

A New Species of Scuttle Fly (Diptera: Phoridae) Parasitizing a Termite (Isoptera: Termitidae) in Malaysia

by

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ABSTRACT

Misotermes mindeni Disney & Neoh n. sp. is described from specimens reared from soldiers of *Macrotermes gilvus*.

INTRODUCTION

Misotermes exenterans parasitizes the soldiers of *Macrotermes gilvus* in Java (Schmitz 1938, Kalshoven 1938). Its females scatter large numbers of eggs at a time in the host termite's nest. Silvestri (1926) originally reported a larva in this termite species in the Philippines, which he thought might be a conopid, but which is now considered to have been a species of *Misotermes* (Ferrari, 1987). We here report and describe a new species of *Misotermes* parasitizing the same host species in Malaysia.

The new species was reared from its host termites in the laboratory. The termites were kept in polyethylene containers with moistened vermiculites under environmental conditions of 28 ± 1 C, 90% rh and in complete darkness. After the pupae were formed, they were collected and kept inside a clean container under similar environmental conditions. The emerged adult flies were collected and transferred into 70% ethanol. RHLD then slide mounted the specimens in Berlese Fluid (Disney 2001).

Key words: Scuttle flies, phorids, Malaysia, new species, parasitoids.

Misotermes mindeni Disney & Neoh new species (Figs. 1-6)

In addition to *M. exenterans*, Borgmeier (1967) described *M. vicinus* from a single female from Thailand and provided a key to the females of these two

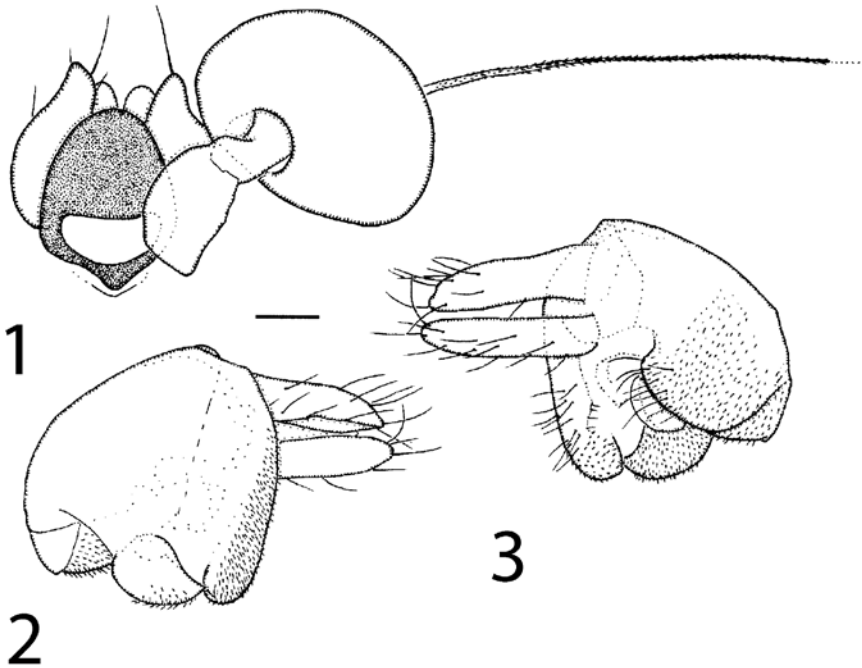
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species. The females of the new species run to *M. vicinus*, but are immediately distinguished by their brown mid and hind femora and ill-defined abdominal tergites. The male differs from that of *M. exenterans* by its brown femora.

