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THREE NEW SPECIES OF *DOLOISIA* FROM S. E. ASIA  
(ACARINA, TROMBICULIDAE)  

BY  
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*(Institute for Medical Research, Kuala Lumpur)*

Summary.

Three new intranasal chiggers of the genus *Doloisia* are figured and described. These are *D. hamata* n. sp. from *Rattus sabanus*, Sarawak, and *D. hooperi* n. sp. and *D. nasicolae* n. sp., both from *Rattus*, Laos. New synonymy: *Traubacarus* Audy and Nadchatram, 1957 equals *Doloisia* Oudemans, 1910.

The genus *Doloisia* Oudemans dates from 1910, and originally included only the type-species, *D. synoti* Oudemans, said to have been collected from a bat (*Synotus*) in Germany. It was not recorded as an intranasal species, and we know of no further record of this species. Generic characters particularly to be noted are — PL setae on scutum, all coxae multisetose.

The closely related genus *Traubacarus* Audy and Nadchatram, 1957 was raised on ecological grounds (the species were known to be intranasal), supported by constant morphological differences — PL setae off scutum, coxae I always unisetose.

Liang (1959) has since described an intranasal species with the morphological characters of *Doloisia*. In the present paper, three new intranasal species are described, one with the characters of *Traubacarus*, one with the characters of *Doloisia*, and one with intermediate characters — PL setae on scutum, coxae I unisetose. We see no further reason for retaining *Traubacarus*, and now synonymize it with *Doloisia*. The nymphs of the two groups are indistinguishable. Vercammen-Grand-jean (1960) also accepts *Doloisia* as a full genus among the Trombiculinae.

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_Acarologia*, t. IV, fasc. 4, 1962.
Genus Doloisia Oudemans.


Diagnosis. — A group of trombiculine larvae with a decided preference for the intranasal habitat, particularly in rodents. Weakly sclerotized, fully engorged larvae swelling grossly, resulting in a ventral displacement of the gnathosoma and even of the scutum. With at least two pairs of humeral setae, the dorsal setal pattern typically commencing 4.8.6. DS 30-40 in number. Scutum with PL setae either on or off scutum, but with anterior portion uniform — AW small, much less than PW when PL setae are on scutum; AL usually being AM. Gnathosoma : Galeal setae nude. Cheliceral blades strongly flexed, with distinct tricuspid cap and a large dorsal tooth. Palpal tarsus with tarsala and one dorsal and three ventral branched setae. Subterminala absent. Palpal claw 3-pronged; often strongly curved ventrally. Legs all 7-segmented. Coxae I uni- or multisetose; coxae II and III multisetose. Two genualae I; tibiala III absent. Femur I often with strong simple seta dorsally.

Doloisia hamata n. sp.

Figs. 1-23.

Diagnosis. — No other species of Doloisia is known which shows the peculiarly modified third tarsi of D. hamata.

Type material. — Holotype larva and thirty-nine paratype larvae from the nasal passages of three Rattus sabanus, Sarawak, 3.ix.1958, joint Anglo-American Medical Research Units. Holotype in U. S. National Museum, Washington; paratypes in Britsh Museum (Natural History), London ; Rocky Mountain Laboratory, Hamilton; and both my laboratories. The type material of the other two new species in this paper is similarly distributed.

Larva. — A pallid species which swells immensely as engorgement takes place, as is typical of the genus. Idiosoma constricted medially, from 1,100 X 770 to 1,485 X 1,155 μ in mounted engorged specimens.

Body setation. — Setae tapering, weakly barbed, similar to PL scutal setae. Dorsal setal pattern 4.8.6.6.6.4. Humeral setae paired, 5-56 μ long; DS 43-45 μ long; CS 40-43 μ long. Ventral setae about 38 in number, as short as 29 μ. Ster nal setae 2.2.

Scutum small and extremely weak, with PL left quite free in the cuticle. AM set in front of AL. PL weakly barbed; AM so weakly barbed as often to appear nude even under oil immersion; AL nude. PL>AM>AL. Sensillary bases
form a square with the insertions of AL setae. Sensillae slender, with apex distinctly attenuate, and with strong barbules. Eyes not detected. In one specimen, two AL setae are present on one side, both set in the same socket. The scutal standard data given below are derived from many specimens, and measurements on the same line do not necessarily come from one and the same specimen. They show,

Figs. 1-10. — *Doloisia hamata* n. sp. Larva.

