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NOTES ON THE GENUS RUDNICULA
(ACARINA, TROMBICULIDAE)
WITH DESCRIPTION
OF A NEW SPECIES FROM MALAYSIA

BY
M. NADCHATRAM

ABSTRACT.

A new species, Rudnicula becki, is described from a rare Malaysian bat, Rhinolophus sedulus Anderson, 1918. The occurrence of Rudnicula provides a link for the distribution of this genus in the Oriental-Australasian region. A key to the known species of Rudnicula is given.

Vercammen-Grandjean (1964) created a subgenus, Rudnicula, in the genus Trombicula, to accomodate a new species tibbetsi collected from Myotis mystacinus in Korea. In 1965, he amended the specific name to tibbi and raised Rudnicula to full genus. The elevation of Rudnicula to genus is justified. In addition to the type species, there are only three known species in the genus, viz: Rudnicula (= Trombicula) barbarae (Domrow, 1964), new combination, off Taphozous (= Saccolaimus) georgianus from Australia; R. templei Nadchatram and Wilson, 1965 off Hipposideros semoni from New Guinea; and R. becki n. sp. off Rhinolophus sedulus from Malaysia, described below.

These four species of bat chiggers form a natural group characterized by having 4 barbed setae on palpal tarsus; short, stout chelical blades, knobular palpal femur and/or genu, both bearing long barbed setae; somewhat quadrate scutum; two pairs of eyes, anterior eye strongly sclerotized and at least 2x greater than posterior eye; empodia of legs usually distally expanded; and 3 genualae on leg I.

In comparison, the genus Trombicula, sensu stricto, is defined by having 5 or 6 barbed setae on palpal tarsus; coarse or reticulate punctate scutum; usually 6-6-6 segmented legs (Audy et al., 1965). The genus Chiroptella is characterized

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by having 7 barbed setae on palpal tarsus; normally punctate scutum; 7-7-7 segmented legs; 2 genualae and a nude femorala on leg III (Nadchatram, 1965). Sasatrombicula, which is now recognised as a full genus, is characterized by having 5 barbed setae on palpal tarsus; normally pitted scutum; 7-7-7 segmented legs and two genualae on leg III, but lacking a nude femorala (Nadchatram and Mitchell, 1965). The type species of the genus, Sasatrombicula koomori (Sasa and Jameson, 1954) bears only a single genuala on leg III. The presence of 2 genualae on leg III combined with other basic characters represents a natural grouping and, therefore, the separation of the other species of Sasatrombicula from S. koomori under a new genus is worthy of consideration.

It is noteworthy that the discovery of the genus Rudnicula in Malaysia constitutes the first record of its occurrence in Southeast Asia. Its presence provides the link for the distribution of this genus in the Oriental-Australasian region. The host species, Rhinolophus sedulus Anderson, 1918 is very rare. The type locality is Singapore, and to date only two other specimens have been recorded in West Malaysia (Malayan mainland).

**Rudnicula becki, n. sp.**

(Fig. 1-8).

Description of larva.

*Diagnosis*: Palpal formula B/B/NBB + 4B. Claw 3-pronged; galeal seta nude. PL corners extended; AW 44-47 µ; PW 67-68 µ SB; 19 µ; A-P 35 µ. Eyes 2 + 2, anterior eye 2x diameter of posterior eye. 3 pairs of sternal setae; Ip 796-803 µ. Tarsus + pretarsus III: 78 x 15 µ.

*Description*: Fully engorged larva elongate oval, 600 x 360 µ; color in life pallid. Eyes 2 + 2; anterior eye strongly sclerotized and 2x diameter of posterior eye, lacking ocular plate.

*Gnathosome* strongly sclerotized in comparison with rest of body. Cheliceral base elongate and thick-walled, minutely and uniformly punctate; cheliceral blade short and broad basally (31 x 14 µ) with a minute, ventral, subapical tooth. Palp elongate; femoral and genual segments knoed laterally. Palpal formula B/B/NBB + 4B, genual seta longest. Palpal claw slender, axial claw mediaflanked by 2 subequal accessory prongs. Galeal seta nude, one specimen bears 2 very fine short barbs on mid portion of seta.

