

Three new records of eriophyoid mites (Acari: Eriophyoidea) from Iran

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Abstract: One genus and 3 species are reported as new records for the fauna of Iran. They are *Eriophyes tiliae* (Nalepa, 1890) on *Tilia begonifolia* (Tiliaceae); *Aceria tuberculatus* Nalepa, 1891 on *Tanacetum parthenium* (Asteraceae); and *Leipothrix liroi* (Roiv., 1947) Jočić and Petanović (2012) on *Primula* sp. (Primulaceae).

Key words: New record, Eriophyidae, fauna, Iran

Most eriophyoid mite species are highly host-specific (Skoracka et al., 2010) and occur on various types of flowering plants, conifers, broadleaf trees, and shrubs (Oldfield, 1996). Eriophyoid mites are of small size, and their length is usually 80–500 µm (Knihinicki and Boczek, 2003). Many species have great economic importance because they induce growth abnormalities on plants or transmit plant viruses (Oldfield and Proeseler, 1996; Westphal and Manson, 1996). Until 1998, about 4000 eriophyoid species were known worldwide (De Lillo and Amrine, 1998; unpublished data), and many more were waiting to be discovered. Reviewing taxonomic literature (e.g., Xue et al., 2009; Kamali and Jalaieian, 2011; Xue et al., 2011; Lotfolahi et al., 2012; Xue et al., 2012; Kamali and Jalaieian, 2013; Xue et al., 2013) reveals that knowledge of Iranian eriophyoids is still limited. So far, about 120 species have been reported from Iran. As the fauna of many areas of Iran has not yet been explored, it is expected that further research will add more species to the eriophyoid fauna of Iran.

During the seasonal growth period of 2013, a field survey was conducted in Ali Abad Katool, Golestan Province, Iran (Figures 1 and 2), where there had been no previous study of eriophyoid fauna. A variety of plant species including shade, ornamental, and weed plants in different locations in the Ali Abad Katool region were randomly investigated and sampled for potential eriophyoid symptoms and the presence of mites (Figure 3). The infested plant materials were placed in plastic bags inside an icebox and transferred to the laboratory. The specimens were recovered from plant materials by means

of direct observation under a dissecting microscope. Collected mites were preserved in 70% ethyl alcohol and later mounted, and freshly collected specimens were placed in lactophenol solution for 5–7 days at room temperature and then mounted in Hoyer's medium for further study under an Olympus CX40 microscope using phase contrast at 40× and 100× objectives with a digital camera (Digital SIGHT DS-5Mc cooled camera head) attached and connected to a computer. Systematic classification and synonyms follow those of Amrine et al. (2003).

Voucher specimens were deposited as slide-mounted specimens at the Department of Plant Protection, Faculty of Agriculture, Ferdowsi University of Mashhad, and in the collection of the Department of Pests of Ornamental Plants at the Research Institute of Horticulture, Skierniewice, Poland.

Three species, namely *Eriophyes tiliae* Nalepa, 1890 on *Tilia begonifolia* (Tiliaceae); *Aceria tuberculatus* Nalepa, 1891 on *Tanacetum parthenium* (Asteraceae); and *Leipothrix liroi* (Roiv., 1947) Jočić & Petanović (2012) on *Primula* sp. (Primulaceae), are reported for the first time from Iran. The genus *Leipothrix* Keifer, 1964 is reported for the first time from Iran. Except for the species *Eriophyes tiliae* (Nalepa, 1890), which induces nail galls on the upper leaf surfaces of the lime tree, the species were vagrants on their host plants.

