

SEJOIDEA, ANTENNOPHOROIDEA, CELAENOPSOIDEA AND MICROGYNIOIDEA (ACARI, MESOSTIGMATA) IN THE ZOOLOGICAL COLLECTION IN MUNICH

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Abstract. A list of mites of several families found in the Zoological Collection in Munich is presented in this study. Following the analysis of the type material new synonyms have been suggested for several species. Moreover, all holotypes and paratypes have been specified.

Key words: *Antennophorus*, *Celaenopsis*, *Microgynium*, *Microseius*, *Sejus*, *Pleuronectocelaeno*, museum collection

INTRODUCTION

Mites of families Sejidae, Antennophoridae, Celaenopsidae and Microgyniidae deposited in the Zoological Collection in Munich (Zoologisches Staatssammlung München) have been analysed in the present study. Mites from these families are strictly connected with the forest environment where they are primarily found in rotting wood and bark beetle galleries.

Mites of the family Sejidae are of diverse sizes from 445 µm in *Sejus cubanus* and 500 µm in *Sejus rafalskii* to 1100 µm in *Sejus togatus*. The body color is usually from light yellow to brown. The number and shape of shields on the body depends on the species, sex or the developmental stage. In some deutonymphs and in the majority of males two shields, protonotal and opistonotal, are located on the dorsal side. However, the majority of females and deutonymphs have the pronotal shield, four mesonotal scutellae and the pygidial shield. Moreover, two pairs of presternal platelets, a short but wide sternal shield, an oval epigynal shield and a large trapezoid ventrianal shield are located on the ventral side [Bregetova 1977 a, Evans 1992, Hirschmann 1991, Hirschmann et al. 1991, Lindquist et al. 2009].

It is worth noticing that in some species two types of deutonymphs were found and one of them is a phoretic one. Phoretic deutonymphs are distinct in having two shields on dorsale, relatively large metapodal shields and a small ventrianal shield.

Mites from family Antennophoridae have a round body, relatively wide and are 0.8-1.2 mm in size. The holodorsal shield with a very large number (900-1500) of simple setae is located on the dorsal side. There is one complete sternal shield or it is split in two parts. Below, at the level of coxae II-III a pair of latigynal shields is located. In male the sternal or sternogenital shield with the genital orifice is located between coxae III. On the cheliceral digits of both sexes occurrence a brush-like processes [Evans 1992, Lindquist et al. 2009].

Mites from the family Celaenopsida have an oval body, they are 0.5-0.8 mm long and from light yellow to dark brown in colour. Both in female and in males there is one holodorsal shield on the dorsal side. Deuthonymphs with three parallel dorsal shields (podonotal, mesonotal and pygidial). A large number of unpaired setae are located on the dorsal shield and the majority of them are needle-shaped. At the base of the sternal shield there are two metasternal shields with 1-2 pairs of setae. A genital orifice in males is located on the front edge of the sternal shield and it is frequently poorly visible [Bregetova 1977 c, Evans 1992, Lindquist et al. 2009].

Mites from the family Microgyniida have an oval body, they are 0.3-0.5 mm long and milky white in color. Three or four shields, pronotal, mesonotal (pair or single) and pygidial, are located on the dorsal side of the adult specimens and deutonymphs. Some basic types of setae may be found on these shields e.g. simple, serrate and pilose. A sternal shield of a female is split into two parts while the genital shield is uniform or in the form of two sclerites [Bregetova 1977 b, Evans 1992, Lindquist et al. 2009].

A list of mite species in the systematic order taking into account the alphabetic collection list is presented below.

COLLECTIONS

Balogh Collection

Sejidae Berlese, 1895

Sejus togatus C.L. Koch, 1836

Sejus togatus, no 36/24 – 1F*

Sejus togatus, no 36/25 – 1F

Hirschmann Collection

Sejidae Berlese, 1895

Sejus australis Hirschmann et Kaczmarek, 1991

Sejus australis, no 3001 – 4F, 3M (Paratype)

Sejus australis, no 3002 – 1F

Sejus australis, no 3003 (N.65) – 1F

Sejus australis, no 3004 (N.64) – 1F

Sejus australis, no 3005 – 1M

Sejus australis, no 3006 – 1D

* F – female, M – male, D – deutonymph, D(W) – photectic deutonymph, P – protonymph, L – larva.