*Scutum* somewhat subquadrate with PW 1.4 x greater than AW; without anterior lateral shoulders; PL corners extended, the extended portion and lateral margins of scutum overlapped by cuticular striations; anterior margin bisinuate. Punctae distinct and distributed as figured. Scutal setae marginal. PL > AM > AL. SB round and 19 µ apart. Sensillae lacking.
Larva of *Rudnicula becki* n. sp.

1. - Dorsal and ventral aspects of idiosome. 2. - Scutum. 3 and 4. - Dorsal and ventral aspects of gnathosome. 5, 6 and 7. - Legs I, II and III. 8. - Humeral, dorsal, ventral and caudal setae.
Standard data, in micra, of *Rudnicula becki* n. sp.

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**Body setae :** HS 44-47 μ; DS 44 μ; VS 23-26 μ; CS 32-35 μ; SS 30-35 μ long. DS ciliated, 50 to 58 in number and irregularly arranged as 2, 10-12, 12-13, 10-12, 6-8, + 10-11. VS approximately 25 in number + 12-13 caudal setae. Sternal setae 3 pairs — a pair between coxae I and 2 pairs between coxae III. SS subequal in length.

**Legs :** 7-7-7 segmented, segments long and strongly sclerotized. Ip 796-803. Coxae unisetose; claws thick and slightly flexed. Empodia on all legs distally expanded. Measurements, number and type of setae as follows:

**Leg I :** 288-292 μ long. Tarsus + pretarsus 74-76 × 19-20 μ. A slender tarsala, 30 μ long inserted on proximal 1/3 of tarsus; a distal microtarsala situated at 1/2 length of tarsala; a subterminala, a short parasubterminala, a pretarsala and ca. 18 barbed setae. Tibia with 2 tibialae, a microtibiala and 8 barbed setae. Genu with 3 genualae, a microgenuala and 4 barbed setae. Remaining segments with 5, 1, 1 barbed setae.

**Leg II :** 234-236 μ long. Tarsus + pretarsus 58-61 × 18 μ; a slender tarsala 24 μ long, a proximal microtarsala, a pretarsala and 16 barbed setae. Tibia with 2 tibialae in tandem and 6 barbed setae. Genu with 1 genuala and 3 barbed setae. Remaining segments with 4, 2, 1 barbed setae.

**Leg III :** 272-276 μ long. Tarsus + pretarsus 78-80 × 15 μ, with 15 barbed setae. Tibia with a long tapering tibiala and 6 barbed setae. Genu with a tapering genuala and 3 barbed setae. Remaining segments with 3, 2, 1 barbed setae.

**Type material :** Holotype larva, MZ 82655, ex *Rhinolophus sedulus* Anderson, from tree hole near stream, Kampong Jinjang, Kepong, Selangor, Malaysia, x-v-1967. A. J. Beck and Sipang coll., 3 paratypes with same data as holotype. Larvae found attached to ear fringe.

**Note :** It is a pleasure to name this species for Dr. A. J. Beck, I.C.M.R.T. Hooper Foundation, University of California, based at the Institute for Medical Research, Kuala Lumpur, who collected the chiggers. Dr. Beck initiated the bat banding program in Malaya to aid in studies on distribution and host-parasite relationship.

Holotype and a paratype are deposited in the Bernice P. Bishop Museum, Honolulu, and paratypes are in the collections of the U. S. National Museum, Washington, D. C., and the British Museum (N. H.), London.
Key to species of Rudnicula.

1. Sternal setae 4 in number (2 pairs)...............................  R. templei
   With more than 4 sternal setae........................................ 2
2. Sternal setae 6 in number (3 pairs)...............................  3
   Sternal setae 8 in number...........................................  R. barbarae
3. Scutum bigger (AW 64 μ; PW 86 μ). Sensillary bases 31 μ apart; A-P 44 μ; empodia of legs unexpanded; galeal seta barbed.................................  R. tibbi
   Scutum smaller (AW 45 μ; PW 67 μ). SB 19 μ apart; A-P 35 μ. Empodia of legs distally expanded; galeal seta nude..............................  R. becki

REFERENCES


