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The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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TO THE FAUNA OF CHIGGER MITES
(ACARI: TROMBICULIDAE) PARASITIZE BATS IN CUBA

by M. DANIEL* and A.A. STEKOL’NIKOV**

(Accepted March 2002)

SUMMARY: Three new species, Microtrombicula cernyi n. sp., M. septemsetosa n. sp. and Myotrombicula dusbabeki n. sp., are described from bats collected in Cuba. One species, M. boneti (Hoffmann, 1952), is recorded for the first time in Cuba and on several new host genera and species.

The present paper continues a systematic study of the chigger mites collected in Cuba by joint expeditions of the Institute of Parasitology, Czechoslovak Academy of Sciences and the Institutes of Biology, Zoology, and of Ecology and Systematics, Academy of Sciences of Cuba, briefly characterized by de la Cruz and Daniel (1994). The team of chiggers collectors included Drs. V. Cerny, M. Daniel, F. Dusbabek, F. Gregor, J. Ryba (Czechoslovak Academy of Sciences), R. Abreu, J. de la Cruz, N. Cuervo, A.A. Socarras, A. Camachó and R. Borroto (Academy of Sciences of Cuba). But individual collectors are not noted in particular collections in the field protocols. Therefore, the collector names are not individually included also in the present article. The chiggers were collected in 1965–1966 from bats. Hosts were determined by Dr. G. Silva-Taboada.

The present paper includes descriptions of 3 species new to science and 1 species new to Cuban fauna. Three of included species belong to the genus Microtrombicula Ewing, 1950 and one to the genus Myotrombicula Womersley et Heaslip, 1943, although it also has Microtrombicula-like face. Microtrombicula is large, almost worldwide distributed genus, not found only in Australian zoogeographical region. According to a last review (Kudryashova, 1998) it includes 114 species, mainly from Ethiopian region. Most part of American Microtrombicula parasitize bats. Previously this genus was not reported from Cuba. Myotrombicula includes about 15 species, all of which are bat parasites (Kudryashova, 1998). The question, whether this genus is distributed in the Western Hemisphere, depends on notions of its composition and diagnosis, which are not generally accepted. Previously a non-identified species of Myotrombicula was reported from Cuba (Dusbabek, 1970), but it can be a member of the genus Perates Brennan et Dalmat, 1960, which was included...
Figs 1–10: Microtromicula cernyi n. sp., larva.

**Materials and methods**

Mites were mounted in Hoyer’s medium or in de Faure-Berlese’s medium. All measurements are in micrometres (\(\mu m\)). In the tables, “N” indicates sample size for those structures measured. If some structure is unpaired, this number coincides with the number of specimens measured (excluding those in which the structure was damaged or distorted and could not be measured). In other case N is about twice the number of specimens measured. Terminology follows that of Goff et al. (1982), with some adaptation: “ventral setae” (V) are setae on the ventral surface of idiosoma excluding coxal and sternal setae; VS — number of ventral setae; D — dorsal idiosomal setae; DS — number of dorsal idiosomal and humeral setae; TaIII — length of leg III tarsus; TaW — width of leg III tarsus. The specimens examined are deposited in the Zoological Institute of the Russian Academy of Sciences, Saint-Petersburg (ZIN), the acarological collection of the Institute of Parasitology, Academy of Sciences of Czech Republic, Ceské Budejovice, and in the acarological collection of the senior author.

**Genus Microtrombicula Ewing, 1950**

*Microtrombicula cernyi* n. sp.  
(Figs 1–10)

Diagnosis: SIF=6B-N-2-3111.1000; fPp=B/B/NNB; fCx=1.1.1; fSt=2.2; fSc: PL>AM>AL; Ip=534; fD=2H-8-8-8-...; DS=45; VS=43; NDV=88.