Sejus australis, no 3007 (N. 61) – 3D

Sejus australis, no 3008 (N. 60) – 5L

***Sejus boliviensis* Hirschmann et Kaczmarek, 1991**

(New synonym – *Sejus venezuelanus* Hirschmann et Wiśniewski, 1994)

Sejus boliviensis, no A20032901 (3009) – 1M

Sejus boliviensis, no A20032902 (3010) – 1M

Sejus boliviensis, no A20032903 (3011) – 1M

Sejus boliviensis, no A20032904 (3012) – 1M

Sejus boliviensis, no A20032905 (3013) – 1F

Sejus boliviensis, no A20032906 (3014) – 1F

Sejus boliviensis, no A20032907 (3015) – 1F

Sejus boliviensis, no 3136 – 7F, 12M, 3D

Sejus venezuelanus, no 3139 – 1F

Sejus venezuelanus, no 3140 – 1M

***Sejus camerunis* Wiśniewski et Hirschmann, 1991**

Sejus camerunis, no 3028 – 1P (Paratype)

Sejus camerunis, no 3029 – 1D (Paratype)

Sejus camerunis, no 3030 – 1F (Paratype)

***Sejus congoensis* Wiśniewski et Hirschmann, 1991**

Sejus congoensis, no 3017, *Epicroseius congoensis* – 1L (Paratype)

Sejus congoensis, no 3018, *Epicroseius congoensis* – 1P (Paratype)

Sejus congoensis, no 3019, *Epicroseius congoensis* – 1D (Paratype)

Sejus congoensis, no 3020, *Epicroseius congoensis* – 1D (Paratype)

Sejus congoensis, no 3021, *Epicroseius congoensis* – 1F (Paratype)

Sejus congoensis, no 3022, *Epicroseius congoensis* – 1F (Paratype)

Sejus congoensis, no 3023, *Epicroseius congoensis* – 1F (Paratype)

Sejus congoensis, no 3024, *Epicroseius congoensis* – 1M (Paratype)

Sejus congoensis, no 3025, *Epicroseius congoensis* – 1F (Paratype)

Sejus congoensis, no 3026, *Epicroseius congoensis* – 1M (Paratype)

Sejus congoensis, no 3027, *Epicroseius congoensis* – 1M (Paratype)

***Sejus cubanus* Wiśniewski et Hirschmann, 1991**

Sejus cubanus, no 3031 – 1F (Holotype)

***Sejus geometricus* Hirschmann et Kaczmarek, 1991**

Sejus geometricus, no 3032 – 1D (Holotype)

***Sejus hinangensis* Hirschmann et Kaczmarek, 1991**

Sejus hinangensis, no 3033 – 1D

Sejus hinangensis, no 3034 – 2D

Sejus hinangensis, no 3035 (N. 33) – 1P

Sejus hinangensis, no 3036 (N. 34) – 1P

Sejus hinangensis, no 3037 (N. 35) – 1D

Sejus hinangensis, no 3038 (N. 36) – 1D

Sejus hinangensis, no 3039 (N. 37) – 1D

- Sejus hinangensis*, no 3040 (N. 38) – 1D(W)
Sejus hinangensis, no 3041 (N. 39) – 1D(W)
Sejus hinangensis, no 3042 (N. 40) – 1D(W)
Sejus hinangensis, no 3043 (N. 41) – 1F (**Holotype**)
Sejus hinangensis, no 3044 (N. 42) – only chelicerae of female
Sejus hinangensis, no 3045 – 1M
Sejus hinangensis, no 3046 – 1M

***Sejus indicus* Hirschmann et Kaczmarek, 1991**

- Sejus indicus*, no 3047 (N. 24), *Epicroseius indicus*, det. J. Wiśniewski – 1D (**Holotype**)

***Sejus javensis* Hirschmann et Kaczmarek, 1991**

- Sejus javensis*, no 3048 (N. 28), *Epicroseius javensis*, det. J. Wiśniewski – 1D (**Holotype**)
Sejus javensis, no 3049 (N. 29), *Epicroseius javensis*, det. J. Wiśniewski – 1D (**Paratype**)
Sejus javensis, no 3050 (N. 30), *Epicroseius javensis*, det. J. Wiśniewski – 1D (**Paratype**)
Sejus javensis, no 3051 (N. 31), *Epicroseius javensis*, det. J. Wiśniewski – 1D (**Paratype**)
Sejus javensis, no 3052 (N. 32), *Epicroseius javensis*, det. J. Wiśniewski – 1D (**Paratype**)

***Sejus oblitus* Hirschmann, 1991**

- Sejus oblitus*, no 3053 (U 497) – 1D (**Holotype**)
Sejus oblitus, no 3055 (U 497) – 1D
Sejus oblitus, no 3056 (U 497) – 1D
Sejus oblitus, no 3057 (U 497) – 1D
Sejus oblitus, no 3058 (U 497) – 1D

***Sejus mesoaffricanus* Wiśniewski et Hirschmann, 1991**

- Sejus mesoaffricanus*, no 3054 (U-796) – 1F (**Holotype**)

