A New Trombiculid Mite of the Genus *Doloesia* from Kagoshima and Oita Prefectures, Japan (Prostigmata: Trombiculidae)

Hiroshi SUZUKI¹, Susumu YAMAMOTO² and Shinichi NODA³

¹Research Center for Tropical Infectious Diseases, Institute of Tropical Medicine, Nagasaki University, Sakamoto 1-12-4, Nagasaki 852-8523, Japan

²Department of Hygiene, Faculty of Medicine, Kagoshima University, Sakuragaoka, Kagoshima 890-8520, Japan

³Research Center for the Pacific Islands, Kagoshima University, Korimoto, Kagoshima 890-8580, Japan

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ABSTRACT

A new species of trombiculid mite, *Doloesia uchikawai* sp. nov., collected in Kagoshima and Oita Prefectures, Japan, is reported here with their morphological characteristics. It is closely related to *D. okabei* Sasa *et al.*, 1952 and *D. minamii* Suzuki 1976, but distinguishable in the shape of scutum, sensillae, number of coxal setae and in standard measurements of scutum.

Key words: Trombiculid mite, *Doloesia*, new species, Kagoshima and Oita Prefectures

INTRODUCTION

A new species of mites sampled in Kagoshima and Oita prefectures, is morphologically classified as a members of Genus *Doloesia* Oudemans, 1910 among the tribe Schongastiini, by expanded sensillae, multiple coxalae more than two, and palpotarsal formula (fT)=4B.S. There are four species of *Doloesia* distributed in Japan: *D. okabei* Sasa, Hayashi, Kawashima, Mitsutomi *et* Egashira, 1952; *D. minamii* Suzuki, 1976; *D. satoiana* Suzuki, 1976 and *D. zentokii* Suzuki, 1976. This new species differs from these four species in the following points: shape of palpal formula and sensillae, shape and dimensions of scutum, and number of coxalae and dorsal setae.

Doloesia uchikawai Suzuki, Yamamoto *et* Noda, n. sp. (Figs. A–G)

Morphology of larva: This species closely resembles *D. okabei* Sasa *et al.*, 1952, but is morphologically different in the pentagonal shape of scutum, globose appearance of sensillae and number of coxal setae in coxae III, and in standard measurements of scutum. It also somewhat resembles to *D. minamii* Suzuki, 1976, but different in the morphology of globose sensillae, number of coxal setae and long mastifemorala on leg 2, and in standard measurement of scutum. In comparison with other species of *Doloesia* distributed in China (Wen, T., 1984 and Li Jiacan, 1997), South East Asia (Audy and Nadchatram, 1957, Nadchatram, 1970, Yunker and Brennan, 1962), it is different in one or more of the following characters: palpal formula, shape of scutum and sensillae, number of coxal setae and number of dorsal

Figs. A–G. *Doloisia uchikawai* n. sp., Larva. (A) Unengorged larva, left ventral, right dorsal; (B) gnathosome, dorsal; (C) gnathosome, ventral; (D) scutum; (E) coxa III; (F) humeral seta; and (G) leg with specialized setae.

Table. Standard measurements of *Doliosis uchikawai* n. sp. (in micra).

	AW	PW	SB	AP	ASB	PSB	SD	am	al	pl	s	As	PS	pp-ss	hm	dsp	vsa
Range (n=15)	20 23	50 58	20 25	30 35	18 23	18 20	36 41	28 30	18 20	39 45	33 40	15	15 18	+13 +18	40 45	38 45	35 38
Mean	21	55	22	32	22	18	38	30	19	41	36	15	17	+15	43	40	36

setae, specialized setae on legs and standard measurements.

Body color was milky white. The size was very small: the body length and width 196 (190–200) μm $\times$ 137 (120–140) μm , respectively, in an unengorged condition of larvae (n=15).

Palpal formula B/b/bNb+4 B • S, eyes very small 1+1 but half of the specimens have no eyes. Galeal seta nude, scutum as figured (Fig. D) roughly pentagonal, broader behind than in front. Convexity of antherior margin especially in midline, posterior margin biconcave.

Sensillae globose based located in antherior to the level of posterolateral setae, Am barbed, al only one barbed or nude, pl setae well barbed and longer than other usual scutal setae.

Scutal measurements are shown in Table.

Fifteen specimens used for measurements.

Dorsal setae total 40–48, arranged 4–10(14)–8(10)–8(10)–8–2.

Ventral setae total 36–40, 2 pairs of sternal setae. Coxal setae 2(3)–4(6)–10(14).

Specialized setae on legs as in Fig. G.

