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Objektyp: **Article**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society**

Band (Jahr): **67 (1994)**

Heft 3-4

PDF erstellt am: **12.07.2024**

Persistenter Link: <https://doi.org/10.5169/seals-402571>

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## Two new larval mites (Acari: Trombidiidae, Erythraeidae) from Switzerland

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Two new larval mites *Allothrombium reinholdi* n. sp. and *Erythraeus mariolae* n. sp. are described from Switzerland. *Allothrombium neapolitanum* OUDEMANS and *Hauptmannia wratislaviensis* HAITLINGER are new for the Swiss fauna. A key to larval *Allothrombium* species is provided.

Keywords: Acari, Trombidiidae, Erythraeidae, *Allothrombium*, *Erythraeus*, *Hauptmannia*, Switzerland, new species, new records.

### INTRODUCTION

To date, 11 species of larval species of *Allothrombium* BERLESE have been described. All species are ectoparasites of aphids or, rarely, other insects. From Europe are known: *A. fuliginosum* (HERMANN, 1804), *A. neapolitanum* OUDEMANS, 1910, *A. recki* FEIDER & AGEKIAN, 1967, *A. monspessulanum* ROBAUX & AESCHLIMANN, 1987, and *A. pulvinum* EWING, 1917 (OUDEMANS, 1912; FEIDER & AGEKIAN, 1967; ROBAUX & AESCHLIMANN, 1987; ZHANG, 1992; ZHANG & XIN, 1992). In this paper, *A. reinholdi* n. sp. is described from Switzerland.

The species belonging to the genus *Erythraeus* LATREILLE in larval stage are ectoparasites of Homoptera. Eleven species of this genus based on larvae are known from Europe: *E. kuyperi* OUDEMANS, 1910, *E. adrastus* (SOUTHCOTT, 1961), *E. kresnensis* BERON, 1982, *E. bulgaromontanus* BERON, 1982, *E. rilensis* BERON, 1982, *E. styriacus* TURK, 1981, *E. jowitae* HAITLINGER, 1987, *E. gertrudae* HAITLINGER, 1987, *E. elwirae* HAITLINGER, 1987, *E. monikae* HAITLINGER, 1987, *E. eleonora* HAITLINGER, 1987 (SOUTHCOTT, 1961; TURK, 1981; BERON, 1982; HAITLINGER, 1987b). The distribution of these species in Europe is not well known. Except for *E. kuyperi*, *E. adrastus* and *E. styriacus*, they were found only in Bulgaria or Poland. In this paper, the new species *E. mariolae* is described from Switzerland.

Larvae of the genus *Hauptmannia* OUDEMANS are associated mainly with Thysanoptera. In Europe, 10 species are known (HAITLINGER, 1986, 1987a, c). To date, only two species were found in Switzerland: *H. willmanni* SCHWEIZER, 1951, and *H. parvum* SCHWEIZER & BADER, 1963; recently, a third species, *H. wratislaviensis* HAITLINGER, 1986, was found.

The terminology of setal notation is adopted from SOUTHCOTT (1961, 1986, 1987). All measurements are given in  $\mu\text{m}$ . Holotypes are deposited in the Museum of Natural History, Wrocław University (MNHU).

## SYSTEMATICS

## Family Trombidiidae LEACH, 1815

*Allothrombium reinholdi* n. sp. (Figs 1-7)

Idiosoma distinctly longer than wide. Dorsum of idiosoma with scutum, scutellum, a pair of ocular sclerites and 16 setae. Scutum as in Fig. 2, wider as long, bearing barbed scutalae and sensillae; AL, PL and SE on distal part barbed. PL > AL > AM. Scutellum with very weakly visible margins, bears two barbed setae. Platelets around dorsal setae badly visible. Dorsal setae slightly curved and barbed; fD = 2-2-6-4-2 = 16. Two pairs of eyes placed at posterior angle of scutum; the anterior pair larger than posterior pair, ocular plate short (Fig. 1).

Ventral surface of idiosoma bears two barbed sternalae between coxae III; setae behind coxae III similar to dorsal setae but shorter and thinner; two setae at posterior margin of opisthosoma are shorter than the other ones. fV = 2-2-2-4-2 = 12. NDV = fD + fV = 28. Coxae I-II each bear two barbed setae, coxa III with single barbed seta; anterior coxala II is the longest (Fig. 3).

Gnathosoma as in Fig. 3; hypostomalae short, digital; palptibia with two short and nude setae and a single longer, barbed seta. Palptarsus bears two relatively long setae, slightly barbed, three short, nude setae and single solenidion (Fig. 4).

