

New and little known oribatid species from Kenya (Acari: Oribatida)

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Abstract. Two new (*Megazetes lineatus* and *Hypozetes stellifer* spp. nov.) and a little known oribatid species are described from different regions in Kenya. *Scapheremaeus hungarorum* Mahunka, 1986 described originally from Tanzania is reported first time from this country. The three species discussed belong to three different families of Oribatida: Microzetidae, Tegeribatidae and Cymbaeremaeidae, respectively. Some notes on the relationships of the new species and redescription of *S. hungarorum* are also given. With 10 figures.

INTRODUCTION

A series of papers has yet been published aiming to elaborate the oribatid fauna deriving from eastern part of Africa, mainly from Kenya (Mahunka & Mahunka-Papp, 2002, 2008, 2009). As a continuation of our work, here we discuss a material collected partly by the Hungarian researchers Dr. Cs. Csuzdi and Dr. T. Pócs and partly by the co-workers of the Musée d'Histoire naturelle Geneva Dr. V. Mahnert and J.-L. Perret in different regions of Kenya. This interesting material contained, among others, two new species belonging to two different oribatid families, viz. Microzetidae (*Megazetes lineatus* sp. n.), and Tegeribatidae (*Hypozetes stellifer* sp. n.).

Scapheremaeus hungarorum Mahunka, 1986 (family Cymbaeremaeidae) is described from Tanzania and here we report first time from Kenya. Our specimens slightly differ from the holotype of *S. hungarorum*, therefore we give a new description and some figures to help the further studies.

In this article, similarly to the previous ones (e.g. Mahunka & Mahunka-Papp, 2007, 2008), we mainly follow the system and terminology of Norton and Behan-Pelletier (2009), Weigmann (2006) and Subías (2010).

All the material examined are deposited in the

Hungarian Natural History Museum, Budapest (HNHM), and some paratypes and non-type specimens in the Muséum d'Histoire naturelle de Genève (MHNG).

LIST OF LOCALITIES

AFR-978 (HNHM): Kenya, Muguga, near of Nairobi, experimental forest station. Moss and bark from a primary forest patch. 20. 11. 2004. Leg. Cs. Csuzdi.

AFR-956 (HNHM): Kenya, Kikuyu Range, 49 km N of Nairobi. Gatamaiyu Forest, E of Kmende town. 2200 m. 18. 03. 2002. Leg. T. Pócs. (No 02044).

G-77/71 (MHNG): Kenya, Nakuru district, before Longonot, soil samples (roots from under shrubs on lava soil), alt. 200 m, 10. XI. 1977. Leg. V. Mahnert and J.-L. Perret.

