

A REVISION OF THE PALEARCTIC GENUS *COMETACARUS* (ACARINA : GLYCYPHAGIDAE), WITH DESCRIPTION OF A NEW SPECIES

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GENUS REVISED	ABSTRACT : The genus <i>Cometacarus</i> Zachvatkin is revised. Three species are known : <i>C. setosus</i> (Koch) from Germany, <i>C. smirnovi</i> Zachv. from the USSR and <i>C. rhodopensis</i> n. sp. from Bulgaria. A key to species is included.
RÉVISION DE GENRE	RÉSUMÉ : Une révision du genre <i>Cometacarus</i> Zachvatkin est présentée. On en connaît trois espèces : <i>C. setosus</i> (Koch) d'Allemagne, <i>C. smirnovi</i> Zachv. d'U.R.S.S. et <i>C. rhodopensis</i> n. sp. de Bulgarie. Une clé d'identification des espèces est établie.

The genus *Cometacarus* Zachvatkin, 1936, comprises rare and taxonomically poorly known species presently only known from a few European localities. The purpose of the present paper is to summarize our present knowledge of its taxonomy and to describe an additional species from Bulgaria.

Cometacarus Zachvatkin, 1936

ZACHVATKIN, 1936 : 265. Type species : *Cometacarus smirnovi* Zachvatkin, 1936 (nomen nudum) and 1941, by original and subsequent (ZACHVATKIN, 1941 : 306) designations.

Without a crista metopica.

Setae *vi* are separated from each other ; *ve* arise close together.

Some of the dorsal setae are 1.7 — 3 times longer than the body.

Tarsi without a pectinate subtarsal scale. No claws are present.

Ventral seta on femur I pectinated or modified into a great scale with sharp toothed margin.

Apodemes III have an anterior directed process.

Apical part of genu extended into a ventral point particularly conspicuous in male.

Cometacarus setosus (Koch, 1841)

Acarus setosus KOCH, 1841 : 3.

Glycyphagus setosus, OUDEMANS, 1907 : 60 (nec 1905 : 127).

Cometacarus setosus, ZACHVATKIN, 1936 : 265 ; 1941 : 309.

Cometacarus oudemansi, ZACHVATKIN, 1936 : 265 ; 1941 : 309, syn. n.

The type material of *C. setosus* is apparently lost and the description too incomplete. The most useful character given is that some setae on the hind margin of the body are three times longer than the body itself. KOCH (1841) also presented a good figure of the mite. OUDEMANS

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(1905) found a mite of which he wrote as "of having found back again the lost *Acarus setosus* of C. L. KOCH". Later (OUDEMANS, 1907) he came to the conclusion that this individual represents an undescribed species, for which he proposed a new name, *Glycyphagus pilosus* (presently considered as a species of *Glycyphagus*, but apparently never found again). At the same time OUDEMANS (1907) found several specimens of another species, presumably the true *Acarus setosus* of KOCH. He re-described the last mentioned species to much detail. (Under the name *Glycyphagus setosus* (C. L. Koch). Yet ZACHVATKIN (1936, 1941) who included *G. setosus* into his new genus *Cometacarus*, believed that the specimens examined by OUDEMANS (1907) represented a species different from *C. setosus* and proposed for them a new name, *C. oudemansi*. However, ZACHVATKIN did not see KOCH types nor OUDEMANS specimens. He also gave no reasons why he thought that they represent two different species. Our opinion therefore is that ZACHVATKIN's conclusion is poorly argued and the replacement of the names almost certainly unjustified. Also we had the opportunity to examine three specimens of *C. setosus* from OUDEMANS collection mentioned in his 1907 paper. Unfortunately, they are very poorly preserved, but we found no characters indicating that they are not conspecific with the species described by KOCH. We therefore consider ZACHVATKIN's species *C. oudemansi* as a synonym of *C. setosus*.

Cometacarus setosus was probably found only twice, always in Germany, in buildings, in debris under old hay.

Cometacarus smirnovi Zachvatkin, 1941

Cometacarus smirnovi, ZACHVATKIN, 1936 : 265 ; nomen nudum.
Cometacarus smirnovi, ZACHVAYKIN, 1941 : 308.

