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**A DETAILED MORPHOMETRIC STUDY OF NEW
TERMITE SPECIES *Odontotermes prewensis* n.sp,
(ISOPTERA: TERMITIDAE) FROM THAILAND**

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ABSTRACT

During the study of Thailand termite, specimens of Genus *Odontotermes* were collected from different parts of Thailand. Morphological studies revealed new species *Odontotermes prewensis*, n. sp which were found at Thailand: Prew. The new species is described and illustrated.

ABSTRAK

Semasa penyelidikan anai-anai Thailand, specimen dari genus *Odontotermes* telah dikumpul dari tempat yang berbeza di Thailand. Kajian morfologikal mempersembahkan spesies baru *Odontotermes prewensis*, n. sp yang dijumpai di Thailand: Prew. 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.

RESULTS AND DISCUSSION

Material Examined:

Thailand:

Prew (type locality), soldiers and workers (holotype, paratype), collected by Ahmad, 28.3.1963.

Imago: unknown

Soldier: (Fig-1 Tables 1- 3)

Head brown, with a reddish tinge; labrum of same color as head; mandibles dark reddish brown, lighter as bases; antennae brownish yellow with light reddish tinge. Head sparsely hairy; labrum with some bristles along sides and at tip; postmentum with few bristles anteriorly; pronotum sparsely hairy. Head rectangular, sides parallel: labrum longer than broad; tip narrowly rounded. Mandibles short, stout, tip slightly incurved; left mandible with a laterally directed tooth almost in middle; right mandible with an indistinct denticle nearly in middle. Postmentum elongate, flat twice as long as broad; lateral margins weakly concave in middle and convex above and below. Antennae with 17 articles; second one and half times as long as third, the third shortest. Pronotum nearly twice as broad as long, slightly emarginated anteriorly and posteriorly; lateral lobes broadly rounded.

Comparison:

Among the species of *odontotermes* with tooth of left mandible laterally directed, and shape of head approaching rectangular condition, *O.prewenis*, n.sp. comes close to *O.maesodensis* but differs in having a more parallel side head, smaller dimensions.

Table 1 Measurements (in mm) of 15 soldiers of *Odontotermes prewensis*, n. sp.

Parameters	Holotype	Range	Mean
Length of head to side base of mandibles.	1.96	1.18-2.14	1.18
Width of head at side base of mandible.	0.90	0.90-1.08	0.95
Width of head at the post lateral ends of antennal carinae.	1.08	1.05-1.12	1.07
Maximum width of head.	1.52	1.35-1.52	1.46
Length of left mandible.	1.10	1.10-1.20	1.14
Tooth and left mandible from tip.	0.54	0.51-0.59	0.54
Length of pronotum.	0.59	0.54-0.61	0.58
Width of pronotum.	1.13	1.08-1.21	1.15
Length of postmentum.	1.23	1.13-1.31	1.27
Width of postmentum.	0.59	0.59-0.64	0.61

The results of analysis of the above measurement are as follows:

Length of Head to Side base of Mandibles:

It varied from 1.81-2.29 mm (mean = 2.07). The co-efficient of variability (C.V) for this parameter was 6.27 (Table 2).

Width of Head at Side base of Mandibles:

Width of head at side base of mandibles varied from 0.90-1.08 mm (mean = 0.98). The value of co-efficient of variability (C.V) was 5.64 (Table 2).

Width of Head at the Poster lateral Ends of Antennal Carinae:

It varied from 1.05-1.12 mm (mean = 1.07). The coefficient of variability (C.V) was 2.41 (Table 2).

Maximum Width of Head:

It varied from 1.35-1.52 mm (mean = 1.45). The co-efficient of variability (C.V) was 4.04 (Table 2).

Length of Left mandible:

It varied from 1.10-1.23 mm (mean = 1.14). The co-efficient of variability (C.V) was 3.61 (Table 2).

Tooth of Left Mandible from Tip:

It varied from 0.51-0.61 mm (mean = 0.55). The co-efficient of variability (C.V) was 6.06 (Table 2).

Length of Pronotum:

It varied from 0.54-0.61mm (mean =0.46). The co-efficient of variability (C.V) was 6.39 (Table 2).