Male (Figs. 1-3). Frons brown in its lower half but black in its upper half. A bristle at each side just below the transition from brown to black, otherwise with coarse hairs only. Ocellar triangle with at least a dozen small bristles. Postpedicels dusky yellow with exceedingly short pubescence and as Fig. 1. Palps coloured as postpedicels but with longer pubescence, with a pre-apical bristle, 3 weaker bristles, and at least six hairs. Its tip as Fig. 1. The clypeus is heavily sclerotised (Fig. 1). Labella paler than palps apart from the reticulate bands of micro sculpture cum pitting. Thorax brown. Scutum with coarse hairs apart from bare anteromedian projection. Scutellum with more than a dozen longer, bristly hairs. Anterior spiracle at least twice as long as broad and encroaching on humeral region dorsally. Mesopleuron with hairs to rear of spiracle. Abdominal



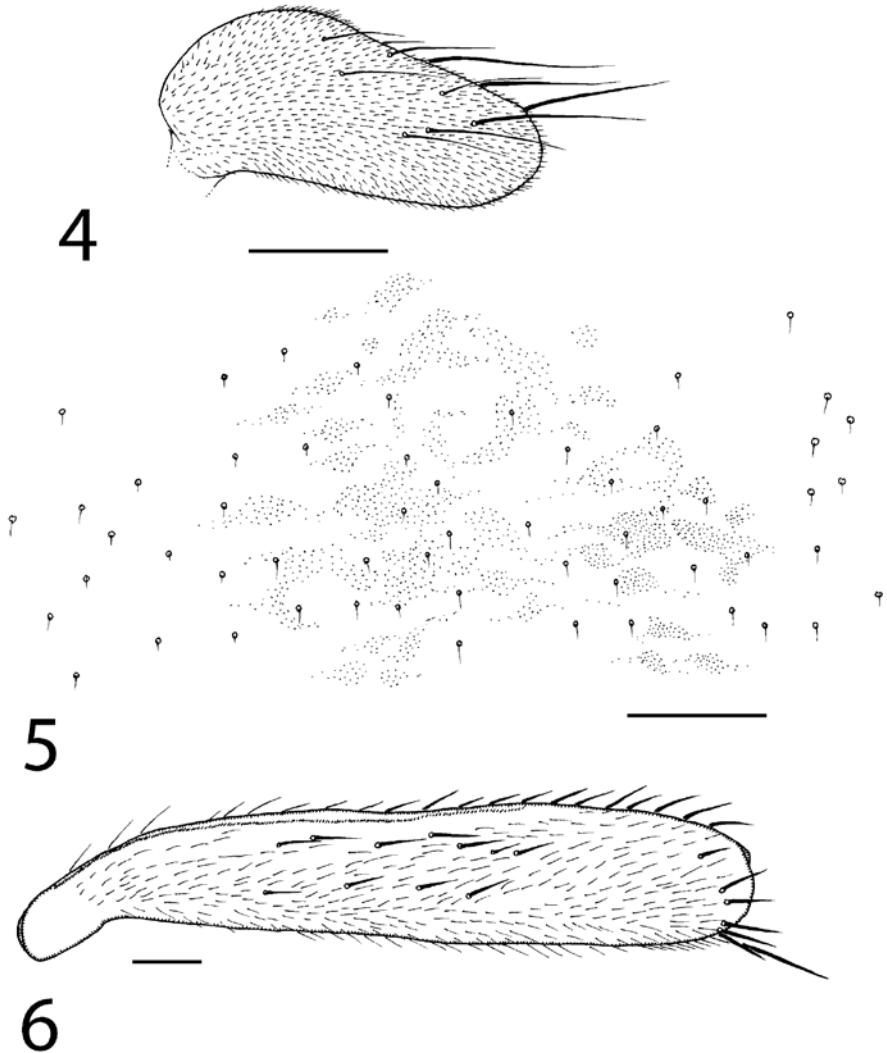
Figs. 1-3. *Misotermes mindeni* male. Fig.1, Right antenna (with tip of arista omitted), clypeus (stippled) and tips of palps and proboscis; Figs. 2-3, Left and right faces of hypopygium (Scale bar = 0.1 mm).

