

THREE NEW SPECIES OF TERMITE FROM MALAYSIA (ISOPTERA: TERMITIDAE)

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ABSTRACT

During the study of Malaysia termite, specimens of Genus *Odontotermes* were collected from different parts of Malaysia. Morphological studies revealed three new species *Odontotermes kepongensis* n.sp, *Odontotermes kistneri*, n. sp. *Odontotermes matangensis*, n.sp which were found at Malaysia: Kepong, Terrenganu and Matang, Sarawak. The new species are described and illustrated.

ABSTRAK

Semasa penyelidikan anai-anai Malaysia, specimen dari genus *Odontotermes* telah dikumpul dari tempat yang berbeza di Malaysia. Kajian morfologikal mempersembahkan tiga spesies baru *Odontotermes kepongensis* n.sp, *Odontotermes kistneri*, n. sp. *Odontotermes matangensis*, n.sp yang dijumpai di Malaysia: Kepong, Terrenganu dan Matang, Sarawak. Spesies baru diperihal dan dilutasikan.

INTRODUCTION

Genus *Odontotermes* is widely distributed in the Oriental and Ethiopian regions of the world. Today, almost 2300 species of termites are known worldwide (Sen-Sarma, 1975). As far as the origin of genus *Odontotermes* is concerned, it is believed that this genus originated from Ethiopian region and then dispersed to oriental region, in the early Miocene period through West Asia (Emerson, 1955; Krishna, 1970; Sen-Sarma, 1972; Thakur, 1976). Holmgren (1913) recognized 26 species from the Oriental region in his monograph "Termites Studien". Of these, 9 species belonged to the Indian region. Holmgren and Holmgren (1917) described 9 new species from a collection sent by T.B. Fletcher. Snyder (1933-34) added three species. In 1949, Snyder recognized 148 species and Emerson (1955) 155 (including 18 undescribed ones) from the world. Ahmad (1949) described 75 species.

In the post-independence period, 13 species and subspecies were described by Bose (2), Chatterjee and Thakur (2), Roonwal and Bose (2 sub-species), Roonwal and Chhotani (6), Roonwal and Sen-Sarma (1), Roonwal and Verma (1). In 1974, Akhtar described 13 species from the Bangladesh and Pakistan.

According to Thakur (1981), 195 species are known, of which 107 occur in the Ethiopian and 88 in the Oriental region, while Chhotani (1987) has taken into account 176 species of which 91 are reported to occur in the Oriental and 85 in the Ethiopian region. Ahmad's (1955) key to Indomalayan termites compiled species.

MATERIALS AND METHODS

The present study is based on the preserved material available in the collection of Dr. Muzaffar Ahmad, presently in the custody of Dr. M. Saeed Akhtar. Specimens from the samples were picked up at random and measured under stereoscopic binocular microscope with built in magnification changer. Measurements were taken with the aid of calibrated ocular micrometer. Diagrams of the mandibles and postmentum were prepared by Olympus binocular with attached camera.

TAXONOMY

Odontotermes kepongensis n.sp
(Fig. 1, Table 1)

Soldier. Head reddish brown; labrum of the same colour as head; mandibles dark reddish brown, lighter at bases; antennae yellowish brown, uniformly coloured; head with few scattered bristles; labrum with some bristles along lateral sides; postmentum with very few bristles anteriorly; pronotum sparsely hairy. Head subrectangularly oval, narrowed anteriorly; lateral margins convex to straight. Labrum dome-shaped, broadly rounded apically. Mandibles sabre-shaped, left mandible with a sharply pointed, forwardly directed tooth placed in apical third; another minute denticle at base, right mandible with two minute denticles, a denticle slightly anterior to middle, another at base; postmentum moderately arched, lateral sides convex, maximum width in middle, antennae with 15 articles; second twice as long as third, third shortest; pronotum indistinctly notched anteriorly in middle, distinctly emarginated posteriorly, lateral sides not convex, nearly straight.

REMARKS. *Odontotermes kepongensis*, n.sp., comes close to *O. formosanus*, from which it can be distinguished by its small dimensions, subrectangularly oval to subrectangular head capsule (oval in *O. formosanus*); lateral sides of pronotum not convex, nearly straight (convex in *O. formosanus*); antennae with 15 articles (16 articles in *O. formosanus*) and presence of minute denticle at the base of left mandible. *O. kepongensis*, n.sp. also comes close to *O. proformosanus* Ahmad but the latter has a more broadly oval head, arched postmentum, and without minute denticle at the base of left mandible.

Table 1 Measurements (in mm) of 10 soldiers of *Odontotermes kepongensis*, n.sp.