This species is only known from the USSR. It was found in the seeds of *Pastinaca sativa* in a warehouse.

1. Terminology of setae is according to GRIFFITHS (1977).

Cometacarus rhodopensis, new species (Fig. 1-5)

Material : Holotype (female), collected on 30th, May 1979 ; E. ANGELKOVA collector ; in collection of Institut of Zoology, Sofia, Bulgaria.

Paratypes (8 females + 4 males) ; the same data ; 5 ♀ + 3 ♂ in collection of Institut of Zoology, Sofia, Bulgaria ; 3 ♀ + 1 ♂ in collection of Institut of Food Industry, Prague, Czechoslovakia.

Habitat : Hay in mountainous hay-barn, 1 100 m above sea level.

Locality : South slopes of Rhodopi mountains, near Zlatograd, Bulgaria.

TAB. 1. — Length (in μm) of the body and body setae of *Cometacarus rhodopensis* n. sp.

	Holo-type	Paratypes													
		Females							Males						
Idiosoma	446	439	392	439	425	385	397	437	422	380	365	310	361		
Idiosoma +															
Gnat.	534	534	480	534	484	453	458	489	484	434	415	372	424		
ve	176	157	185	173	175	160	167	175	174	147	160	—	—		
vi	81	69	69	66	56	62	62	62	68	56	56	50	72		
se	173	166	148	166	157	174	174	195	186	175	174	150	173		
si	251	223	195	226	237	217	223	250	223	225	211	211	220		
sh	166	150	—	157	155	173	161	179	167	148	136	161	157		
h	251	245	210	235	248	292	292	248	229	248	248	192	235		
d ₁	298	289	270	308	347	310	341	347	310	322	304	242	314		
d ₂	283	314	245	308	312	310	335	345	316	385	310	300	323		
d ₃	581	609	—	634	620	638	638	660	—	630	625	525	—		
d ₄	911	—	785	—	925	744	744	900	—	—	830	—	879		
d ₅	267	229	220	—	254	—	272	—	229	223	254	168	220		
l ₁	267	267	232	273	291	280	310	279	267	260	267	229	267		
l ₂	273	273	—	270	298	262	298	291	267	273	—	236	—		
l ₃	424	440	308	471	477	412	496	477	458	—	—	360	—		
l ₄	352	323	283	326	322	332	353	360	322	304	—	279	315		
l ₅	675	675	612	—	676	—	—	—	527	670	—	—	659		

FEMALE (Holotype) : The body is oval, whitish cuticle dotted with small papillae.

Length and width of idiosoma : 446 μm and 250 μm respectively. Length of the whole body including chelicerae : 534 μm .

Dorsal side (Fig. 1) : All dorsal setae¹ densely pectinate. *d*₄ and *l*₅ are the longest setae, 1.7 and 1.3 times respectively longer than body. *vi* on

