on posterior margin of ventral semiannuli and lateral parts of annuli; more distinct on annuli rear edges; spiny on the rear margin of the last 2–4 dorsal semiannuli and elongated and linear on last 4–5 ventral semiannuli. Setae *c2* 21–25 on ventral semiannulus 11–13, setae *d* 60–68 on ventral semiannulus 28–31; setae *e* 18–24 on ventral semiannulus 44–50; setae *f* 23–28 on ventral semiannulus 65–75; 6 annuli posterior to setae *f*. Setae *h2* 85–100 apically very fine, *h1* 6–8.

MALE (Fig. 3-GM; measured specimens n = 2). Similar in shape and prodorsal shield arrangement to female. Body smaller than female, 184–193, 45–49 wide; palp genual setae *d* 5–6; prodorsal shield 35–39, 32–35 wide; setae *sc* 43–47, 22–23 apart. Opisthosoma with 55–60 dorsal semiannuli and 68 ventral semiannuli; 7–9 semiannuli between coxae and genitalia, with microtubercles similar to that of female. Setae: *lb* 7, *la* 15–16, *2a* 42–48, *c2* 29–31, *d* 55–56, *e* 15–20, *f* 20–21, *h1* 6, *h2* 79–85. Male genitalia 17–22 wide, setae *3a* 18–25, 16–17 apart.

NYMPH (Fig. 4; measured specimen n = 1). Body vermiform, 190 (excluding gnathosoma), 50 wide; palp genual setae *d* 3. Prodorsal shield 34 including frontal lobe, 35 wide, sub-circular; with a short frontal lobe, 4, over gnathosomal base. Shield pattern distinct, consisting of short median, admedian and inner submedian lines and some granules on lateral parts. Tubercles of *sc* setae 20 apart, setae *sc* 46, directed backward.

Opisthosoma with 69 dorsal semiannuli with round microtubercles set on rear margin of semiannuli, 59 ventral semiannuli with oval microtubercles, elongated on the posterior semiannuli. Setae: *Ib* 6, *Ia* 15, *2a* 32, *c2* 22, *d* 38, *e* 17, *f* 17, *h2* 52, *h1* 4. Setae *3a* 13, 11 apart on semiannulus 13 after coxae. Empodium 4-rayed.

Type host plant. *Arctium lappa* L. (Asteraceae), Great Burdock.

Type locality. Pulawy, Poland.

Locality and host plant. Collected by K. Aghazadeh during summer 2020; on plant and locality listed in Table 2.

Material examined for description. 15 females, 3 males and 1 nymph mounted singly on separate microscope slides (AL-IWA-MU-BK-2021A-1–21).

Other material. Mites preserved in a vial (AL-IWA-MU-BK-2021A) of Oudemans' fluid (Walter & Krantz, 2009) as extracted from the same sample as the examined material.

Relation to the host plant. Mites live on the under leaf surface and cause discolouration of leaves (Boczek, 1961). No symptoms were observed on elective host plant in this survey.

Remarks. The morphology of the Iranian specimens is completely similar to the description given by Boczek (1961). A few differences in the dorsal semiannuli number (82 in Boczek description *versus* 58–68 in Iranian specimens) and shape and pattern of the prodorsal shield were found. Boczek drew five lines of similar length on the shield center and many dashes on its lateral sides; he didn't draw distinct frontal lobe for that. In Iranian specimens, a distinct pointed frontal lobe was observed and the shield pattern is somewhat different (Figure 3-AD). This species has so far been recorded from Bulgaria and Poland, (Amrine and de Lillo unpublished database) and this is the first record of this species from Asia.

Aceria tosichella species complex

Locality and host plant. Collected by K. Aghazadeh during June 2020 and August 2021*; on plants and localities listed in Appendix 2.

Previous provincial records for Iran. Razavi Khorasan, Lorestan and West Azerbaijan provinces (Xue *et al.*, 2011; Mehri-Heyran *et al.*, 2020; Bahirai *et al.*, 2021).

Remarks. It should be commented that this mite species complex, as well as some others here listed, could be subjected to wind dispersal and can be landed on non-elective host plant species where they can survive for a while. Subsequently, this species complex was the most abundant one that was found in all developmental stages in the surveyed area. No apparent symptom was observed on the host plants, elective ones included. This is a new record to the fauna of Maku region.

Table 2. List of localities, host plants and number of collected specimens of *Aceria inturbida* Boczek, 1961.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 02	<i>Arctium lappa</i> L.	244	158	15	Elective
Gajoot 19	<i>Arctium lappa</i> L.	300	115	28	Elective
Garahkhaj 10	<i>Arctium lappa</i> L.	2	-	-	Elective
Garahtapeh 17	<i>Arctium lappa</i> L.	12	1	-	Elective
Kosaj 04	<i>Arctium lappa</i> L.	198	177	35	Elective
Rend 15	<i>Arctium lappa</i> L.	1	2	-	Elective
Sangar 05	<i>Arctium lappa</i> L.	115	78	40	Elective
Total collected specimens: 1521					

