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## A new species and new records of the genus *Eustigmaeus* (Acari: Prostigmata: Stigmaeidae) from Western Siberia

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### Abstract

A new species of the genus *Eustigmaeus* Berlese, 1910 (Acari: Stigmaeidae), *E. tjumeniensis* sp. nov. is described from mosses of fens in Western Siberia, Russia. *Eustigmaeus collarti* (Cooreman, 1955), *E. ioanninensis* Kapaxidi and Papadoulis, 1999, *E. jiangxiensis* Hu, Chen and Huang, 1996 are recorded from Russia for the first time. *Eustigmaeus parvisetus* (Chaudhri, 1965) is recorded from Eurasia for the first time. *Eustigmaeus collarti* and *E. parvisetus* are redescribed based on material from Western Siberia. A key to *Eustigmaeus* species of Russia is provided.

**Key words:** acari, Raphignathoidea, systematics, predatory mites, mosses

### Introduction

The predatory mite family Stigmaeidae (Acari: Prostigmata) is the largest in the superfamily Raphignathoidea and includes more than 500 species of 33 valid genera. Among them, the genus *Eustigmaeus* Berlese, 1910 includes more than 100 species distributed worldwide (Bagheri *et al.* 2011; Dönel & Doğan 2011; Faraji *et al.* 2007; Khanjani *et al.* 2013). At present, seven species of the genus *Eustigmaeus* are known from Russia: *E. pinnata* (Kuznetsov, 1977) and *E. coronaria* (Kuznetsov, 1977) (Kuznetsov 1977a, b), *E. anauniensis* (Canestrini, 1889), *E. plumifer* (Halbert, 1923), *E. segnis* (Koch, 1836), *E. clavata* (Canestrini and Fanzago, 1876), and *E. rhodomela* (Koch, 1841) (Wainstein & Kuznetsov 1978). Some of *Eustigmaeus* species are inhabit mosses and feed on them (Gerson 1972a). Our study of mites associated with mosses in Western Siberia revealed new records and a new species of the genus *Eustigmaeus*. The original descriptions of *E. collarti* (Cooreman, 1955) and *E. parvisetus* (Chaudhri, 1965) are incomplete and we redescribe these species based on material from Western Siberia. A key to *Eustigmaeus* species of Russia is provided.

### Material and methods

Mites were collected from mosses using Berlese funnels and mounted in Hoyer's medium. In the description below, the palpal, idiosomal and the leg setations follow Grandjean (1939, 1944, 1946). All measurements are given in micrometres (µm) for the holotype and 5 paratypes (in parentheses). In descriptions of leg setation the number of solenidia is given in parentheses. The type material is deposited in the mite collection of the Tyumen State University Museum of Zoology, Tyumen, Russia. SEM photos were made with the aid of JEOL –JSM-6510LV SEM microscope.

### Systematics

#### Family Stigmaeidae Oudemans, 1931

9.	1 or 3 pairs of aggenital setae present, dorsal setae saber-like .....	10
-	2 pairs of aggenital setae present, dorsal setae baculiform .....	<i>E. collarti</i>
10.	3 pairs of aggenital setae present .....	11
-	1 pair of aggenital setae present .....	<i>E. segnis</i>
11.	3 pairs of pseudanal setae present .....	<i>E. ioanninensis</i>
-	4 pairs of pseudanal setae present .....	<i>E. pinnata</i>