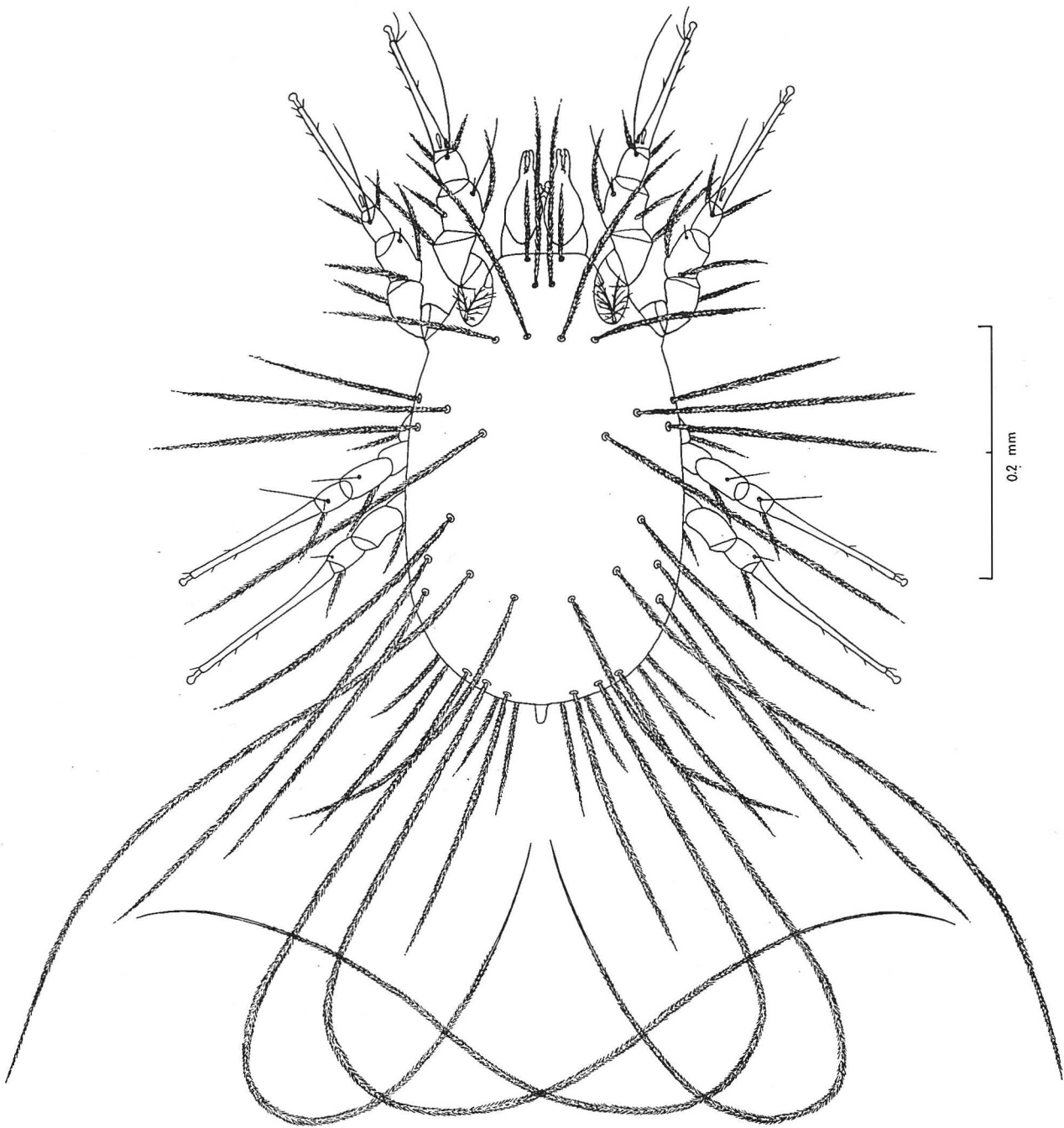


FIG. 1 : *Cometacarus rhodopensis* n. sp., female, dorsal side.

