



NEW RECORDS OF *EUHAMITERMES* HOLMGREN FROM SOUTH INDIA

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ABSTRACT

Euhamitermes Holmgren is a soldier rare, soil feeding termite of the Oriental region. Two species of this genus viz., *Euhamitermes lighti* (Snyder) and *Euhamitermes chhotanii* Maiti are hereby first reported from southern Indian states of Karnataka and Kerala, respectively. Record of *E. chhotanii* in Kerala makes an addition of the genus and thus to the termite fauna of Kerala. These two species are redescribed and illustrated based on soldier and workers.

Key words: *Euhamitermes lighti*, *E. chhotanii*, soil termites, soldier rare group, Kerala, Karnataka, inquiline, distribution, key, illustrations, new records,

Termites are dominant arthropods and as decomposers play a key role in nutrient recycling (Amina et al., 2016). India accounts vast diversity of termites consisting of 295 species under 52 genera and six families; of these, family Termitidae accounts for maximum species diversity with 209 species under 34 genera (Rajmohana et al., 2019). Termite diversity of south India comprises of 132 species (Ranjith and Kalleshwaraswamy, 2021), under 35 genera of five families (Kalleshwaraswamy et al., 2013). Soil feeding termites are one of the diverse groups under the family Termitidae. Of these, *Euhamitermes* Holmgren is one of the rarely collected, soil feeding, soldier-rare genus, endemic to the Oriental region under the subfamily Apicotermittinae Grassé and Noirot. This genus was erected by Holmgren (1912) with *E. hamatus* as its type species, and it is distributed in the Oriental region with 24 species, of which 10 species are from the Indian region (Krishna et al., 2013). As part of taxonomic studies on termites of south India, some *Euhamitermes* samples were collected, and these form the first report of its species from south India and amongst the genera from Kerala.

MATERIALS AND METHODS

Termites were collected as a part of studies undertaken in south India from parts of colonies underneath boulders and walls of termitarium and preserved in 80% ethyl alcohol. Measurements were taken using a stereozoom microscope (ZEISS Stemi508,

10-50x). The images were taken using LEICA M205C stereozoom microscope connected with LEICA DFC450 camera. The specimens were identified following Chhotani (1997) and morphological terminologies; and index of soldiers follow Roonwal and Chhotani (1989) whereas, workers follow Eggleton (2010). The voucher specimens are deposited in the Department of Entomology, College of Agriculture, Keladi Shivappa Nayaka University of Agricultural and Horticultural Sciences, Shivamogga, Karnataka, India.

RESULTS AND DISCUSSION

A. Redescription

Euhamitermes Holmgren 1912: Subfamily Apicotermittinae Grassé and Noirot 1955

1. *Euhamitermes chhotanii* Maiti, 1983

Type locality: West Bengal: Cooch Behar: Atiamochar Forest

Material examined: India: INDIA, Kerala, Nilambur, Pothukal, 11°24'57"N, 76°13'22"E, 57m, 15.i.2020, Coll. Ranjith, M., ex. Mound wall of *Odontotermes* sp.

Diagnostics: Soldier (Fig. 1, Table 1): Head capsule sub rectangular, creamish yellow, densely hairy, sides subparallel, slightly bulged near the base antennae and longer than wide. Y-suture absent. Fontanelle indistinct. Antennae pale yellowish brown with 14 segmented,