Description. *Larvae*. Idiosoma. Eyes 2. One pair of humeral setae; 41–45 dorsal idiosomal setae having few strong barbs, arranged 8-8-8-... (in holotype 8-8-8-11-4-2, in paratype 8-8-8-8-6-5-2); 2 pairs of sternal setae and 42–43 ventral setae; total idiosomal setae 85–90. Gnathosoma. Cheliceral blade with tricuspid cap; cheliceral base with lateral angle; gnathobase with a pair of branched setae; galeala nude; palpal claw 2-pronged; setae on palpal femur and genu each with one branch; palpal tibial setae: dorsal and lateral setae nude, ventral seta with one branch; palpal tarsus with 6 branched setae and tarsala. Scutum. Sparserly punctate, subpentagonal, with biconcave anterior margin and rounded posterior margin; AM base slightly anterior to level of AL bases; SB between levels of AL and PL bases; PL>AM>AL; sensilla broken in both specimens examined. Legs. All 7-segmented, terminating in a pair of claws and a clawlike empodium. Non-specialized setae of legs with few barbs or sometimes nude. Leg I: coxa with 1 non-specialized seta (1B); trochanter 1B; basifemur 1B; telofemur 5B; genu 4B, 3 genualae, microgenuala; tibia 8B, 2 tibialae, microtibialia; tarsus 21B, tarsala, microtarsala, subterminala, parasubterminala, pretarsala. Leg II: coxa 1B; trochanter 1B; basifemur 2B; telofemur 4B; genu 3B, genuala; tibia 6B, 2 tibialae; tarsus 16B, tarsala, microtarsala, pretarsala. Leg III: coxa 1B; trochanter 1B; basifemur 2B; telofemur 3B; genu 3B, genuala; tibia 6B, tibialia; tarsus 14B, mastitarsala.

**Standard measurements**

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**Differential diagnosis:** The new species is similar to *M. carmenae* (Brennan et Jones, 1960) and differs from this species in fPp=B/B/NNB against B/B/BBB, palpal claw 2-pronged against 3-pronged, eyes 2 against 2 + 2, fPp=2H-8-8-8-... against 2H-6-6-6-2 and greater number of idiosomal setae (NDV=85–90 against 58). Morphometric features are lesser than in type material of *M. carmenae*, but are in good agreement with those ones in the material of this species from Costa Rica (Webb, Loomis, 1971). *M. cernyi* n. sp. is also similar to *M. paralios* Webb et Loomis, 1970 and differs from this species in fPp=B/B/NNB against B/B/BBB, eyes 2 against 2 + 2, scutum sparsely punctate against moderately punctate, fPp=2H-8-8-8-... against 2H-6-6-6-4-4-2 and greater number of idiosomal setae (NDV=85–90 against 70).

Host: *Pteronotus quadridens* (Gundlach, 1840).
Figs 11–20: Microtrombicula septemsetosa n. sp., larva.

Type data: Holotype (C-454, T-Tr.-16) and 1 para-
type (larvae), Habana Province, Guanajay, Cueva de
The both type specimens are deposited in ZIN.

Etymology: The species is named in honor of Dr.
V. Cerny, one of the main collectors.

Microtrombicula septemsetosa n. sp.  
(Figs 11-20)

Diagnosis: SIF=6BS(7B?)-N-3-3111.1000; fPp=
B/B/NNB; fCx=1.1.1; fSt=2.2; fSc: PL>AM>AL; 
Ip=495; fD=2H-6-6-6-4-...; DS=35; VS=46; NDV
=81.