***Sejus polonicus* Hirschmann et Kaczmarek, 1991**

- Sejus polonicus*, no 3059 (N. 45) – 1M, 1D
Sejus polonicus, no 3060 (N. 46) – 2M, 3D, 2P
Sejus polonicus, no 3061 (N. 47) – 1F (**Holotype**)
Sejus polonicus, no 3062 (N. 48) – 1F
Sejus polonicus, no 3063 (N. 49) – 1D
Sejus polonicus, no 3064 (N. 50) – 1F
Sejus polonicus, no 3065 (N. 51) – 1M

***Sejus rafalskii* Wiśniewski et Hirschmann, 1991**

- Sejus rafalskii*, no 3074 – 1F (**Paratype**)

***Sejus savannakhetianus* Hirschmann et Kaczmarek, 1991**

- Sejus savannakhetianus*, no 3075 (N. 25), *Epicroseius savannakhetianus* – 1D (**Holotype**)
Sejus savannakhetianus, no 3076 (N. 27), *Epicroseius savannakhetianus* – 2D (**Paratype**)
Sejus savannakhetianus, no 3077 (N. 26), *Epicroseius savannakhetianus* – 1D (**Paratype**)

***Sejus sejiformis* (Balogh, 1938)**

- (*Willmannia sejiformis* Balogh, 1938; *Sejus posnaniensis* Hirschmann et Kaczmarek, 1991)
Sejus posnaniensis, no 3066 (12) – 1L

Sejus posnaniensis, no 3067 (13) – 1P
Sejus posnaniensis, no 3068 (14) – 1D
Sejus posnaniensis, no 3069 (15) – 1D
Sejus posnaniensis, no 3070 (17) – 1F
Sejus posnaniensis, no 3071 (18) – 1M
Sejus posnaniensis, no 3072 (19) – 1M
Sejus posnaniensis, no 3073 (16) – 1F

***Sejus solaris* Hirschmann et Wiśniewski, 1991**

Sejus solaris, no 3078, *Kochia solaris* – 1L (Paratype)
Sejus solaris, no 3079, *Kochia solaris* – 1P (Paratype)
Sejus solaris, no 3080, *Kochia solaris* – 1D (Paratype)
Sejus solaris, no 3081, *Kochia solaris* – 1F (Paratype)
Sejus solaris, no 3082, *Kochia solaris* – 1F (Paratype)
Sejus solaris, no 3083, *Kochia solaris* – 1F (Paratype)
Sejus solaris, no 3084, *Kochia solaris* – 1M (Paratype)
Sejus solaris, no 3078, *Kochia solaris* – 1L (Paratype)

***Sejus stebaevi* Wiśniewski et Hirschmann, 1991**

(New synonym – *Sejus bugrovskii* Wiśniewski et Hirschmann, 1991)
Sejus stebaevi, no 3085 – 1F (Holotype)
Sejus stebaevi, no 3086 – 1M (Paratype)
Sejus bugrovskii, no 3016 – 1D (Paratype)

***Sejus tanganicus* Hirschmann et Kaczmarek, 1991**

Sejus tanganicus, no 3087 (N. 20), *Epicroseius tanganicus* – 2F, 1M, 1D (Holotype)
Sejus tanganicus, no 3088, *Epicroseius tanganicus* – 1F
Sejus tanganicus, no 3089, *Epicroseius tanganicus* – 1M
Sejus tanganicus, no 3090, *Epicroseius tanganicus* – 1D
Sejus tanganicus, no 1736 – 1M, 1D
Sejus tanganicus, no 3137 – 1F, 3M, 1D

***Sejus togatus* C.L. Koch, 1836**

Sejus togatus, no 3091 (N.1) – 1L, 2P
Sejus togatus, no 3092 (N.2) – 1L
Sejus togatus, no 3093 (N.4) – 2F, 1M, 2D, 1P
Sejus togatus, no 3094 (N.3) – 3P
Sejus togatus, no 3095 (N.5) – 1M, 1P
Sejus togatus, no 3096 (N.7) – 1D
Sejus togatus, no 3097 (H-2651) – 1F
Sejus togatus, no 3098 (N.6) – 2D
Sejus togatus, no 3099 (N.8) – 1F
Sejus togatus, no 3100 (N.9) – 1F
Sejus togatus, no 3101 – 1F, 1M, 2D
Sejus togatus, no 3102 – 3M, 1D, 1P
Sejus togatus, no 3103 – 1M
Sejus togatus, no 3104 – 2F
Sejus togatus, no 3105 – 1M

