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Eriophyid mites (Acari: Eriophyidae) from Turkey*

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Abstract

A survey was carried out in 2006–2009 of the Eriophyidae species present on cultivated plants and on plants of natural vegetation of the regions of Van Lake Basin and Ankara, Turkey. A total of 18 species were identified, in the following genera: *Aceria*—six species; *Aculus*—two species; *Eriophyes*—two species; *Abacarus*, *Anthocoptes*, *Aculops*, *Calepitrimerus*, *Colomerus*, *Phyllocoptes*, *Schevtchenkella* and *Tetra*—one species each.

Key words: Acari, Eriophyidae, taxonomy, Turkey.

Introduction

Eriophyid mites are obligate plant feeders with strong host specificity (Amrine, 1996). They are so small, usually 100–200μm long by about 50μm wide, as to be often invisible to the naked eye. They are morphologically well adapted to living on plants, including the roots, with unique morphological, biological and ethological peculiarities. Many species are considered pests and are included on quarantine lists; some transmit viruses and other pathogens. Worldwide, the known number of species is small in relation to the expected existing number of species. Given the relatively small effort dedicated to their knowledge, the known geographical distribution of these mites reflects the working base of the researchers involved in their study.

There are about 4,000 known species of eriophyoid mites worldwide and about 1,000 in Europe (De Lillo & Amrine, 1998 unpub. data). It is estimated that the total number of species may amount to more than 50,000 (Amrine, 1996). Except for Antarctica, eriophyoid mites can be found anywhere plants thrive (Lindquist *et al*., 1996).

The geographical position and the botanical history of Turkey make it particularly likely to harbour a large number of species. Some of these could have scientific or economic interest, either as pests or as control agents of weeds. Despite this potential, the Turkish eriophyoid fauna has been poorly studied (De Lillo & Sobhian, 1994; Özman & Ꞓobanoglu, 2001; Denizhan *et al*., 2006, 2008) and is scarcely known. Therefore, a comprehensive survey of the eriophyid mites of Turkey is warranted. The objective of this study was to contribute to that survey, in two Turkish regions, which are of great importance because of their botanical diversity and their importance as agricultural areas.

Materials and Methods

A survey was conducted between 2005 and 2009 on cultivated plants and on plants of the natural vegetation of the regions of Ankara (39°58´49 N; 32°50´54 E, alt. 925 m) and Van Lake Basin (39°03´23 N; 43°45’38 E, alt. 1,712 m), with particular interest on ornamentals and weeds. Leaves

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with distinctive damage symptoms were collected from May to September of each of those years. Specimens collected were prepared and slide mounted according to Keifer (1975), for examination under a Leica DM 1000 phase contrast microscope. The classification system followed is that of Amrine *et al*. (2003). Taxonomical verification was done according to Amrine & Stasny (1994), Amrine *et al*. (2003) and De Lillo & Amrine (1998). Host plants were identified by Dr. Ozgökçe (Department of Biology, Yüzüncü Yıl Üniversity). All new records correspond to specimens collected by E. Denizhan. The specimens are deposited at the Department of Plant Protection, Faculty of Agriculture, Yüzüncü Yıl University Van. For each species, world distribution is based on De Lillo & Amrine (1998).

Results

CECIDOPHYINAE

COLOMERINI Newkirk & Keifer, 1975

Colomerus vitis (Pagenstecher, 1857)
Relation to the host: Inducing formation of leaf erinea.
World distribution: Nearctic, Oriental, Australian, Palearctic, Ethiopian, Neotropical.
Known distribution in Turkey: Ankara (Alkan, 1952), Erzurum and Erzincan (Alaoğlu, 1984).
New records: Ankara (VI-2005, VI, IX-2006) on *Vitis vinifera* L. (Vitaceae).

ERIOPHYINAE

ACERIINI Amrine & Stasny, 1994

Aceria anthocoptes (Nalepa, 1892)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic.
New records in Turkey: Van-Gevaş, Özalp (VI, VII-2008) on *Cirsium arvense* L., *C. vulgare* (Savi) Tenore (Asteraceae).

Aceria avanensis (Bagdasarian, 1970)
Relation to the host: Inducing formation of leaf galls.
World distribution: Palearctic.
New records in Turkey: Ankara (V-2005, VII-2008), Van-Edremit, Gevaş, Bahçesaray (VII-2007, VI, VIII-2008) on *Juglans regia* L. (Juglandaceae).