Description. Larvae. Idiosoma. Eyes 2. One pair of
humeral setae; 26-40 dorsal idiosomal setae covering
with barbs of medium size, arranged 6-6-6-4-... (in 
holotype 6-6-6-4-8-3); 2 pairs of sternal setae and
37-57 ventral setae; total idiosomal setae 69-93. Gna-
throposoma. Cheliceral blade with tricuspid cap; cheli-
ceral base sparsely punctate, with lateral angle; gna-
thobase sparsely punctate, bearing a pair of branched
setae; galeala nude; palpal claw 3-pronged; setae on 
palpal femur and genu with few branches; palpal 
tibial setae: dorsal and lateral setae nude, ventral seta
with few branches; palpal tarsus with tarsa, thick
branched dorsal seta and other 6 setae (one of which
probably is a subterminala), nude or having 1–2 ciliae.
Scutum. Sparsely punctate, subhexagonal, with 
convex rounded anterior and angular posterior mar-
gins, having anterolateral shoulders; AM base ante-
rior to level of AL bases; SB between levels of AL and 
PL bases; PL>AM>AL; sensilla flagelliform with 2 
branches. Legs. All 7-segmented, terminating in a 
pair of claws and a clawlike empodium. Leg I: coxa
1B; trochanter 1B; basifemur 1B; telofemur 5B; genu
4B, 3 genuaeae, microgenuala; tibia 8B, 2 tibiaeae, 
microtibiala; tarsus 21B, tarsala (24 µm long), micro-
tarsala, subterminala, parasubterminala, pretarsala.
Leg II: coxa 1B; trochanter 1B; basifemur 2B; telofe-
mur 4B; genu 3B, genuala; tibia 6B, 2 tibiaeae; tarsus
16B, tarsala (14 µm long), microtarsala; pretarsala 
absent. Leg III: coxa 1B; trochanter 1B; basifemur
2B; telofemur 3B; genu 3B, genuala; tibia 6B, tibiaala;
tarsus 15B (mastitarsala replaced with branched 
seta). Standard measurements of holotype: AW=35, 
PW=42, SB=12, ASB=27, PSB=20, SD=47,
P-PL=8, AP=23, AM=25, AL=20, PL=28, H=27, 
D=16-27, DS=35, VS=42, NDV=77.

Standard measurements

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Differential diagnosis: M. septemsetosa n. sp. dif-
fers from all other Microtrombicula in having additio-
nal seta on palpal tarsus (fT=6BS or 7B against 6B).
The new species is similar to M. sturnirae Webb et
Loomis, 1971 and differs from this species in absence 
of pretarsala II, much longer tarsala I (24 against 
12–15), eyes 2 against 2 + 2, very convex anterior 
margin of scutum, nude dorsal and lateral palpal 
tibial setae (fPp=B/B/NNB against B/B/BBB), 4 setae 
in 4th row of D (against 6) and shorter legs 
sp. is also similar to the members of the genus Cryp-
ticula Webb et Loomis, 1970, in having no pretarsala 
II, but differs in 3 genualae I (against 1- 2), scutum 
not reticulate, and palpotibial claw 3-pronged 
(against 2-pronged).

Hosts: Natalus lepidus (Gervais, 1837), Phyllonyc-
teris poeyi Gundlach, 1860, Pteronotus macleayii (Gray, 1839), Pt. quadridens.

Type data: Holotype larva (C-366, T-Tr.-17), Pinar del Rio Province, Vinales, Cueva del Indio, 20 Aug.
1965, from Pt. quadridens. 34 paratypes: 12 larvae, 
same data; 5 larvae, Habana Province, Guanajay, 
quadridens; 3 larvae from Nat. lepidus, other data 
same; 11 larvae, Isla de Pinos, 26 June 1965, from Ph.
poeyi; 1 larva, Sancti Spiritus Province, Yaguajay, 
Cueva de Colón, 25 Apr. 1965, from Pt. macleayii; 1 
larva, Matanzas Province, Camarioca, Cueva de 
Santa Catalina, 3 Aug. 1965, from Ph. poeyi; 1 larva,
Habana Province, Tapaste, Cueva del Indio, 24 May
1965, from Ph. poeyi.
Figs 21–28: *Myotrombicula dusshabeki* n. sp., larva.


The holotype and 29 paratypes are deposited in ZIN; three paratypes are deposited in the Institute of Parasitology, Academy of Sciences of Czech Republic; two paratypes are deposited in the collection of the senior author.

Etymology: The species name "septemsetosa" is referred to the presence of 7 setae on palpal tarsus, except tarsala.

