



Persian J. Acarol., 2018, Vol. 7, No. 1, pp. 101–104.
<http://dx.doi.org/10.22073/pja.v1i1.34987>
Journal homepage: <http://www.biotaxa.org/pja>



<http://zoobank.org/urn:lsid:zoobank.org:pub:57F0312A-68DA-4992-8559-CE111BBA42C9>

Correspondence

First species record of Schizogyniidae (Acari: Mesostigmata: Trigynaspida) from Asia

Alireza Nemat^{*} and Arsalan Khalili-Moghadam

Plant Protection Department, Agricultural College, Shahrekord University, Shahrekord, Iran; E-mails: alireza.nemat@ymail.com, khalili92@ut.ac.ir

^{*} Corresponding author

PAPER INFO.: Received: 17 December 2017, Accepted: 7 January 2018, Published: 15 January 2018

The name Trigynaspida was based primarily on morphological features of the female genital area, which usually features a tripartite genital shield, however, it is not unique to the members of this group as some early derivative Uropodina (e.g. *Trachytes*) also show trigynaspid-like genital structure. Accordingly, more detailed and generalized characters that are not restricted to the female genital shields are required to define the Trigynaspida (Kim 2004). So in addition to the female genital structures, the most Trigynaspida is diagnosed by the following combination of characters in the adults: presence of eight setae on femora IV, absence of an unpaired postanal seta, presence of the setae *av4* and *pv4* on tarsi IV, presence of four anterolateral setae (*al*) on tarsi II–IV, absence of salivary styli in gnathosoma and presence of hypopharyngeal styli in gnathosoma (Kethley 1977; Kim 2004). So far seven species belonging to six trigynaspid families have been reported from Iran: Asternoseiidae, Antennophoridae, Celaenopsidae, Cercomegistidae, Diplogyniidae and Schizogyniidae (Kazemi and Paktinat Saej 2013; Kazemi and Rajaei 2013; Nemat *et al.* 2012). The Schizogyniidae Trägårdh, 1950, a poorly known family (Ryke 1957; Kinn 1966; Karg 1977) was recorded for the first time from Palearctic region by Nemat *et al.* (2012). This family includes only six genera and 11 species (Ryke 1957; Kinn 1966; Trach and Seeman 2014) with the following morphological characters: usually having latigynial plates fused with ventral shield (except in *Mixogynium*); ventral shield broadest posterior to coxae IV; metasternal shields separate, fused with sternal shield or fused together into a single plate; anal plate free or fused with ventral plate; metapodal plates usually represented by large shields (except in *Mixogynium*), free or fused with peritremal plate (Kinn 1966; Trach and Seeman 2014).

In this survey, mites were separated around mouth parts of carabid beetles, *Scarites* sp. (Coleoptera: Carabidae) that have been deposited in Entomological Collection, Plant Protection Department, Agricultural College, Shahid Chamran University, Ahvaz in 1998. Mites were cleaned in Lacto-phenol, mounted in Hoyer's medium and deposited in Acarological laboratory, Plant Protection Department, Agricultural College, Shahrekord University, Shahrekord (APAS). The study was done using Olympus microscope equipped with phase-contrast and digital camera. Measurements are given in micrometers (μm).

Specimens examined

Two microslides labeled as: Khuzestan Province (Ahvaz), Schizogyniidae, *Schizogynium* sp., females, separated from *Scarites* sp. (Coleoptera: Carabidae), coll., A. Nemati, 1998.

Schizogyniidae Trägårdh, 1950

Type genus: *Schizogynium* Trägårdh, 1950, by original designation.

Diagnosis

Following that of Trach and Seeman (2014).

***Euroschizogynium calvum* Trach & Seeman, 2014**

This is the first record of the genus and species from Asia.