Leg I. Leg setal formula: Ta - 1 So, 2 Eu (eupathidia), 12 B; Ti - 2 So, 5 B; Ge - 2 So, 4 B; Fe - 5 B; Tr - 1 B. Leg II, Ta 1 So, 1 Fa, 12 B; Ti - 2 So, 5 B; Ge - 2 So, 1 Vs, 3 B; Fe - 4 B; Tr - 1 B. Leg III. Ta - 11 B; Ti - 5 B; Ge - 2 So, 3 B; Fe - 4 B; Tr - 1 B (Figs 5-7). Ip = 350 + 328 + 363 = 1041 (leg lengths were measured from the basal end of the trochanter (Tr) to the base of the pretarsal claws).

Measurements. Length of idiosoma 484, width of idiosoma 328, L ~ 116, W ~ 132, AW 76, PW 84, AMB 52, AP 34, MA 50, LN 14, ASB ~ 64, PSB ~ 52, AM 44, AL 52, PL 68, SE 62, MS 58, SB 46, DS 54-68, ocular plate 30, GL (length of gnathosoma measured between bases of palpcoxae and tip of chelicerae) 86, Ta I 98, Ti I 72, Ge I 44, Fe I 86, Tr I 50, Cx I 80, Ta II 94, Ti II 70, Ge II 42, Fe II 76, Tr II 46, Cx 76, Ta III 100, Ti III 86, Ge III 46, Fe III 82, Tr III 48, Cx III 76, coxala Ia (lower) 64, Ib (upper) 60, coxala IIa (anterior) 70, IIb (posterior) 60, coxala III 68, St III 56, PDS 50, OW 32, OL 70.

Material: Holotype, larva, Switzerland, Lugano, 16 June 1993, leg. R. HAITLINGER; in MNHWU.

Remarks. *A. reinholdi* n. sp. differs from other *Allothrombium* species having tarsus III with 3 normal claws, by a smaller number of dorsal setae and, except *A. neapolitanum*, by a greater number of ventral setae. For additional characters see key to *Allothrombium* species.

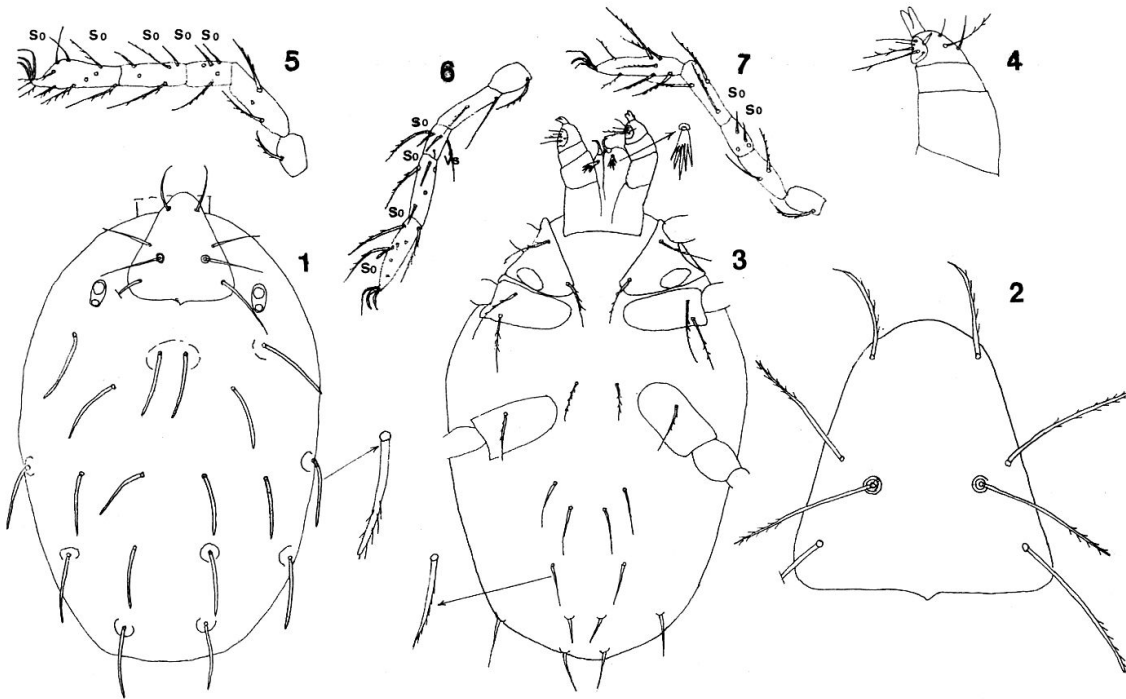
*Allothrombium neapolitanum* OUDEMANS, 1910

Material: Lugano, 1 larva, 16 June 1993, leg. R. HAITLINGER.

