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Article

Tegolophus parietariae sp. nov. (Acari: Eriophyidae) from Dor Badam Village, Quchan County, Iran

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ABSTRACT
A new Anthocoptini mite, *Tegolophus parietariae* **sp. nov.** was discovered and described on *Parietaria judaica* L. (Urticaceae) in the Dor Badam village, Quchan County, Razavi Khorasan Province of Iran. No apparent symptoms were observed. This is the first eriophyoid mite reported from *Parietaria* plant species and the second species assigned to *Tegolophus* found on a plant of the family Urticaceae.

KEYWORDS: Anthocoptini, Northeast Iran, *Parietaria*, Urticaceae, Vagrant.

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INTRODUCTION

Parietaria judaica L. is a perennial flowering plant with a rhizome and a woody base, belonging to the Urticaceae family. The native range includes North Africa, Macaronesia, Europe, Central Asia, and the Central Himalayas, and it primarily grows in temperate biomes (POWO 2024). This plant is commonly known as pellitory, is referred to as 'Goosh moosh-e afshan' in Persian (Mozaffarian 1996), and demonstrates strong potential as a source for natural antidiabetic, anticancer, and antimicrobial agents. On the contrary, its pollen, in particular, elicits severe pollinosis in Europe (Fotiou *et al.* 2011; Qadi *et al.* 2020).

Up to now, approximately 25 eriophyoid mite species (Acari: Eriophyoidea) have been reported on Urticaceae plants around the world (Amrine and de Lillo unpublished databases), among which one spceis, *Leipothrix mazandaranicus* Ranjbar-Varandi, Haddad & Lotfollahi, 2020 was reported from Iran. In addition, no eriophyoid mites have been reported from *Parietaria* species as host plant around the world, and the only *Tegolophus* species on this family plants is *T. huanjiangensis* Qin, Wang & Wei, 2008 that has been reported as a vagrant mite on *Archiboehmeria atrata* (Gagnep.) C.J. Chen from China. To expand our understanding of Iran's eriophyoid fauna in unexplored regions, a study was conducted during the 2023 growing season to survey eriophyoid mites in northeast Iran.

MATERIAL AND METHODS

The plant materials were collected from Razavi Khorasan Provinces (northern east) of Iran during

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the 2023 growing season. Eriophyoid mites were extracted from plant foliage following a modified washing method (Lotfollahi & Masoudi-Rad 2024) and transferred to 70% ethanol as preservative medium (Walter & Krantz 2009). The mites were cleared and mounted based on Lotfollahi and Masoudi-Rad (2024). Morphological measurements were done based on Amrine and Manson (1996) as modified by de Lillo *et al.* (2010) with an Olympus BX53 Phase contrast microscope (Japan). All measurements are given in micrometers; measurements are rounded off to the nearest integer and regard the length of the morphological traits unless otherwise specified. In the female description, the holotype measurements are followed by range values of the studied population (i.e. holotype and paratypes) set between parentheses; only the range values are given for nymph. The mean values of the paratypes are reported in a few cases when measurements of the holotype could not be taken, due to the slide mounting position of the specimens; these are marked by an asterisk (*). The line drawings were made by the first author using a camera Lucida, following de Lillo *et al*. (2010), and edited with Adobe Photoshop® CC 2017 software. Amrine *et al*. (2003) was followed for abbreviations labeling schematic drawings in Figure 1. Host plants were identified by Mohammad Reza Joharchi, botanist at the Plant Science Research Institute, Ferdowsi University of Mashhad, Iran; names are in accordance with "*Plants of the World Online*" (2025). All paratypes and holotype of the new species are deposited at the Acarology Laboratory, Department of Plant Protection, Faculty of Agriculture, Azarbaijan Shahid Madani University (Iran) except one paratype which is deposited in the Acarological Collection, Jalal Afshar Zoological Museum (JAZM), Faculty of Agriculture, University of Tehran, Karaj, Iran.

