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DESCRIPTION OF TWO NEW SPECIES OF TERMITES (ISOPTERA : INSECTA) FROM THE HIMALAYA

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INTRODUCTION

While studying a fairly large collection of termites from the Himalaya, two new species, namely *Angulitermes nepalensis* and *Ahmaditermes sikkimensis* have been recognized. These two species have been described here with comparison with their respective related species and proper illustrations. The genus *Angulitermes* Sjöstedt easily recognized by its frontal projection of the soldier caste, is so far only known from the new world. The Indian subregion contains 18 species distributed in India, Myanmar, Pakistan and Bangladesh (Snyder, 1949; Chatterjee & Thakur, 1964 and Chhotani, 1997). As such, this is the first record of the species and genus from Nepal where termites are extremely poorly studied so far (Weidner, 1976). *Ahmaditermes* Akhtar, a nasute Oriental genus, is represented by 12 species from Hong Kong, South China, Thailand and India. Only two species, namely *A. emersoni* (Maiti) (described as *Bulbitermes*, Maiti, 1979) from North Bengal and *A. pyricephalus* Akhtar (1975) from Bangladesh are so far known from Indian subregion.

However, these two species are described here.

MATERIAL AND METHOD

The study is based on the collections preserved in 70 percent alcohol at the Zoological Survey of India, Kolkata. These collections were made mostly by the staff-members of the same Institute. The study was made under a Binocular Microscope and the diagrams were drawn with help of a Camera Lucida.

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SYSTEMATIC ACCOUNTS

Family TERMITIDAE

Subfamily TERMITINAE

Genus *Angulitermes* Sjöstedt*Angulitermes nepalensis* sp. nov.

Material studied : 2S., 10 miles NE of Tanakpur, Nepal forest, Nepal, coll. K. Krishna, 31.01.1953, ex. "under stone in soil"

Description : (i) *Imago*-unknown.

(ii) *Soldier* : Head-capsule straw yellow; antennae and labrum as same as head-capsule; mandibles dark reddish brown; body and legs whitish yellow. Head-capsule moderately and body fairly densely pilose. Body length: 4.00-4.10 mm.

Head-capsule subrectangular; broadest just behind antero-lateral corners, whence gradually converging behind and somewhat incurved a little above posterior margin; posterior margin convex; antero-lateral corners somewhat prominent and comparatively chitinised; frontal projection fairly large, prominent with rounded anterior margin, apex pilose, somewhat rounded and turned upwards, reaching upto or sometimes beyond the median depression of labrum. Fontanelle lying below the frontal projection, prominent and less hairy than head; fontanelle gland large and prominent. Eyes and ocelli absent. Antennae broken (last segment); segment 1 and 2 sparsely and remainder fairly densely pilose; 2 slightly and 4 much smaller than 3, 5-8 club-shaped and increasing gradually in length, 9 to the penultimate one subequal or shorter than 8. Postclypeus weakly swollen and pilose. Anteclypeus whitish and apilose. Labrum a little longer than broad; antero-lateral corners with horn-like projections; anterior margin deeply and angularly concave and with hairs; lateral margins narrowing posteriorly. Mandibles of snapping-type, long and slender, pointed out weakly and incurved at distal end, slightly longer than head-length. Postmentum short, club-shaped, widest a little below the anterior margin, with transverse weak striations and apilose, lateral margin weakly incurved basally, anterior margin substraight and posterior margin weakly incurved.

Pronotum strongly saddle-shaped, anterior margin considerably raised; broader than long and much narrower than head capsule, anterior margin without any median notch, fairly pilose. Legs thin, short and pilose. Tibial spur formula 3:2:2, tarsi 4-segmented, claws weak. Abdomen oblong, short, fairly densely pilose. Cerci short with 2-segments and hairy. Styli absent.