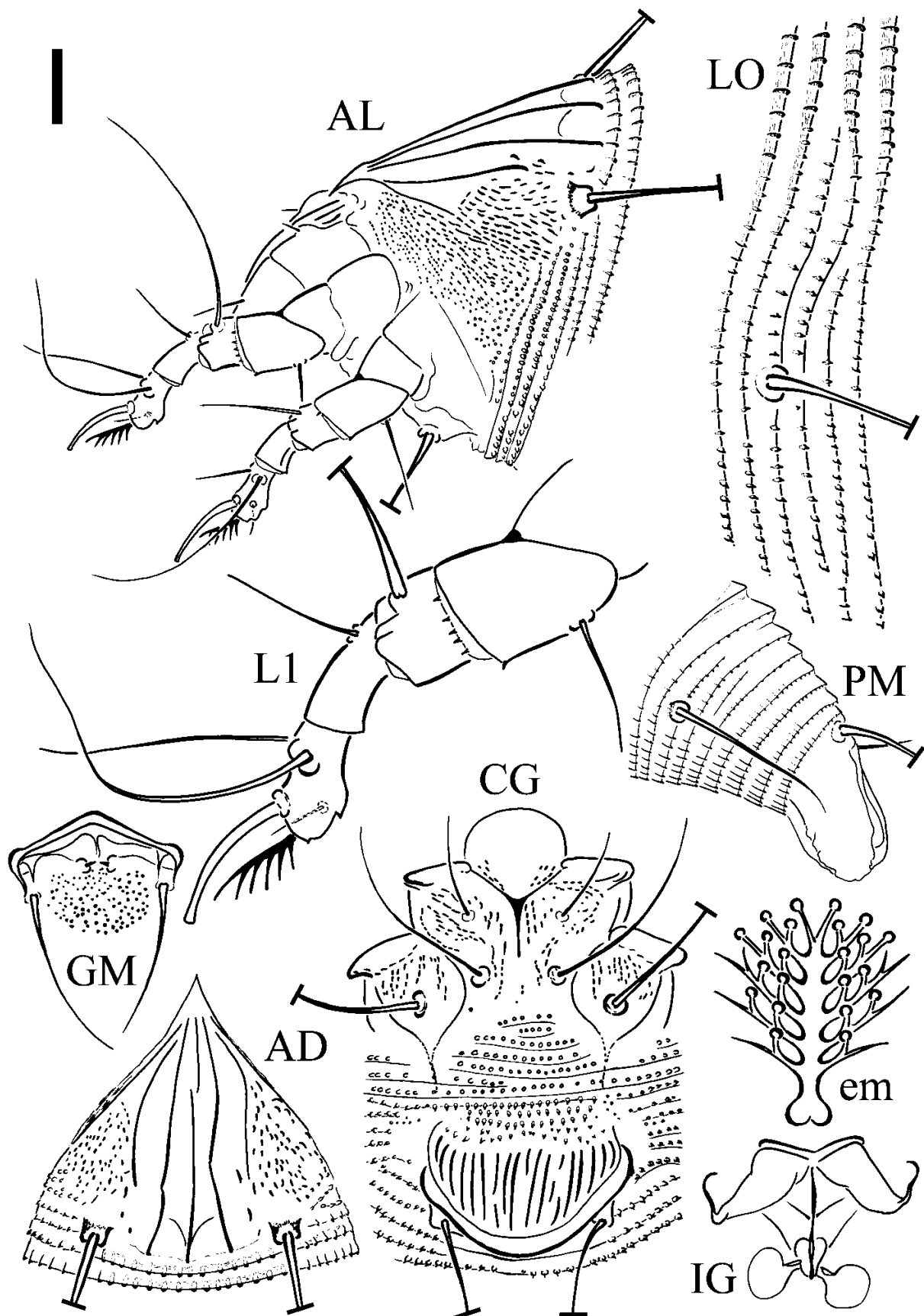


Fig. 3. Schematic drawings of *Aceria inturbida* Boczek, 1961: AD. Prodorsal shield; AL. Lateral view of anterior body region; CG. Female coxigenital region; em. Empodium; GM. Male genital region; IG. Internal female genitalia; LO. Lateral view of annuli; L1. Leg; PM. Lateral view of posterior opisthosoma. Scale bar: 10 μ m for AD, AL, CG, GM, IG, PM; 5 μ m for LO, L1; 2.5 μ m for em.

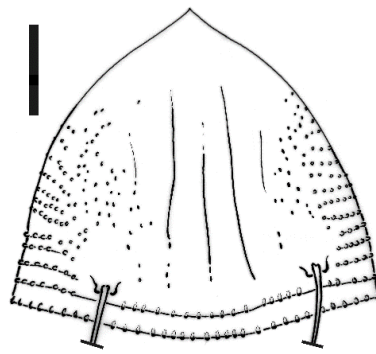


Fig. 4. Schematic drawing of *Aceria inturbida* Boczek, 1961 nymph prodorsal shield; **Scale bar:** 10 μ m.

Aceria khaniensis Honarmand, Sadeghi & de Lillo, 2020

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plant and locality listed in Table 3.

Previous provincial records for Iran. South Khorasan province (Honarmand *et al.*, 2020).

Remarks. No apparent symptom was observed. This is a new record to the fauna of West Azerbaijan province.

Table 3. List of locality, host plant, and number of collected specimens of *Aceria Khaniensis* Honarmand, Sadeghi & de Lillo, 2020.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 11	<i>Artemisia abrotanum</i> L.	21	5	1	Elective
Total collected specimens: 27					

Aceria cynodonis Wilson, 1959

Locality and host plant. Collected by K. Aghazadeh during June 2020 and August 2021; on plants and localities listed in Table 4.

Previous provincial records for Iran. East and West Azerbaijan provinces (Lotfollahi *et al.*, 2017; Mehri-Heyran *et al.*, 2020)

Remarks. It should be commented that this mite species can be subjected to wind dispersal and can be landed on non-elective host plant species. No apparent symptom was observed on the elective host plant. This is a new record to the fauna of Maku region.

Table 4. List of localities, host plants, and number of collected specimens of *Aceria cynodonis* Wilson, 1959.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Beshgoz 02*	<i>Rumex crispus</i> L.	1	-	-	Non-elective
Boljak 08	<i>Salvia officinalis</i> L.	1	-	-	Non-elective
Garahkhaj 07	<i>Salvia officinalis</i> L.	1	-	-	Non-elective
Garhtapeh 15	<i>Tragopogon porrifolius</i> L.	3	-	-	Non-elective
Rend 05*	<i>Salvia officinalis</i> L.	1	-	-	Non-elective
Rend 28	<i>Salvia officinalis</i> L.	2	-	-	Non-elective
Sangar 08	<i>Agropyron repens</i> (L.) P.Beauv.	1	-	-	Elective
Total collected specimens: 10					

Aceria anthocoptes (Nalepa, 1892)

Locality and host plant. Collected by K. Aghazadeh during June 2020 and August 2021; on plants and localities listed in Table 5.