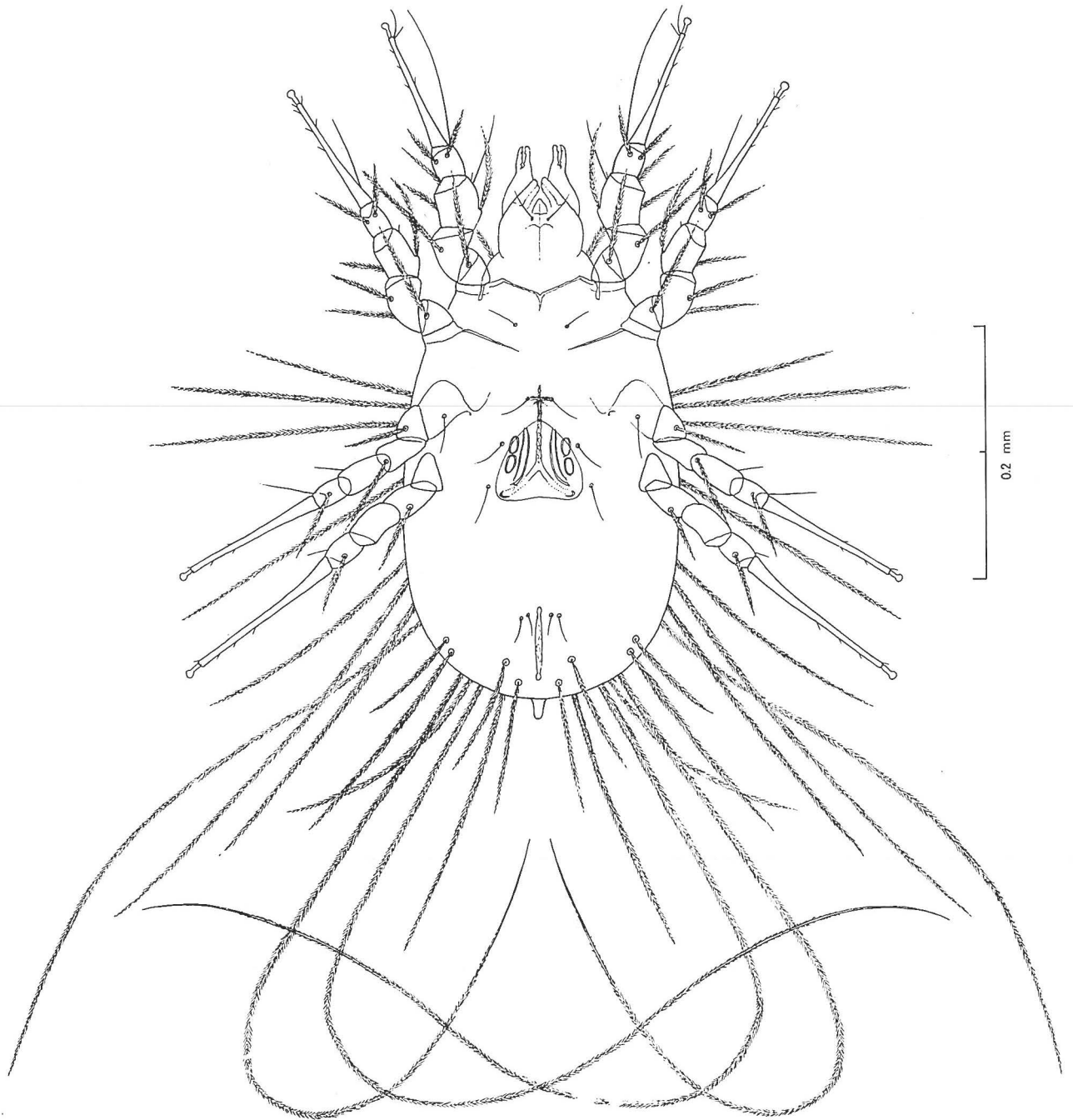


FIG. 2 : *Cometacarus rhodopensis* n. sp., female, ventral side.

the front margin of idiosoma, widely separated. *ve* behind *vi*, close to each other. *si* and *se* in transverse row across idiosoma. Supracoxal seta much branched bifid rod with short common stem. The bases of humeral setae (*sh*, *h*) and 1st lateral seta form a triangle on each side of idiosoma. There are 5 pairs of dorsal (*d*₁-*d*₅) and lateral (*l*₁-*l*₅) setae on dorsal side. *d*₁ are in the middle of the body, posterior to humeral setae. *d*₂ are shifted back, their bases and bases of *d*₃ in one transversal line. *d*₄ and *d*₅ on the hind margin of the body.

Ventral side (Fig. 2) : The apodemes of legs I meet to form a short sternum. Apodemes II well developed. Apodemes III and IV slender, apodemes III each have an anteriorly-directed process. The genital opening is between coxae III and IV. The genital folds are developed with two pairs of genital sense organs. Epigynum developed. Two pairs of genital setae lie on each side, the third pair of genital setae is inserted just before hind end of the genital opening. Two pairs of setae are on each side of the anterior end of the anus. A tubular bursa copulatrix projects from the hind margin of the body.