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## References

- Bagheri, M., Saber, M., Ueckermann, E.A., Ghorbani, H. & Navae-Bonab, R. (2011) *Eustigmaeus setiferus*, n. sp. (Acari: Stigmaeidae) from Iran. *International Journal of Acarology*, 37, 212–215.  
<http://dx.doi.org/10.1080/01647954.2011.553201>
- Berlese, A. (1910) Acari nuovi. Manipulus V. *Redia*, 6, 199–214.
- Canestrini, G. (1889) Prospetto dell' Acarifauna Italiana, Famiglia dei Tetranychini. *Atti della Reale Istituto Veneto Scienze, lettere ed arti*, 7, 493–531.
- Canestrini, G. & Fanzago, F. (1876) Nuovi acari Italiana. Famiglia dei Tetranychini. *Societa Veneto-Trentina di Scienze Naturali Atti*, 5, 135–140.
- Chaudhri, W.M. (1965) New mites of the genus *Ledermuelleria*. *Acarologia*, 7 (3), 467–486.
- Cooreman, J. (1955) Notes sui quelques Acariens des Alpes françaises, *Mémoires de la Société royale d'entomologie de Belgique*, 27, 162–170.
- Doğan, S. (2005) *Eustigmaeus* mites from Turkey (Acari: Stigmaeidae). *Journal of Natural History*, 39, 835–861.  
<http://dx.doi.org/10.1080/00222930400001558>
- Doğan, S. (2006) A hygrophilic mite species: *Eustigmaeus collarti* (Cooreman 1955) (Acari, Stigmaeidae). *Journal of Arts and Sciences*, 6, 87–96.
- Doğan, S., Ayyıldız, N. & Fan, Q.-H. (2003) Descriptions of two new species and a newly recorded species of *Eustigmaeus* from Turkey (Acari: Stigmaeidae). *Systematic and Applied Acarology*, 8, 131–144.
- Dönel, G. & Doğan, S. (2011) The stigmaeid mites (Acari: Stigmaeidae) of Kelkit Valley (Turkey). *Zootaxa*, 2942, 1–56.
- Fan, Q.-H. & Zhang, Z.-Q. (2004) Revision of raphignathoid mites (Acari: Prostigmata) in the collection of H. Habeeb. *Zootaxa*, 763, 1–28.
- Faraji, F., Ueckermann, E.A. & Bakker, F. (2007) First record of *Eustigmaeus jiangxiensis* Hu, Chen and Huang (Acari: Stigmaeidae) from France with a key to the European species of *Eustigmaeus* Berlese, 1910. *International Journal of Acarology*, 33 (2), 145–151.  
<http://dx.doi.org/10.1080/01647950708684515>
- Gerson, U. (1972a) Mites of the genus *Ledermuelleria* (Prostigmata: Stigmaeidae) associated with mosses in Canada. *Acarologia*, 13, 319–343.
- Gerson, U. (1972b) A redescription of *Ledermuelleria frigida* Habeeb (Acarina: Prostigmata: Stigmaeidae). *Acta Archnologica*, 24, 15–28.  
<http://dx.doi.org/10.2476/asjaa.24.15>
- Grandjean, F. (1939) Les segments postlarvaires de l'hysterosoma chez les oribates (Acariens). *Bulletin Societe Zoology France*, 64, 273–284.
- Grandjean, F. (1944) Observations sur les Acariens de la famille des Stigmaeidae. *Archives des Sciences physiques et naturelles*, 26, 103–131.
- Grandjean, F. (1946) Au sujet de l'organe de Claparède, des eupathides multiples et des taenidies mandibulaires chez les Acariens actinochitineux. *Archives des Sciences physiques et naturelles*, 28, 63–87.
- Habeeb, H. (1958) New mites from New Brunswick. *Leaflets of Acadian Biology*, 18, 1–4.
- Halbert, J.N. (1923) Notes on Acari, with description of new species. *Journal of the Linnean Society of London, Zoology*, 35, 363–392.  
<http://dx.doi.org/10.1111/j.1096-3642.1923.tb01732.x>

- Hu, S., Chen, X. & Huang, L. (1996) Mites of the genus *Eustigmaeus* from Jiangxi Province (Acari: Stigmaeidae). *Entomologica Sinica*, 3, 314–322.
- Kapaxidi, E.V. & Papadoulis, G.Th. (1999) New records of stigmaeid mites from Greece with description of a new species (Acari: Stigmaeidae). *International Journal of Acarology*, 25 (2), 141–144.  
<http://dx.doi.org/10.1080/01647959908683625>
- Kethley, J.B. (1990) Acarina: Prostigmata (Actinedida). In: Dindal, D.L. (Ed.), *Soil Biology Guide*. Wiley, New York, pp. 667–756.
- Khanjani, M., Firozfar, A., Mirmoayedi, A. & Fayezi, B.A. (2013) *Eustigmaeus seemani* sp. nov. and description male of *E. segnis* (Koch) (Acari: Stigmaeidae) and re-description of *E. rhodomela* (Koch) from Iran. *International Journal of Acarology*, 39, 558–570.  
<http://dx.doi.org/10.1080/01647954.2013.839740>
- Koch, C.L. (1833–1841) Deutschlands Crustaceen, Myriapoden und Arachniden. *Heft Regensburg*, 1–40.
- Kuznetsov, N.N. (1977a) A contribution to the fauna of mites of the family Stigmaeidae (Acariformes) in the central-chernozem zone. *Zoologicheskii Zhurnal*, 56, 953–956. [in Russian]
- Kuznetsov, N.N. (1977b) New species of the family Stigmaeidae from Crimea. *Zoologicheskii Zhurnal*, 56, 635–638.
- Oudemans, A.C. (1931) Acarologische aantekeningen CVIII. *Entomologische Berichten*, 8 (179), 251–263.
- Wainstein, B.A. & Kuznetsov, N.N. (1978) Family Stigmaeidae. In: Ghilarov, M.S. (Ed.), *Opredelitel Pochvoobitayushchikh Kleshchey. Trombidiformes*, Nauka, Moscow, pp. 153–168. [in Russian]