*Allothrombium fuliginosum* (HERMANN, 1804)

Material: Lugano, 12 larvae, 16 June 1993; Bad Ragaz, 2 larvae, 17 June 1993, all leg. R. HAITLINGER. This species is very common in Switzerland (SCHWEIZER & BADER, 1963).

Remarks: One specimen from Bad Ragaz has a duplicate seta AL on scutum.



Figs 1-7. *Allothrombium reinholdi* n. sp.: 1, idiosoma, dorsal view. 2, scutum. 3, idiosoma, ventral view. 4, palp. 5, leg I. 6, leg II. 7, leg III.

Key to species of *Allothrombium* (larvae)

1. Tarsus III with normal claws ..... 2
- Tarsus III with reduced inner claw ..... 8
2. Scutellum with 2 pairs of setae ..... *A. monospessulanum*
- Scutellum with 1 pair of setae ..... 3
3. Ventral surface of idiosoma with 8 setae ..... 4
- Ventral surface of idiosoma with more than 8 setae ..... 6
4. AMB longer than 60  $\mu\text{m}$ , AW longer than 88  $\mu\text{m}$ , PW longer than 90  $\mu\text{m}$  ..  
..... *A. fuliginosum*
- AMB shorter than 60  $\mu\text{m}$ , AW shorter than 88  $\mu\text{m}$ , PW shorter than 90  $\mu\text{m}$   
..... 5
5. Genu I with 4 barbed setae ..... *A. pulvinum*
- Genu I with 3 barbed setae ..... *A. lerouxi*
6. Dorsum with 16 setae, NDV = 28 ..... *A. reinholdi* n. sp.
- Dorsum with 20 setae, NDV = 30-34 ..... 7
7. Ventral surface of idiosoma with 14 setae ..... *A. chanaanense*
- Ventral surface of idiosoma with 10 setae ..... *A. recki*
8. Coxa II with 1 seta ..... *A. epiphyllus*
- Coxa II with 2 setae ..... 9
9. NDV = 36 - 38, fD = 24 - 26 ..... *A. ovatum*
- NDV = 28 - 30, fD = 20 ..... 10
10. PL > 78, AP > 42, Ip > 1200 ..... *A. mali*
- PL < 78, AP < 42, Ip < 1100 ..... 11
11. Genua I-II with Vs seta, femur II with 5 setae ..... *A. neapolitanum*
- Genua I-II without Vs seta, femur II with 4 setae ..... *A. kekko*

Family Erythraeidae OUDEMANS, 1902

*Erythraeus mariolae* n. sp.

Idiosoma oval; dorsal surface with 48 weakly barbed setae, placed side by side in the medial row and at the posterior margin of idiosoma (Fig. 8). Scutum as in Fig. 9, with two pairs of long scutalae (PL are damaged), both barbed. Sensillae with faint distal setulae; PSE distinctly longer than ASE. In median line cuticular folds are visible. A few wrinkles are situated on the upper side of scutum. Both sides of scutum with two pairs of eyes.

Ventral side of idiosoma behind coxae III with 15 slightly barbed setae; between coxae I-III are two pairs of barbed sternalae, of them St I are distinctly longer than St III. Coxae I-III each with barbed seta; coxala I more than twice as long as coxala II, but less than twice as long as coxala III (Fig. 10), fV = 15, NDV = 63.

Gnathosoma long, with two smooth hypostomalae. Palp on femur and genu with barbed setae, which are equal in length. Tibia with shorter, barbed setae. Tarsus with two relatively long setae, two short setae (all smooth) and solenidion (Fig. 11).

Leg I. Leg setal formula: Ta - 1 So, 1 Fa, 2 N, 21 B; Ti - 2 So, 1 Cp, 1 Vs, 14 B; Ge - 1 So, 1 Vs, 8 B; Tf - 5 B; Bf - 3 B; Tr 1 B. Famulus placed proximally to SoTa (Figs 12-13); VsGe and VsTi placed relatively far from So.

Leg II. Ta - 1 So, 1 N, 19 B; Ti - 2 So, 15 B; Ge - 1 Vs, 8 B; Tf - 5 B; Bf - 3 B; Tr - 1 B (Fig. 14).

Leg III. Ta - 1 N, 22 B; Ti - 1 So, 14 B; Ge - 8 B; Bf - 5 B; Tf - 3 B; Tr - 1 B (Fig. 15). Ip = 1194 + 1082 + 1378 = 3654.