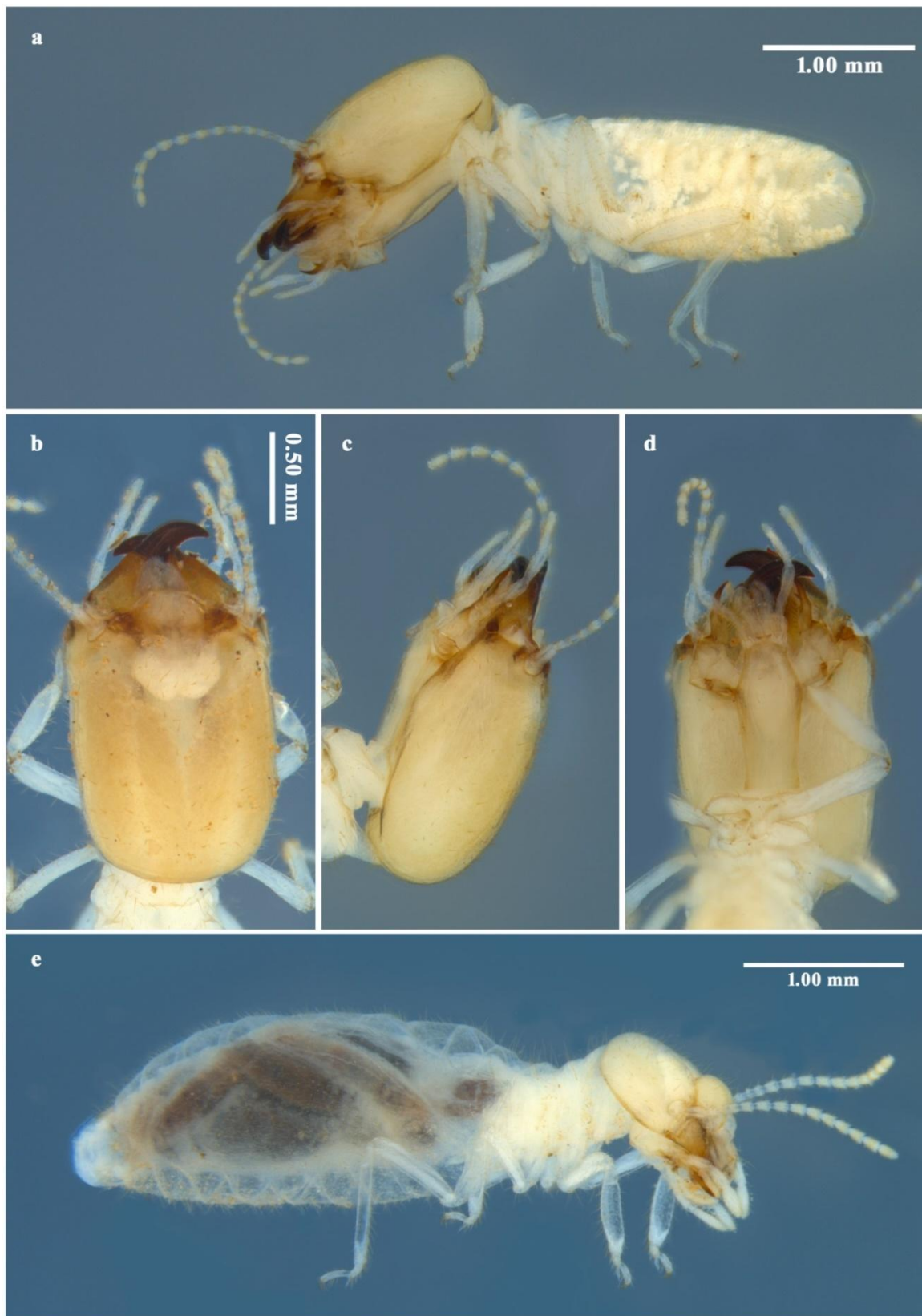


Fig. 1. *E. chhotanii* Maiti, soldier: a. whole body; b. Dorsal view of head; c. Lateral view of head; d. Ventral view of head; e. Worker

Table 1. Measurements of soldiers of *Euhamitermes* spp. (modified from Chhotani, 1997)

Body parts*	<i>Euhamitermes chhotanii</i> Maiti		<i>Euhamitermes lighti</i> (Snyder)	
	Soldier	Worker	Soldier	Worker
Head length to the base of mandible	1.38-1.45	0.68-0.70	1.50-1.75	0.70-0.75
Head length to tip of labrum	-	1.10-1.15	-	1.12-1.15
Maximum head width	1.11-1.13	0.80-0.85	1.12-1.30	0.85-0.88
Head index	0.80-0.86	1.19-1.22	0.71-0.81	1.13-1.26
Mandible length	0.69-0.70	-	0.75-0.80	-
Mandible index	0.48-0.50	-	0.50	-
Tooth distance	0.24-0.25	-	0.22	-
Tooth index	0.35-0.36	-	0.29	-
Postclypeus length	-	0.22-0.28	-	0.18-0.22
Postclypeus width	-	0.38-0.42	-	0.35-0.38
Pronotum length	0.30-0.38	0.22-0.25	0.30-0.40	0.25-0.28
Pronotum width	0.60-0.61	0.42-0.48	0.63-0.70	0.48-0.50
Postmentum length	0.80-0.96	-	0.90-1.15	-
Maximum width of postmentum	0.32-0.38	-	0.32-0.48	-
Minimum width of postmentum	0.25-0.30	-	0.20-0.30	-
Postmentum constriction index	0.78	-	0.56-0.70	-
Labrum length	0.20-0.21	-	0.20-0.25	-
Labrum width	0.30-0.32	-	0.30-0.40	-
Total body length	3.90-0.46	3.75-4.30	4.00-5.40	4.15-4.30