DESCRIPTIONS OF THE SPECIES

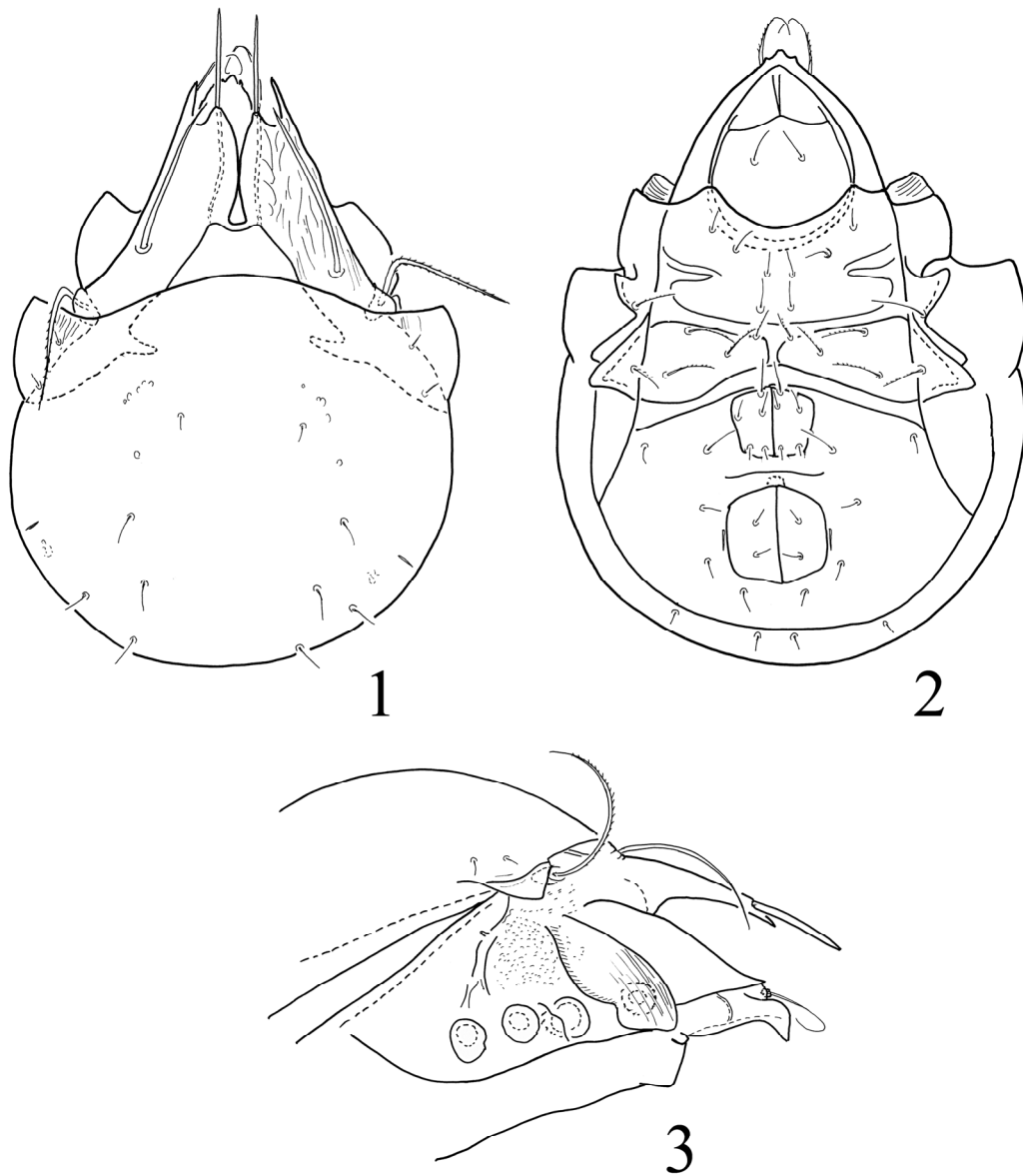
Megazetes lineatus sp. nov.

(Figs. 1–3)

Diagnosis. Rostrum narrow, beak-shaped in lateral view. Lamellae large touching medially, with long lateral, and much smaller median apices, latter's bearing spiniform lamellar setae. Lamellar surface ornamented by longitudinal ribs and lines. Interlamellar setae arising on the la-

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Figures 1–3. *Megazetes lineatus* sp. n. 1 = body in dorsal view, 2 = body in ventral view, 3 = podosoma in lateral view

mellar surface, very long. Sensillus long, directed postero-laterally. Dorsosejugal suture convex, pteromorpha small, triangular. Nine pairs of short notogastral setae present: Pedotectum I large, its surface distinctly lineate. Sejugal and 4. apodemes and borders well developed, composing transversal bands. Epimeral setae mostly long and thin. Genitoanal setal formula: 6 – 1 – 2 – 3.

Material examined. Holotype HNHM 1810-HO-2010. Kenya, Kikuyu Range, 49 km N of Nairobi. Gatamaiyu Forest, E of Kmende town. 2200 m. 18.03. 2002. Leg. T. Pócs. Paratype MHNG No. 02044 1 ex. Locality and dates same as those of the holotype.

Measurements. Length of body: 340–385 μm , width of body: 252–274 μm .

Prodorsum. Rostral apex small, nearly triangular, rostrum narrow, rostral apex arising comparatively near to each other on small tubercles. Lamellae large, touching anteromedially, connected medially with a curved translamella. Basal part of prodorsum free. Their outer cusps terminating in a long spine, inner cusp shorter and thicker than these, bearing spiniform lamellar setae (Fig. 1). Between two lamellar cusps a deep incision present. Lamellar surface with distinct, short, mostly longitudinal ribs. Rostral setae long, with filiform curved distal end. Interlamellar setae located on the lamellar surface, very long, setiform, reaching to the insertion of lamellar setae. Sensillus reclinate or directed outwards, covered by short barbs.