Previous provincial records for Iran. Razavi Khorasan and West Azerbaijan provinces (Xue *et al.*, 2011; Mehri-Heyran *et al.*, 2020).

Remarks. No apparent symptom was observed on the elective host plant. This is a new record to the fauna of Maku region.

Table 5. List of localities, host plants, and number of collected specimens of *Aceria anthocoptes* (Nalepa, 1892).

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 02	<i>Cirsium arvense</i> L.	2	3	-	Elective
Boljak 18	<i>Cirsium arvense</i> L.	4	-	1	Elective
Gajoot 19	<i>Cirsium arvense</i> L.	2	-	-	Elective
Gajoot 22	<i>Cirsium arvense</i> L.	6	3	1	Elective
Garahkhaj 07	<i>Cirsium arvense</i> L.	3	3	3	Elective
Garahtapeh 12	<i>Cirsium arvense</i> L.	8	-	-	Elective
Handavar 12	<i>Cirsium arvense</i> L.	6	3	-	Elective
Rend 22	<i>Cirsium arvense</i> L.	5	5	-	Elective
Sangar 04	<i>Cirsium arvense</i> L.	4	2	3	Elective
Sangar 15*	<i>Cirsium arvense</i> L.	8	1	1	Elective
Total collected specimens: 77					

Aceria kiefferi (Nalepa, 1891)

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plants and localities listed in Table 6.

Previous provincial records for Iran. West Azerbaijan province (Mehri-Heyran *et al.*, 2020).

Remarks. No apparent symptom was observed on the elective host plant. This is a new record to the fauna of Maku region.

Table 6. List of localities, host plants, and number of collected specimens of *Aceria kiefferi* (Nalepa, 1891).

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Gajoot 16	<i>Euphotbia cyparissias</i> L.	1	-	-	Non-elective
Gajoot 17	<i>Achillea filipendalina</i> L.	137	24	17	Elective
Garahkhaj 01	<i>Achillea filipendalina</i> L.	1	2	1	Elective
Garahkhaj 07	<i>Achillea filipendalina</i> L.	4	1	-	Elective
Garahkhaj 11	<i>Achillea filipendalina</i> L.	40	7	1	Elective
Handavar 12	<i>Achillea filipendalina</i> L.	300	107	16	Elective
Kosaj 03	<i>Achillea filipendalina</i> L.	311	260	22	Elective
Kosaj 08	<i>Achillea filipendalina</i> L.	1	1	-	Elective
Total collected specimens: 1254					

Aceria chenopodia Xue, Sadeghi & Hong, 2009

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plant and locality listed in Table 7.

Previous provincial records for Iran. Razavi Khorasan, East and West Azerbaijan provinces (Xue *et al.*, 2009; Lotfollahi *et al.*, 2017; Bahirai *et al.*, 2021).

Remarks. No apparent symptom was observed. This is a new record to the fauna of West Azerbaijan province.

Table 7. List of locality, host plant, and number of collected specimens of *Aceria chenopodia* Xue, Sadeghi & Hong, 2009.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Handavar 03	<i>Chenopodium album</i> L.	17	8	-	Elective
Total collected specimens: 25					

Aceria longisolenidia Lotfollahi, Haddad & de Lillo, 2015

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plants and localities listed in Table 8.

Previous provincial records for Iran. East Azerbaijan province (Lotfollahi *et al.*, 2015).

Remarks. It should be commented that this mite species can be subjected to wind dispersal and can be landed on non-elective host plant species. This is a new record to the fauna of West Azerbaijan province.

Table 8. List of localities, host plants, and number of collected specimens of *Aceria longisolenidia* Lotfollahi, Haddad & de lillo, 2015.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 10	<i>Daucus carota</i> L.	15	-	-	Non-elective
Garahtapeh 14	<i>Malva parviflora</i> L.	2	-	-	Non-elective
Handavar 07	<i>Daucus carota</i> L.	7	-	-	Non-elective
Sangar 11	<i>Daucus carota</i> L.	3	1	-	Non-elective
Total collected specimens: 28					

***Aceria cichorii* Petanovic, Boczek & Shi, 2002**

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plants and localities listed in Table 9.

Previous provincial records for Iran. East Azerbaijan province (Lotfollahi *et al.*, 2013).

Remarks. No apparent symptom was observed on the elective host plant. This is a new record to the fauna of West Azerbaijan province.

Table 9. List of localities, host plants, and number of collected specimens of *Aceria cichori* Petanovic, Boczek & Shi, 2002.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Gajoot 16	<i>Cichorium intybus</i> L.	4	2	2	Elective
Rend 27	<i>Plantago lanceolate</i> L.	5	-	1	Non-elective
Total collected specimens: 14					

***Aceria verbenacae* de Lillo, Panzarino, Loverre & Valenzano, 2017**

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plants and localities listed in Table 10.

Previous provincial records for Iran. Golestan province (Gol *et al.*, 2019).

Remarks. It should be commented that this mite species can be subjected to wind dispersal and can be landed on non-elective host plant species. This is a new record to the fauna of West Azerbaijan province.

Table 10. List of localities, host plants, and number of collected specimens of *Aceria verbenacae* de Lillo, Panzarino, Loverre & Valenzano, 2017.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Gajoot 19	<i>Salvia officinalis</i> L.	6	3	1	Elective/Non-elective
Garahkhaj 07	<i>Salvia officinalis</i> L.	-	1	-	Elective/Non-elective
Rend 01	<i>Salvia officinalis</i> L.	8	-	-	Elective/Non-elective
Rend 28	<i>Salvia officinalis</i> L.	20	-	1	Elective/Non-elective
Total collected specimens: 40					

***Aceria zygofabae* Lotfollahi, de Lillo & Haddad, 2017**

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plant and locality listed in Table 11.

Previous provincial records for Iran. East Azerbaijan province (Lotfollahi *et al.*, 2017).

Remarks. It should be commented that this mite species can be subjected to wind dispersal and can be landed on non-elective host plant species. This is a new record to the fauna of West Azerbaijan province.

