

Hemipteroseius adleri Costa, 1968 collected on red firebug: the first record of the family Otopheidomenidae Treat, 1955 (Acari: Mesostigmata) in Hungary

J. KONTSCHÁN¹ and E. GYURIS²

Abstract. The parasitic mite *Hemipteroseius adleri* Costa, 1968 was collected on red firebug, *Pyrrhocoris apterus* (Linnaeus, 1758) for the first time in Hungary. Short description and drawings of the specimens are presented.

INTRODUCTION

The family Otopheidomenidae Treat, 1955 is a characteristic group of phytoseioid mites. All stages of its species are parasites of insects in the tropical and temperate regions throughout the world (Lindquist *et al.*, 2009). The family is divided into three subfamilies on the basis of the host preferences: Otopheidomeninae Treat, 1955 species are parasites of butterflies and moths, Treatiinae Wainstein, 1972 species are parasites of heteropterans and Katydidseinae Fain & Lukoschus, 1983 are mainly parasites of termites (Lewandowski & Szafranek, 2005).

The genus *Hemipteroseius* Evans, 1963 belongs to the subfamily Treatiinae, species of this genus are distributed in Central America, Central Africa, India, Oceania, Middle East and Europe (Lewandowski & Szafranek, 2005). Only one species of them (*Hemipteroseius adleri* Costa, 1968) is known from Europe (Poland and Lithuania (Lewandowski & Szafranek, 2005, Chmielewski 2006) and from the Middle East (Israel) (Costa 1968). This species is associated to a very common bug species, the red firebug [*Pyrrhocoris apterus* (Linnaeus, 1758)].

MATERIAL AND METHODS

Specimens were cleared in lactic acid, mounted in lactic acid and gelatin mixture and stored on

slides. Drawings were made with the aid of a drawing tube. Specimens examined are deposited in the Collections of Soil Zoology of the Hungarian Natural History Museum. Measurements are given in micrometers (μm), width of idiosoma was taken at the level of the coxae IV.

RESULTS

Hemipteroseius adleri Costa, 1968
(Figs. 1–7)

Hemipteroseius adleri Costa 1968: 1–10. Figs 1–13.

Hemipteroseius adleri: Lewandowski & Szafranek 2005: 251–257; Chmielewski 2006: 157–161, Figs. 1–4.

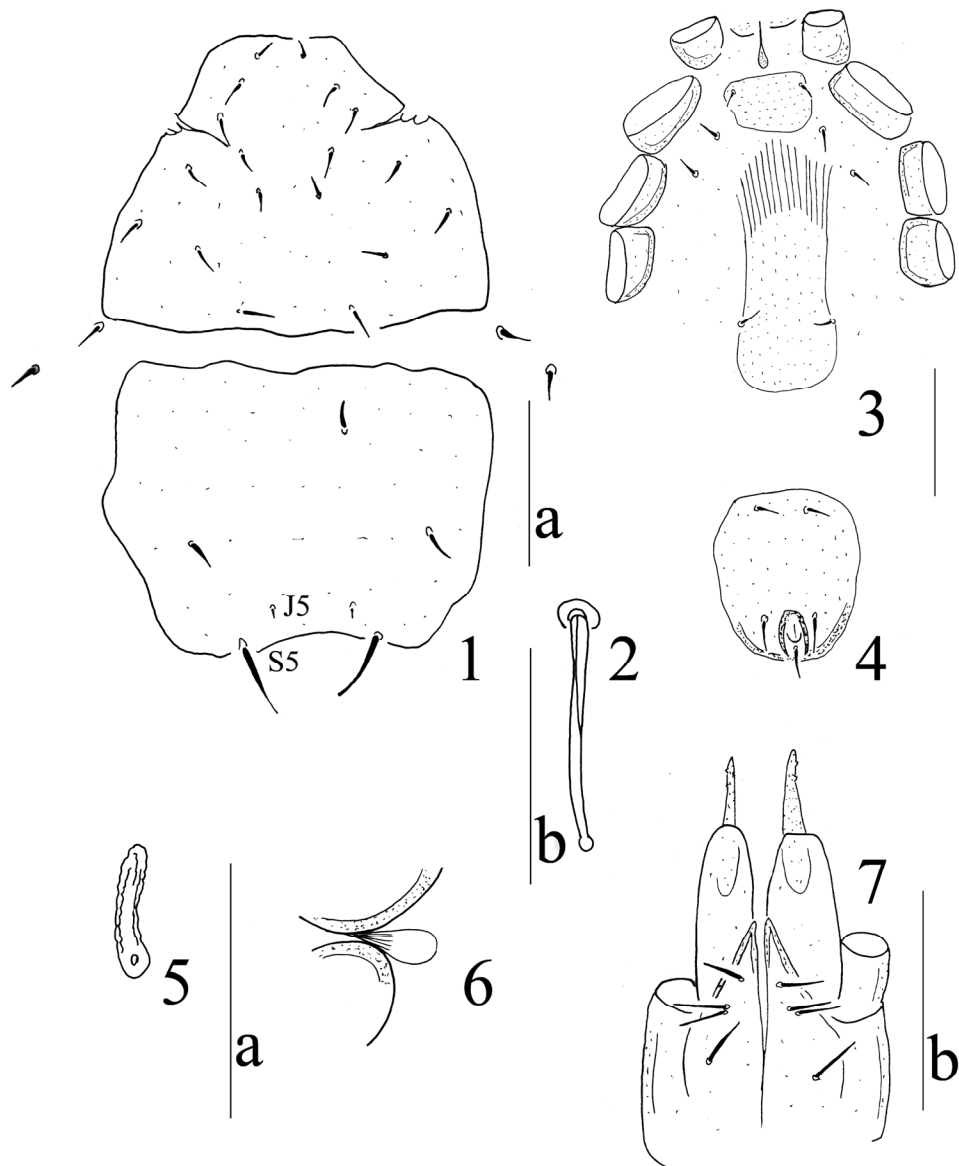
Material examined. Two females. Hungary, Debrecen, Egyetem tér, from red firebugs, leg. Enikő Gyuris, 05.V.2010.