*Measurements in mm except indices

with second segment the shortest. Labrum whitish, tongue-shaped, hairy and broader than long. Mandibles sickle-shaped apices strongly bent inwards, distally dark brownish basally paler, short, stout and broad at the base and shorter as compared to head length. Mandibular tooth small and forwardly placed. Postmentum longer, club-shaped, anteriorly wider with a broad waist having sides gradually converging posteriorly. Pronotum paler, strongly saddle-shaped, anterior margin round without any depression posterior margin weakly depressed wider than long. Legs with apical tibial spur 3:2:2. Tarsi four segmented. Abdomen oblong and densely hairy. Cerci short and two segmented. Worker (Fig. 1, Table 1): Head sub-circular, broader, creamish white and densely hairy. Post clypeus swollen, wider and hairy. Labrum tongue-shaped, broad, whitish, and sparsely hairy. Pronotum whitish, saddle-shaped and posterior margin with a weak median depression. Abdominal wall transparent, internal content visible from outside and densely hairy.

Distribution: West Bengal, Kerala

Remarks: This species was collected from the mound wall of *Odontotermes* sp., which indicates they are inquilines. This was reported to be a soil feeder but its inquiline nature is quite surprising. However, the present record makes the first report of the genus from Kerala and species from south India.

2. *Euhamitermes lighti* (Snyder, 1933)

Type locality: Dehra Dun: Uttarakhand (formerly part of Uttar Pradesh)

Material examined: INDIA, Karnataka, Kodagu, AHRS Madikeri, 12°25'33"N, 75°43'45"E, 1113m, 12.x.2020, Coll. Ranjith, M., ex. Underneath boulders.

Diagnostics: Soldier (Fig. 2, Table 1): Head capsule sub rectangular, sides sub-parallel and weavy, posterior margin faintly rounded, yellowish brown, modestly hairy, longer than broad. Fontanelle is inconspicuous. Antennae pale yellowish brown with 14 segmented and fourth segment the shortest. Labrum paler, tongue-shaped broader at the base. Mandibles brownish, paler basally, shorter, length nearly half the head length, thick, robust, broader basally, apices weakly bent and each with a small prominent tooth situated anterior one-third of the mandible. Postmentum long, club-shaped, sides slightly converging posteriorly, minimum width lying near posterior margin. Pronotum paler, moderately pilose, strongly saddle-shaped, anterior round, posterior margin substraight, sides rounded, broader than long. Legs with apical tibial spur 3:2:2. Tarsi four segmented. Abdomen elongated and densely hairy. Cerci are short and two segmented. Worker (Fig. 2, Table 1): Head capsule sub-circular, broader, pale yellowish, moderately hairy. Y-shaped suture absent. Fontanelle is indistinct. Antennae paler with 14 segmented, fourth