Table 11. List of locality, host plant, and number of collected specimens of *Aceria zygofabae* Lotfollahi, de Lillo & Haddad, 2017.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Gajoot 22	<i>Reseda luteola</i> L.	2	-	-	Non-elective
Total collected specimens: 2					

***Aceria tragopogonis* Xue, Sadeghi & Hong, 2012**

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plant and locality listed in Table 12.

Previous provincial records for Iran. South Khorasan province (Xue *et al.*, 2012).

Remarks. No apparent symptom was observed. This is a new record to the fauna of West Azerbaijan province.

Table 12. List of locality, host plant, and number of collected specimens of *Aceria tragopogonis* Xue, Sadeghi & Hong, 2012.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Garahtapeh 15	<i>Tragopogon porrifolius</i> L.	4	1	1	Elective
Total collected specimens: 6					

Aceria lobolinguae Lotfollahi & de Lillo, 2014

Locality and host plant. Collected by K. Aghazadeh during June 2020; on plant and locality listed in Table 13.

Previous provincial records for Iran. East Azerbaijan province (Lotfollahi *et al.*, 2014).

Remarks. It should be commented that this mite species can be subjected to wind dispersal and can be landed on non-elective host plant species. This is a new record to the fauna of West Azerbaijan province.

Table 13. List of locality, host plant, and number of collected specimens of *Aceria lobolinguae* Lotfollahi & de Lillo, 2014.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 08	<i>Elaeagnus angustifolia</i> L.	4	1	-	Non-elective
Total collected specimens: 5					

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Appendix 1. List of sampling localities, their geographic location and altitude (Samplings of year 2021 are marked by an asterisk *).