Diagnosis (Figs. 1–4)

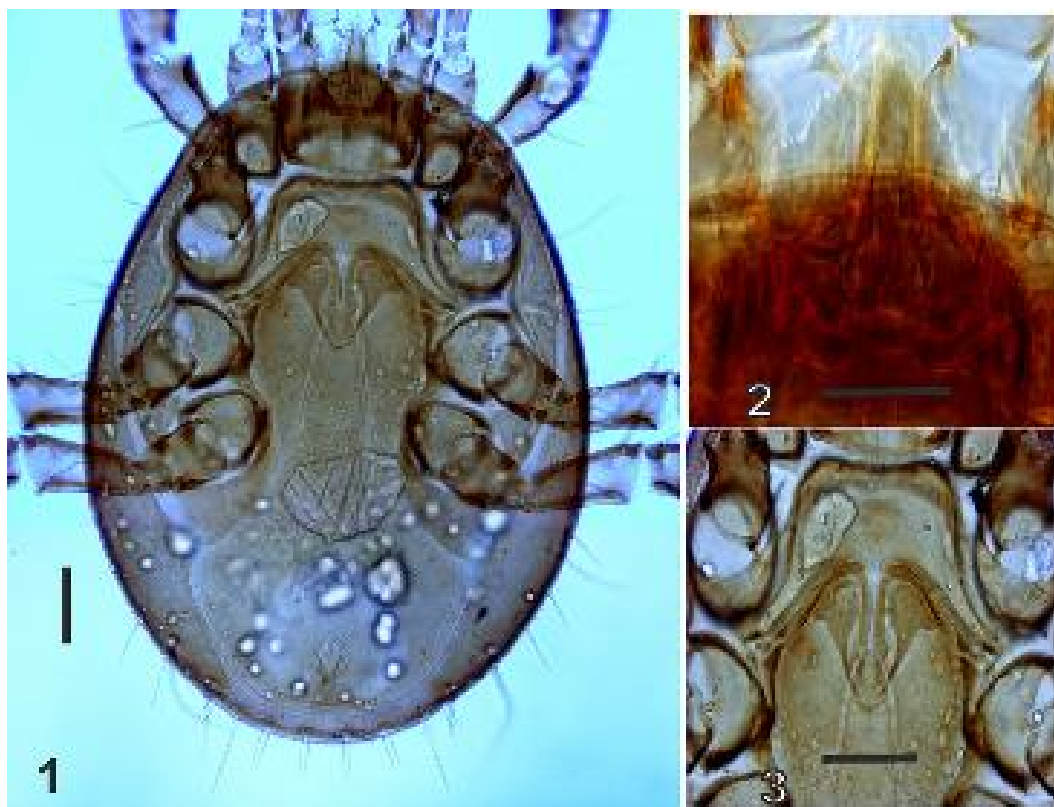
Dorsal shield hypotrichous. Female sternal shield fused with metasternal shields (Figs. 1–3), with four pairs of setae. Female latigynal, mesogynal and anal shields fused with a ventral shield (Figs. 1, 3). Ventral shield with the large pre-anal membranous region (Fig. 4), ventromarginal shields large, free. Peritrematal shields fused with exopodal and endopodal shields. Gnathosoma with four pairs of setae. Setae *adl* and *pdl* on tarsi II–IV bifurcated.

Note – Morphological characters of Iranian specimens of this species are nearly similar to those explained in Trach and Seeman (2014), except some sizes (Table 1) and epistome (Fig. 2), which is fairly denticulate in Iranian specimens (European specimens have an epistome with smooth anterior margin). The sizes of some morphological characters of Iranian specimens are provided in Table 1. For convenience, the same measurements, as described in the main description of this species (Trach and Seeman 2014), are listed in Table 1.

Iran's specimens are bigger in dorsal shield length but have a smaller sternal shield width. In these specimens, the width of the ventrianal shield in different parts (between and posterior of the fourth coxae) is somewhat wider than those in European specimens, while other measurements are nearly similar (Table 1).

