

Article

New record of the family Nematalycidae (Acari: Sarcoptiformes: Endeostigmata) for the fauna of Iran

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Family Nematalycidae Strenzke, 1954

Type species: *Nematalycus nematoides* Strenzke, 1954

Diagnosis

A highly elongate idiosoma (in adults ≥ 6 times width when fully extended), lined with annuli, with the soft and flexible integument between successive annuli; a much greater distance between legs II and III relative to legs I and II; the genitalia positioned directly behind legs IV and far from the anal opening; a long posterior region behind the genitalia; prodorsum without trichobothria and naso, with fewer than four pairs of setae; the rostral seta is unpaired if present (Bolton *et al.* 2014, 2015).

The Nematalycidae is a widespread and unusual family of vermiform soil mites that inhabit mineral regolith (sands and mineral soil horizons). The nematalycid mites appear to be exclusively thelytokous. These highly elongated mites move around like worms by extending and contracting their bodies via a combination of hydraulic pressure and a continuous muscle layer underlying a thin epidermis. Their unique physiology among mites and their several idiosyncratic features are almost certainly an adaptation for living in small interstitial spaces in mineral soil and sand (Haupt and Coineau 1999; Bolton *et al.* 2015).

Five monospecific genera of Nematalycidae have been described as follows:

Genus *Nematalycus* Strenzke, 1954 (1 species)

Type species: *Nematalycus nematoides* Strenzke, 1954

Distribution: Algeria (Strenzke 1954).

Habitat: Groundwater (Strenzke 1954).

Genus *Cunliffea* Schubart, 1973 (1 species)

Type species: *Cunliffea strenzkei* (Cunliffe, 1956) [Syn.: *Nematalycus strenzkei* Cunliffe, 1956]

Distribution: USA (Cunliffe 1956) and Germany (Russell and Alberti 2009).

Habitat: Pasture soil (Cunliffe 1956) and sands (Russell and Alberti 2009).

Genus *Gordialycus* Coineau, Fize and Delamare Deboutteville, 1967 (1 species)

Type species: *Gordialycus tuzetae* Coineau, Fize and Delamare Deboutteville, 1967

Distribution: Distributed worldwide: France, South Africa, Turkmenistan, Venezuela, Cuba, Mauritania, New Caledonia, Australia, Brazil, Hungary and the USA (Coineau *et al.* 1967, Coineau and Theron 1983; Silva *et al.* 1989; Thibaud and Coineau 1998; Norton and Kinnear 1999; Norton *et al.* 2008).

Habitat: Fine sands (Coineau *et al.* 1967).

Genus *Psammolycus* Schubart, 1973 (1 species)

Type species: *Psammolycus delamarei* Schubart, 1973

Distribution: Brazil and USA (Schubart 1973; Bolton *et al.* 2014)

Habitat: Sandy soils (Schubart 1973)

Genus *Osperalycus* Bolton and Klompen, 2014 (1 species)

Type species: *Osperalycus tenerphagus* Bolton and Klompen, 2014

Distribution: USA (Ohio) (Bolton *et al.* 2014).

Habitat: Loam soils (Bolton *et al.* 2014).

During a study of soil mite fauna in Marand region of East Azerbaijan Province, Iran, during 2013, soil samples were taken. Mites were extracted using a Berlese funnel, kept in Oudemans' solution, cleared in Nesbitt's fluid, and mounted in Hoyer's medium on microscopic slides. Then, they were examined and identified under a phase contrast Olympus, BX41 microscope. Specimens are held in the Acarology laboratory, Department of Plant Protection, Faculty of Agriculture, Azarbaijan Shahid Madani University, Tabriz, Iran.

In this paper, we report one species belonging to family Nematalycidae new to the mite fauna of Iran:

Gordialycus tuzetae* Coineau, Fize and Delamare Deboutteville, 1967Material examined*

One female from horizon II, 15–34 cm depth, loam soil (pH: 7.56, Clay: 20.13%, Silt: 29.81%, Sand: 50.06%), wheat field, Marand (38° 24' 7.12" N, 45° 53' 3.72" E), 1480 m above sea level; two nymphs from horizon I, 0–30 cm depth, sandy clay loam soil (pH: 7.9, Clay: 35%, Silt: 32.41%, Sand: 32.59%), garden, Marand (38° 24' 7.23" N, 45° 53' 3.72" E), 1394 m above sea level; mid-September, 2013; coll. E. Movahedzade.

Remarks

This is the first record of *G. tuzetae* from Iran. The morphometric data for the female largely matches the original description and drawing by Coineau *et al.* (1967). However, the lengths of the setae *pb* of the Iranian specimen are longer than those in original description, possibly resulting from geographical variation.

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Received: 26 January 2015

Accepted: 7 February 2015

Published: 15 April 2015

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