Sampling localities	Latitude	Longitude	Altitude (m)	Sampling localities	Latitude	Longitude	Altitude (m)
Rend 01	39°19'31"N	44°36'31"E	1119	Garahtapeh 01	39°19'05"N	44°38'46"E	1063
Rend 02	39°19'30"N	44°36'31"E	1118	Garahtapeh 02	39°19'05"N	44°38'44"E	1063
Rend 03	39°20'09"N	44°36'53"E	1123	Garahtapeh 03	39°18'51"N	44°39'26"E	1042
Rend 04	39°19'31"N	44°36'30"E	1119	Garahtapeh 04	39°18'50"N	44°39'27"E	1042
Rend 05	39°20'10"N	44°36'52"E	1123	Garahtapeh 05	39°18'51"N	44°39'27"E	1043
Rend 06	39°20'40"N	44°36'36"E	1141	Garahtapeh 06	39°18'55"N	44°39'23"E	1042
Rend 07	39°20'10"N	44°36'51"E	1122	Garahtapeh 07	39°18'54"N	44°39'23"E	1043
Rend 08	39°20'38"N	44°36'35"E	1138	Garahtapeh 08	39°18'53"N	44°39'23"E	1043
Rend 09	39°20'03"N	44°37'01"E	1119	Garahtapeh 09	39°18'54"N	44°39'24"E	1042
Rend 10	39°20'03"N	44°37'00"E	1119	Garahtapeh 10	39°19'16"N	44°39'42"E	1061
Rend 11	39°20'27"N	44°36'30"E	1134	Garahtapeh 11	39°19'16"N	44°39'41"E	1060
Rend 12	39°20'27"N	44°36'31"E	1134	Garahtapeh 12	39°19'04"N	44°38'46"E	1062
Rend 13	39°19'32"N	44°36'30"E	1119	Garahtapeh 13	39°19'14"N	44°39'40"E	1059
Rend 14	39°20'19"N	44°36'43"E	1129	Garahtapeh 14	39°19'14"N	44°39'39"E	1061
Rend 15	39°20'26"N	44°36'30"E	1134	Garahtapeh 15	39°19'05"N	44°38'45"E	1063
Rend 16	39°20'02"N	44°37'02"E	1119	Garahtapeh 16	39°19'15"N	44°39'40"E	1060
Rend 17	39°20'20"N	44°36'29"E	1130	Garahtapeh 17	39°18'53"N	44°39'23"E	1043
Rend 18	39°20'19"N	44°36'39"E	1129	Garahtapeh 18	39°18'53"N	44°39'23"E	1043
Rend 19	39°20'19"N	44°36'40"E	1130	Garahtapeh 19	39°19'16"N	44°39'42"E	1061
Rend 20	39°20'34"N	44°36'31"E	1136	Garahtapeh 20	39°18'23"N	44°40'29"E	1020
Rend 21	39°20'19"N	44°36'41"E	1130	Garahtapeh 21	39°18'22"N	44°40'30"E	1021
Rend 22	39°20'19"N	44°36'40"E	1129	Garahtapeh 22	39°18'23"N	44°40'30"E	1021
Rend 23	39°20'03"N	44°37'02"E	1120	Garahtapeh 23	39°18'22"N	44°40'31"E	1021
Rend 24	39°20'20"N	44°36'40"E	1130	Garahtapeh 24	39°18'22"N	44°40'32"E	1020
Rend 25	39°20'26"N	44°36'31"E	1134	Garahkhaj 01	39°15'26"N	44°27'28"E	1760
Rend 26	39°20'26"N	44°36'30"E	1134	Garahkhaj 02	39°16'11"N	44°27'54"E	1514
Rend 27	39°20'33"N	44°36'30"E	1136	Garahkhaj 03	39°15'28"N	44°28'12"E	1618
Rend 28	39°20'33"N	44°36'31"E	1135	Garahkhaj 04	39°15'27"N	44°28'12"E	1619
Kosaj 01	39°18'22"N	44°23'29"E	1510	Garahkhaj 05	39°15'26"N	44°27'28"E	1760
Kosaj 02	39°18'28"N	44°23'37"E	1548	Garahkhaj 06	39°15'26"N	44°27'29"E	1760
Kosaj 03	39°18'28"N	44°23'36"E	1550	Garahkhaj 07	39°15'26"N	44°27'29"E	1760
Kosaj 04	39°18'23"N	44°23'32"E	1578	Garahkhaj 08	39°15'27"N	44°28'14"E	1616
Kosaj 05	39°18'22"N	44°23'31"E	1583	Garahkhaj 09	39°15'27"N	44°28'13"E	1618
Kosaj 06	39°18'27"N	44°23'49"E	1515	Garahkhaj 10	39°15'26"N	44°27'28"E	1760
Kosaj 07	39°18'26"N	44°23'49"E	1516	Garahkhaj 11	39°15'28"N	44°28'13"E	1617
Kosaj 08	39°18'22"N	44°23'32"E	1580	Sangar 01	39°19'15"N	44°26'05"E	1352
Kosaj 09	39°18'23"N	44°23'32"E	1579	Sangar 02	39°19'13"N	44°26'06"E	1334
Kosaj 10	39°18'22"N	44°23'31"E	1584	Sangar 03	39°19'15"N	44°26'06"E	1352
Kosaj 11	39°18'22"N	44°23'31"E	1582	Sangar 04	39°19'15"N	44°26'05"E	1352
Kosaj 12	39°18'22"N	44°23'30"E	1586	Sangar 05	39°19'15"N	44°26'04"E	1352
Kosaj 13	39°18'23"N	44°23'32"E	1579	Sangar 06*	39°19'17"N	44°26'02"E	1353
Kosaj 14	39°18'27"N	44°23'32"E	1515	Sangar 07	39°19'18"N	44°26'06"E	1353
Gajoot 01	39°20'39"N	44°22'40"E	1415	Sangar 08	39°18'27"N	44°26'20"E	1334
Gajoot 02	39°20'39"N	44°22'39"E	1415	Sangar 09	39°19'18"N	44°26'05"E	1354
Gajoot 03	39°20'40"N	44°22'40"E	1415	Sangar 10	39°19'18"N	44°26'05"E	1354
Gajoot 04	39°20'39"N	44°22'41"E	1415	Sangar 11	39°18'26"N	44°26'20"E	1333
Gajoot 05	39°20'39"N	44°22'40"E	1415	Sangar 12	39°19'18"N	44°26'04"E	1354
Gajoot 06	39°20'47"N	44°22'33"E	1417	Sangar 13	39°19'19"N	44°25'58"E	1355
Gajoot 07	39°20'47"N	44°22'34"E	1416	Sangar 14	39°19'15"N	44°26'01"E	1353
Gajoot 08	39°20'42"N	44°22'33"E	1416	Sangar 15	39°19'16"N	44°26'00"E	1353
Gajoot 09	39°20'47"N	44°22'33"E	1417	Sangar 16	39°19'20"N	44°25'58"E	1355
Gajoot 10	39°20'47"N	44°22'34"E	1416	Sangar 17	39°19'20"N	44°25'59"E	1355
Gajoot 11	39°20'38"N	44°22'48"E	1410	Sangar 18	39°19'19"N	44°25'59"E	1355
Gajoot 12	39°20'42"N	44°22'34"E	1415	Sangar 19	39°19'20"N	44°25'58"E	1355
Gajoot 13	39°20'45"N	44°22'32"E	1417	Boljak 01	39°17'16"N	44°41'18"E	995
Gajoot 14	39°20'46"N	44°22'33"E	1416	Boljak 02	39°17'03"N	44°41'32"E	986
Gajoot 15	39°20'38"N	44°22'47"E	1410	Boljak 03	39°18'20"N	44°40'32"E	1020
Gajoot 16	39°20'46"N	44°22'32"E	1417	Boljak 04	39°18'20"N	44°40'35"E	1018
Gajoot 17	39°20'38"N	44°22'47"E	1411	Boljak 05	39°17'17"N	44°41'18"E	995
Gajoot 18	39°20'46"N	44°22'42"E	1415	Boljak 06	39°17'04"N	44°41'32"E	986
Gajoot 19	39°20'46"N	44°22'42"E	1416	Boljak 07	39°17'09"N	44°41'21"E	993
Gajoot 20	39°20'46"N	44°22'43"E	1416	Boljak 08	39°17'09"N	44°41'20"E	993
Gajoot 21	39°20'45"N	44°22'32"E	1416	Boljak 09	39°17'03"N	44°41'34"E	986
Gajoot 22	39°20'45"N	44°22'43"E	1416	Boljak 10	39°17'03"N	44°41'33"E	986
Gajoot 23	39°20'46"N	44°22'33"E	1416	Boljak 11	39°17'11"N	44°41'21"E	993
Handavar 01	39°15'51"N	44°36'45"E	1074	Boljak 12	39°17'11"N	44°41'20"E	993
Handavar 02	39°16'31"N	44°36'20"E	1075	Boljak 13	39°17'12"N	44°41'20"E	993
Handavar 03	39°15'52"N	44°36'46"E	1074	Boljak 14	39°17'16"N	44°41'20"E	996
Handavar 04	39°16'32"N	44°36'20"E	1076	Boljak 15	39°17'15"N	44°41'21"E	996
Handavar 05	39°15'48"N	44°36'46"E	1080	Boljak 16	39°17'03"N	44°41'35"E	986
Handavar 06	39°15'49"N	44°36'39"E	1076	Boljak 17	39°17'15"N	44°41'22"E	996
Handavar 07	39°15'52"N	44°36'45"E	1073	Boljak 18	39°17'45"N	44°41'17"E	1004
Handavar 08	39°15'50"N	44°36'40"E	1075	Boljak 19	39°17'45"N	44°41'18"E	1004
Handavar 09	39°15'51"N	44°36'45"E	1074	Boljak 20	39°18'19"N	44°40'31"E	1021

Handavar 10	39°15'50"N	44°36'44"E	1074	Boljak 21	39°18'20"N	44°40'34"E	1019
Handavar 11	39°15'50"N	44°36'39"E	1075	Boljak 22	39°17'46"N	44°41'17"E	1004
Handavar 12	39°15'50"N	44°36'45"E	1075	Danalou 01*	39°21'04"N	44°31'47"E	1325
Handavar 13	39°15'46"N	44°36'44"E	1081	Ghaleejoogh 01*	39°16'38"N	44°28'14"E	1304
Handavar 14	39°15'50"N	44°36'43"E	1074	Bazarhgan 01*	39°22'29"N	44°23'20"E	1411
Handavar 15	39°15'47"N	44°36'45"E	1081	Bazarhgan 02*	39°22'30"N	44°23'18"E	1412
Beshgoz 01*	39°16'38"N	44°33'35"E	1143	Karvangran 01*	39°14'17"N	44°33'12"E	1523
Beshgoz 02*	39°16'38"N	44°33'34"E	1144				

Appendix 2. List of localities, host plants, and number of collected specimens of *Aceria tosichella* species complex.