Leg I: Length of leg 200 (190–220) μm . Length of tarsus 45 (43–48) μm : a long mastifemoral, 2 genualae, 1 microgenuala, 2 tibial spurs, 1 microtibial, 1 pretarsala, 1 subterminal, 1 parasubterminal, 1 tarsal spur, 1 microtarsala. Leg II: Length of leg 182 (170–190) μm . Length of tarsus 37 (35–38) μm : a long mastifemoral (25 μm) peculiarity of this species, 1 genualae, 1 tibial spurs, 1 tibial, 1 pretarsala, 1 tarsal spur, 1 microtarsala. Leg III: Length of leg 212 (210–230) μm . Length of tarsus 50 (45–53) μm : 1 genualae.

These specimens were collected from soil samples in Kagoshima and Oita Prefectures using Tullgren apparatus.

Host: unknown.

Terminology follows Vercammen-Grandjean (1968) and Sasa (1956)

Etymology. The specific name is dedicated to Dr. Kimito Uchikawa who has contributed greatly to the knowledge of Acarology.

Materials examined. One specimen 17-XI-1995, Yuwakawa, Osumi-Gun, Kagoshima, Japan. S. Yamamoto and S. Noda. Seven specimens 11-III-1997, Wakimoto, Aira-Cho, Aira-Gun, Kagoshima, Japan. S. Yamamoto and S. Noda. Two specimens 25-V-1997. Idaigaoka, Hasama-Cho, Oita-Gun, Oita, Japan, H. Takaoka and Xuan Da Pham. Four specimens 21-X-1997. Same palce and collectors.

Holotype (NSMT-Ac 11682) and 10 paratypes (NSMT-Ac 11683–11693) will be deposited at the National Science Museum, Tokyo, Japan.

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REFERENCES

- Audy, J. R. and M. Nadchatram (1957): Malaysian parasites XXVI. New intranasal species of *Traubacarus* n. gen. (Acarina, Trombiculidae). *Stud. Inst. Med. Res. Malaya*, 28: 187–230.
- Domrow, R. and N. Nadchatram (1962): Three new species of *Dolosisia* from S. E. Asia (Acarina, Trombiculidae). *Acarologia*, 4: 577–585.
- Li, Jiacan (1997): Trombiculid mites of China—Studies on Vector and Pathogen of Tsutsugamushi disease (ed., Li Jiacan) pp. 330–349, Huayu Nature Book Trade Co. Ltd., Beijing, China. 570 pp.
- Nadchatram, M. (1970): A review of intranasal chiggers with descriptions of twelve species from East New Guinea (Acarina, Trombiculidae). *J. Med. Entomol.*, 7(1): 1–29.
- Pham, X. D., H. Suzuki and H. Takaoka (2001): Distribution of unengorged larvae of *Leptotrombidium pallidum* and other species in and around the rodent nest holes. *Southeast Asian J. Trop. Med. Public Health*, 32(3): 553–557.
- Sasa, M. (1956): Tsutsugamushi and Tsutsugamushi disease. 479 pp. Igaku Shoin, Tokyo. (In Japanese)
- Suzuki, H. (1976): Reports of medico-zoological investigations in the Nansei Islands. Part IV. Three new trombiculid mites of the genus *Dolosisia* from the Amami Island (Prostigmata: Trombiculidae). *Jap. J. Sant. Zool.*, 27(3): 265–270. (In Japanese)
- Vercammen-Grandjean, P. H. (1968): The chigger mite of the Far East. 135 pp, *Special Study U.S. Army Med. Res. And Devel. Comm. Wash. D. C.* 20315. USA.
- Yunker, C. E. and J. M. Brennan (1962): Endoparasitic chiggers: II. Rediscovery of *Dolosisia synoti* Oudemans, 1910, with descriptions of new subgenus and two new species (Acarina: Trombiculidae). *Acarologia*, 4: 570–576.
- Wen, T. (1984): Sand mite of China (Acariformes: Trombiculidae & Leewenhoekiidae). 370 pp, Xue Lin Publishing House. Shanghai, China.

摘 要

Dolosisia 属ツツガムシの 1 新種の記載 鈴木 博 (長崎大学熱帯医学研究所熱帯感染症研究センター), 山本 進 (鹿児島大学医学部衛生学講座), 野田伸一 (鹿児島大学多島圏研究センター)

鹿児島と大分県で土壌サンプルより得られた *Dolosisia* 属のツツガムシ *Dolosisia uchikawai* Suzuki, Yamamoto et Noda sp. nov. を記載した.

本種は *D. okabei* Sasa *et al.*, 1952 に似るが, 背甲板の形が垂五角形で, 感覚毛が球状, 第 2 脚と 3 脚の基節毛が少ない点などで容易に区別される.

また, 他の一種 *D. minamii* Suzuki, 1976 にも似るが, 感覚毛が球状, 第 1 脚基節毛の数が少なく, 第 2, 3 脚基節毛の数が多く, 第 2 脚腿節に 1 本の単条長毛を持つことで区別される.