Short description. Idiosoma oval, approximately 380–390 μm long and 230–235 μm wide.

Dorsal idiosoma (Fig. 1). Holodorsal shield divided into podonotal and opistonotal plates. Podonotal plate with nine pairs of needle-like setae (cca. 20–25 μm) and one pair of lateral incisions. Opistonotal plate with one pair of very short setae (J5, cca. 4–5 μm), one pair of very long setae (S5) (45–50 μm) with bulbiform tip (Fig. 2) and with other three setae cca. 20–25 μm (one seta lacking).

¹Dr. Jenő Kontschán, Systematic Zoology Research Group of Hungarian Academy of Sciences, and Department of Zoology, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13. Hungary. E-mail: kotscha@nhmus.hu

²Enikő Gyuris, Behavioural Ecology Research Group, Department of Evolutionary Zoology and Human Biology University of Debrecen, H-4032 Debrecen, Egyetem tér 1, Hungary. E-mail: eniko.gyuris@gmail.com



Figures 1–7. *Hemipteroseius adleri* Costa, 1968, female. 1 = Dorsal plates, 2 = S5 seta, 3 = intercoxal region, 4 = anal shield, 5 = peritreme, 6 = spermatheca, 7 = ventral view of gnathosoma. (Scale bar: a: 100 μ m, b: 50 μ m)

Ventral idiosoma (Fig 3–4). Sternal shield bearing only one pair of setae, two other pairs of setae placed on membranous cuticle near coxae II. Genital shield hatchet shaped, with one pair of setae. Shape of anal shield oval, with one pair of setae near anterior margin and one pair of adanal

setae and one postanal seta. Peritremes short (Fig. 5). Investigated part of spermatheca rounded (Fig. 6) it opens between coxae III and IV.

Gnathosoma (Fig. 7). Hypostomal setae smooth. Movable digit of chelicerae bidentate.

DISSCUSSION

In the description of the species, Sellnick (1968) mentioned the variations of the dorsal chaetotaxy. Additional setae or lacking setae can often be observed on the opisthotal plate, hence the lacking opisthotal setae of our specimens is not an extraordinary phenomenon of this species.

Hemipteroseius adleri have previously been recorded only from Israel, Poland and Lithuania. However, *H. adleri* is perhaps distributed in all the regions where its host species occurs.

Chmielewski (2006) mentioned the number of the live parasite mites per host insect varied from single adults to several dozen. In addition, Lewandowski and Szafranek (2005) gave the maximum number of found specimens on a host (124 individuals). We found only two specimens on a firebug, but according to our assumption more mite specimens can be found on other host specimens. The parasitic mites were located on the abdomen, under the wings, mostly near the wing base and anterior abdominal tergites; Chmielewski (2006) named it as "acarinarium" (our specimens were found on the same area of the host's body). Lewandowski and Szafranek (2005) found the mite specimens on the same locations, but

they recorded some females also from the ventral side of thorax.

Acknowledgements – This research was supported by the Hungarian Scientific Research Fund (OTKA 72744 and OTKA K75696). We are grateful to Nóra Jánosik for her extensive help.

REFERENCES

- COSTA, M. (1968): Notes on the genus *Hemipteroseius* Evans (Acari: Mesostigmata) with the description of a new species from Israel. *Journal of Natural History*, 2: 1–15.
- CHMIELEWSKI, W. (2006): Occurrence of *Hemipteroseius adleri* (Acari: Mesostigmata: Otopheidomenidae) infesting *Pyrrhocoris apterus* (Insecta: Heteroptera: Pyrrhocoridae) in Pulawy and other localities in Poland and Lithuania. *Biological Letters*, 43(2): 157–161.
- LINDQUIST E. E., KRANTZ, G.W. & WALTER, D. E. (2009): *Order Mesostigmata*. In: Krantz G. W. & Walter, D.E. (eds). A manual of acarology. Third edition. USA, Texas University Press, p. 124–232.
- LEWANDOWSKI, M. & SZAFRANEK, P. (2005): Ectoparasitic mite *Hemipteroseius adleri* (Acari: Otopheidomenidae) on the red firebug *Pyrrhocoris apterus* (Heteroptera: Pyrrhocoridae). *Experimental and Applied Acarology*, 35: 251–257.