Antennophoridae Berlese, 1888***Antennophorus boveni* Wiśniewski et Hirschmann, 1992***Antennophorus boveni*, no 3128 – 1L*Antennophorus boveni*, no 3129 – 1F*Antennophorus boveni*, no 3130 – 1P*Antennophorus boveni*, no 3131 – 1 F*Antennophorus boveni*, no 3132 – 1F*Antennophorus boveni*, no 3133 – 1M*Antennophorus boveni*, no 3134 – 1M***Antennophorus goesswaldi* Wiśniewski et Hirschmann, 1992***Antennophorus goesswaldi*, no 3126 – 1M (Holotype)***Antennophorus pavani* Wiśniewski et Hirschmann, 1992***Antennophorus pavani*, no 3135 – 1M (Paratype)**Microgyniidae Trägårdh, 1942*****Microgynium brasiliensis* Wiśniewski et Hirschmann, 1993***Microgynium brasiliensis*, no 4175 (U-1052) – 1D (Paratype)*Microgynium brasiliensis*, no 4176 (U-1052) – 1D (Paratype)***Microsejus truncicola* Trägårdh, 1942***Microsejus truncicola*, no 3920 – 1L*Microsejus truncicola*, no 3921 – 1L*Microsejus truncicola*, no 3922 – 1P**Kneissl Collection****Antennophoridae Berlese, 1888*****Antennophorus foreli* Wasmann, 1902***Antennophorus foreli*, no K310 – 1F*Antennophorus foreli*, no K311 – 1F*Antennophorus foreli*, no K312 – 1M*Antennophorus foreli*, no K313 – 1F***Antennophorus grandis* Berlese, 1904***Antennophorus grandis*, no K314 – 1F*Antennophorus grandis*, no K315 – 1F***Antennophorus pubescens* Wasmann, 1899***Antennophorus pubescens*, no K316 – 1M*Antennophorus pubescens*, no K317 – 1F*Antennophorus pubescens*, no K318 – 1M*Antennophorus pubescens*, no K319 – 1M*Antennophorus pubescens*, no K320 – 1F**Celaenopsidae Berlese, 1892*****Celaenopsis badius* C.L. Koch, 1839**

(Synonym – *Celaenopsis cuspidata* (Kramer 1876))

Celaenopsis cuspidata, no K291 – 1F

Celaenopsis cuspidata, no K293 – 1F, 1M

Celaenopsis cuspidata, no K294 – 1M

Celaenopsis cuspidata, no K296 – 1M

Lekveishvili & Klompen Collection

Sejidae Berlese, 1895

***Sejus carolinensis* Lekveishvili et Klompen, 2004**

Sejus carolinensis, no A20092007 – 1D (Paratype)

Sejus carolinensis, no A20092008 – 1M (Paratype)

Sejus carolinensis, no A20092009 – 1F (Paratype)

Vitzthum Collection

Celaenopsidae Berlese, 1892

***Celaenopsis badius* C.L. Koch, 1839**

(Synonym – *Celaenopsis cuspidata* (Kramer 1876))

Celaenopsis cuspidata, no V1223 – 1F

***Pleuronectocelaeno austriaca* Vitzthum, 1926**

Celaenopsis (Anoplocelaeno) austriaca, no V1222 (Holotype)

Willmann Collection

Sejidae Berlese, 1895

***Sejus togatus* C.L. Koch, 1836**

Sejus togatus, no 36/26 – 1M

Dwigubskyia togata, no 36/30 – 1M, 2?

Dwigubskyia togata, no 36/32 – 1F

***Sejus* sp.**

Liroaspis spec., no 36/33 (HS 1/1) – 1?

Celaenopsidae Berlese, 1892

***Celaenopsis badius* C.L. Koch, 1839**

(Synonym – *Celaenopsis cuspidata* (Kramer 1876))

Celaenopsis cuspidata, no 4/3 – 2F, 1M

Celaenopsis cuspidata, no 4/4 – 3F

Woelke Collection

Sejidae Berlese, 1895

***Sejus togatus* C.L. Koch, 1836**

Liroaspis togatus, no 36/28 – 1D

Liroaspis togatus, no 36/29 – 1M

Liroaspis togatus, no 36/31 – 1F

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ROZTOCZE Z NADRODZIN SEJOIDEA, ANTENNOPHOROIDEA, CELAENOPSOIDEA I MICROGYNOIDEA (ACARI, MESOSTIGMATA) W KOLEKCJI ZOOLOGICZNEJ W MONACHIUM

Streszczenie. W pracy przedstawiono wykaz roztoczy z kilku rodzin stwierdzonych w Zoological Collection w Monachium. Po analizie materiału typowego dla kilku gatunków zaproponowano nowe synonimy, a ponadto wyszczególniono wszystkie holotypy i paratypy.

Słowa kluczowe: *Antennophorus*, *Celaenopsis*, *Microgynium*, *Microseius*, *Sejus*, *Pleuronectocelaeno*, kolekcja muzealna

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