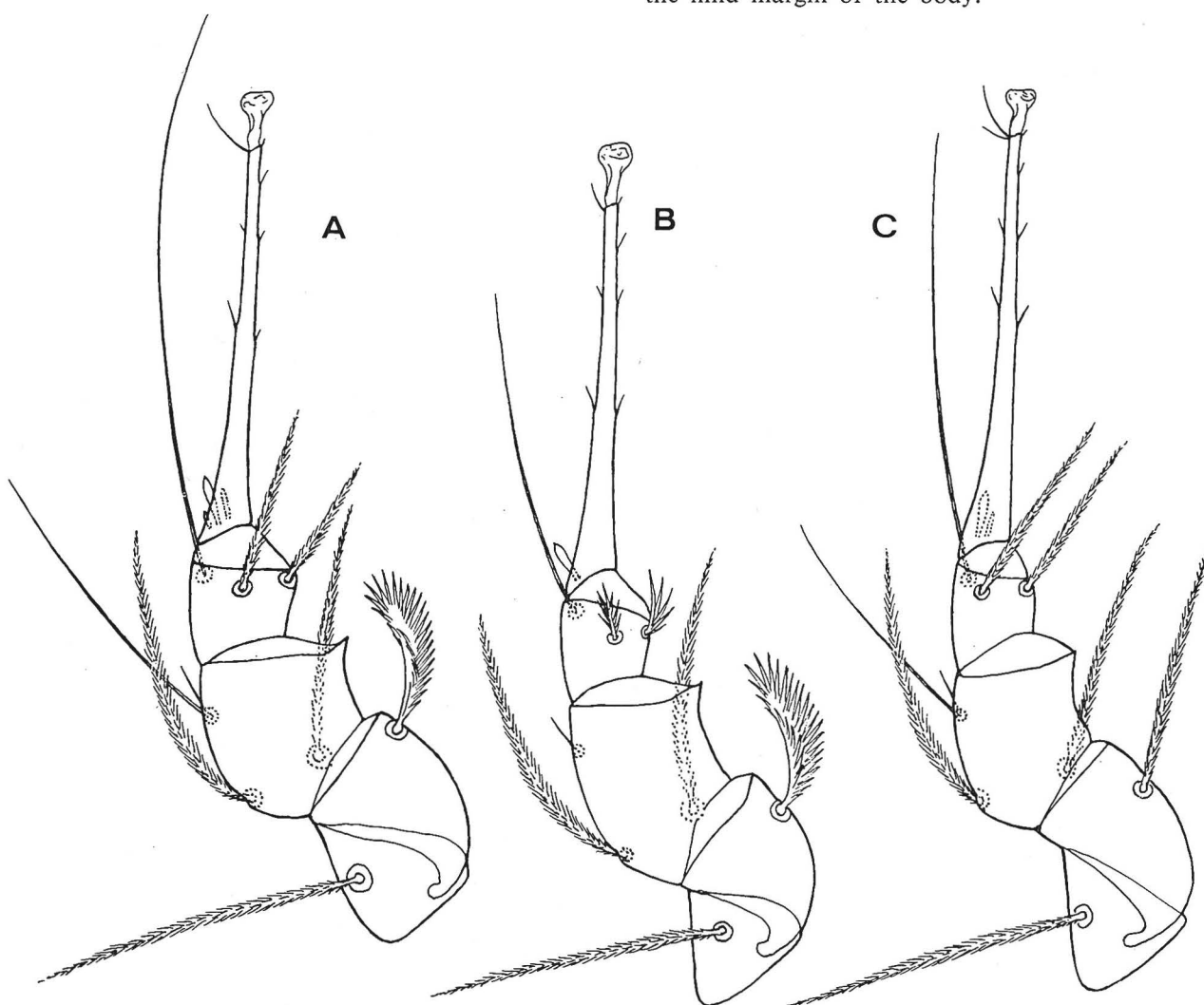


FIG. 3 A : *Cometacarus rhodopensis* n. sp., male, leg I.
 B : *Cometacarus rhodopensis* n. sp., leg II.
 C : *Cometacarus rhodopensis* n. sp., female leg I.

The chelicerae are slender, the movable limb bears 3 large teeth and 3 teeth are present on the fixed arm. A long interstice is between the first and the remaining two teeth.