Notogaster. Dorsosejugal suture complete, but narrowed medially. Pteromorpha small, pointed at tip, inner part striate. No sculpture or pattern on the notogaster. Nine pairs of short, simple notogastral setae present.

Lateral part of podosoma. Rostral apex distinctly beak-shaped. Rostral setae arising on well developed tubercles (Fig. 2). Tutorium large, triangular. Pedotectum I large, convex dorsally, with lines or striae along its dorsal margin. Exobothridial surface distinctly punctate.

Ventral parts. Sternal apodemes reduced on epimeres I and II. All setae on them shorter than setae on epimeres II and III. Sejugal and 4. apodemes and borders well developed, connected by a short sternal apodema, both pair composing a thick transversal band. All setae in this epimeral region long, thin setiform. All genital setae – with exception of the anterior pair and aggenital one – short, simple. Their position as shown in Fig. 3.

Remarks. According to our opinion, this genus (*Megazetes* Balogh, 1959) is not closely related to *Microzetes* Berlese, 1913. The main differences are the form of the lamellae and presence of a translamella. Most of the *Megazetes* species were surveyed by Mahunka (1986, 1988). The new species is closest to *M. rugosus* Mahunka 1988, however, the interlamellar setae of the new species are very long and strong (very short in *rugosus*), the lamellar incisure of *lineatus* is wide (much narrower in *rugosus*), and furthermore, the dorsosejugal suture is complete in the new species (absent medially in *rugosus*).

Etymology. The new species is named after the lineate field of different parts the body, e.g. pedotecta I and pteromorphae.

***Scapheremaeus hungarorum* Mahunka, 1986**

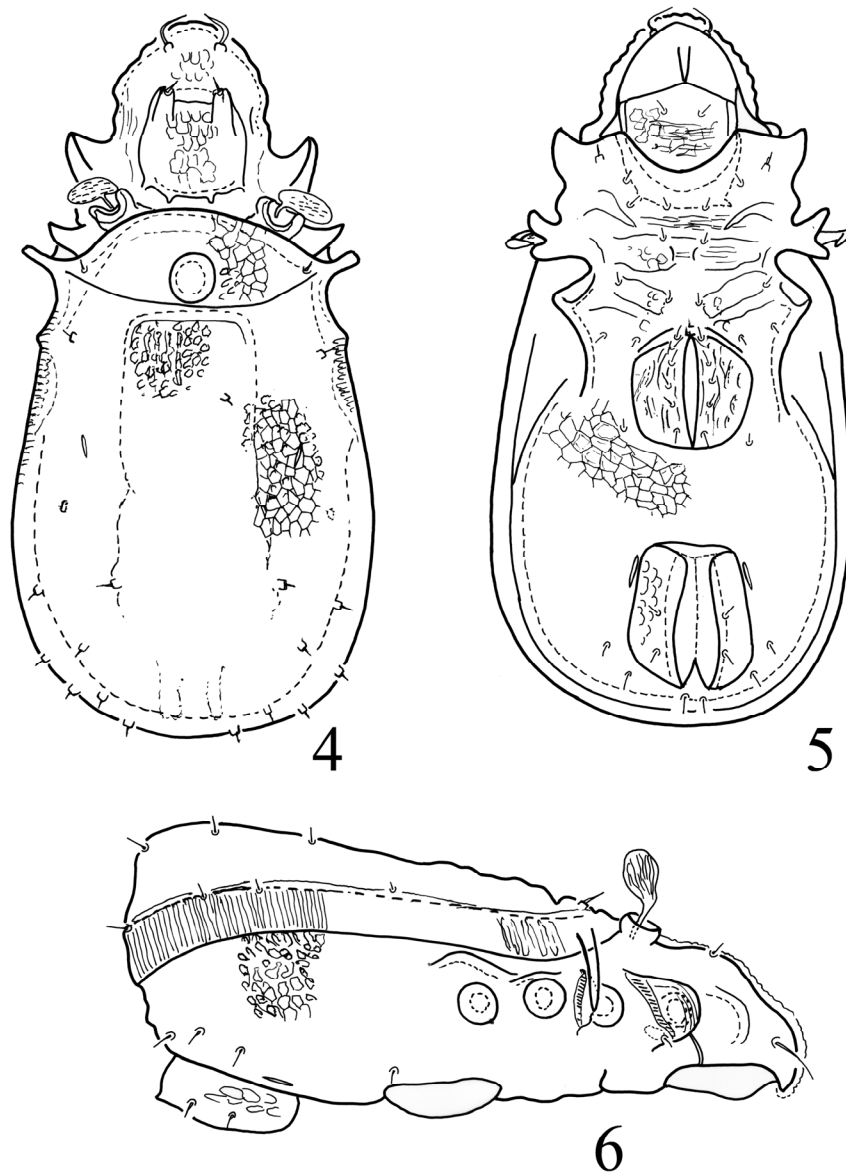
(Figs. 4–6)