Sampling localities	Host plant	Specimens			Type of host plant
		Females	Males	Immatures	
Boljak 01	<i>Glycyrrhiza glabra</i> L.	1	-	-	Non-elective
Boljak 02	<i>Cirsium arvense</i> L.	1	-	-	Non-elective
	<i>Arctium lappa</i> L.	1	-	-	Non-elective
Boljak 03	<i>Hordeum vulgare</i> L.	3	-	1	Elective
	<i>Chenopodium album</i> L.	2	1	-	Non-elective
Boljak 04	<i>Sophora flavescens</i> Aiton	1	-	-	Non-elective
	<i>Crepis neglecta</i> L.	4	2	2	Non-elective
Boljak 05	<i>Rapistrum rugosum</i> (L.) All.	1	-	-	Non-elective
Boljak 06	<i>Populus nigra</i> L.	4	-	-	Non-elective
Boljak 08	<i>Salvia officinalis</i> L.	7	-	-	Non-elective
Boljak 10	<i>Daucus carota</i> L.	7	1	-	Non-elective
Boljak 13	<i>Medicago</i> sp.	19	1	-	Non-elective
Boljak 14	<i>Senecio vulgaris</i> L.	-	1	-	Non-elective
Boljak 15	<i>Erysimum cheiranthoides</i> L.	4	-	-	Non-elective
Boljak 16	<i>Cirsium arvense</i> L.	1	-	-	Non-elective
Boljak 17	<i>Carduus pycnocephalus</i> L.	2	-	-	Non-elective
Boljak 18	<i>Cichorium intybus</i> L.	3	-	-	Non-elective
Boljak 19	<i>Xanthium strumarium</i> L.	6	-	-	Non-elective
Boljak 20	<i>Lactuca serriola</i> L.	6	-	-	Non-elective
Boljak 21	<i>Medicago sativa</i> L.	1	-	-	Non-elective
	<i>Medicago sativa</i> L.	4	-	4	Non-elective
Boljak 22	<i>Triticum aestivum</i> L.	5	-	1	Elective
	<i>Xanthium strumarium</i> L.	2	-	-	Non-elective
	<i>Lathyrus aphaca</i> L.	2	-	-	Non-elective
Danalou 01*	<i>Darura</i> sp.	1	-	-	Non-elective
Gajoot 01	<i>Avena sativa</i> L.	1	1	-	Elective
Gajoot 05	<i>Sorghum halepense</i> (L.) Pers.	1	-	-	Elective
	<i>Senecio vulgaris</i> L.	2	-	-	Non-elective
Gajoot 06	<i>Salvia officinalis</i> L.	33	2	1	Non-elective
Gajoot 07	<i>Plantago lanceolata</i> L.	2	-	-	Non-elective
	<i>Silene</i> sp.	3	-	-	Non-elective
Gajoot 10	<i>Lepidium draba</i> L.	15	-	-	Non-elective
Gajoot 11	<i>Hordeum vulgare</i> L.	1	-	-	Elective
	<i>Rapistrum rugosum</i> (L.) All.	1	-	-	Non-elective
Gajoot 13	<i>Adonis aestivalis</i> L.	5	-	-	Non-elective
Gajoot 14	<i>Populus nigra</i> L.	1	1	-	Non-elective
Gajoot 15	<i>Medicago</i> sp.	1	-	-	Non-elective
Gajoot 16	<i>Euphorbia cyparissias</i> L.	2	-	-	Non-elective
Gajoot 17	<i>Achillea filipendulina</i> L.	2	1	-	Non-elective
Gajoot 18	<i>Glycyrrhiza glabra</i> L.	4	-	-	Non-elective
Gajoot 20	<i>Euphorbia cyparissias</i> L.	1	-	-	Non-elective
Gajoot 22	<i>Agropyron repens</i> (L.) P.Beauv	4	-	-	Elective
Garahkhaj 01	<i>Thalictrum</i> sp.	1	-	-	Non-elective
	<i>Urtica dioica</i> L.	2	-	-	Non-elective
	<i>Falcaria vulgaris</i> L.	2	1	-	Non-elective
	<i>Agropyron repens</i> (L.) P.Beauv	2	-	-	Elective
Garahkhaj 03	<i>Salvia</i> sp.	7	1	-	Non-elective
Garahkhaj 04	<i>Salvia officinalis</i> L.	133	-	1	Non-elective
	<i>Populus nigra</i> L.	1	-	1	Non-elective
	<i>Hordeum vulgare</i> L.	8	2	-	Elective
Garahkhaj 05	<i>Armeniaca vulgaris</i> L.	1	-	-	Non-elective
Garahkhaj 06	<i>Juglans regia</i> L.	1	-	-	Non-elective
Garahkhaj 07	<i>Salvia officinalis</i> L.	41	2	-	Non-elective
	<i>Achillea millefolium</i> L.	177	9	5	Non-elective
Garahkhaj 08	<i>Thalictrum</i> sp.	5	-	-	Non-elective
	<i>Astragalus onobrychis</i> L.	1	-	-	Non-elective
Garahkhaj 09	<i>Salvia officinalis</i> L.	22	-	-	Non-elective
	<i>Daucus carota</i> L.	2	-	-	Non-elective
Garahkhaj 10	<i>Crepis neglecta</i> L.	3	-	-	Non-elective
	<i>Arctium lappa</i> L.	68	-	-	Non-elective
	<i>Stellaria media</i> (L.) Vill.	2	1	2	Elective
Garahkhaj 11	<i>Achillea millefolium</i> L.	10	1	-	Non-elective
Garahtapeh 02	<i>Rapistrum rugosum</i> (L.) All.	6	-	-	Non-elective
Garahtapeh 03	<i>Hordeum vulgare</i> L.	7	1	-	Elective
Garahtapeh 04	<i>Sophora flavescens</i> Aiton	-	-	1	Non-elective
Garahtapeh 05	<i>Cirsium arvense</i> L.	1	-	-	Non-elective
Garahtapeh 06	<i>Fumaria officinalis</i> L.	3	-	-	Non-elective
Garahtapeh 07	<i>Anchusa italica</i> Retz.	9	-	-	Non-elective
Garahtapeh 08	<i>Hordeum vulgare</i> L.	10	-	-	Elective