Measurements (in mm) :

		Holotype Soldier
1.	Body-length	3.50
2.	Length of head to lateral base of mandibles	1.12
3.	Length of head to tip of frontal projection	1.20
4.	Maximum width of head	1.00
5.	Maximum height of head	0.60
6.	Maximum height of frontal projection	0.27
7.	Head Index I (width/length)	0.72
8.	Head Index II (height/width)	0.69
9.	Head Index III (height/length)	0.55
10.	Maximum length of labrum	0.22
11.	Maximum length of labrum (without tip)	0.19
12.	Maximum width of labrum	0.20
13.	Maximum length of mandibles-left	1.30
14.	Head mandibular Index (left mandible-length/head length)	1.08
15.	Min (median) length of postmentum	0.38
16.	Maximum width of postmentum	0.27
17.	Minimum width of postmentum	0.20
18.	Postmentum contraction Index	0.68
19.	Maximum length of pronotum	0.12
20.	Maximum width of pronotum	0.35
21.	Pronotum index (length/width)	0.34
22.	Head-pronotum width Index (Pronotum-width/head-width)	0.35
23.	No. of antennal segments	Broken

Type-specimens : All specimens, in spirit and from a single source (vide, Material) in separate vials, deposited as follows :

Holotype Soldier (Z.S.I. Reg. No. 3763/H₁₁) and PARATYPE Soldier (Z.S.I. Reg. No. 3764/H₁₁) deposited in Z.S.I., Kolkata.

Type-locality and distribution : Type-locality—10 miles NE of Tanakpur, Nepal Forest, Nepal, coll. K.Krishna. Distribution: Known only from the type-locality.

Comparison : The species, *Angulitermes nepalensis* n. sp. can easily be separated by its shape, size and characters of rostrum and labrum from all other species known from India. However, the species is very close to *A.dehraensis* from Dehra Dun, (Gardner, 1945) but it can be separated from this species by the following characters :

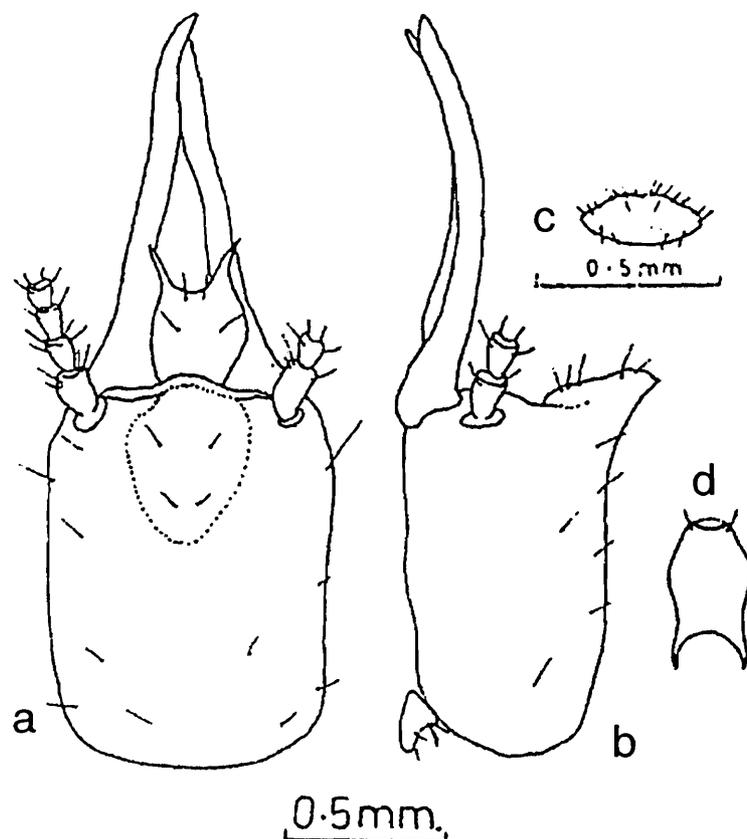


Fig. 1 : *Angulitermes nepalensis*; a-b, Soldier. a. Head, dorsal view; b. Head and pronotum, side view; c. Pronotum; d. Postmentum

From A. dehraensis : Soldier – (i) Antero-lateral corners of head below antennal socket very much prominent and angular (vs., not so prominent in *A. dehraensis*); (ii) Frontal projection very much prominent, tip raised and directed slightly backward (vs., frontal projection not so prominent, tip not so raised and directed backward rather forward), (iii) Anterior margin of labrum with deep, angular median notch (vs., anterior margin deeply incurved with rounded median emargination); (iv) Tip of labrum very sharply pointed (vs., anterior tip not so pointed); (v) Mandible slightly longer than head-length, head-mandible index (mandible length/head-length) 1.08 (vs., mandible distinctly longer than head-length, head-mandibular index: 1.12-1.26).

