

Short communication

Two new records of spider mites (Acari: Tetranychidae) from Iran

S. Khodayari and K. Kamali*

Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.

*Corresponding author, E-mail: kamali_k@modares.ac.ir

چکیده

خانواده‌ی Tetranychidae گونه‌های زیادی دارد که همگی آفات محصولات کشاورزی هستند. دو گونه از کنه‌های این خانواده، *Eotetranychus uncatatus* Garman و *E. potentillae* Begl. et Mitr برای اولین‌بار از ایران گزارش می‌شوند. گونه‌ی اول از شهرستان مراغه روی آلوچه و گونه‌ی دوم از گچسر (واقع در جاده چالوس) روی تمشک در تابستان ۱۳۸۸ جمع‌آوری شد.

Mites of the family Tetranychidae (spider mites) include some of the important pests in agriculture and forestry, and can be found on many fruit trees, vines, berries, vegetables and ornamental plants (Zhang *et al.*, 2002). They feed on most parts of plants, including the upper and lower surfaces of leaves, as well as on stems and sheaths of grasses (Jeppson *et al.*, 1975).

A study on Tetranychidae fauna of the World (Bolland *et al.*, 1998) showed that 1189 species were recognized by the end of 1996. Despite their economic significance as pests of crops, only 67 spider mite species have been recorded from Iran (Kamali *et al.*, 2001; Rahmani, 2008; Khodayari *et al.*, 2008). In the current study, two species of the genus *Eotetranychus* Oudemans are newly reported from Iran. Specimens are deposited at Acari Collection, Department of Entomology, Tarbiat Modares University, Tehran, Iran.

Specimens were collected from lower leaf surfaces of the hosts. They were fixed in 70% ethyl alcohol, cleared in lactophenol solution and mounted in Hoyer's medium on microscope slides (Evans, 1992; Krantz & Walter, 2009). Species were identified using pertinent references (Pritchard & Baker, 1955; Jeppson *et al.*, 1975; Bolland *et al.*, 1998; Zhang *et al.*, 2002).

The genus *Eotetranychus* can be recognized by the combination of following characters: two pairs of anal and two pairs of para-anal setae in females; striae on opisthosoma transverse; duplex setae on tarsus I distal and adjacent; tarsus I with 3 to 5 tactile setae proximal to duplex setae; true claws pad-like with tenent hairs; empodia (except for leg I and sometimes

leg II in males) with 3 pairs of ventrally directed hairs (fig. 2, e); dorsal body setae at least as long as distances between bases of consecutive setae (Meyer, 1987).

- *Eotetranychus uncatatus* Garman

Diagnosis – Female. Pale yellow to greenish yellow with black spots on each side of the hysterosoma; body length and width are 260 and 175 μm , respectively; the number of tactile setae and solenidia (in parentheses) on legs are as follows: I: 2, 1, 10, 5, 10, 14(1) + 2 duplex; II: 2, 1, 7, 4, 8, 14 + 1 duplex; III: 1, 1, 4, 4, 6, 10(1); IV: 1, 1, 4, 4, 7, 10(1).

Eotetranychus uncatatus is morphologically close to *E. carpini* (Oudmans) considering the similarity in leg chaetotaxy, male aedeagus (fig. 1, a) and the striae of female genital area (*willamettei* type) (fig. 1, c). However, they can be distinguished from each other by the shape of peritreme, which is strongly hooked distally in *E. uncatatus* (fig. 1, d), whereas it is straight and ended in a simple bulb in *E. carpini* (Gutierrez & Helle, 1981).

Walnut spider mite, *E. uncatatus*, is distributed in North America, Europe and Asia. It damages apple, pear, plum, *Alnus*, *Betula*, *Juglans*, *Quercus* and *Tilia* (Gutierrez & Helle, 1981). This species has 4-5 generations per year and overwinters as females in sprayed apple orchards (Gotoh, 1987).

Materials were collected from plum trees in Maragheh (37°28.709' N, 46°13.475' E) during summer 2009.

- *Eotetranychus potentillae* Begl. & Mitr.

Diagnosis – Female. Body length and width are 220 and 150 μm , respectively; dorsal body setae are serrate and longer than distances between the bases of consecutive setae; prodorsum bears longitudinal striae, whereas opisthosoma has transverse striae; striae on genital flap and those immediately anterior to it are irregular (fig. 2, a); peritreme terminates in a simple bulb (fig. 2, b); leg chaetotaxy is as follows: I: 2, 1, 10, 5, 10, 14(1) + 2 duplex; II: 2, 1, 7, 5, 8, 14 + 1 duplex; III: 1, 1, 4, 4, 6, 10(1); IV: 1, 1, 4, 4, 7, 10(1); terminal palptarsus length is twice its width (fig. 2, c).

Male. Body length and width are 200 and 90 μm , respectively; aedeageal shaft tapers slightly distally and curves ventral to form a distal knob providing a small anterior projection and longer posterior one; axis of knob is parallel to shaft axis (fig. 2, d); terminal palptarsus is rudimentary.