Garahtapeh 09	<i>Lactuca serriola</i> L.	7	1	1	Non-elective
Garahtapeh 10	<i>Anchusa italica</i> Retz.	6	-	1	Non-elective
Garahtapeh 11	<i>Anchusa italica</i> Retz.	1	-	-	Non-elective
Garahtapeh 12	<i>Cirsium arvense</i> L.	1	-	-	Non-elective
Garahtapeh 13	<i>Convolvulus pluricaulis</i> Choisy	1	-	-	Non-elective
Garahtapeh 14	<i>Malva purriflora</i> L.	5	-	-	Non-elective
	<i>Lactuca Scariola</i> L.	9	-	-	Non-elective
Garahtapeh 15	<i>Medicago</i> sp.	1	-	-	Non-elective
	<i>Agropyron repens</i> (L.) P.Beauv.	6	-	-	Non-elective
Garahtapeh 16	<i>Rapistrum rugosum</i> (L.) All.	8	-	-	Non-elective
Garahtapeh 17	<i>Arctium lappa</i> L.	214	9	-	Non-elective
	<i>Elaeagnus angustifolia</i> L.	16	-	-	Non-elective
Garahtapeh 18	<i>Triticum aestivum</i> L.	5	1	-	Elective
Garahtapeh 19	<i>Helianthus annuus</i> L.	8	-	1	Non-elective
Garahtapeh 20	<i>Hordeum vulgare</i> L.	10	-	-	Elective
Garahtapeh 21	<i>Atriplex Patulum</i> L.	8	-	1	Non-elective
Garahtapeh 22	<i>Chenopodium</i> sp.	3	2	-	Non-elective
	<i>Salsola rigida</i> Pall.	7	1	-	Non-elective
	<i>Polygonum aviculare</i> L.	9	-	1	Non-elective
Garahtapeh 23	<i>Fumaria officinalis</i> L.	3	-	-	Non-elective
	<i>Medicago sativa</i> L.	6	-	2	Non-elective
Garahtapeh 24	<i>Lactuca serriola</i> L.	7	1	1	Non-elective
Handavar 04	<i>Salvia officinalis</i> L.	2	-	-	Non-elective
Handavar 05	<i>Lamium</i> sp.	1	-	-	Non-elective
Handavar 07	<i>Daucus carota</i> L.	4	1	1	Non-elective
Handavar 08	<i>Plantago lanceolate</i> L.	1	-	-	Non-elective
	<i>Convolvulus pluricaulis</i> Choisy	1	-	-	Non-elective
Handavar 12	<i>Achillea filipendalina</i> L.	-	-	1	Non-elective
	<i>Rapistrum rugosum</i> (L.) All.	3	3	-	Non-elective
Handavar 14	<i>Salvia officinalis</i> L.	17	1	-	Non-elective
Kosaj 01	<i>Juglans regia</i> L.	3	-	-	Non-elective
Kosaj 02	<i>Urtica dioica</i> L.	1	-	1	Non-elective
Kosaj 03	<i>Achillea filipendalina</i> L.	22	4	1	Non-elective
Kosaj 04	<i>Arctium lappa</i> L.	17	2	-	Non-elective
Kosaj 05	<i>Dactylis glomerata</i> L.	3	-	-	Elective
Kosaj 06	<i>Crepis neglecta</i> L.	5	-	-	Non-elective
Kosaj 07	<i>Salvia officinalis</i> L.	14	-	1	Non-elective
	<i>Lactuca Scariola</i> L.	8	-	-	Non-elective
	<i>Urtica dioica</i> L.	4	-	-	Non-elective
Kosaj 08	<i>Achillea millefolium</i> L.	7	-	1	Non-elective
	<i>Atriplex</i> sp.	1	-	-	Non-elective
	<i>Armeniaca vulgaris</i> L.	4	-	-	Non-elective
Kosaj 09	<i>Lepidium draba</i> L.	30	1	1	Non-elective
	<i>Rumex crispus</i> L.	3	-	-	Non-elective
Kosaj 10	<i>Thalictrum</i> sp.	5	-	-	Non-elective
Kosaj 11	<i>Fumaria officinalis</i> L.	7	-	1	Non-elective
Kosaj 12	<i>Daucus carota</i> L.	5	-	-	Non-elective
Kosaj 13	<i>Astragalus onobrychis</i> L.	1	1	-	Non-elective
	<i>Lactuca Scariola</i> L.	2	1	-	Non-elective
Kosaj 14	<i>Populus nigra</i> L.	1	1	-	Non-elective
Rend 01	<i>Salvia officinalis</i> L.	22	1	-	Non-elective
Rend 02	<i>Sophora flavescens</i> Aiton	2	1	-	Non-elective
	<i>Bromous</i> sp.	1	-	-	Non-elective
Rend 03	<i>Triticum aestivum</i> L.	5	1	-	Elective
	<i>Xanthium strumarium</i> L.	7	1	-	Non-elective
Rend 04	<i>Aegilops triuncialis</i> L.	3	1	-	Non-elective
Rend 05	<i>Salvia officinalis</i> L.	94	-	-	Non-elective
Rend 06	<i>Hordeum vulgare</i> L.	6	2	1	Elective
Rend 07	<i>Rapistrum rugosum</i> (L.) All.	34	1	1	Non-elective
Rend 08	<i>Rapistrum rugosum</i> (L.) All.	7	-	1	Non-elective
Rend 09	<i>Plantago lanceolate</i> L.	1	-	-	Non-elective
Rend 10	<i>Chenopodium album</i> L.	19	1	3	Non-elective
Rend 11	<i>Helianthus annuus</i> L.	2	1	-	Non-elective
Rend 12	<i>Anchusa italica</i> Retz.	8	-	-	Non-elective
Rend 13	<i>Populus nigra</i> L.	1	-	-	Non-elective
Rend 14	<i>Daucus carota</i> L.	14	1	-	Non-elective
Rend 15	<i>Arctium lappa</i> L.	213	4	-	Non-elective
	<i>Chenopodium album</i> L.	1	-	-	Non-elective
Rend 16	<i>Medicago sativa</i> L.	6	-	1	Non-elective
Rend 17	<i>Plantago lanceolate</i> L.	2	-	-	Non-elective
Rend 18	<i>Armeniaca vulgaris</i> L.	1	1	-	Non-elective
Rend 19	<i>Bromous</i> sp.	5	1	-	Non-elective
Rend 20	<i>Populus nigra</i> L.	2	-	-	Non-elective
Rend 21	<i>Lepidium draba</i> L.	24	3	-	Non-elective