Subfamily NASUTITERMITINAE

Genus *Ahmaditermes* Akhtar

Ahmaditermes sikkimenses sp. nov.

Material studied : 1S. and sev. W., Ranipool, near Gangtok, East Sikkim, coll. G. K. Srivastava and G. S. Arora, 20.xii. 1973.

Description : (i) *Imago* : Unknown.

(ii) *Soldier* : Head pale brown; rostrum yellowish brown, darker at the apex. Antennae; pronotum and abdominal tergites pale brown. Head and pronotum with sparse minute hairs; abdomen with more erect hairs.

Head excluding antennae almost pear-shaped with distinct constriction behind the base of the antennae; head slightly longer than broad, broadest posteriorly and slightly smaller than the double the width of constriction below the antennae; lateral margin strongly bulging out. Posterior margin broadly rounded with distinct median emargination; head in dorsal profile almost straight with a feeble hump on rostrum-base; posterior bulge of head moderate (0.42 mm.) Rostrum short almost sub-cylindrical, slightly more than half the head-length with few minute hairs at the tip. Fontanelle gland and its tube prominent. Antennae broken, 2nd segment somewhat thicker than 3rd, 3 smaller than 2nd and double the 4th and 5th onwards increasing in length and width with profuse hairs. Labrum small, broader than long. Anteclypeus whitish, much broader than long, anterior margin convex; postclypeus distinct with convex anterior margin. Mandibles reduce, small and devoid of any denticle or any spine like process. Molar plates with irregular margin. Postmentum broader than long, broadest in the middle, anterior and posterior margin substraight.

Pronotum strongly saddle-shaped, anterior margin with a median feeble emargination, posterior margin weakly convex.

Measurements (in mm) :

		Holotype Soldier
1.	Length of head with rostrum	1.57
2.	Length of head without rostrum	1.00
3.	Maximum width of head	1.00
4.	Head constriction width	0.61
5.	Posterior head bulge	0.42
6.	Head index (width/length)	1.00
7.	Maximum length of labrum	—
8.	Maximum width of labrum	—
9.	Length of left rostrum (Upper base of condyle to tip)	0.57
10.	Nasute-head length Index (nasute-length/head-length without rostrum)	—
11.	Minimum median length of postmentum	—
12.	Maximum width of postmentum	—
13.	Width of postmentum at waist	—
14.	Maximum length of pronotum	0.15
15.	Maximum width of pronotum	0.45
16.	Pronotum index (length/width)	0.33
17.	Number of antennal segments	—

(iii) *Worker* : Head pale to fuscous brown, slighter anteriorly, antennae paler than head; legs and rest of the body pale white. Head, pronotum and abdomen fairly pilose.

Head elongately oval, both lateral and posterior sides weakly outcurved. Anteclypeus whitish, apilose and postclypeus feebly brown with some hairs especially on anterior margin. Epicranial suture faintly marked. Antennae with 14 segments, 2 and 3 subequal, rest comparatively longer. Mandibles of typical *Ahmaditermes*-type.