tergites dark brown, T2 and T6 being longer than the rest, and with small hairs. Venter yellowish grey and with small hairs on segments 3-6. Hypopygium yellow to dusky yellow in parts and as Figs. 2-3. Legs yellow, with yellowish brown mid and hind femora and darker brown on mid and hind coxae. Front tarsus with a posterodorsal hair palisade on segments 1-5 and 5 clearly longer than 4. Dorsal hair palisade of mid tibia extends about 0.8x length, and its anterior face with 2 anterior and 3 anterodorsal small spines in third quarter. No hairs along ventral edge of basal half of hind femur. Hind tibia similar to that of female (Fig. 6) but with 8 differentiated anterodorsal small spines, 6 anterior similar spines in middle two quarters and 4 anteroventral spines in the distal half. Wings 3.0-3.1 mm long. Costal index 0.62-0.63. Costal ratios 1.4 : 1. Costal cilia 0.05 mm long. Vein 3 unforked (i.e. vein 2 absent) and with 21 small hairs on upper face of basal two thirds, those at the base being longer (c. 0.07 mm long) but most being smaller (about 0.04 mm long). There are also two small hairs (0.02-0.03 mm long) on the membrane between veins 1 and 3. Axillary ridge with 14 bristles. Vein Sc represented by a short basal stump only. Thick veins brownish grey. Veins 4-6 grey and 7 pale. Membrane tinged grey (just evident to naked eye when viewed against a white background. Haltere pale brown.

Female (Figs. 4-6). Head similar to male but postpedicel more subglobose and palp as Fig. 4. Thorax similar to male. Abdomen with segments 1-6 mainly pale brownish grey, but darker on flanks, apart from tergal regions. The latter are generally paler but with the following regions dark brown. Tergum 1 is brown laterally, 2 with outer fifths largely brown but median three fifths pale apart from an anteromedian area speckled with light brown. Terga 3-5 pale with even more diffuse speckled brown anteromedian regions; with tergum 4 as Fig. 5. Segment 6 generally darker. Venter hairs similar to those of male. The rest of abdomen developed as an elongated, straw yellow, ovipositor. The fully extended segment 7 is 0.8-0.9 mm long. The cerci are reduced in size, being 0.04 mm wide at the base but only 0.02 mm long. Legs similar to male. Mid tibia as Fig. 6, but the numbers of spinules vary from 5-8 in the anterodorsal row and 2-4 in the anterior row. Likewise the numbers of spinules on the hind tibia vary. Wings 3.6-3.7 mm long. Costal index 0.60-0.65. Costal ratios 1.5-1.6 : 1. Costal cilia 0.05 mm long. Vein 3 with 16-22 hairs. 0-2 small hairs between veins 1 and 3. Axillary ridge with 5-9 bristles. Otherwise wings and halteres as male.

All the females were gravid, with at least 130 eggs, which measured about 0.45 mm long and 0.11 mm wide.

Material examined: Holotype male, MALAYSIA, Penang, Minden campus, Universiti Sains Malaysia, reared in the laboratory from soldiers from nest mounds of *Macrotermes gilvus* collected 13 November 2008, Kok



Figs 4-6. *Mtsotermes mindeni* female. Fig. 4, Outer face of left palp; Fig. 5, Abdominal tergum 4; Fig. 6, Anterior face of mid tibia (Scale bar = 0.1 mm).

Boon Neoh (Cambridge University Museum of Zoology, 34-99). Paratypes, 3 females as holotype.

Etymology: the name refers to the type locality.

Comments: Schmitz (1938) reported 751 eggs in a gravid female of *Misotermes exenterans*, with mature eggs measuring 0.38 mm long and 0.12 mm broad. Thus the eggs of the new species are a little longer; but the numbers carried by a gravid female are probably only about a fifth of the huge number reported for *M. exenterans*,

Parasitoid Phoridae other than *Misotermes* have been reported from the nests of *Macrotermes gilvus*. These include *Dicranopteron philotermes* (Schmitz, 1931c, Disney & Kistner 1990a) and *Palpiclavina kistneri* (Disney & Kistner 1989, 1992, 1997).

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