Width of Pronotum:

It varied from 1.08-1.21 mm (mean = 1.15). The co-efficient of variability (C.V) was 3.10 (Table 2).

Length of Postmentum:

It varied from 1.13-1.44 mm (mean = 1.33). The co-efficient of variability (C.V) was 6.38 (Table 2).

Width of Postmentum:

It varied from 0.59-0.69 mm (mean = 0.63). The co-efficient of variability (C.V) was 5.86 (Table 2).

Table 2 Intraset variations in the taxonomic parameters of the soldier caste of *O. prewensis*, n.sp.

Parameters	Nest samples	N	O.R	Mean	S.D	S.E.	95% C.I.	C.V.
Length of head to side base of mandibles	A	15	1.81-2.29	2.070	0.1298	0.0335	1.998-2.141	6.27
Width of head at side base of mandible.	A	15	0.90-1.08	0.980	0.0553	0.0143	0.949-1.010	5.64
Width of head at the post lateral ends of antennal carinae.	A	15	1.05-1.12	1.070	0.0229	0.00593	1.063-1.090	2.14
Maximum width of head.	A	15	1.35-1.52	1.450	0.586	0.0152	1.432-1.500	4.04
Length of left mandible.	A	15	1.10-1.23	1.142	0.0412	0.0106	1.123-1.610	3.61
Tooth and left mandible from tip.	A	15	0.51-0.61	0.558	0.03385	0.00874	0.539-0.576	6.06
Length of pronotum.	A	15	0.54-0.67	0.600	0.03836	0.00990	0.578-0.621	6.39
Width of pronotum.	A	15	1.08-1.21	1.154	0.03582	0.00925	1.134-1.173	3.10
Length of postmentum.	A	15	1.13-1.44	1.335	0.0852	0.0220	1.288-1.382	6.38
Width of postmentum.	A	15	0.59-0.69	0.638	0.03745	0.00967	0.617-0.658	5.86

N = Number of samples; O.R. = Observed range; X = Mean; S.D. = Standard Deviation; S.E. = Standard Error; C.I. = Confidence Interval; C.V.= Coefficient of variance;

Indices

- 1) Mandibular Tooth Index (TLT/LLM)
The index value varied from 0.45-0.52. The mean value for this index was 5.62(Table 3).
- 2) Head Mandibular Index (LLM/LHSBM)
The index value varied from 0.50-0.63. The mean value for this index was 4.68 (Table 3).
- 3) Head Width Mandibular Index (LLM/MWH)
The index value varied from 0.82-0.95. The mean value for this index was 6.49(Table 3).

DISCUSSION

Sample was more variable for length of pronotum (C.V. =6.39) as compared to other parameters. As regards variability in indices, there was more variability (C.V. =6.49) for head width mandibular index (LLM/MWH) (Table 3).

Table 3 Statistics of various indices used in this study for *O. prewensis*, n.sp.

Parameters	N	O.R	Mean.	S.D	S.E.	95% C.I.	C.V.
Mndibular Tooth Index	15	0.45-0.52	0.57	0.03204	0.00827	0.55-0.59	5.62
Head Mandibulare Index	15	0.50-0.63	0.47	0.002204	0.00569	0.46-0.48	4.68
Head Width Mandibular Index	15	0.82-0.95	0.89	0.0578	0.0149	0.85-0.92	6.49

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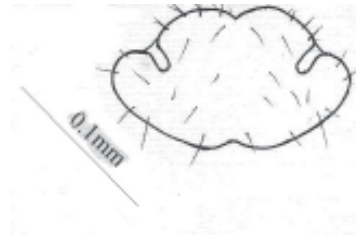
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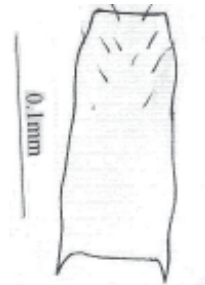
A1



A2



B



C

Fig. 1 Soldier of *Odontotermes prewensisz* n.sp (A1) Head (A2) Porontum from above, (B) Labrum from above and (C) Postmentum from above.