Measurements (in mm) :

		Worker
1.	Length of head	0.80-0.83
2.	Width of head	0.92-0.98
3.	Length of Postclypeus	0.19-0.21
4.	Width of Postclypeus	0.38-0.41
5.	Length of Pronotum	0.22-0.24
6.	Width of Pronotum	0.52-0.54
7.	No. of antennal segments	14

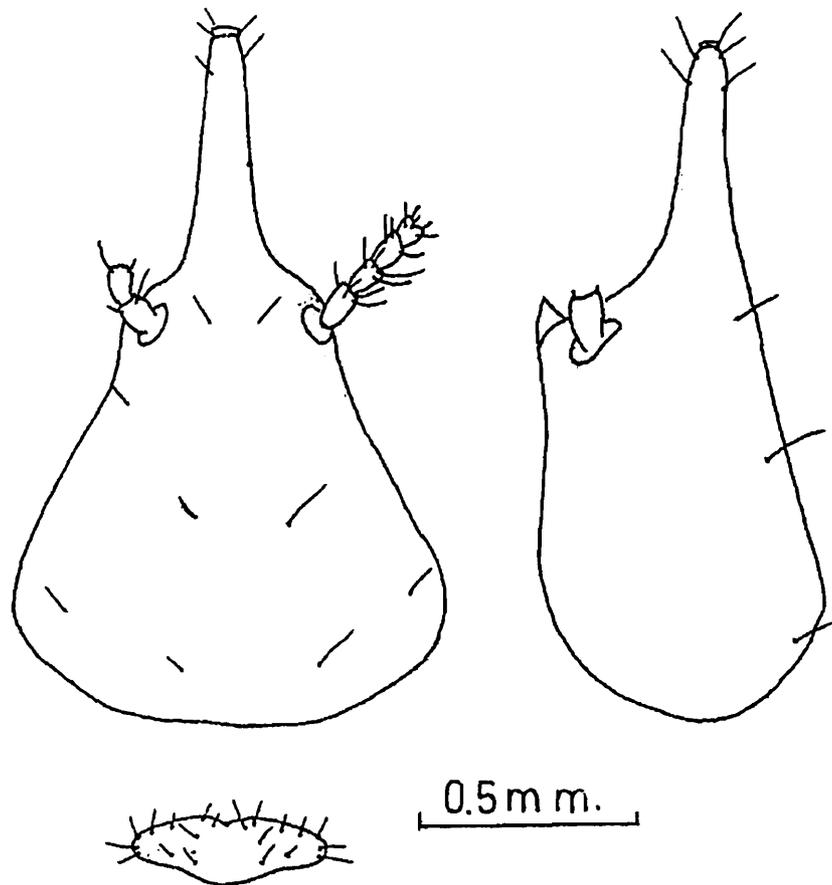


Fig. 2 : *Ahmaditermes sikkimensis*; a-b, Soldier. a. Head and pronotum, dorsal view; b. Head, side view.

Pronotum saddle-shaped, weakly emarginate on anterior–median and postero–median margins.

Type specimens : All specimens, in spirit and from a single source (vide, Material), deposited as follows :

Holotype Soldier (Z.S.I. Reg. No. 3765/H₁₁) and Paramorphotype Workers (Z.S.I. Reg. No. 3766/H₁₁) deposited in Z.S.I. Kolkata.

Type-locality and distribution : Type-locality: Ranipool, near Gangtok, East Sikkim. Known only from the type locality.

Comparison : Of the two species known so far from the Indian subregion, *A. pyricephalus* Akhtar from Bangladesh and Southern China has the dimorphic soldiers, whereas the new species is monomorphic one. However, the species comes close to *A. emersoni* (Maiti) from the Eastern Himalaya, (Maiti, 1979) but differs as follows:

From *A. emersoni* : Soldier : (i) Head-wider, head-width 1.00 mm (vs. head narrower, 0.83-0.93 mm in *A. emersoni*); (ii) Posterior margin of head distinctly emarginate (vs. substraight in *A. emersoni*); (iii) Head in dorsal profile almost straight with a very weak rostral (basal) hump (vs. head in dorsal profile incurved and devoid of any distinct hump in *A. emersoni*).

SUMMARY

The paper deals with the illustrated description of two new species of termites namely, *Angulitermes nepalensis* sp.nov. from Nepal and *Ahmaditermes sikkimensis* sp. nov. from Sikkim, India based on the characters of soldier caste.

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