RESULTS

Family Eriophyidae Nalepa
Subfamily Phyllocoptinae Nalepa
Tribe Anthocoptini Amrine & Stasny
Genus *Tegolophus* Keifer

Tegolophus parietariae sp. nov. (Fig. 1)

http://zoobank.org/urn:lsid:zoobank.org:pub:38811D24-05C1-4A4C-9F65-DBEA62B6444E

Description

FEMALE (measured specimens = 8) – Body vermiform, 240 (225–255, including gnathosoma), 64 (61–65) wide, 60* (56–60) thick. **Gnathosoma** projecting obliquely downwards, cheliceral stylets 17 (17–20), palp 18 (18–20), palp coxal setae *ep* 3 (3–4), dorsal palp genual setae *d* 6 (5–7), unbranched, subapical palp tarsal setae *v* 1* (no variation). Suboral plate rhomboidal with some granules. **Prodorsal shield** subtriangular 35 (35–39), including frontal lobe, 47 (47–50) wide; with a rounded frontal lobe 4 (4–5), over gnathosomal base. Prodorsal shield pattern composed by complete and waving admedian lines and one pair of arched submedian lines distally connected to the middle of admedian lines; median and submedian lines absent; many granules present on lateral sides between shield and coxal region. Tubercles of scapular setae *sc* on rear shield margin, 21 (20–24) apart, scapular setae *sc* 30 (30–36), directed backward divergently. **Leg I** 29 (29–31), trochanter 3 (3–4), femur 9 (8–10), genu 5 (4–5), tibia 5 (5–6), tarsus 7 (6–7), tarsal solenidion *ω* 13 (12–14), curved down, distally rounded, empodium 5 (5–6), simple, 5-rayed; basiventral femoral setae *bv* 11 (10–12), antaxial genual setae *l″* 22 (22–24), paraxial tibial setae *l′* 5 (5–6), paraxial fastigial tarsal setae *ft′* 18 (17–22), antaxial fastigial tarsal setae *ft″* 25 (24–27), paraxial unguinal tarsal setae *u′* 4 (4–6). **Leg II** 27 (26–30), trochanter 3 (3–4), femur 8 (8–9), genu 3 (3–4), tibia 3 (3–4), tarsus 6 (6–7), tarsal solenidion *ω* 11 (11–12), curved down, distally rounded, empodium 5 (5–6), simple, 5–rayed; femoral setae *bv* 10 (8–11), genual setae *l″* 6 (6–8), tarsal setae *ft′* 8 (7–9), setae *ft″* 28 (25–

28), setae *u′* 3 (3–4). **Coxae** ornamented with many short lines and few granules; anterolateral setae on coxisternum I (*1b*) 8 (8–9), tubercles *1b* 9 (9–10), proximal setae on coxisternum I (*1a*) 25 (25–32), tubercles *1a* 7 (6–7) apart, proximal setae on coxisternum II (*2a*) 45 (42–46), tubercles *2a* 22 (20–22) apart, prosternal apodeme 6 (6–8). **Opisthosoma** with 34 (32–36) dorsal semiannuli, dorsally with a median and two dorsolateral longitudinal ridges ornamented with rounded microtubercles on rear margin of annuli, and 58 (57–62) ventral semiannuli with small and rounded microtubercles; 5 (5–6) semiannuli with fine microtubercles between coxae and genital coverflap; last 6 (5–7) dorsal semmianuli with spines and last 11 (9–12) ventral semiannuli with elongated microtubercles. Setae *c2* 24 (22–26), on ventral semiannulus 8 (7–9); setae *d* 53 (53–59), on ventral semiannulus 19 (19–22); setae *e* 19 (18–21), on ventral semiannulus 34 (33–36); setae *f* 27 (26–31), on ventral semiannulus 53 (52–56), 5 (5–6) annuli after setae *f*. Setae *h2* 65 (60–70), setae *h1* 4 (3–4). **External genitalia** 17 (15–17), 22 (20–22) wide, coverflap with one rank of 11 (9–11) longitudinal striae, proximal setae on coxisternum III (*3a*) 16 (14–17), 16 (14–17) apart; with 3 (2–3) transversal rows of lines at the genital coverflap base sometimes interrupted at the middle. **Internal genitalia:** spermathecae ovoid, oriented posterolaterad; spermathecal tubes short; transverse genital apodeme trapezoidal, distally folded.

