

Two new larval Trombidiidae of the genus *Podothrombium* Berlese, 1910 (Acari: Prostigmata) from Hungary

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Abstract

Two new larval Trombidiidae (Acari) of genus *Podothrombium* BERLESE, are described from Budapest, Hungary, i.e. *Podothrombium pannonicum* n.sp., collected from a larva of *Hyadaphis foeniculi* (Aphidoidea) taken from a shrub *Symphoricarpos orbicularis* (Caprifoliaceae), and *P. exiguum* n.sp. found associated with an aphid, *Roepkea marchali* on a shrub *Prunus mahaleb* (Rosaceae). A key to the larvae of genus *Podothrombium* is provided.

Key words: Taxonomy. New species. Larval Trombidiidae. Association. Aphids. Hungary.

Résumé

Les larves de deux espèces nouvelles du genre *Podothrombium* BERLESE sont décrites de Budapest, Hongrie, ce sont: *P. pannonicum* n.sp. récolté sur une larve d'aphidé, *Hyadaphis foeniculi*, parasitant une plante *Symphoricarpos orbicularis* (Caprifoliaceae) et *P. exiguum* n.sp. trouvé en association avec des aphidés *Roepkea marchali*, parasitant *Prunus mahaleb* (Rosaceae)

Mots-clés: Taxinomie. Nouvelle espèce. Larve de Trombidiidae. Association avec aphidés. Hongrie.

Introduction

The genus *Podothrombium* BERLESE, 1910 has been created for *Trombidium filipes* C.L. KOCH, 1837.

THOR and WILLMANN (1947), in a revision of this genus, recognized the validity of 16 species, of which 15 species represented only from the adult stages and one species described from the larval stage, i.e. *P. svalbardense* OUDEMANS, 1930.

Since the paper of Thor and Willmann several other species have been described from adult forms and 12 species from the larval stages. Most of these larvae were found on plants, some on aphids. The two new species that we describe here were collected by the junior author, one from an aphid larva, the other from a shrub heavily parasitised by aphids.

It is the first time that larvae of genus *Podothrombium* are recorded from Hungary. However adults and nymphs of this genus had already been recorded from this country by Gabrys and Makol (1996), they belonged to the following species: *P. filipes* (C.L. KOCH, 1837), *P. hispanica* ROBAUX, 1967 and *P. macrocarpum* BERLESE, 1910

Abbreviations: IRSNB = Institut royal des Sciences naturelles de Belgique.

Measurements in micrometers (μm).

FAMILY TROMBIDIIDAE

Genus *Podothrombium* BERLESE, 1910
Podothrombium pannonicum n.sp.

Larva, holotype (figs 1-7): Standard data: see table 1. Holotype strongly flattened. Idiosoma 510 long and 350 wide. *Dorsum*: Anterior shield finely punctate, with a faint pattern in its middle. Sensillae very thin and smooth. There are 35 thick and setulose setae, 45-60 long, placed on rounded raised papillae and arranged in rows with 6-8-6-6-2-4-3 setae. *Venter*: With 1 pair of setae between coxae III and 19 opisthogastric setae; these setae are thinner and shorter (39-46) than dorsal setae. All these setae are setulose. NDV 54. Coxae I-III with 2-1-1 setae, the setae of coxae II are 55-60 long, they have long setules. Urstigma large, rounded and with thick walls. *Gnathosoma* 87 long, 65 wide at its base, with 2 pairs of hypostomal setae. Palps thick; femur and genu with 1 dorsal setulose seta; tibia with an apical curved spine (claw), a smaller dorsal spine close to the claw and 2 stout setae of which 1 setulose; tarsus in apico-ventral position bearing 8 setae and 2 solenidia (figs 3-4). *Legs* with 6 segments. Tarsus I much thicker than tarsi II and III. Chaetotaxy (number of setulose setae): Trochanters 1-1-1, Femora 5-4-4, Genua 4-3-3, Tibiae 5-5-5, Tarsi 35 to 38-20-20. Ip 1296. *Specialized smooth setae*: *Eupathidia*: these setae are long, cylindrical, smooth and not striated transversely. There are 14 of these setae at one side and 16 at the other side of tarsi I; they are concentrated on ventral surface of tarsi I.