Parameters	Holotype	Range	Mean
Length of head to side base of mandibles.	1.21	1.10-1.35	1.22
Width of head at side base of mandible.	0.70	0.62-0.80	0.72
Width of head at the posterolateral ends of antennal carinae	0.82	0.82-0.95	0.89
Maximum width of head	1.03	0.96-1.13	1.20
Length of left mandible	0.74	0.70-0.86	0.77
Tooth of left mandible from tip	0.20	0.17-0.25	0.205
Length of pronotum	0.43	0.40-0.50	0.46
Width of pronotum	0.74	0.70-0.82	0.77
Length of postmentum	0.72	0.70-0.85	0.77
Width of postmentum	0.51	0.47-0.52	0.50

Type locality.

Malaya: Kepong (latitude 3°14', longitude 101°38'E), type locality (Holotype, Paratype), soldiers and workers, collected by M. Ahmad, 23.4.1962.

Odontotermes kistneri*, n. sp.*(Fig. 2, Table 2)**

Soldier. Head reddish to reddish brown; Labrum brownish; Mandibles dark reddish to light reddish brown, lighter at bases; antennae light brownish yellow, uniformly coloured; pronotum light brownish yellow. Head with a few bristles along lateral sides and at tip; Postmentum with a few bristles anteriorly; Pronotum with several short hairs and bristles of medium size. Head subrectangularly oval, lateral margins weakly convex. Labrum longer than broad, tongue shaped; Mandibles sickle-shaped; left mandible with a sharply pointed, anteriorly directed tooth placed in apical third, another denticle at base; right mandible with a denticle, anterior to middle, another denticle at base. Postmentum moderately arched, broadest in posterior half. Lateral margins

slightly convex. Antennae with 15 articles; second twice as long as third, third shortest, pronotum saddle shaped; anterior margin distinctly notched in middle; posterior margin emarginated; lateral lobes broadly rounded.

REMARKS. Among the soldiers of *Odontotermes* species, with the tooth of left mandible anteriorly directed and shape of head subrectangularly oval, *O. kistneri*, n.sp. comes close to *O. sarawakensis* Holmgren, but differs in having tooth of left mandible more posteriorly located (0.20-0.25 vs 0.20 mm in *sarawakensis*); postmentum broadest in posterior half (broadest in anterior half in *O. sarawakensis*). In *O. sarawakensis* Holmgren, head is also more broader at the side base of mandibles.

Table 2 Measurements (in mm) of 10 soldiers of *Odontotermes kistneri*, n.sp.

Parameters	Holotype	Range	Mean
Length of head to side base of mandibles.	1.39	1.05-1.42	1.22
Width of head at side base of mandibles.	0.69	0.55-0.75	0.66
Width of head at the posterolateral ends of antennal carinae	0.90	0.75-0.90	0.98
Maximum width of head	1.13	0.96-1.13	1.07
Length of left mandible	0.86	0.72-0.88	0.82
Tooth of left mandible from tip	0.22	0.20-0.25	0.22
Length of pronotum	0.43	0.37-0.52	0.47
Width of pronotum	0.82	0.75-0.92	0.81
Length of postmentum	0.82	0.65-0.87	0.78
Width of postmentum	0.51	0.45-0.53	0.47

Type locality.

Terrenganu (type locality) (latitude 7°77'N, longitude 103°25'E), soldiers and workers (holotype, paratypes), collected by D.H. and K.M.C. Kistner, H.R. Jacobson, N. Dondro, 7 km 50, Dungun, Forest Reserve, exfungus gardens of Nest, T-922, 26.7.1977.

***Odontotermes matangensis*, n.sp**
(Fig.3, Table 3)

Soldier. Head reddish brown; mandibles dark brown; antennae brown; pronotum yellow with brownish tinge. Head sparsely hairy; labrum with bristles arranged in a row along lateral sides; postmentum with long bristles arranged in a row along lateral sides; postmentum with many bristles onto anterior half; pronotum more pubescent than head. Head capsule sub rectangular;. Sides converged in front of antennae. Labrum longer than broad, extending to tooth of mandible, tip narrowly rounded. Mandibles long, thick, tips slightly incurved; left mandible with sharply pointed, anteriorly directed tooth, a little anterior to middle; right mandible without any denticle, in some specimens as indistinct denticle present. Postmentum elongate, broadest in basal half, lateral margin convex in specimens' from Matang, Sarawak. Antennae with 17 articles; second one and a half a times as long as third; third shortest; pronotum indented anteriorly in middle; posterior margin weakly depressed in middle; lateral margins.

Table 3. Measurements (in mm) of soldiers of *Odontotermes matangensis*, n. sp.