Diagnosis. Whole body covered with a cerotegument layer. Rostral setae arising laterally on distinct tubercles, setiform. Lamellae (lamellar costula) well developed, their cusps very short, bearing short, bacilliform lamellar setae. Translamella present, narrow, whole prodorsal surface ornamented by polygonal pattern. Head of sensillus very large, its peduncle short, thin. Dorsosejugal tectum convex, a pair of long, nearly spiniform, humeral appendage bent down. Lenticulus round. Centrodorsal plate of notogaster partly framed, foveolate or polygonate, dorsal circumnotogastral plate foveolate like the centrodorsal ones, ventral circumnotogastral plate plicate. Ten pairs of short, bacilliform notogastral setae. Apodemes and borders of epimeral region weakly developed median longitudinal apodema absent. All epimeral setae short. Bacilliform, like to the notogastral setae. Epimeral surface with some round sigilla. Surface of genital plates with short, distinct ribs, surface of the ventral plate with polygonal pattern, similar one present on the anal plates, it consists of similar and rounded cells. All legs tridactylous.

Material examined. Kenya, Nakuru district. Before Longonot, soil samples (roots from under shrubs on lava soil), alt. 200 m, 10. 11. 1977. Leg. V. Mahnert and J.-L. Perret. One specimen is deposited in HNNM, one other in MHNG.

Measurements. Length of body: 357–385 µm, width of body: 187–208 µm.

Prodorsum. Rostral part of the prodorsum widely rounded, without apex. Nearly whole surface ornamented by polygonal pattern consisting of foveolae or small ribs. Rostral setae arising marginally, much longer than other prodorsal or notogastral setae, simple setiform, smooth. Lamellar costula distinct, with others crests compose a quadrangular field. Lamellar setae arising on



Figures 4–6. *Scapheremaeus hungarorum* Mahunka, 1986. 4 = body in dorsal view, 5 = body in ventral view, 6 = body in lateral view

short tubercles, bacilliform. Interlamellar setae reduced. Sensillus large, dark brown.

Notogaster. Posterior part of circumnotogastral scissure absent or hardly developed, no distinct border between centrodorsal and marginal region. In caudal region a U shaped indentation. A strong transverse ridge present posterior to lenticulus. Humeral processes well visible also in dorsal view. Ten pairs of short, bacilliform notogastral setae.

Lateral part of podosoma (Fig. 5). Tutorium well developed, rounded anteriorly. Pedotectum I covered the acetabulum I. Humeral process very long, spine like, curved, reaching to the acetabulum of leg II.

Ventral parts (Fig. 6). Surface of infracapitulum foveolate, with some transversal ribs. Similar structure observable on the epimeral surface, here some irregular foveolae well visible. Some weak transversal apodemes and borders

present, sternal apodemes and borders absent. Epimeral setal formula: 3 – 1 – 2 – 2, all short, straight, nearly bacilliform. Genital plates with strong, mostly short, longitudinal ribs, 6 pairs of genital setae ordered in longitudinal rows. Surface of anal plates ornamented by polygonal reticulation. Anal and adanal setae very short, bacilliform. Posterior adanal setae originating very near to each other medially. Setae ad_2 and ad_3 also along the posterior part of the anal opening. Ventral plate with a characteristic ornamentation, it consists of normal reticulation medially and larger ones laterally. In the middle of some of latter an inner field observable.