Family Eriophyidae Nalepa, 1898

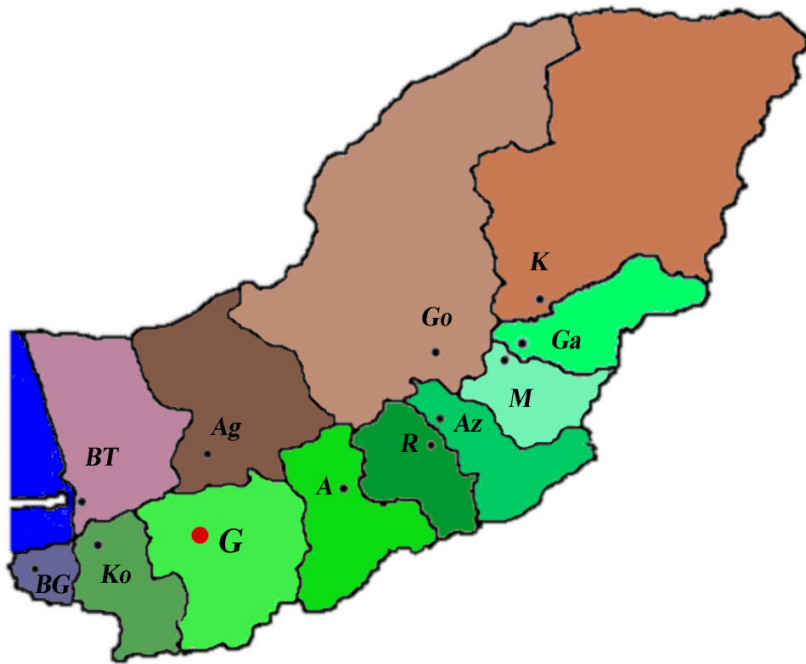
Subfamily Eriophyinae Nalepa, 1898

Tribe Eriophyini Nalepa, 1898

Genus *Eriophyes* von Siebold 1851

***Eriophyes tiliae* Nalepa, 1890**

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By
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Figure 1. Map of Golestan Province. Ali Abad Katool.



Figure 2. Map of Iran, showing Golestan Province and the collection site.

Syn.: *Eriophyes tiliae tomentosae* Nalepa 1918
Eriophyes tiliae vartiliaetomentosae Nalepa 1918
Eriophyes rudis Nalepa 1918
Eriophyes tiliae rudis Nalepa 1918
Eriophyes lateannulata Schulze 1918

Material examined: 5 ♀♀ and 3 ♂♂ collected from *Tilia begonifolia*, der von Steven (1856) (Tiliaceae), Ali Abad Katool (36°54'N, 54°53'E) in Golestan Province of Iran, 140 m a.s.l., 03 July 2013, coll. Ali Gol.

Relation to host: *Eriophyes tiliae* induces nail galls on the upper leaf surfaces of the lime tree (Figure 4).

Distribution: Austria, Bosnia and Herzegovina, Britain, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Kaliningrad Region, Latvia, Lithuania, Luxembourg, Macedonia, Portugal, Poland, Russia North, Russia Northwest, Slovenia, Spain, Netherlands, Yugoslavia, East Palearctic and Nearctic regions (www.faunaeur.org).

Family Eriophyidae Nalepa, 1898

Subfamily Eriophyinae Nalepa, 1898

Tribe Aceriini Amrine & Stansy, 1994

Genus Aceria Keifer, 1944

***Aceria tuberculatus* Nalepa, 1891**

(Figure 5)

Material examined: 3 ♀♀ and 1 ♂♂ from *Tanacetum parthenium* (feverfew) (Asteraceae), Ali Abad Katool (36°54'N, 54°53'E) in Golestan Province of Iran, 140 m a.s.l., 21 September 2013, coll. Ali Gol.

Relation to host: Vagrant.

Distribution: Austria (www.faunaeur.org).

Family Eriophyidae Nalepa, 1898

Subfamily Phyllocoptinae Nalepa, 1892

Tribe Phyllocoptini Nalepa, 1892

Genus *Leipothrix* Keifer, 1964

***Leipothrix liroi* Jočić & Petanović, 2012**

Syn.: *Epiterimrus liroi* Roiv., 1947

(Figure 6)

Material examined: 5 ♀♀ collected from *Primula* sp. (Primulaceae), Ali Abad Katool (36°54'N, 54°53'E) in Golestan Province of Iran, 140 m a.s.l., 28 July 2013, coll. Ali Gol.

Relation to host: Vagrant, no apparent damage was observed.

Distribution: Finland, Sweden, and former Yugoslavia (www.faunaeur.org).

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Figure 3. A sampling site in the Ali Abad Katool vicinity in Golestan Province of Iran in July 2013.