Table 1. — Standard data (in micrometers) for the larvae of *Podothrombium pannonicum* n.sp. and *P. exiguum* n.sp.

Characters	<i>Podothrombium pannonicum</i>	<i>Podothrombium exiguum</i>				
	Holotype	Holotype	Paratype n° 1	Paratype n° 2	Paratype n° 3	Mean
AM	57	52	48	51	48	49.7
AL	70	38	40	39	36	38.2
PL	60	45	48	46	48	46.7
SE	99	60	51	50	60	55.2
AMB	21	25	24	24	24	24.2
AW	80	63	60	63	60	61.1
PW	100	80	76	75	75	76.5
MA	75	54	51	48	54	51.7
AP	29	30	27	30	27	28.5
SB	48	36	36	39	36	36.7
SA	24	17	15	15	15	15.5
SP	24	29	25	27	26	26.7
L	150	110	105	111	112	109.5
W	99	84	81	82	87	83.5
L/W	1.5	1.3	1.29	1.39	1.28	1.31
PSW	49	58	48	63	60	57.2
PSL	35	36	31	-	30	32.3
QW	37	38	33	39	41	37.7
QL	54	42	39	40	43	41
PLN	29	17	18	-	19	18
DS	45-56	30-45	27-39	27-42	30-46	28.5-43
TaI	120	66	66	66	69	66.7
TaII	106	60	63	65	63	62.7
TaIII	115	72	69	75	75	72.7
TiI	81	54	54	60	57	56.2
TiII	69	48	45	51	54	49.5
TiIII	78	50	48	57	58	52.2
GeI	60	38	36	39	39	38
GeII	50	31	31	33	34	32.2
GeIII	51	36	39	40	42	39.2

Solenidia:

Cylindrical or cylindroconical and smooth setae with a fine transverse striation, they are exclusively dorsal. Tarsi I and II with 2 solenidia each. A famulus is present on tarsus II. *Lengths of solenidia:* ω Ia 18; ω Ib 25; ω IIa 20; ω II b 18; φ Ia 23; φ Ib 19; φ IIa 19; φ IIb 18; σ Ia 18; σ Ib 23; σ II 20; σ III 18.

Host and locality:

Holotype and only known specimen collected from a larva of the aphid *Hyadaphis foeniculi* (Passerini, 1860) (Homoptera: Aphidoidea), plant host: *Symphoricarpos orbiculatus* MOENCH (Caprifoliaceae) (= Snowberry). Locality: Budapest XI district, Arboretum of University of Horticulture and Food Industry (3 June 1994 n° slide 714). Holotype in IRSNB.