Legs. All legs tri- and heterodactylous, median claw much larger than lateral ones.

Remarks. The genus *Scapheremaeus* Berlese, 1910 was divided by Colloff (2009) into species groups. On the basis of the form of notogastral plates and scissures, the presence or absence of the humeral process and the length of the lamellar costula, the new species belongs to “*cuspidatus*” or “*humeralatus*” groups. The newly collected specimens surely belong to the Tanzanian *Scapheremaeus hungarorum* Mahunka, 1986. However, there are slight differences in the notogastral sculpture which is much roughed and more polygonate in the Kenyan material. There is smaller and less polygonate sculpture on the centromedian plate in type specimen. An other difference is the U-shaped structure on the caudal region of the Kenyan specimens.

Hypozetes stellifer sp. n.

(Figs. 7–10)

Diagnosis. Rostral apex small, rounded, with one pair of small teeth. Lamellae wide, without true cusp. Lamellar setae arising beneath their distal part, translamella present. Lamellar setae long, their insertion covered by notogastral margin. Sensillus long, fusiform. Ten pairs of notogastral setae and 4 pairs of peculiar sacculi present. Apodemes weakly developed, short. Genitoanal setal formula: 6 – 1 – 2 – 3. All legs tridactylous.

Material examined. Holotype HNHM 1792-HO-2010. Kenya, Muguga, near of Nairobi, experimental forest station. Moss and bark from a primary forest patch. 20. 11. 2004. Leg Cs. Csuzdi (AFR 978). Paratypes HNHM 1792-PO-2009 1 ex., MHNG 1 ex. Locality and date same as those of the holotype.

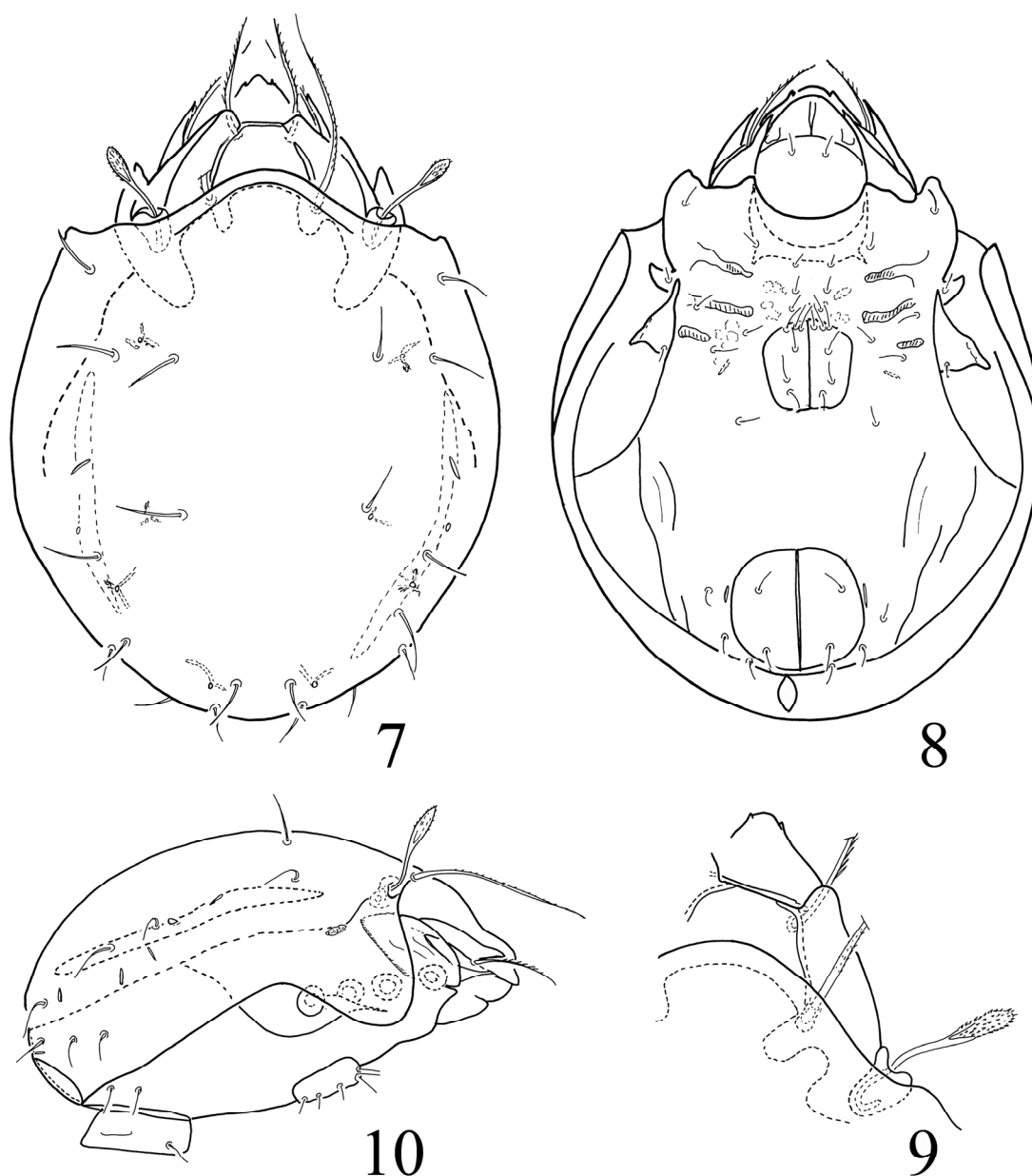
Measurements. Length of body: 452–471 μm , width of body: 351–365 μm .