Aceria malherbae (Nuzzaci, 1985)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic, Nearctic, Ethiopian.
New records in Turkey: Van center (VII-2008) on *Convolvulus arvensis* L. (Convolvulaceae).

Aceria populi (Nalepa, 1890)
Relation to the host: Inducing formation of leaf galls.
World distribution: Palearctic, Nearctic.
Known distribution in Turkey: Ankara, Eskişehir, Niğde (Alkan, 1952).
New records: Van-Gevaş (VI.2008) on *Populus alba* L., *P. nigra* L., *P. tremula* L. (Salicaceae).

Aceria salviae (Nalepa, 1891)
Relation to the host: Inducing formation of leaf galls and erinea.
World distribution: Palearctic.
Known distribution in Turkey: Erzincan, Erzurum (Alaõglu, 1996).
New records: (VIII-2007, IX-2008) on *Salvia* spp. (Lamiaceae).

Aceria tristriata (Nalepa, 1890)
Relation to the host: Causing whitish erinea on leaf undersurface with matching large bulges on upper leaf surface.
World distribution: Palearctic, Australian, Oriental, Nearctic.
Known distribution in Turkey: Ankara, Eskişehir, Konya (Karaca, 1956), Erzurum, Erzincan (Alaoğlu, 1984), Kayseri, Burdur (Çevik, 1996).
New records: Van-Çatak, Gevaş (VII, VIII-2007, VI, VII-2008) on *Juglans regia* L. (Juglandaceae).

ERIOPHYINI Nalepa, 1898

Eriophyes euphorbiae (Nalepa, 1891)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palaearctic.
New record in Turkey: Van –Gürpınar (VII-2008) on *Euphorbia peplus* L. (Euphorbiaceae).

Eriophyes pyri (Pagenstecher, 1857)
Relation to the host: Inducing formation of leaf blisters.
World distribution: Nearctic, Australian, Palearctic, Neotropical, Ethiopian.
Known distribution in Turkey: Ankara (Alkan, 1952), Erzurum (Alaoğlu, 1984), Aydın, Çanakkale, Denizli, İzmir, Kütahya (Önuçar & Ulu, 1993).
New records: Ankara (IX-2004, VI, VII-2005) Van (VI, VII, IX-2008) on *Pyrus communis* L. (Rosaceae).

PHYLLOCOPTINAE

ANTHOCOPTINI Amrine & Stasny, 1994

Abacarus hystrix (Nalepa, 1896)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic, Australian, Ethiopian.
New record in Turkey: Van-Özalp (VII-2008) on *Lolium* sp. L. (Poaceae).

Aculus mogeri (Farkas, 1960)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic.
New records in Turkey: Ankara (VI, IX-2005, VIII-2006), Van-Gevaş, Çatak, Edremit (VI, VII-2008) on *Populus nigra* L. (Salicaceae).

Aculus schlechtendali (Nalepa, 1890)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic, Australian, Oriental, Nearctic.
Known distribution in Turkey: Erzurum (Alaoğlu, 1984; Elma & Alaoğlu, 2008), Tokat (Yanar & Ecevit, 2005).
New records: Ankara (V to IX-2005, VIII-2006), Van (VIII-2007, VI to VIII-2008) on *Malus pumila* P. Mill., *Prunus communis* Lam., *P. domestica* L. (Rosaceae).

Anthocoptes aspidophorus (Nalepa, 1893)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic.
New records in Turkey: Ankara (VII-2005), Van-Gürpınar (VII-2008) on *Anchusa* sp. L. (Boraginaceae).

Tetra concava (Keifer, 1939)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Oriental, Nearctic, Palearctic.
New records in Turkey: Ankara (VIII-2005), Van-Erciş (VIII-2008) on *Glycyrrhiza glabra* L. (Leguminosae), *Ulmus procera* Salisb. (Ulmaceae).

PHYLLOCOPTINI Nalepa, 1892

Calepitrimerus baileyi Keifer, 1938
Relation to the host: Vagrant on upper leaf surface.
World distribution: Palearctic, Nearctic, Australian, Palearctic.
Known distribution in Turkey: Erzurum (Alaoğlu, 1984), Tokat (Yanar & Ecevit, 2005).
New records: Ankara (VII-2005), Van-Ahlat, İskele (VIII-2007, VI, VII-2008) on *Malus pumila* Mill., *M. sylvestris* Mill., *M. communis* L. (Rosaceae).