Rend 23	<i>Echium</i> sp.	7	1	1	Non-elective
Rend 24	<i>Thalictrum</i> sp.	1	-	-	Non-elective
Rend 25	<i>Chenopodium album</i> L.	8	-	-	Non-elective
Rend 26	<i>Rapistrum rugosum</i> (L.) All.	7	-	-	Non-elective
Rend 27	<i>Crepis neglecta</i> L.	1	-	-	Non-elective
	<i>Plantago lanceolata</i> L.	1	-	-	Non-elective
Rend 28	<i>Salvia officinalis</i> L.	55	1	-	Non-elective
Sangar 01	<i>Plantago lanceolata</i> L.	1	-	-	Non-elective
	<i>Medicago sativa</i> L.	1	-	-	Non-elective
Sangar 02	<i>Hordeum vulgare</i> L.	1	-	-	Elective
	<i>Avena sativa</i> L.	1	-	1	Elective
	<i>Rapistrum rugosum</i> (L.) All.	2	-	-	Non-elective
	<i>Lepidium persicum</i> Boiss.	2	-	-	Non-elective
Sangar 05	<i>Arctium lappa</i> L.	8	1	2	Non-elective
Sangar 06	<i>Astragalus onobrychis</i> L.	1	1	-	Non-elective
	<i>Onopordon acanthium</i> L.	1	-	-	Non-elective
Sangar 06*	<i>Lepidium draba</i> L.	5	1	-	Non-elective
Sangar 07	<i>Echinochloa crus-galli</i> (L.) P.Beauv.	3	1	-	Elective
Sangar 08	<i>Lolium</i> sp.	2	-	-	Elective
Sangar 10	<i>Daucus carota</i> L.	1	-	-	Non-elective
	<i>Mentha</i> sp.	2	-	-	Non-elective
Sangar 11	<i>Daucus carota</i> L.	4	-	-	Non-elective
Sangar 12	<i>Salvia officinalis</i> L.	1	-	-	Non-elective
Sangar 13	<i>Triticum aestivum</i> L.	-	-	1	Non-elective
Sangar 14*	<i>Salvia officinalis</i> L.	1	-	-	Non-elective
Sangar 15*	<i>Xanthium spinosum</i> L.	1	-	1	Non-elective
Sangar 16	<i>Glycyrrhiza glabra</i> L.	3	-	-	Non-elective
Sangar 19	<i>Avena sativa</i> L.	1	-	-	Elective
	<i>Lactuca serriola</i> L.	1	-	-	Non-elective
	<i>Rumex crispus</i> L.	1	-	-	Non-elective
	<i>Centaurea montana</i> L.	1	-	-	Non-elective
Total collected specimens: 1943					

کنه‌های جنس *Aceria* شهرستان ماکو همراه با دو گزارش جدید برای آسیا و هشت گزارش جدید برای استان آذربایجان غربی

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چکیده

بررسی فون کنه‌های اریوفید شهرستان ماکو در استان آذربایجان غربی طی تابستان سال‌های ۱۳۹۹ و ۱۴۰۰ انجام شد. به این منظور نمونه‌برداری از فراوان‌ترین گونه‌های گیاهی این منطقه انجام شد. در کل چهارده گونه از جنس *Aceria* شناسایی شد: گونه *Aceria balasi* Farkas, 1960 جمع‌آوری شده از گیاه *Carduus acanthoides* L. (Asteraceae) و گونه *Aceria inturbida* Boczek, 1961 جمع‌آوری شده از گیاه *Arctium lappa* L. (Asteraceae) برای اولین بار از آسیا گزارش شدند که توصیف تکمیلی آن‌ها تهیه شد. هشت گونه شامل *A. chenopodia* Xue, Sadeghi & Hong, 2009، *A. khaniensis* Honarmand, Sadeghi & de Lillo, 2020، *A. verbenacae* de Lillo, Panzarino، *A. cichorii* Petanovic, Boczek & Shi, 2002، *longisolenidia* Lotfollahi, Haddad & de Lillo, 2015، *A. tragopogonis* Xue, Sadeghi & Hong, 2012، *A. zygofabae* Lotfollahi, de Lillo & Haddad, 2017، Loverre & Valenzano, 2017 و *A. lobolinguae* Lotfollahi & de Lillo, 2014 برای فون استان آذربایجان غربی جدید بودند.

کلمات کلیدی: Acerini، انتخابی، Eriophyidae، Eriophyinae، غیر انتخابی

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