Remarks: The placing of this species into the genus *Microtrombicula* is provisional. The presence of 7 setae on palpal tarsus, except tarsala, and shape of anterior scutal margin are unique within this genus. Possibly, after next revision *M. septemsetosa* n. sp. will be selected from *Microtrombicula* to form a separate genus.

*Microtrombicula boneti* (Hoffmann, 1952)

Myotrombicula dusababeki n. sp., larva.

29. — Arrangement of dorsal idiosomal setae. 30. — Arrangement of ventral idiosomal setae.

(Coecicula); WEBB, LOOMIS, 1971: 9; HOFFMANN, 1990: 89, fig. 51. — tibbettsi Brennan et White, 1960: 348 (Trombicula); VERCAMEN-GRANDJEAN, 1965a: 56, Pl. HH [Eltonella (Coecicula)].

Diagnosis: SIF=6B-B-3-3111.0000; fPp=B/B/NNB; fCx=1.1.1; fSt=2.2; fSc: PL>AM>AL; Ip=662; fD=2H-6-6-6-4-6(8)…; DS=35; VS=40; NDV=75.

Standard measurements

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Distribution: Alabama, Texas, Mexico, Costa Rica, Panama, Venezuela, Curacao, Trinidad, Bahamas. Recorded in Cuba for the first time.


Material examined: 8 larvae, Sancti Spiritus Province, Yaguajay, Cueva de Colón, 25 Apr. 1965, from Pt. macleayii; 4 larvae, Habana Province, Guanajay, Cueva de William Palmer, 12 Aug. 1965, from Nat. lepidus; 3 larvae from Pt. quadridens and 1 larva from Ph. poeyi, other data same; 6 larvae, Matanzas Province, Camarioca, Cueva de Santa Catalina, 3 Aug. 1965, from Ph. poeyi; 5 larvae, Isla de Pinos, Cerro de Guanabana, Cueva de los Lagos, 15 Jan. 1966, from Pt. macleayii; 4 larvae, Habana Province, Tapaste,
Cueva del Indio, 24 May 1965, from *Pt. quadridens*; 1 larva from *Nat. lepidus* and 1 larva from *Ph. poeyi*, other data same; 5 larvae, Sancti Spiritus Province, Yaguajay, Cueva Nova Caguane, 11 June 1965, from *Pt. quadridens*; 1 larva from *Pt. macleayii*, other data same; 1 larva, Sancti Spiritus Province, Mayajigua, Cueva de Colón, 9 June 1965, from *Ph. poeyi*; 1 larva, Isla de Pinos, Cuevas de Punta del Este, 16 Jan. 1966, from *Nat. micropus*; 1 larva, Isla de Pinos, 26 June 1965, from *Ph. poeyi*; 2 larvae, Habana Province, Tapaste, Cueva del Indio, 28 Dec. 1965, from *B. nana*.

Remarks: *M. boneti* exposes significant variations in morphometric features and some qualitative diagnostic characters. For palpal setae in this species the following conditions were reported: fPp=N/N/NNB (Hoffmann, 1990), B/B/NNB (Vercammen-Grandjean, 1965a), B/B/BNB (Webb, Loomis, 1971). In our material fPp=B/B/NNB. Sum of legs lengths, according to literary data, varied from 554 up to 826; width of scutum: PW=70–89; lengths of setae: PL=38–48; number of idiosomal setae: NDV=60–88. Thus, thorough taxonomic revision of this species is desirable.

Genus *Myotrombicula* Womersley et Heaslip, 1943

This genus is considered here as equal to subgenus *Myotrombicula* sensu Vercammen-Grandjean, 1968. Other taxa been included in this genus by the mentioned author (Vercammen-Grandjean, 1965b, 1968), namely *Alexfainia* Yunker et Jones, 1961, *Vergrandia* Yunker et Jones, 1961 and *Perates* Brennan et Dalmat, 1960, are considered as separate genera by many other authors (Loomis, 1969; Brennan, Goff, 1977; Hoffmann, 1990; Kudryashova, 1998).

*Myotrombicula dusbabeki* n. sp.