NYMPH (measured specimen = 1) – Body vermiform, 170 (including gnathosoma), 48 wide. **Gnathosoma** projecting obliquely downwards, palp 13, chelicerae 12, palp coxal setae *ep* not detectable, palp genual setae *d* 3, unbranched, palp tarsus setae *v* not detectable. **Prodorsal shield** 28, including rounded frontal lobe, 36 wide, frontal lobe 3. Prodorsal shield pattern similar to female except extra transversal line that connect admedian lines at the middle of the shield (Fig. 1-NAD). Tubercles of scapular setae *sc* on rear shield margin, 20 apart, setae *sc* 16. **Leg I** 21, trochanter 2, femur 6, genu 3, tibia 3, tarsus 5, solenidion *ω* 9, curved down, distally rounded, empodium 4, simple, 4–rayed; femoral setae *bv* 8, genual setae *l″* 13, tibial setae *l′* 3, tarsal setae *ft′* 13, setae *ft″* 16, paraxial unguinal tarsal setae *u′* 4. **Leg II** 18, trochanter 3, femur 5, genu 3, tibia 2, tarsus 4, solenidion *ω* 9, curved down, distally rounded, empodium 4, simple, 4–rayed; femoral setae *bv* 6, genual setae *l″* 4, tarsal setae *ft′* 3, setae *ft″* 10, paraxial unguinal tarsal setae *u′* not detectable. **Coxae** similar to those of female; setae *1b* 5, tubercles *1b* 9 apart, setae *1a* 13, tubercles *1a* 5 apart, setae *2a* 27, tubercles *2a* 18 apart. Prosternal apodeme absent. **Opisthosoma** dorsally arched with 49 dorsal semiannuli and 44 ventral semiannuli. Setae *c2* 15 on ventral semiannulus 7, setae *d* 22 on ventral semiannulus 16; setae *e* 14 on ventral semiannulus 25; setae *f* 28 on ventral semiannulus 40, 4 semiannuli after setae *f*. Setae *h2* 39; setae *h1* 2; setae *3a* 8, 7 apart on annulus 6 after coxae.

Type host plant

Parietaria judaica L.(Urticaceae) (Fig. 2); ‘Goosh moosh-e afshan’ in Persian.

Relation to the host plant

Vagrant; no apparent symptom was observed.

Type locality

Dor Badam village, Quchan County, Razavi Khorasan Province, northeast Iran, (37° 32' 17.1" N, 58° 25' 09.6" E), 1858 m above sea level, coll. A. Honarmand, 7 July 2023.

Type material

Holotype: single female on a microscope slide (PJ-IRK-QN-DM-Y02-1); paratypes: seven females (PJ-IRK-QN-DM-Y02-2–8), and one nymph (PJ-IRK-QN-DM-Y02-9) mounted on separate microscope slides.

Other material

Mites extracted from the same sample as the type specimens were preserved in the tubes (PJ-

IRK-QN-DM-Y02).