Figure 4. Galls induced by *Eriophyes tiliae* Nalepa, 1890 on the upper leaf surface of a lime tree in Ali Abad Katool, 03 July 2013 (photo by Ali Gol).

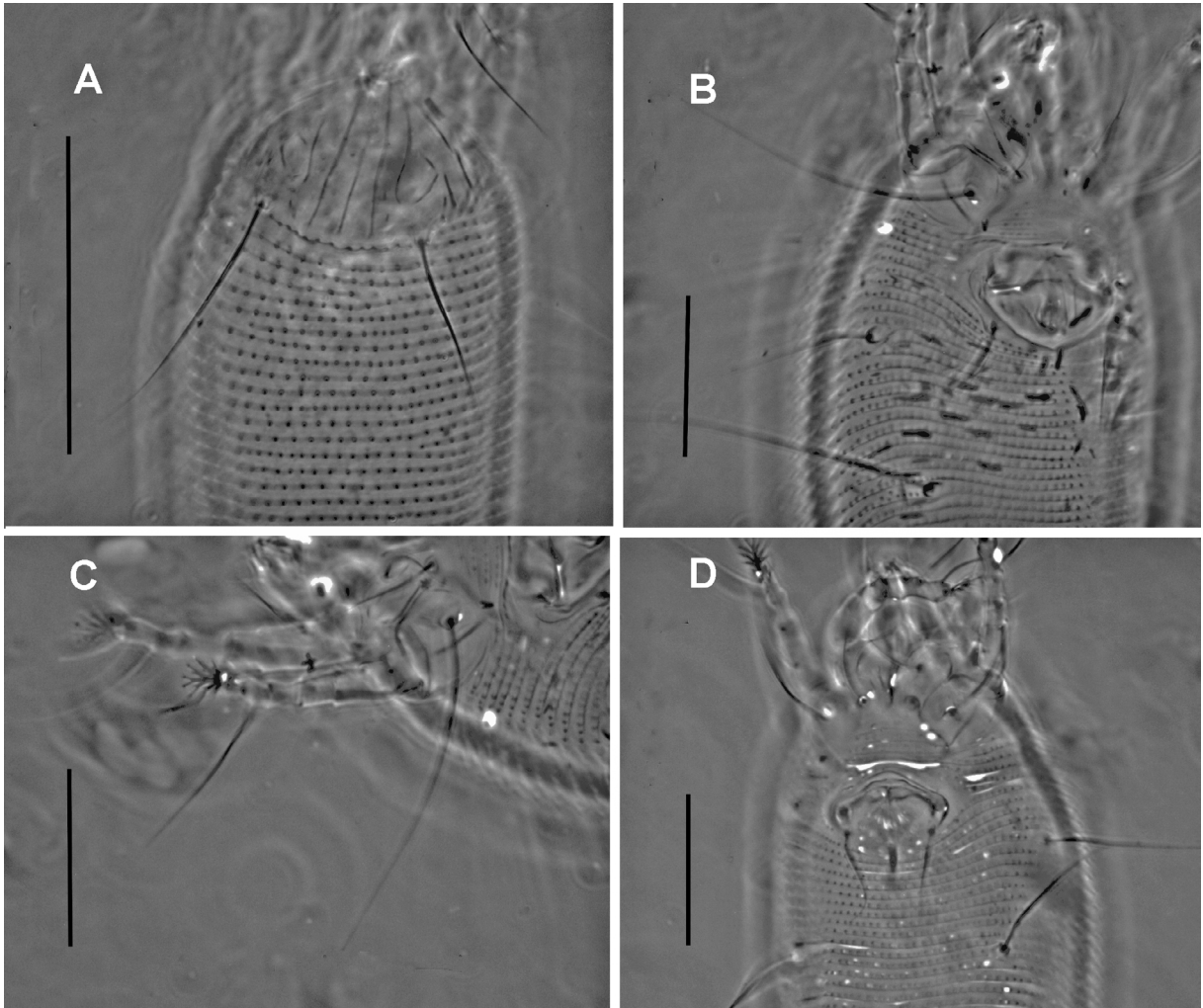


Figure 5. Digital micrographs of *Aceria tuberculatus* (Nalepa 1891): **A)** Prodorsal shield; **B)** coxigenital region (epigynum visible); **C)** empodium; **D)** male genitalia. Scale bar: 50 μm for A; 25 μm for B, C, and D.