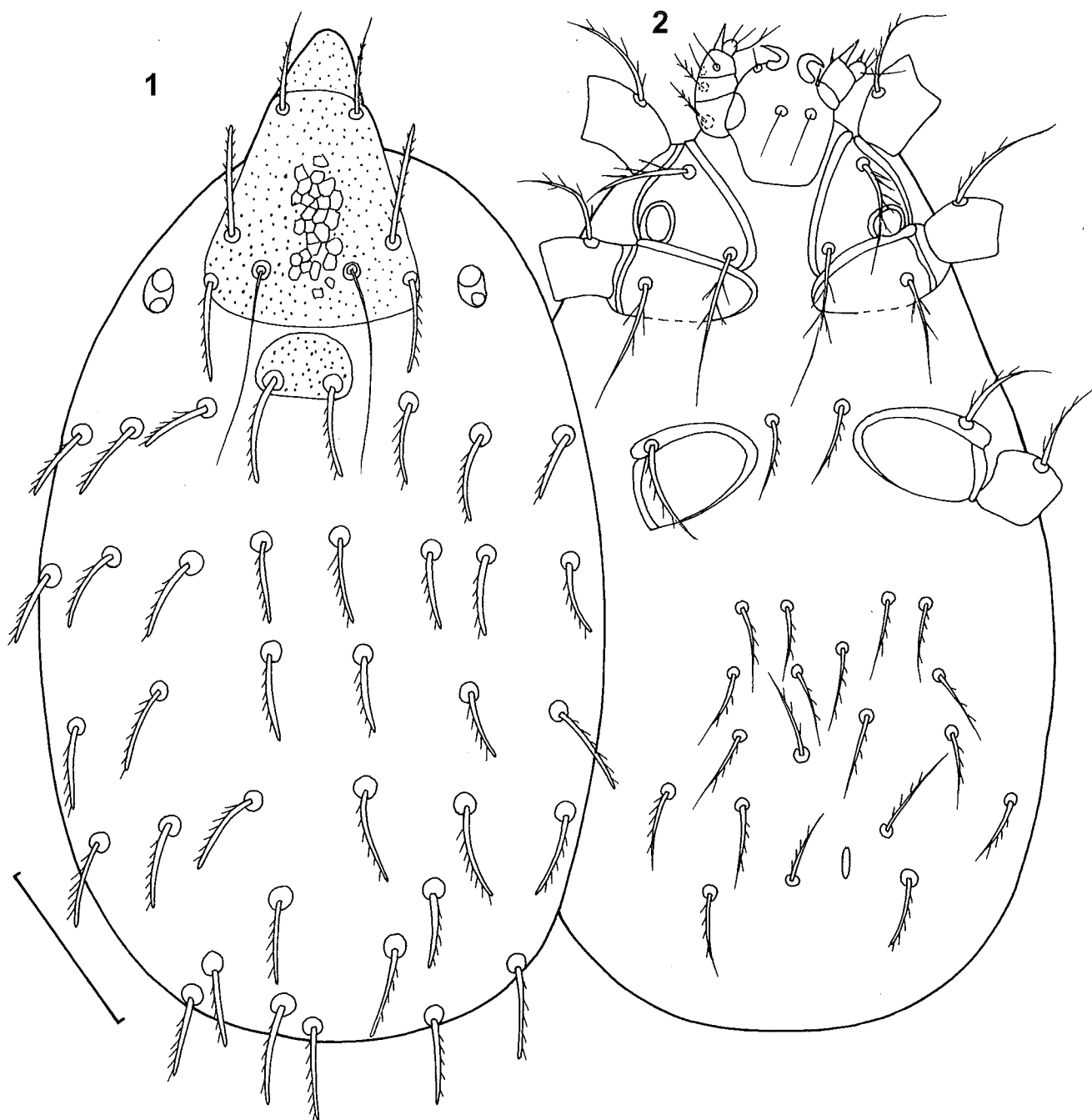
Remarks:

P. pannonicum is well characterized by the combination of the following features: First row of dorsal setae with 6

setae, only 19 opisthogastric setae, NDV 1296; anterior dorsal setae, only 19 opisthogastric setae, NDV 1296; anterior shield 1.5 times as long as wide, SE 99, tarsi I with 2 solenidia, 14 to 16 eupathidia and 35-38 setulose setae. (See the key, and table 1.)

Podothrombium exiguum n.sp.

Larva, holotype (figs 8-14): Standard measurements: see table 1. Idiosoma 370 long and 200 wide, in 3 paratypes these measurements are (L and W): 381 x 210, 420 x 240 and 450 x 300. *Dorsum:* Anterior shield punctate. Sensillae smooth, very thin. There are 38 dorsal setae relatively thick, shortly setulose and arranged in 6 rows of 4-8-8-8-6-4 setae; these setae are placed on small raised papillae. *Venter:* Coxae with 2-1-1 setae; those of coxae I and II with a few long setules; anterior coxal seta 45 long. Opisthogaster with 27 setae 20-35 long, the posterior setae distinctly longer and stronger than anterior ones. An uropore has not been observed. NDV 65. *Gnathosoma*