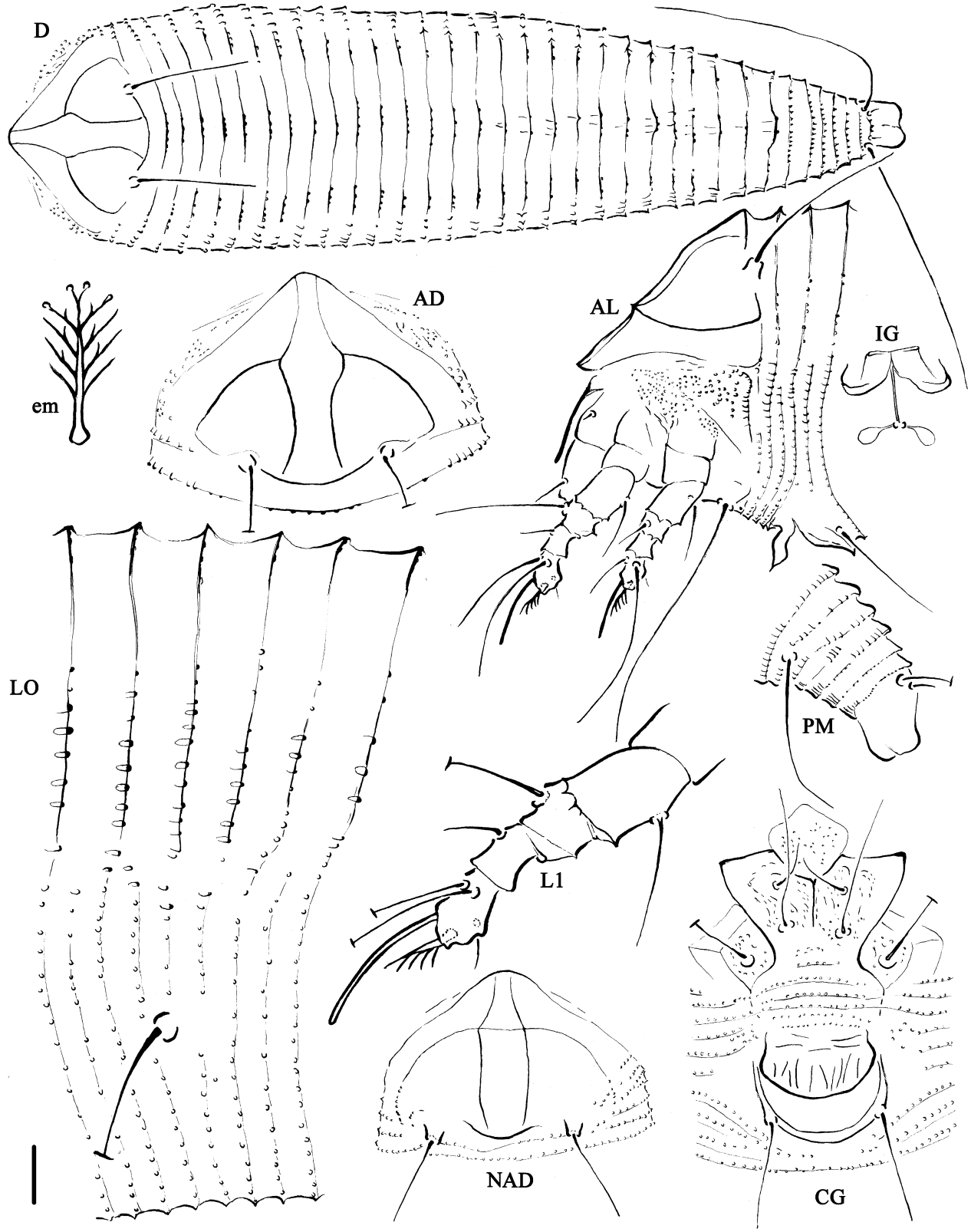

Figure 1. Line drawings of *Tegolophus parietariae* **sp. nov.** – **AD**. Prodorsal shield of female; **D.** Female dorsal view; **AL.** Lateral view of female anterior body region; **CG**. Female coxigenital region; **em**. Female empodium; **IG**. Internal female genitalia; **LO**. Lateral view of female annuli; **L1**. Female leg I; **NAD.** Nymph prodorsal shield; **PM**. Lateral view of posterior opisthosoma of female; Scale bars: 15 µm for D, 10 µm for AD, ADN, AL, CG, IG, PM; 5 µm for LO, L1; 2.5 µm for em.

Figure 2. *Parietaria judaica* L. (Urticaceae) from northeast Iran as type host of *Tegolophus parietariae* **sp. nov.**; Scale bar: 20 mm.

Etymology

The specific epithet *parietariae* is derived from the genus host plant name, *Parietaria*.

Differential diagnosis

The new species, *Tegolophus parietariae* **sp. nov.** is not morphologically similar to the *T. huanjiangensis*, the only species reported in association with Urticaceae plant species. The most prominent difference includes the prodorsal shield of *T. huanjiangensis*, which is composed of complete median and admedian lines forming eight closed cells with three transverse lines; in contrast, the new species diplays complete admedian lines and a pair of arched submedian lines. In addition, the length of scapular setae *sc* (30–36 in new species *versus* 7.5 in *T. huanjiangensis*) and genital setae *3a* (14–17 in new species *versus* 3.5 in *T. huanjiangensis*) are diffrent. The prodorsal shield pattern of the new species exhibited some similarities with *T. rubrae* Huang, 2004, which has been reported as vagrant mite on *Psychotria asiatica* L. (Rubiaceae) from Taiwan. The median line

is absent in both species, and a pair of admedian lines is present in both species, but they differ in a transverse line in the middle of the shield in *T. rubrae*, which is absent in the new species. Moreover, the number of dorsal semiannuli (32–36 in new species and 32 in *T. rubrae*) and ventral semiannuli (57–62 in new species and 57 in *T. rubrae*) are similar. The new species is distinguishable by length of scapular setae *sc* (30–36 in new species *versus* 8 in *T. rubrae*), genital setae *3a* (14–17 in new species *versus* 7 in *T. rubrae*), and coverflap ornamentation (9–11 longitudinal striae in new species *versus* granules in *T. rubrae*).

Remarks

This is the first eriophyoid mite from the plant genus *Parietaria* and second *Tegolophus* species found on the plant family Urticaceae.