1 and 2. Humeral and ventral setae, respectively; 3 and 4. Dorsal and ventral halves of body, respectively; 5, 6 and 7. Specialized setation of legs I, II and III, respectively; 8. Scutum; 9 and 10. Dorsal and ventral halves of gnathosoma, respectively.
however, that, apart from the measurements based on the position of PL (i.e. PW, PSB, AP), the scutum presents a uniform appearance.

Gnathosoma frequently obscured by swollen podosoma. Galeal setae nude. Chelicerae typical of genus, i.e. with a single strong dorsal tooth in addition to the well developed tricuspid cap. In addition to the tarsala, the palpal formula is b.n.nnb.4b. Subterminala absent. Tibial claw rather long, not strongly curved, and with three very distinct prongs.

FIGS. 11-23. — Doluisia hamata n. sp. Larva.


Legs all 7-segmented. In 15 specimens, coxae I were always unisetose; coxae II 3-setose 29 times and 4-setose once; coxae III 5-setose once, 6-setose six times, 7-setose thirteen times, and 8-setose ten times. Before passing to the specialized setation, mention must be made of the swollen appearance of tibiae and tarsi III, and of the strongly bladed seta near the apex of tarsi III. This is strongly reminiscent of the condition in an undescribed species (also intranasal) of Laurentella
discussed by Audy (1956). A further character of note on tarsi III is the peculiarly shaped empodium. Specialized setation as follows — Tarsus I with pretarsala, subterminala, paraterminala, tarsala and microtarsala; tibia I with two tibialae and microtibiala; genu I with two genualae and microgenuala; femur I with strong simple seta dorsally. Tarsus II apparently without pretarsala, but with tarsala and microtarsala; tibia II with two tibialae; genu II with genuala. Genu III with genuala; tibiala III absent.

Standard data in micra of larval scutum of D. hamata n. sp.

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Doloisia hooperi n. sp.

Figs. 24-35.

Diagnosis. — D. hooperi is the only known species of Doloisia with PL setae on the scutum which has unisetose coxae I.

Type material. — Holotype larva and forty-nine paratype larvae from the nasal passages of one Rattus sp. R70205, Lat Huang, Xieng Khouang, Laos, 25.viii.1960, R. Leech and M. Nadchatram.

Larva. — A pallid species which swells enormously as engorgement takes place. In mounted material, the idiosoma of semi-engorged specimens measures from 693 x 429 to 781 x 495 μ; of fully engorged specimens up to 1,639 x 1,122 μ.

Body setation. — Dorsal setae tapering, fairly well barbed basally on anterior half of body, but nearly nude caudally; arranged 4.8.8.6.6.2 in well engorged specimens, but 4.8.6.4.4.2 when semi-engorged. Humeral setae duplicated, 43-48 μ long; DS 37-40 μ long; CS 33 μ long. Ventral setae about 36 in number, those in immediate vicinity of anus 24-26 μ long. Sternal setae 2.2.

Scutum extremely weak and striate, but with three small punctate zones behind sensillar bases and AM seta. Posterior margin bi-convex, lateral margins concave. AM distinctly barbed, set in front of AL setae; about twice as long, and much stronger than simple AL seta. PL setae well barbed and longer than AM. Sensillar bases very close to lateral margins, nearer to level of PL than that of AL. Sensillae subglobose, well ciliated. Eyes absent.

Gnathosoma very elongate, frequently completely covered dorsally by swollen idiosoma. Galeal setae nude. Chelicerae with strong retrorse tooth dorsally in addition to well developed tricuspid cap. Setae on fused palpal coxae long
and plumose. In addition to tarsala, palpal formula B.n.mib.B+3b. Subterminala absent. Tibial claw 3-pronged.