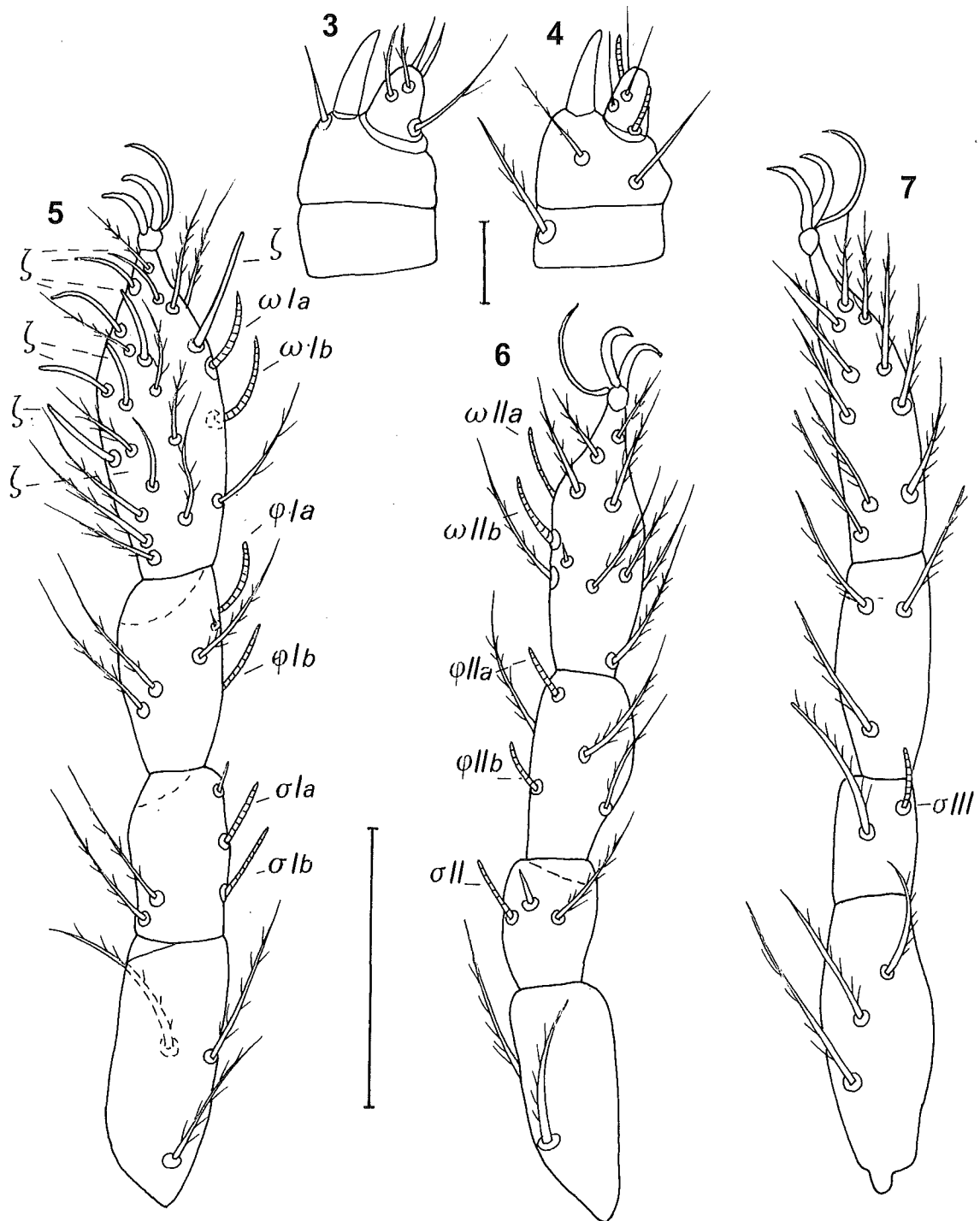
Figs. 1-2 – *Podothrombium pannonicum* n.sp. Larva in dorsal (1) and ventral (2) view. Scale line 100 μ m