Parameters	Holotype	Range	Mean
Length of head to side base of mandibles.	2.06	1.65-2.07	1.94
Width of head at side base of mandible.	1.00	0.85-1.00	0.906
Width of head at the post lateral ends of antennal carinae.	1.16	1.10-1.25	1.15
Maximum width of head.	1.67	1.46-1.68	1.57
Length of left mandible.	1.29	1.07-1.37	1.26
Tooth and left mandible from tip.	0.50	0.50-0.55	0.53
Length of pronotum.	0.61	0.60-0.72	0.66
Width of pronotum.	1.16	1.05-1.17	1.13
Length of postmentum.	1.34	1.07-1.37	1.20
Width of postmentum.	0.72	0.62-0.75	0.694

Type Locality.

Matang: Sarawak, soldiers and workers collected (holotype, paratype) by M. Ahmad, from a log, 26.6.1962.

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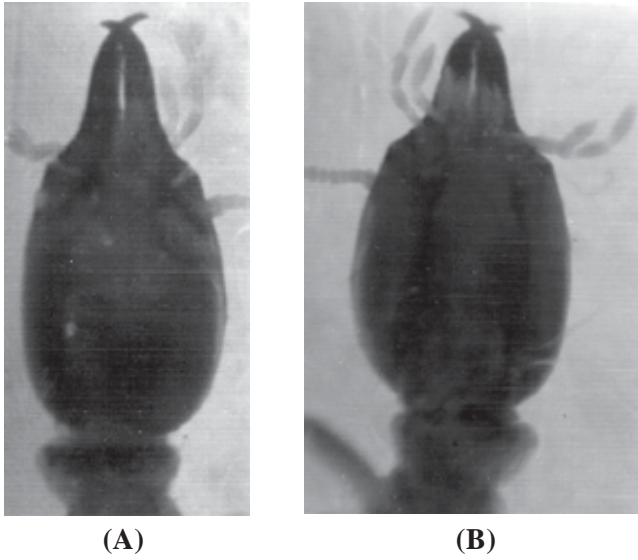


Fig. 1 (A) Head capsule and (B) Postmentum of soldier of *O.kepongensis* n.sp.

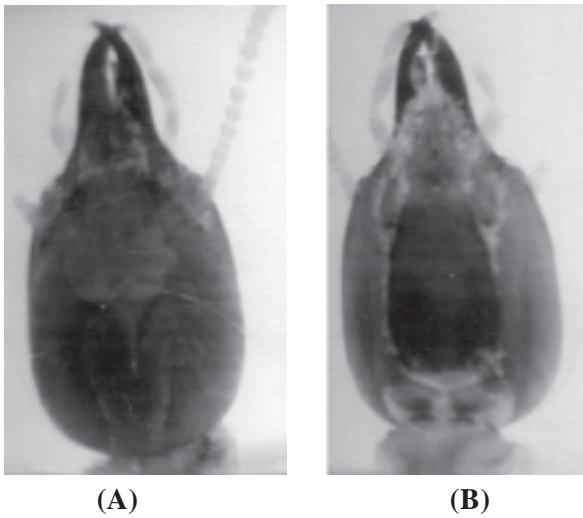


Fig. 2 (A) Head capsule and (B) Postmentum of soldier of *O.kistneri* n.sp.

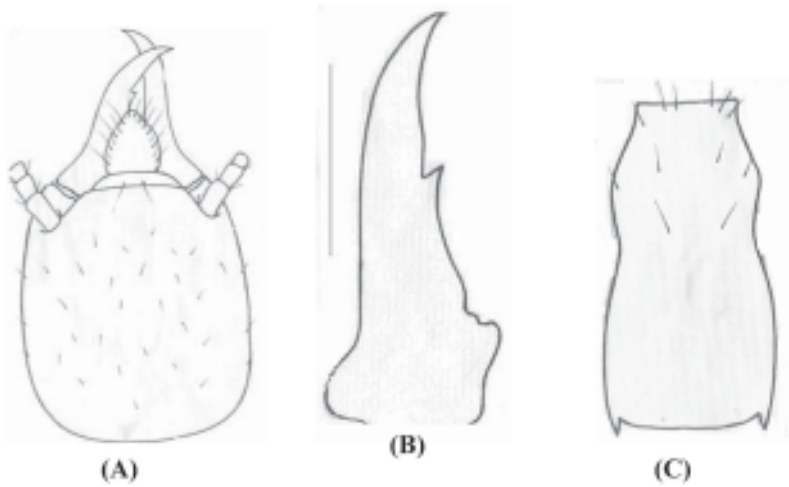


Fig. 3 (A) Head from above, (B) Left Mandible and (C) Postmentum *O. matangensis* n.sp. (All measurements at 0.5 mm).