Phyllocoptes abaenus Keifer, 1940
Relation to the host: Vagrant on upper leaf surface.
World distribution: Nearctic, Palearctic, Australian, Neotropical.
Known distribution in Turkey: Erzurum, Erzincan (Alaoğlu, 1984; Elma & Aloğlu, 2008).
New records: Ankara (VII-2005), Van (VIII-2007, VI, IX-2008) on *Prunus cerasus* L., *Prunus cerasifera* L., *P. armenica* L., *P. avium* L., *P. domestica* L. (Rosaceae).

TEGONOTINI Bagdasarian, 1978

Schevtchenkella ulmi (Farkas, 1960)
Relation to the host: Vagrant on upper leaf surface.
World distribution: Nearctic, Palearctic.
New records in Turkey: Van center (VII, VIII-2008) on *Ulmus campestris* L. (Ulmaceae).

References

Alaoğlu, Ö. (l984) Studies on the systematics and their relation to hosts of eriophyoid mites (Acarina: Actinedida) on some plants in Erzurum and Erzincan regions, in Turkey. University of Atatürk. *Journal of Agricultural Faculty*, *OMU*, 15, 1–16.

Alaoğlu, Ö. (1996) *Six new records of eriophyid mites for the Turkish fauna*. Turkish III. National Congress of Entomology, Ankara, pp. 479–486.

Alkan, B. (1952) Zoosesid (Zoocecidia) in Turkey. I–II. *Journal of Agricultural Faculty Ankara*, 11, 185–222 [in Turkish].

Amrine, J.W. (1996) *Keys to the world genera of the Eriophyoidea (Acari: Prostigmata)*. Indira Publishing House, West Bloomfield.

Amrine, J.W. & Stasny, T.A. (1994) *Catalog of the Eriophyoidea (Acarina: Prostigmata) of the world*. Indira Publishing House, West Bloomfield.

Amrine, J.W., Stasny, T.A. & Flechtmann, C.H.W. (2003) *Revised keys to world genera of Eriophyoidea (Acari: Prostigmata)*. Indira Publishing House, West Bloomfield.

Çevik, T. (1996) The fauna of *Juglans* spp. *Plant Protection Bulletin*, 36, 55–72 [in Turkish].
De Lillo, E. & Amrine, J.W. (1998) Eriophyoidea (Acari) on a computer database. *Entomologica Bari*, 32, 2–7.
De Lillo, E. & Sobhian, R. (1994) Taxonomy, distribution, and host specificity of a gall-making mite, *Aceria tamaricis* (Trotter) (Acari: Eriophyoidea), associated with *Tamarix gallica* L. (Parietales: Tamaricaceae) in Southern France. *Entomologica*, 28, 93–100.
Denizhan, E., Monfreda, R., Çobanõglu, S. & de Lillo, E. (2006) Three new *Aceria* (Acari: Eriophyoidea) from Turkey. *International Journal of Acarology*, 32, 179–184.
Denizhan, E., Monfreda, R., de Lillo, E. & Çobanõglu, S. (2008) Two new species of eriophyoid mites (Acari: Eriophyoidea) associated with Elaeagnaceae in Turkey. *Zootaxa*, 1698, 41–48.
Elma, F. & Alaoğlu, O. (2008) The harmful mite species and their natural enemies on trees and shrubs in recreation areas of Konya province. *Journal of Turkish Entomology*, 32, 115–129.
Karaca, İ. (1956) Injuries of Plants. *Journal of Agricultural Faculty*, *OMU*, 84, 1–134 [in Turkish].
Keifer, H.H. (1975) *Eriophyoid studies*. C-11. U.S. Deptartment of Agriculture, pp. 1–24.
Lindquist, E.E., Sabelis, M.W. & Bruin, J. (1996) *Eriophyoid mites: their biology, natural enemies and control, Vol. 6*. Elsevier Science Publishing, World Crop Pests, Amsterdam.
Önuçar, A. & Ulu, O. (1993) Faunistic survey studies on the fruit nursery pests in Aegean Region. *Plant Protection Bulletin*, 33, 23–37 [in Turkishi].
Özman, S.K. & Cobanõglu, S. (2001) Current status of hazelnut mites in Turkey. *Acta Horticulture*, 556, 479–487.
Yanar, D. & Ecevit, O. (2005) Plant injurious and predatory mite species in apple (*Malus communis* L.) orchards in Tokat Province. *Journal of Agricultural Faculty*, *OMU*, 20, 18–23 [in Turkish].