78 long and 74 wide. Palps 48 long and 20 wide; femur and genu with 1 dorsal smooth seta; tibia with a thick apical slightly curved spine (claw), a thin preapical dorsal spine and 2 smooth setae; tarsus with 8 setae of which 2 setulose, 1 bifid and 5 smooth, and 2 solenidia (figs. 10-11). Legs with 6 segments, Ip 932. Tarsus I not inflated *Chaetotaxy of legs* (number of setulose setae): Trochanters 1-1-1-, Femora 5-4-4, Genua 4-4-4, Tibiae 5-5-5, Tarsi 14-14-14. *Specialized smooth setae: Eupathidia*: Tarsi I with 1 apical (10) and 1 preapical (38) eupathidium. *Solenidia*: Tarsi I and II each with only one sole-

nidium: ω I 37; ω II 21; ϕ Ia 22; ϕ Ib 22; ϕ IIa 18; ϕ IIb 16; σ Ia 22; σ Ib 24; σ II 21; σ III 21.

Host and locality:

Holotype and 15 paratypes, all larvae, found in association with aphids *Roepkea marchali* (Börner, 1931) (Homoptera, Aphidoidea). Plant host: *Prunus mahaleb* L. (Rosaceae) (Saint Lucie Cherry), (19 May 1993), from Budapest II district, woods (Nature Conservation area). The aphid infestation of the plant was very severe. Holotype and 6 larvae in the collection of IRSNB; 9 para-



Figs. 3-7 – *Podothrombium pannonicum* n.sp. Larva. Palp in ventro-lateral (3) and dorso-lateral (4) view. Legs I (5), II (6) and III (7) in lateral view. Scale lines 10 μ m (figs 3-4) and 100 μ m (fig 5-7)

types (on one slide) in the collection of the Hungarian Natural History Museum Budapest.

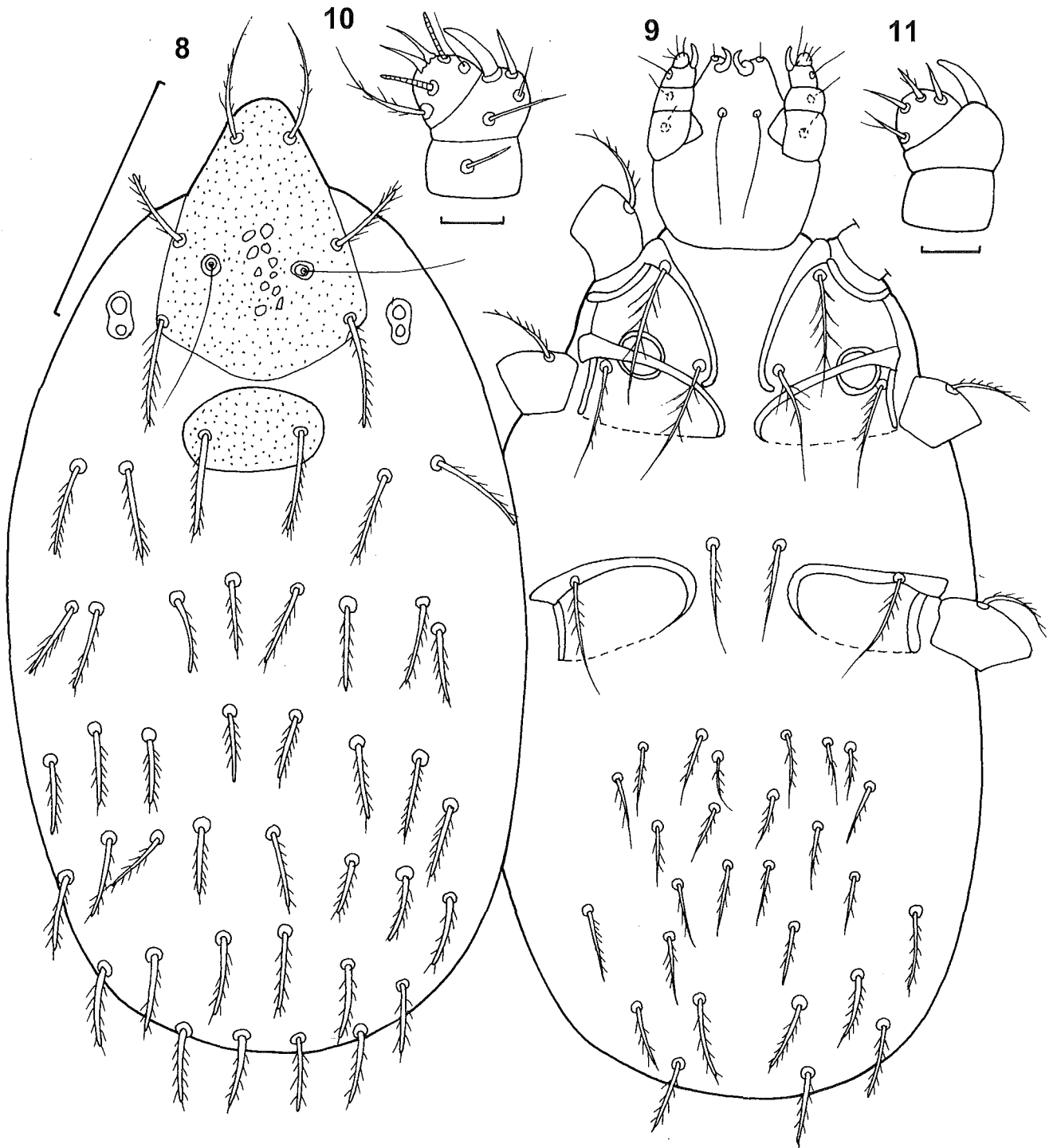
Remarks:

This new species differs clearly from all other described species by the following characters: short legs (Ip 932), small number of setae in first row of dorsal setae (only 4), normal number of eupathidia (only 2) and of setulose

setae (14) on tarsus I, smaller length of dorsal setae (DS 30-45), shorter AL, PL, SE, AW, MA, PW, L, W.

Arrangement of the anterior dorsal setae in *Podothrombium* species (larvae)

The number and arrangement of the anterior setae of the



Figs. 8-11 — *Podothrombium exiguum* n.sp. Larva in dorsal (8) and ventral (9) view. Palp in dorso-lateral view (10) and ventro-lateral view (11). Scale lines 100 μm (figs 8-9) and 10 μm (figs 10-11)

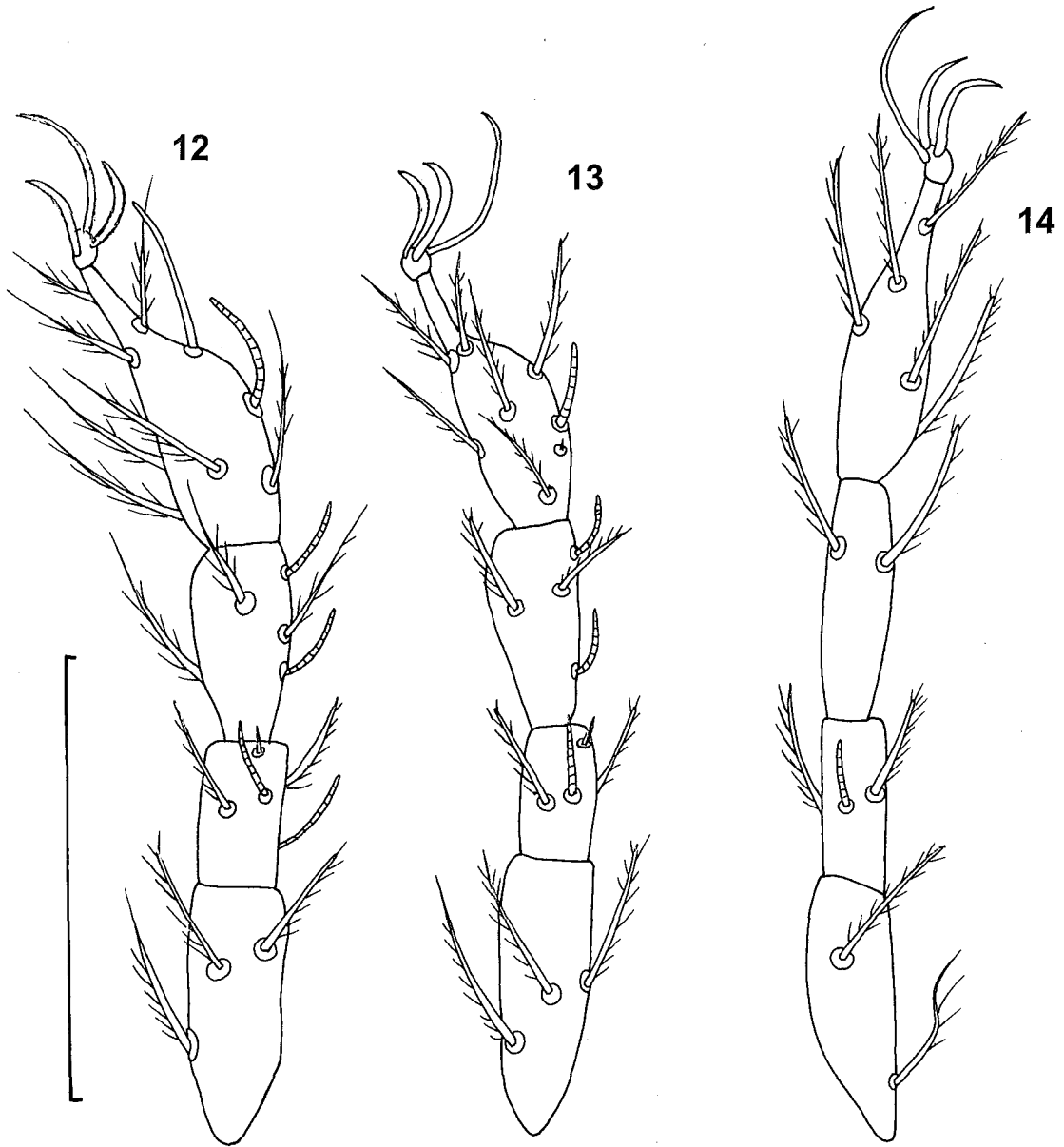
dorsum in the genus *Podothrombium* are important characters that allow to divide this genus into 2 groups of species:

In group I, the 2 anterior transverse rows of dorsal setae are very close to each other, they are irregular and overlap frequently and they include 16 to 22 setae. This group comprises 7 species.

In group II, the 2 anterior transverse rows of setae are

widely separated from each other and the first row is regular and consists of 4 to 10 setae. This group includes 8 species.