Legs I (Fig. 3 C) : Tarsal setae are concentrated on the apical half of the tarsus. $\omega 1$ has a pointed end, $\omega 2$ is in a form of needle. Solenidion φ reaches apex of the tarsus. On the ventral side of tibia there are two pectinate setae. $\sigma 2$ on genu is 6 times longer than $\sigma 1$. Genu bears one ventral and one dorsal pectinate setae. Femur has one ventral pectinate seta.

II : Solenidion φ is shorter than the one on leg I, it reaches 2/3 of tarsus. $\sigma 2$ is shortened, $\sigma 1$ is missing. Others setae as on leg I.

III : $\omega 1$ and $\omega 2$ are missing. φ is shortened, it reaches 1/3 of tarsus. Tibia has one ventral pectinate seta. There is only $\sigma 2$ and one pectinate seta on genu. Femur has no setae.

IV : φ is very short, it reaches 1/7 of tarsus. Genu has no setae. Femur has one pectinate seta.

MALE (Fig. 4, 5) : Length and width of idiosoma : 355 μm and 250 μm respectively. Length of the whole body including chelicerae : 424 μm . The male differs from a female in the size of the body and in form of some setae on legs I and II.

Legs I (Fig. 3 A) : There is also famulus on tarsus, besides $\omega 1$ and $\omega 2$. φ is very long, it reaches over tarsus. $\sigma 2$ is 5 times longer than

$\sigma 1$. The pectinate seta on femur is modified into a great scale with sharp toothed margin.

II (Fig. 3 B) : φ is smaller, it reaches 2/3 of tarsus. Both pectinate setae on tibia are modified, they look like "shrubs". $\sigma 2$ is shortened, $\sigma 1$ is undersized. Seta on femur is alike the one on femur I.

The genital opening is situated between coxae IV. Epiandrium developed. One pair of setae lie on each side of the anterior end of anus.

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KEY TO THE *Cometacarus* SPECIES (Tab. 2)

- 1 (2) Small species. Length of the body of a male 200 μm , female 340 μm . *Ve* the same length as *si* and 1/3 longer than *se*. d_2 2.5 — 3 times shorter than d_3 . Pectinate setae on legs large, $\sigma 2$ on genu I, as long as tarsus I. A male without a toothed scale on femurs I and II.....
Cometacarus setosus (Koch)²
- 2 (3) Large species. A length of the body of a male 370-430 μm , female 450-530 μm . Male with a toothed scales on femurs I and II. d_2 1.5 — 2 times shorter than d_3 . $\sigma 2$ on genu I 1.7 — 2 times shorter than tarsus I.....

TAB. 2. — A comparison of key characters of the *Cometacarus* species.

Characters		<i>C. setosus</i>	<i>C. smirnovi</i>	<i>C. rhodopensis</i>
Length of the body	♂	200	400	410
in μm	♀	340	500	495
<i>ve</i>		1/3 longer than <i>se</i> as long as <i>si</i>	2 × shorter than <i>se</i> = × shorter than <i>si</i>	as long as <i>se</i> 1/3 shorter than <i>si</i>
l_1		as long as d_2	1.5 shorter than d_2	as long as d_2
d_2		3 × shorter than d_3	2 × shorter than d_3	3 × shorter than d_3
		2.5 × shorter than d_3	1.5 × shorter than d_3	2 × shorter than d_3
d_4		3 × longer than the body	2.5 × longer than the body	1.7 × longer than the body
sigma 2 on genu I		as long as tarsus	2 × shorter than tarsus	1.7 × shorter than tarsus

2. We had the opportunity to see material of *Glycyphagus setosus* (C.L.K.) 2 ♀, 1 ♂, from the OUDEMANS collection. All 3 specimens unfortunately have broken and lost almost all setae, one female is damaged. We could measure the length of idiosoma and body of 1 female and 1 male only. Male : length of idiosoma and body — 163 μm and 200 μm respectively ; female : 276 μm and 340 μm respectively.