Legs all 7-segmented. Specialized setation as follows — Tarsus I with pretarsala, subterminala, parasubterminala, tarsala and microtarsala; tibia I with

Figs. 24-35. — Dolosia hooperi n. sp. Larva.
24 and 25. Dorsal and ventral views of body, respectively; 26 and 27. Dorsal and ventral views of gnathosoma, respectively; 28, 29 and 30. Specialized setation of legs I, II and III, respectively; 31. Scutum; 32 and 33. Coxae I and II; 34 and 35. Coxae III.
two tibialae and microtibialae; genu I with two genualae and microgenuala; femur I with one strong nude seta dorsally. Tarsus II with pretarsala, tarsala and microtarsala; tibia II with two tibialae; genu II with genuala. Genu III with genuala; tibiala III absent. Microsetae on tibia and genu I strong. Coxae I with one, coxae II with two, and coxae III with six to ten strongly barbed setae.

Standard data in micra of larval scutum of D. hooperi n. sp.

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Notes. — This intranasal species is an extremely interesting one, and undoubtedly links Doloiisia and Trawbacarus. The scutum is degenerate, but the reduction in the posterolateral angles has not yet reached the stage where the PL setae are left free in the cuticle. In all specimens, the PL’s are weakly, but definitely, attached to the scutum.

Doloisia nasicola n. sp.

Figs. 36-45.

Diagnosis. — Two other species of Doloisia with all coxae multisetose are known from Asia — D. okabei Sasa et al., 1952 from Urotrichus, Japan, and D. guangdongensis Liang, 1959 from Bandicota, China. In both of these, coxae I have two setae, while in D. nasicola the number is three. In addition, D. okabei (at least) has the sternal setae 2.2; in D. nasicola, the arrangement is 2.4.

Type material. — Holotype larva and nine paratype larvae from the nasal passages of one Rattus sp. R70221, Lat Huang, Xieng Khouang, Laos, 28.viii.1960, R. Leech and M. Nadchatram. Associated species were D. brachypus A. & N. and D. hooperi n. sp.

Larva. — Length of idiosoma in relatively unengorged specimens 319-330 μ, but increasing to 605 μ in grossly engorged larvae.

Body setation. — Dorsal setae slender, tapering, shortly barbed, arranged 4.8.6-8.6.6.2 (the third row may occasionally have 7 or 9 setae rather than 6-8). Humeral setae paired, 48 μ long; DS 35 μ long; CS 27 μ long. Ventral setae about 32 in number, those near anus 21 μ long. Sternal setae 2.4, occasionally 2.3.

Scutum weakly formed, with much of surface marked by cuticular striae; with three punctate zones behind AM and SB. Posterior margin much wider than anterior margin, shallowly biconvex. AM set in front of AL. AM strongly barbed; PL weakly barbed; AL nude. PL > AM > AL. Sensillary bases near lateral margins. Sensillae broadly clavate. Eyes absent.
Gnathosoma often partially obscured by engorged body. Galeal setae nude. Chelicerae with strong subapical tooth dorsally in addition to tricuspid cap. In addition to the tarsala, the palpal formula is b.b.nnb.4b. Subterminala absent. Palpal claw with three distinct prongs.

Legs all 7-segmented. Coxal formula 3.5.9-11 (but with 6 setae on one coxa II, and 12 setae on one coxa III noted). Specialized setation as follows — Tarsus I

Figs. 36-45. — Dolosia nasicola n. sp. Larva.
36 and 37. Dorsal and ventral views of body, respectively; 38. Dorsal view of gnathosoma; 39. Ventral view of palpal tibiotarsus; 40, 41 and 42. Specialized setation of legs I, II and III, respectively; 43. Scutum; 44. Coxae I and II; 45. Coxa III.
with pretarsala, subterminala, parasubterminala, tarsala and microtarsala; **tibia I** with two tibialae and microtibiala; **genu I** with two genualae and microgenuala; **femur I** with strong, elongate, basally barbed seta dorsally. **Tarsus II** with pretarsala, tarsala and microtarsala; **tibia II** with two tibialae; **genu II** with genuala. **Genus III** with genuala; **tibiala III** absent.

**Standard data in micra of larval scutum of D. nasicola n. sp.**

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