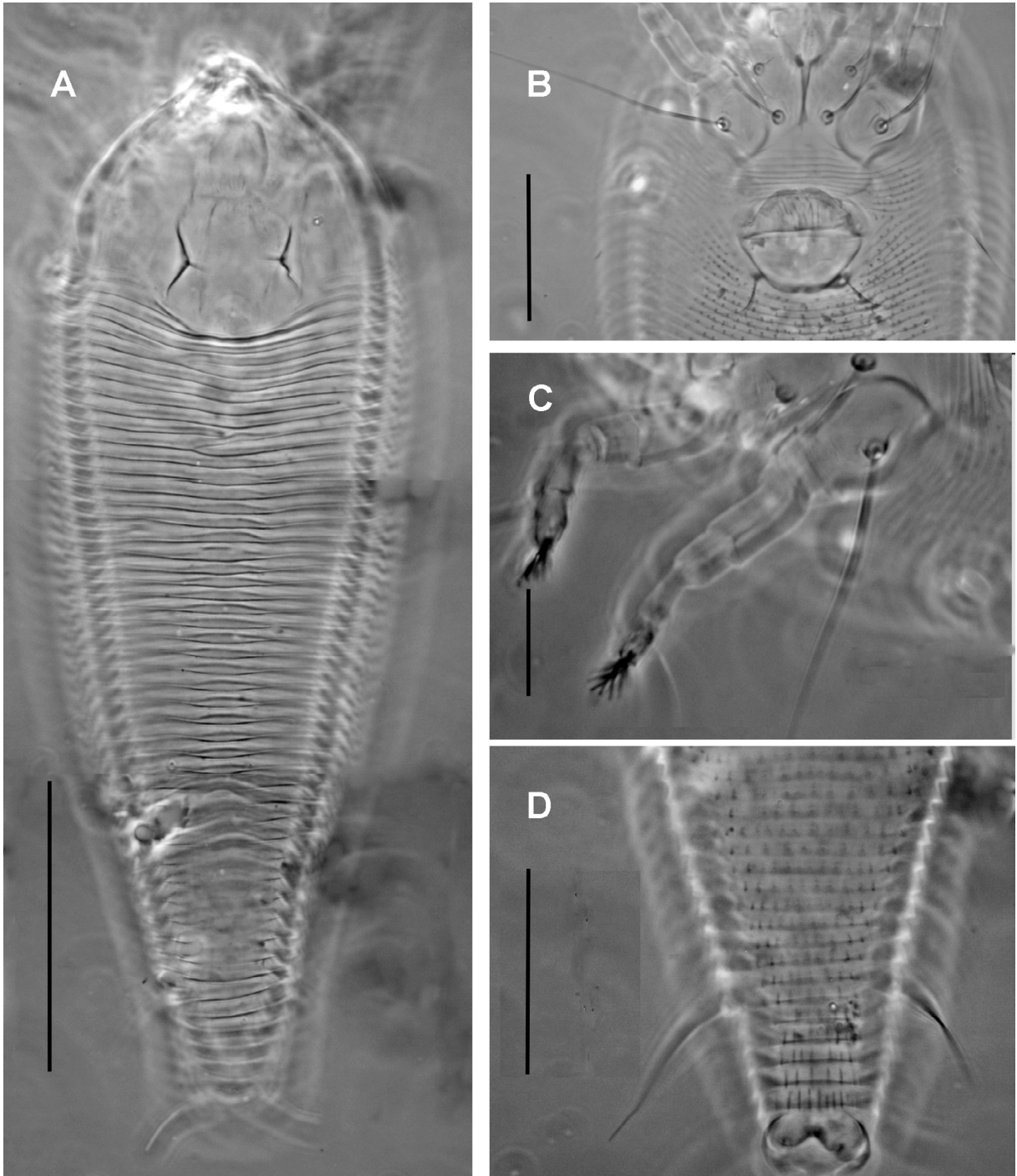


Figure 6. Digital micrographs of *Leipothrix liroi* (Roiv., 1947) n. comb. Jočić & Petanović (2012): **A)** Dorsal view; **B)** coxigenital region (epigynum visible); **C)** legs; **D)** ventral view of female posterior region. Scale bar: 50 µm for A; 25 µm for B and D; 10 µm for C.