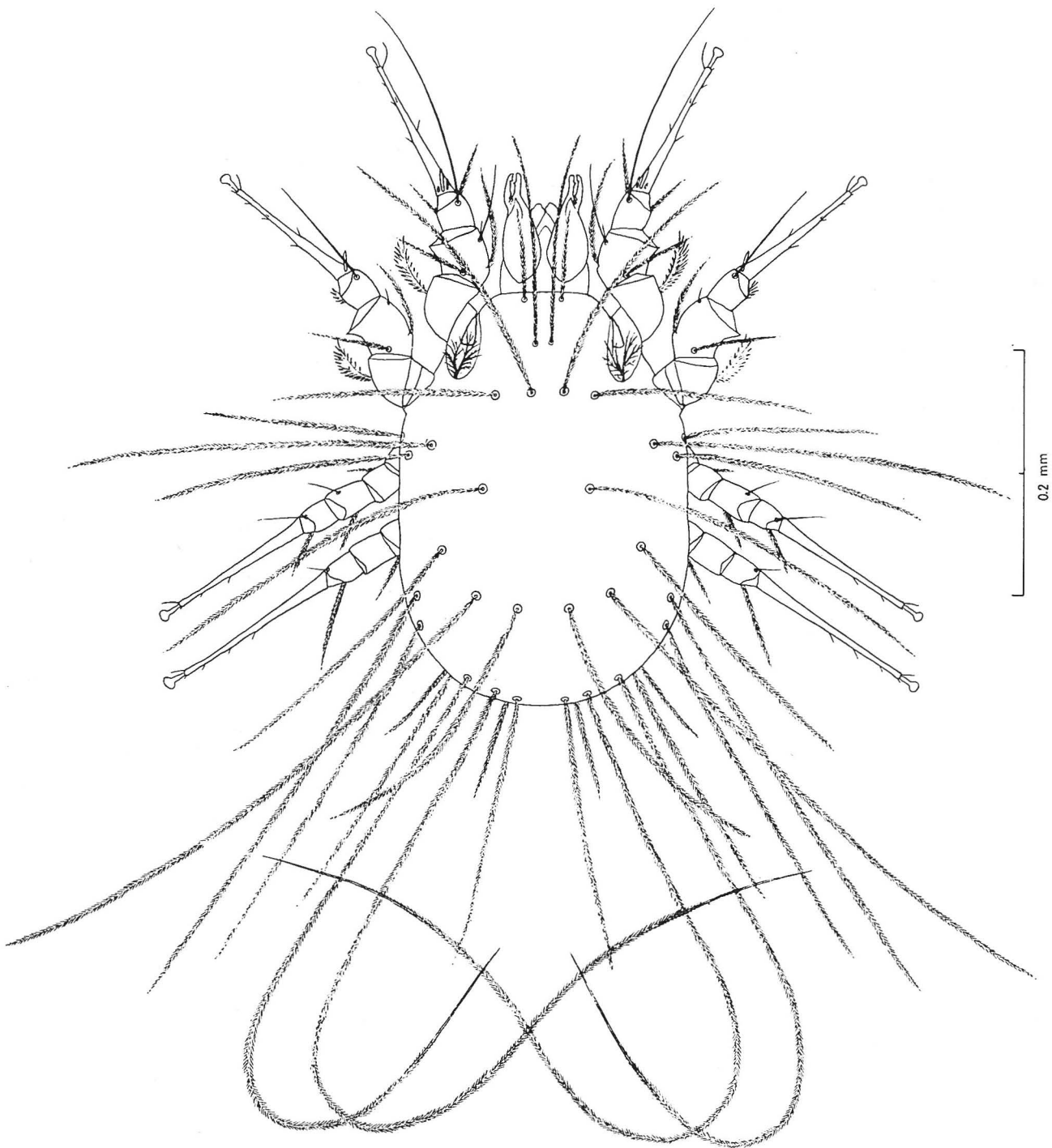


FIG. 4 : *Cometacarus rhodopensis* n. sp., male. dorsal side.