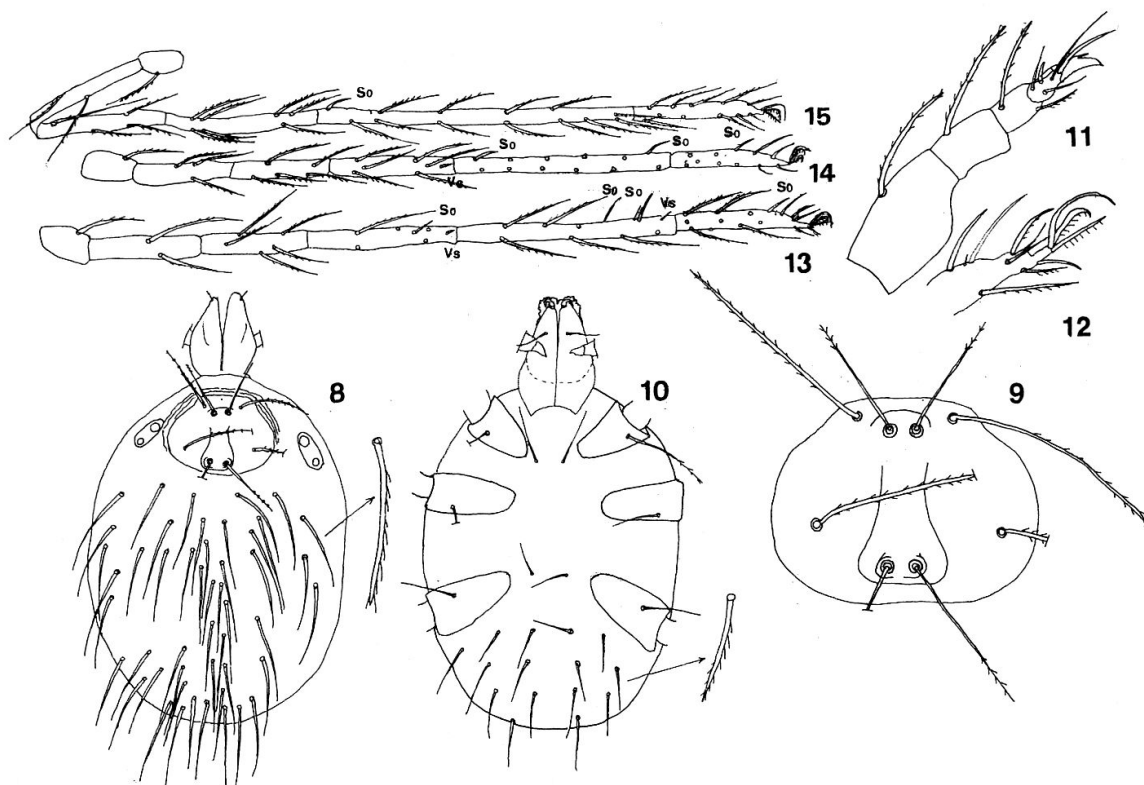
Measurements. Length of idiosoma 560, width of idiosoma 416, L 124, W 172, AW 54, PW 106, SBa 14, SBp 20, ASBa 22, ISD 78, AP 68, AL ~ 140, PL damaged, ASE 78, PSE 108, DS 94-146, St I 90, St III 52, Coxala I 140, Coxala II 64, Coxala III 84, GL 168, PaScFed 76, PaScGe 76, Hy 46, Ta I 190, Ti I 344, Ge I 236, Tf I 164 Bf I 174, Tr I 86, Cx I 92, Ta II 170, Ti II 342, Ge II 192, Tf II 152, Bf II 152, Tr II 74, Cx II 110, Ta III 192, Ti III 480, Ge III 234, Tf III 194, Bf III 198, Tr III 80, Cx III 130.

Material: Holotype, larva, Switzerland, Bad Ragaz, 17 June 1993, from plants, leg. R. HAITLINGER; in MNHWU.

Remarks. *E. mariolae* n. sp. belongs to the species with very long legs I-III; Ti III is more than 420 nm long (see key in HAITLINGER, 1987b). It is especially similar to *E. jowitae* HAITLINGER, but differs from it by the distance between ASE and PSE (14 to 20 and 16 to 16), the lack of the duplex pair of solenidia on Ti I, less numerous ventral setae (fV = 19 to 25-28), the shape of scutum and Ip (3654 to 3176-3388). From *E. elwirae* HAITLINGER and *E. monikae* HAITLINGER, it differs by shorter Ti III, Ta III, PW and other details.

*Hauptmannia wratislaviensis* HAITLINGER, 1986

Material: Near Col San Bernardino, ~ 1700 m a.s.l., 17 June 1993, leg. R. HAITLINGER. Species known only from Poland and Iceland; new for the fauna of Switzerland.



Figs 8-15. *Erythraeus mariolae* n. sp.: 8, idiosoma, dorsal view. 9, scutum. 10, idiosoma, ventral view. 11, palp. 12, tarsus I. 13, leg I. 14, leg II. 15, leg III.

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(received May 5, 1994; accepted after minor revision August 30, 1994)