Table 1. Measurements of some morphological characters of *Euroschizogynium calvum* Trach & Seeman, 2014 type materials (n = 2) and Iranian specimens (n = 2).

Character measurements	Type specimens	Iranian specimens
Dorsal shield length	837–856	915–925
Dorsal shield maximum width	688–698	686–697
Sternal shield length	111–113	104–110
Sternal shield maximum width	307–319	252–256
Setae lengths on latigynal shield	29–42	21–27
Ventrianal shield maximum width	286–302	358–364
Ventrianal shield minimum width	126–143	204–208
Mesogynal shield maximum width	76–80	81–85
Seta on ventrimarginal shield	55–59	54–58
Second cheliceral segment	158–162	117–123
Movable cheliceral digit	69–71	62–69
Palp length (from trochanter to tarsus)	239–248	241–245



Figures 1–3. *Euroschizogynium calvum* Trach & Seeman, 2014 – 1. Ventral view of idiosoma; 2. Epistome; 3. Sternal and latigynial shields (scale bars = 100 µm).



Figure 4. *Euroschizogynium calvum* Trach & Seeman, 2014 – Large pre-anal membranous region (scale bar = 100 µm).

REFERENCES

- Karg, W. (1997) Neue Raubmilbenarten der Antennophorina Berlese, 1892 (Acarina, Parasitiformes), phoretisch auf Passaliden. *Mitteilungen aus dem Museum für Naturkunde in Berlin*, 73: 51–61.
DOI: <http://dx.doi.org/10.1002/mmzn.19970730109>
- Kazemi, Sh. & Paktinat-Saeed, S. (2013) First report of the family Asternoseiidae (Acari: Mesostigmata: Trigynaspida) from Iran. In: Joharchi, O. and Saboori, A. (Eds.), *Program & Abstract book of the Second International Persian Congress of Acarology, 29–31 August 2013, Karaj, Iran*, p. 17.
- Kazemi, Sh. & Rajaei, A. (2013) An annotated checklist of Iranian Mesostigmata (Acari), excluding the family Phytoseiidae. *Persian Journal of Acarology*, 2(1): 63–158.
- Kethley, J.B. (1977) A review of the higher categories of Trigynaspida (Acari: Parasitiformes). *International Journal of Acarology*, 3: 129–149.
DOI: <http://dx.doi.org/10.1080/01647957708683090>
- Kim, C.M. (2004) Trigynaspida (Acari: Mesostigmata): new diagnosis, classification, and phylogeny. *Acarologia*, 44: 157–194.
- Kinn, D.N. (1966) A new genus and species of Schizogyniidae (Acarina: Mesostigmata) from North America with a key to the genera. *Acarologia*, 8: 576–586.
- Nemati, A., Mohseni, M., Gwiazdowicz, D. & Kavianpour, M. (2012) Fauna diversity of some mites of Mesostigmata (Acari) in Chaharmahal Va Bakhtiari and Khuzestan provinces. *1th International and 8th National Congress of Parasitology and Parasitic Diseases in Iran, 16–18 October 2012, Kerman, Iran*, p. 47.
- Ryke, P.A.J. (1957) *Mixogynium proteae*, a new genus and species of Celaenopsoidea (Mesostigmata: Acarina) from South Africa. *Annals and Magazine of Natural History, Series 12*, 10: 579–584.
DOI: <http://dx.doi.org/10.1080/00222935708656001>
- Trach, V.D. & Seeman, O.D. (2014) A new genus and species of Schizogyniidae (Acari: Mesostigmata) associated with carabid beetles (Coleoptera: Carabidae) from Ukraine. *Zootaxa*, 3793(2): 247–256.
- Trägårdh, I. (1950) Studies on the Celaenopsidae, Diplogyniidae and Schizogyniidae (Acarina). *Arkiv för Zoologi, Serie 2*, 1: 361–451.

COPYRIGHT



Nemati and Khalili-Moghadam. Persian Journal of Acarology is under a free license. This open-access article is distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.