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REFERENCES

Amrine, J.W. Jr. & Manson, D.C.M. (1996) Preparation, mounting and descriptive study of eriophyoid mites. *In*: Lindquist, E.E., Sabelis, M.W. & Bruin, J. (Eds.), *Eriophyoid mites. Their biology, natural enemies and control. World Crop Pests, Vol. 6*. Elsevier Science Publishers, Amesterdam, The Netherlands, pp. 383–396. DOI: 10.1016/S1572-4379(96)80023-6

Amrine, J.W. Jr., Stasny, T.A.H. & Flechtmann, C.H.W. (2003) *Revised keys to world genera of Eriophyoidea (Acari: Prostigmata)*. Indira Publishing House, West Bloomfield, Michigan, USA, 244 pp.

de Lillo, E., Craemer, C., Amrine, J.W.Jr. & Nuzzaci, G. (2010) Recommended procedures and techniques for morphological studies of Eriophyoidea (Acari: Prostigmata). *In*: Ueckermann, E.A. (Ed.), *Eriophyoid mites: Progress and prognoses*. Springer, Dordrecht, pp. 283–307. DOI: 10.1007/978-90-481-9562-6_15

Fotiou, C., Damialis, A., Krigas, N., Halley, J.M. & Vokou, D. (2011) *Parietaria judaica* flowering phenology, pollen production, viability and atmospheric circulation, and expansive ability in the urban environment: impacts of environmental factors. *International Journal of Biometeorology*, 55: 35–50.

Huang, K.W. & Wang, C.F. (2004) Eriophyoid mites of Taiwan: description of twelve species of Anthocoptini from Hueysuen (Acari: Eriophyoidea: Phyllocoptinae). *Journal of Plant Protection*, 46(3): 235–253.

Lotfollahi, P. & Masoudi-Rad, S. (2024) One new *Aceria* species (Acari: Eriophyoidea) from Jolfa, Iran. *Persian Journal of Acarology*, 13(2): 169–176. DOI: 10.22073/pja.v13i2.84596

Mozaffarian, V. (1996) *A dictionary of Iranian plant names: Latin, English, Persian*. Farhang Mo'aser, Tehran, Iran, 740 pp.

POWO (2024) *Plants of the World Online*. Facilitated by the Royal Botanic Gardens, Kew. Available from: https://powo.science.kew.org/ (Accessed on 08 May 2025).

Qadi, M., Jaradat, N., Al-Lahham, S., Ali, I., Abualhasan, M.N., Shraim, N., Hussein, F., Issa, L., Mousa, A., Zarour, A. & Badrasawi, A. (2020) Antibacterial, anticandidal, phytochemical, and biological evaluations of pellitory plant. *BioMed Research International*, 2020(1): 6965306.

Qin, A.Z., Wang, G.Q. & Wei, S.G. (2008) Four new species of Phyllocoptinae (Acari: Eriophyidae) from China. *Entomotaxonomia*, 30(4): 313–320.

Ranjbar-Varandi, F., Haddad Irani-Nejad, K. & Lotfollahi, P. (2020) Two new eriophyid species (Acariformes: Eriophyidae) from North of Iran. *Systematic and Applied Acarology*, 25(7): 1178–1187.

Walter, D.E. & Krantz, G.W. (2009) Collecting, rearing, and preparing specimens. *In*: Krantz, G.W. & Walter, D.E. (Eds.), *A manual of acarology*. 3rd ed. Texas Tech University Press, Lubbock, pp. 83–96.

گونهٔ جدید *Tegolophus parietariae* **sp. nov. (Acari: Eriophyidae)** از روستای دُربادام، شهرستان قوچان، ایران

آرش هنرمند و پریسا لطف‌الهی*

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چکیده

کنهٔ اریوفیوئید ***Tegolophus parietariae* sp. nov.** از روی گیاه *Parietaria Judaica* L. (Urticaceae) در روستای دُربادام شهرستان قوچان استان خراسان رضوی یافت و توصیف می‌شود. هیچ گونه علایم ظاهری در گیاه میزبان مشاهده نشد. این نخستین گزارش وجود کنهٔ اریوفیوئید روی گیاهان جنس *Parietaria* و دومین گونه از جنس *Tegolophus* از روی گیاهان خانواده Urticaceae در دنیا است.

واژگان کلیدی: Anthocoptini، شمال شرق ایران، *Parietaria*، Urticaceae، سرگردان.

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