Prodorsum. Rostrum with rounded median apex, and a pair of lateral teeth. Lamellae broad, their distal end obliquely cut, lateral part slightly rounded. A short crest directed from their median end to narrow translamella. Lamellar setae distinctly ciliate, arising beneath the median ends of lamellae. Apex of the tutorium long, well visible in dorsal view, rostral setae arising in its basal end. Interlamellar setae very long, finely barbed, insertions covered by anterior notogastral tectum. Bothridium asymmetrical, cup-shaped, outer part much larger than the inner one (Fig. 9). Head of sensillus fusiform, covered with short barbs, its peduncle long.

Notogaster. Anteromedian part well protruding forwards between the bothridia. A distinct lenticulus absent, this wide area brighter than other part of the notogaster. Pteromorphae narrow. Ten pairs of setiform notogastral setae, setae h_1 , and p_1 – p_3 much shorter than the others. Four pairs of characteristic sacculi present (Fig. 7). They consist from a minute pore and some short tube in stellate arrangement. Glandular opening well observable, glandule very long, narrow, well observable.

Lateral part of podosoma. Apex of the tutorium (Fig. 10) long, sharply pointed. Pedotectum I large, with 2–3 longitudinal lines. Lyrifissures *ih*, *ip* and *ips* located transversal position to the lateral notogastral tectum. Custodium with long cusps. Circumpedial carina long.

Ventral parts (Fig. 8). Epimeral surface with irregular sigilla. Apodemes and borders weakly developed. Epimeral setal formula 3 – 1 – 3 – 3. Ventral plate with some irregular, longitudinal ribs. Genito-anal setal formula 6 – 1 – 2 – 3.



Figures 7–10. *Hypozetes stellifer* sp. n. 7 = body in dorsal view, 8 = body in ventral view, 9 = lamellar and bothridial part of prodorsum, 10 = body in lateral view

Three pairs of genital setae situated along the anterior margin of genital plates. Anal and adanal setae longer than the genital ones, no any difference among them. Posterior tectum overlap.

Legs. All legs tridactylous. Genu I and II with ventral spur, femur IV with strong ventral crest.

Remarks. The relationships and taxonomical position of the genus *Hypozetes* were clarified by Behan-Pelletier (2001) and she placed it into the family Tegeribatidae. We accept her opinion, do not agree however with that of Subias (2010) who classified it in the family Mycobatidae.

The new species is characterised by the stelliform sacculi and the presence and form of translamella and lamellar cusps. On the basis of presence a translamella, the new species closely resembles to *Hypozetes translamellatus* Wallwork, 1965, however differs from it in the form of the sensillus and in the three pairs of adanal setae (two pairs in *translamellatus*).

Etymology. The new species is named after the peculiar form of the sacculi.

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