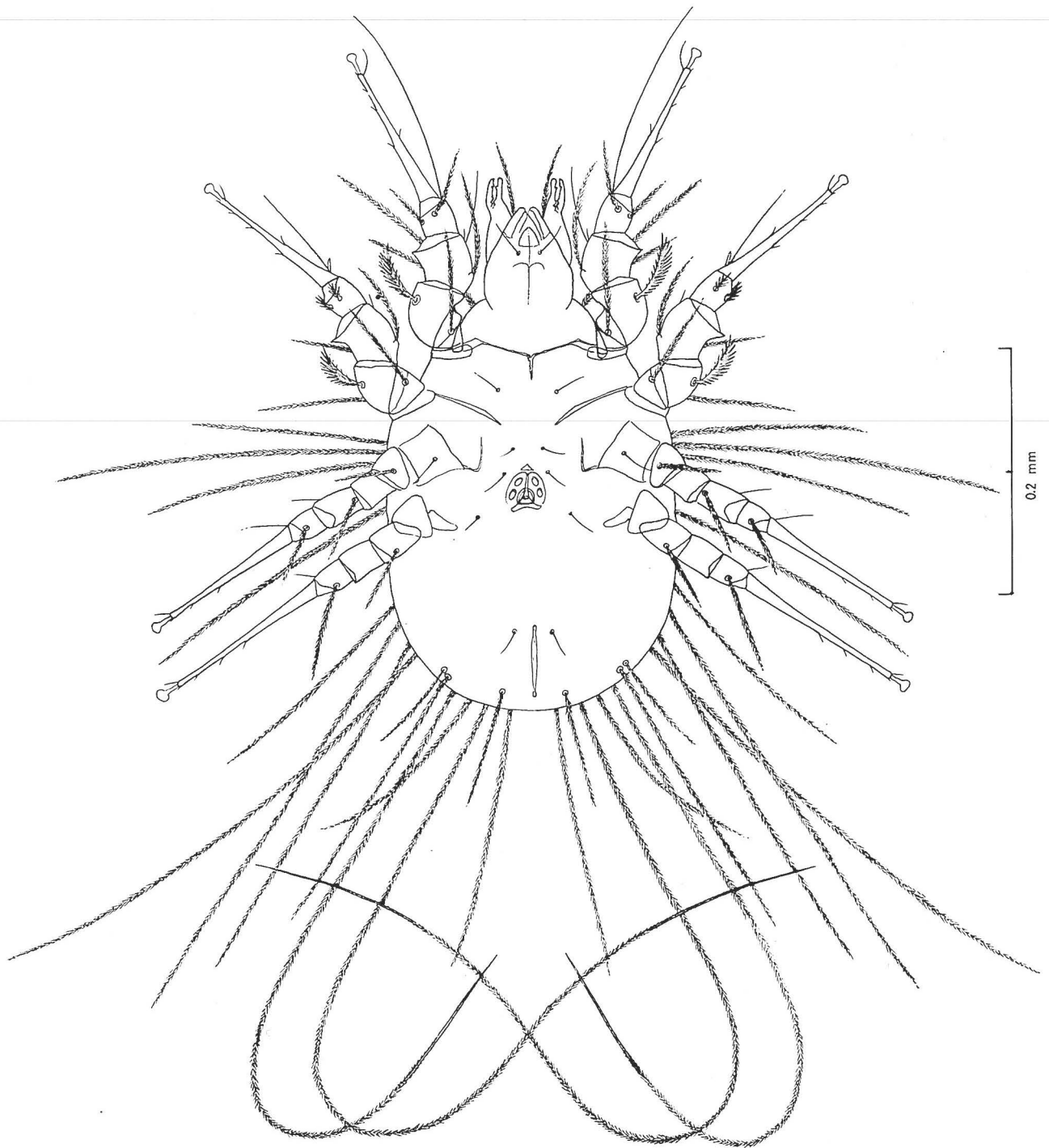


FIG. 5 : *Cometacarus rhodopensis* n. sp., male, ventral side.

- 3 (4) *Ve* 2 times shorter than *se* and 3 times shorter than *si*. ωI on tarsi I and II rounded. The genital folds of females with one pair of genital sense organs.....

Cometacarus smirnovi Zachvatkin

- 4 (3) *Ve* as long as *se* and 1/3 shorter than *si*. ωI on tarsi I and II with a pointed end. The genital folds of females with two pairs of genital sense organs..... ***Cometacarus rhodopensis*** n. sp.

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