We give here a tentative key of the genus *Podothrombium*. Some of the measurements given in this key or in table 1. were not mentioned in the original descriptions and we have calculated them from the original figures or scales.



Figs. 12-14 – *Podothrombium exiguum* n.sp. Larva. Legs I (12), II (13) and III (14). Scale line 100 µm.

**Tentative key to the genus *Podothrombium*
(Larvae)**

- 1. The 2 antero-dorsal rows of setae very close to each other, irregularly arranged and frequently overlapping; they include a total of 16-22 setae 2 (Group I)
- The 2 antero-dorsal rows of setae widely separated and the first row regularly arranged and including 4-10 setae 8 (Group II)
- 2. Ip 2290; L 236; NDV 96; DS 90-120; the 2 antero-dorsal rows of setae include a total of 16 setae *P. shellhammeri* ROBAUX, 1977

- Ip 1136-1670; L 132-200; NDV 75-139; DS 40-79; the 2 antero-dorsal rows include a total of 16-22 setae 3
- 3. Ip 1136-1145; L 140-148; NDV 90-139 4
- Ip 1520-1670; L 150-200; NDV 75-120 5
- 4. NDV 90; 28 opisthogastric setae; Ip 1136; L 140; W 147; L/W 0.97; the 2 antero-dorsal rows with 22 setae in total *P. crassicristatum* Feider, 1968
- NDV 139; 60 opisthogastric setae; Ip 1145; L 148; W 114; L/W 1.3; 2 antero-dorsal rows with 20 setae in total *P. piriforme* ROBAUX & SCHIESS, 1982