References

- Amrine JW, Stasny TA (1994). Catalog of the Eriophyoidea (Acarina: Prostigmata) of the World. West Bloomfield, MI, USA: Indira Publishing House.
- Amrine JW, Stasny TA, Flechtman HWC (2003). Revised Keys to World Genera of Eriophyoidea (Acari: Prostigmata). West Bloomfield, MI, USA: Indira Publishing House.
- de Lillo E, Amrine JW(1998). Eriophyoidea (Acari) on a computer database. Entomol Bari 32: 2–7.
- Kamali H, Jalaieian M (2011). Infestation of white mulberry trees to bud mite, *Aceria mori* Keifer (Acari: Eriophyoidea: Eriophyidae) in Iran. In: Kazemi S, Saboori A, editors. Abstract and Proceeding Book of the First Persian Congress of Acarology; 22–23 December 2011; Kerman, Iran. Kerman, Iran: International Center for Science, High Technology, and Environmental Sciences, p. 73.
- Kamali H, Jalaieian M (2013). Present status of gall mites (Acari: Prostigmata: Eriophyoidea) on almond trees in Khorasan Razavi Province (North East of Iran). In: Proceedings of the 2nd International Persian Congress of Acarology; 29–31 August 2013; Tehran, Iran, p. 17.
- Knihinicki DK, Boczek J (2003). Studies on eriophyoid mites (Acari: Eriophyoidea) of Australia: a new genus and seven new species associated with tea trees, *Melaleuca* spp. (Myrtaceae). Aust J Entomol 42: 215–232.
- Lotfolahi P, Irani-Nejad KH, Khanjani M, Moghadam M, de Lillo E (2012). Two new eriophyoid mite species (Acari: Prostigmata: Eriophyidae) on *Euphorbia* spp. (Euphorbiaceae) from Iran. Zootaxa 3556: 55–60.
- Oldfield GN (1996). Diversity and host plant specificity. In: Lindquist EE, Sabelis MW, Bruin WJ, editors. Eriophyoid Mites: Their Biology, Natural Enemies and Control. World Crop Pests Series, Vol. 6. Amsterdam, the Netherlands: Elsevier Science, pp. 199–216.
- Oldfield GN, Proeseler G (1996). Eriophyoid mites as vectors of plant pathogens. In: Lindquist EE, Sabelis MW, Bruin WJ, editors. Eriophyoid Mites: Their Biology, Natural Enemies and Control. World Crop Pests Series, Vol. 6. Amsterdam, the Netherlands: Elsevier Science, pp. 259–275.
- Skoracka A, Smith L, Oldfield G, Cristofaro M, Amrine JW (2010). Host-plant specificity and specialization in eriophyoid mites and their importance for the use of eriophyoid mites as biological control agents of weeds. Exp Appl Acarol 51: 93–113.
- Westphal E, Manson DCM (1996). Feeding effects on host plants: gall formation and other distortion. In: Lindquist EE, Sabelis MW, Bruin J, editors. Eriophyoid Mites: Their Biology, Natural Enemies and Control. World Crop Pests Series, Vol. 6. Amsterdam, the Netherlands: Elsevier Science, pp. 231–242.
- Xue XF, Sadeghi H, Hong XY (2009). Eriophyoid mites (Acari: Eriophyoidea) from Iran, with descriptions of three new species, one new record and a checklist. Int J Acarol 35: 461–483.
- Xue XF, Sadeghi H, Hong XY (2012). Four new eriophyoid mite species (Acari: Eriophyoidea: Eriophyidae) from Iran. Zootaxa 3544: 28–40.
- Xue XF, Sadeghi H, Hong XY, Sinaie S (2011). Nine eriophyoid mite species from Iran (Acari, Eriophyidae). ZooKeys 143: 23–45.
- Xue XF, Sadeghi H, Hong XY, Sinaie S (2013). New species and records of eriophyid mites from Iran (Acari: Eriophyidae). Syst Appl Acarol 18: 41–52.