(Figs 21–30)

Diagnosis: SIF=7B-N-3-3111.1000; fPp=B/B/NNB; fCx=1.1.1; fSt=2.4; fSc: PL>=AM>AL; Ip=513; fD=29-26-75; DS=130; VS=113; NDV=243.

Description. Larvae. Idiosoma. Eyes absent. 130 dorsal idiosomal setae densely covering with long barbs, arranged irregularly (only 1st and 2nd double rows consisting of, consequently, 29 and 26 setae can be separated); humeral setae not separated from dorsals; 1 pair of anterior and 2 pairs of posterior sternal setae, and 113 ventral setae; total idiosomal setae 243. Gnathosoma. Cheliceral blade simple; cheliceral base with lateral angle; gnathobase with a pair of branched setae; galeala nude; palpal claw 3-pronged; seta on palpal femur barbed, seta on palpal genu branched; palpal tibial setae: dorsal and lateral setae nude, ventral seta branched; palpal tarsus with tarsala, thick branched dorsal seta and other 6 non-specialized setae, nude or having 1–2 branches. Scutum. With few little punctae, trapezoidal, as wide as long, its anterior margin straight, posterior margin straight with small middle notch; AM base far anterior to level of AL bases; SB between levels of AL and PL bases, nearer to AL, than to PL; PL>=AM>AL; sensilla flagelliform with 12 long branches in distal 2/3. Legs. All 7-segmented, terminating in a pair of claws and a clawlike empodium. Leg I: coxa 1B; trochanter 1B; basifemur 1B; telofemur 5B; genu 4B, 3 genualae, microgenuala; tibia 8B, 2 tibialae, microtibiala; tarsus 22B, tarsala, microtarsala, subterminala, parasubterminala, pretarsala. Leg II: coxa 1B; trochanter 1B; basifemur 2B; telofemur 4B; genu 3B, genuala; tibia 6B, 2 tibialae; tarsus 16B, tarsala, microtarsala phalliform (with inflated apex), pretarsala. Leg III: coxa 1B; trochanter 1B; basifemur 2B; telofemur 2B; genu 3B, genuala; tibia 6B, 2 tibialae; tarsus 15B (mastitarsala replaced with branched seta). Standard measurements of holotype: AW=33, PW=42, SB=12, ASB=22, PSB=18, SD=40, P-PL=7, AP=16, AM=22, AL=16, PL must be about 20-25 (both setae with broken tips), S=45, H=28, D=12–22, V=11–19, pa=189, pm=155, pp=169, Ip=513, TaIII=44, TaW=9.

Differential diagnosis: The new species differs from all other *Myotrombicula* in the absence of eyes, simple cheliceral blade, greater number of idiosomal setae (NDV=243 against about 130–150), very small scutum, as wide as long (against scutum wider than long), small gnathosoma and short legs. These features, except lacking eyes, also differ this species from *Perates*. *M. dusbabeki* n. sp. resembles *M. aselliae* Vercammen-Grandjean, 1963 in phalliform microtarsala II and shape of scutum, but differs, in addition to the above features, in nude galeala, fPp=B/B/NNB against B/B/BBB, sensilla with 12 branches (against 4–5) and in other characters.
M. dusbabeki n. sp. resembles the single species of the genus Vergrandia, V. galei Yunker et Jones, 1961, in having most part of tarsal palpal setae nude and in size of scutum. The new species also resembles representatives of the genus Microtrombicula, in small size of most structures (scutum, gnathosoma, legs), and Sasatrombicula (Traubiella) multisternalae (Vercammen-Grandjean, 1963), in shape of scutum and sensilla, nude galeala, fPp=B/B/NB and numerous setae (186 in S. multisternalae).

Host: Pteronotus quadridens.

Type data: Holotype (C-555, T-Tr.-18) larva, Habana Province, Guanajay, Cueva de William Palmer, 12 Aug. 1965, from Pt. quadridens. Holotype is deposited in ZIN.

Etymology: The species is named in honor of Dr. F. DUSBABEK, one of the main collectors.

REFERENCES