The type specimens of *E. potentillae* were collected on woolly cinquefoil, *Potentilla hippiana* Lehm (Rosaceae), in U.S.A. We collected the specimens on raspberry (Rosaceae) in Gachsar, Chalus road (36°20.628' N, 051°15.468' E) during summer 2009.

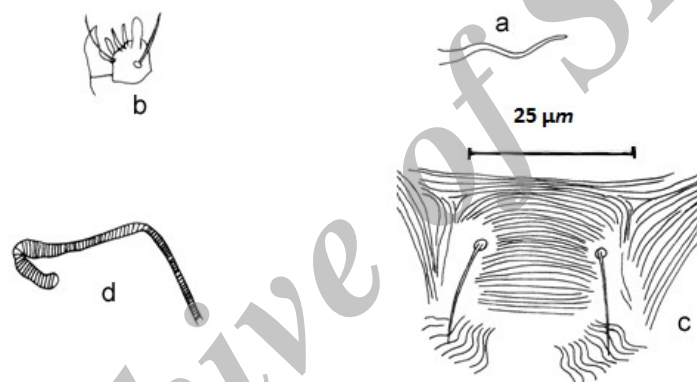


Fig. 1. *Eotetranychus uncatatus*, male: a, aedeagus; female: b, palptarsus; c, genital flap; d, peritreme.

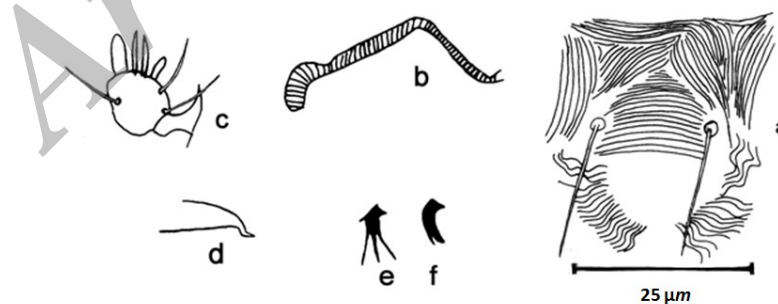


Fig. 2. *Eotetranychus potentillae*, female: a, genital flap; b, peritreme; c, palptarsus; e, empodium; male: d, aedeagus; f, empodium of first leg.

References

- Bolland, H. R., Gutierrez, J. & Flechtmann, C. W. H.** (1998) *World catalogue of spider mite family (Acari: Tetranychidae)*. 392 pp. Brill Academic Publishers, Leiden, Netherlands.
- Evans, G. O.** (1992) *Principles of acarology*. 576 pp. Wallingford, CAB International.

- Gotoh, T.** (1987) Annual life cycle of spider mite, *Eotetranychus uncatus* Garman (Acari: Tetranychidae). *Applied Entomology & Zoology* 22(1), 52-58.
- Gutierrez, J. & Helle, W.** (1981) *Eotetranychus uncatus* Garman, a pest of apple new to the Netherlands (Acari: Tetranychidae). *Entomologische Berichten, Deel* 41(1), 102-103.
- Jeppson, L. R., Keifer, H. H. & Baker, E. W.** (1975) *Mites injurious to economic plants*. 614 pp. University of California Press, Berkely.
- Kamali, K., Ostovan, H. & Atamehr, A.** (2001) *A catalogue of mites & ticks (Acari) of Iran*. 192 pp. Islamic Azad University Scientific Publication Center.
- Khodayari, S., Kamali, K. & Fathipour, Y.** (2008) A new *Sonotetranychus* (Acari: Tetranychidae) from Iran, with key to the known species. *Systematic and Applied Acarology* 13, 150-154.
- Krantz, G. W. & Walter, D. E.** (2009) *A manual of acarology*. 3rd ed. 807 pp. Texas Tech University Press.
- Meyer, M. K. P.** (1987) *African Tetranychidae (Acari: Prostigmata) with reference to the world genera*. 170 pp. Entomology Memoir, Department of Agriculture and Water Supply, Republic of South Africa.
- Pritchard, A. E. & Baker, E. W.** (1955) *A revision of the spider mite family Tetranychidae*. 472 pp. Pacific Coast Entomological Society Memoirs. Series 2, California Academy of Sciences, San Francisco.
- Rahmani, H.** (2008) Tetranychidae and Phytoseiidae of northwest Iran and some biology aspects of *Panonychus ulmi* and *Neoseiulus californicus*. Ph. D. Thesis. Tarbiat Modares University, Tehran, Iran. [In Persian].
- Zhang, Zh. Q., Henderson, R., Flynn, A. & Martin, N. A.** (2002) Key to Tetranychidae of New Zealand. Landcare Research Contract Report: LC0102/144, Prepared for: MAF Science Policy, Project FMA180.

Received: 25 July 2010

Accepted: 26 July 2011