5. L 200; W 140; L/W 1.42; NDV 120; the 2 antero-dorsal rows with a total of 22 setae; Ip 1520
..... *P. svalbardense* Oudemans, 1930
- L 150-180; W 104-150; NDV 75-94; the 2 antero-dorsal rows with 16-20 setae in total; Ip 1524-1670 6
6. L 150 and W 110 (calculated from the original figures); L/W 1.36; DS 40-60; PW 98-110; SB 41-48; NDV 75-83; the 2 antero-dorsal rows with 16 setae in total; Ip 1601-1670; tarsus I with 1 solenidion and 11-18 eupathidia
..... *P. sylvicolum* Zhang & JENSEN, 1995
- L 160-180; W 104-150; NDV 86-94; the 2 antero-dorsal rows with 16-20 setae in total; Ip 1524-1528 7
7. L 160; W 104; L/W 1.54; PW 90; SB 42; tarsus I with 1 solenidion and 4-8 eupathidia
..... *P. kordulae* HAITLINGER, 1995
- L. 180; W 150; L/W 1.20; PW 120; SB 60; tarsus I with 2 solenidia and 7 eupathidia *P. rigobertae* Haitlinger, 1995
8. First row of dorsal setae with 4 setae; Ip 932; NDV 65; L 110; AL 38; PL 45; tarsus I not inflated, with 14 setulose setae, 1 solenidion and 2 eupathidia
..... *P. exiguum* n.sp.
- First row of dorsal setae with 6-10 setae; Ip 1296-2120; NDV 54-84; L 140-202; AL 60-82; L 60-88; tarsus I with 15-38 setulose setae, 1 or 2 solenidia and 7-16 eupathidia 9
9. Ip 1996 or 2120; opisthogaster with 32-39 setae; NDV 69-76; first row of dorsal setae with 8 setae 10
- Ip 1296-1678; opisthogaster with 19-39 setae; NDV 54-84; first row of dorsal setae with 6-10 setae ... 11
10. Ip 1996; opisthogaster with 32 setae; NDV 69; tarsus I with 30 setulose setae, 2 solenidia and 10 eupathidia *P. tymoni* HAITLINGER, 1994
- Ip 2120; opisthogaster with 39 setae; NDV 76; tarsus I with 33 setulose setae, 1 solenidion and 12 eupathidia *P. dariae* HAITLINGER, 1995
11. First row of dorsal setae with 6 setae; Ip 1296; NDV 54; opisthogaster with 19 setae; 35 dorsal setae; L/W 1.5; tarsus I with 33-38 setulose setae, 2 solenidia and 14-16 eupathidia *P. panonicum* n.sp.
- First row of dorsal setae with 7-10 setae; Ip 1402-1678; NDV 55-84; opisthogaster with 23-39 setae; dorsum with 32-46 setae; L/W 1.2-1.48; tarsus I with 15-30 setulose setae, 1 or 2 solenidia and 7-15 eupathidia 12
12. Ip 1402-1459; L 140-160; tarsus I with 1 or 2 solenidia 13
- Ip 1620-1678; L 174-178; tarsus I with 1 solenidion 14
13. Ip 1402; NDV 55; first row of dorsal setae with 7-8 setae; L 140; L/W 1.2; 32 dorsal setae 52-70 long; 23 opisthogastric setae; tarsus I with 25-30 setulose setae, 2 solenidia and 7-9 eupathidia
..... *P. protii* HAITLINGER, 1994
- Ip 1459; NDV 84; first row of dorsal setae with 9 setae; L 160; L/W 1.33; 46 dorsal setae 42-54 long; 39 opisthogastric setae; tarsus I with 15 setulose setae, 1 solenidion and 7 eupathidia
..... *P. paucisetarum* ZHANG & XIN, 1989
14. Ip 1678; first row of dorsal setae with 8 setae; L/W 1.34; tarsus I with 28 setulose setae, 1 solenidion, and 15 eupathidia *P. tersonderi* HAITLINGER, 1995
- Ip 1620; first row of dorsal setae with 10 setae; L/W 1.48; tarsus I with 16 setulose setae, 1 solenidion and 7 eupathidia *P. verae* Haitlinger, 1995

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