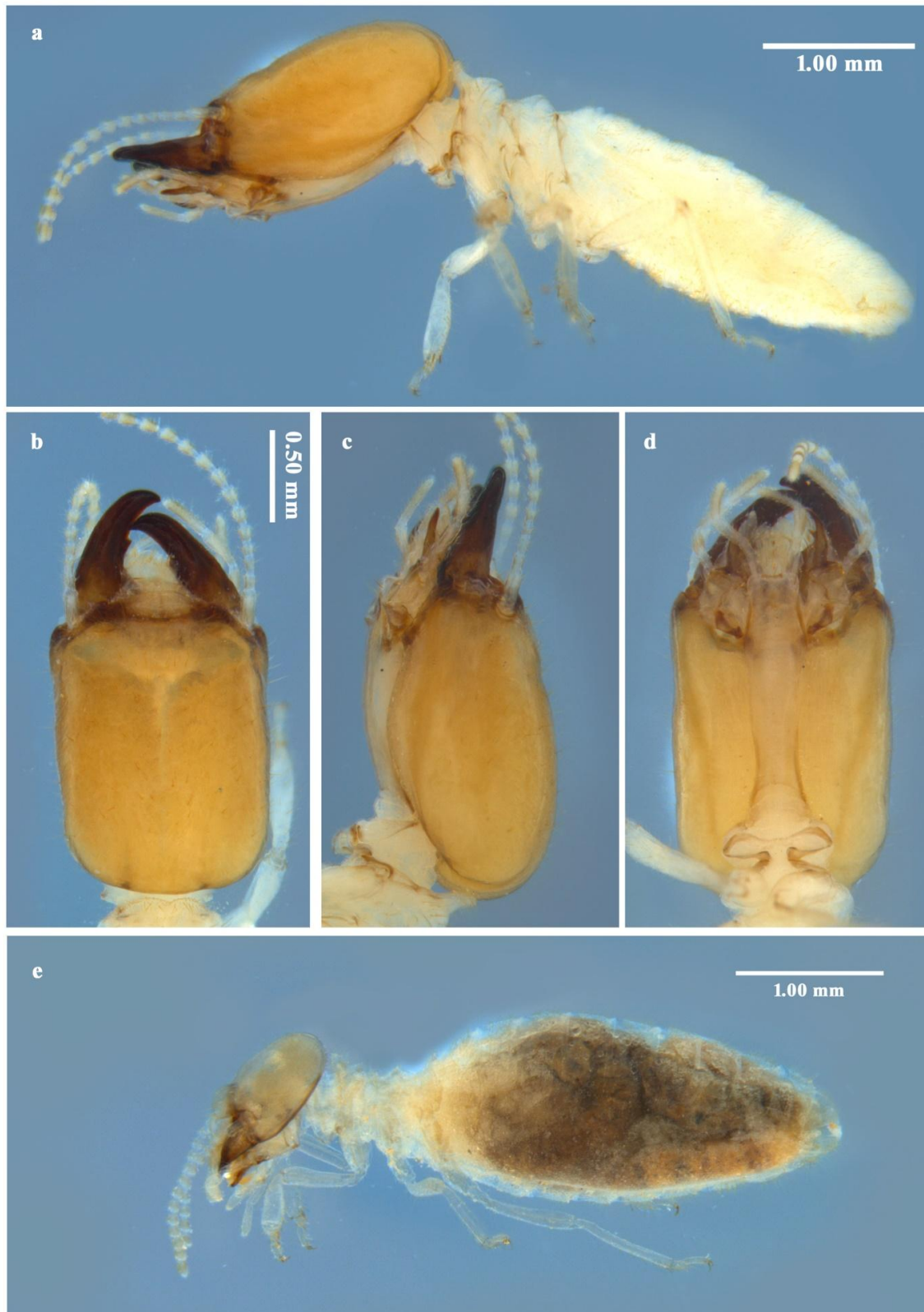


Fig. 2. *E. lighti* (Snyder), soldier: a. Whole body; b. Dorsal view of head; c. Lateral view of head; d. Ventral view of head; e. Worker

segment the shortest. Postclypeus swollen, hairy and wider. Labrum creamish, tongue-shaped and broader. Pronotum paler, saddle-shaped. Abdominal wall transparent, internal content visible from outside and densely hairy.

Distribution: Uttarakhand, Karnataka

Remarks: The species was collected underneath a small boulder, indicate its soil inhabiting and soil feeding nature. The present record of the species from Karnataka makes the first report of the species from south India.

B. Key to the species (soldiers) of *Euhamitermes* from India (modified from Chhotani, 1997) (Soldiers unknown for *E. urbanii* and *E. wittmeri*)

1. Head length to the lateral base of left mandible 1.27 mm and maximum head width 0.97 mm.....*E. aruni*
2. Head length to the lateral base of left mandible more than 1.38 mm and maximum head width more than 1.07 mm.....2
3. Head length to the lateral base of left mandible 1.90 mm.....*E. indicus*
4. Head length to the lateral base of left mandible less than 1.75 mm.....3
5. Mandibles larger; length of left mandible 0.88 mm.....*E. dentatus*
6. Mandibles shorter; length of left mandible less than 0.80 mm.....4
7. Head length to lateral base of left mandible 1.38-1.45 mm.....*E. chhotanii*
8. Head length to lateral base of left mandible more than 1.44 mm.....5
9. Tooth of left mandible small and not prominent.....6
10. Tooth of left mandible large and prominent.....7
11. Head capsule weakly converging posteriorly.....*E. hamatus*
12. Head capsule more or less sub-parallel.....*E. lighti*
13. Mandibles comparatively thicker at base, tooth larger.....*E. karnatakensis*
14. Mandibles comparatively thinner at base, tooth smaller.....*E. kanhaensis*

Of the 10 species of *Euhamitermes*, three species have distribution in south India.

Euhamitermes dentatus have distribution in Telangana (formerly part of Andhra Pradesh), *E. indicus* have distribution in Tamil Nadu and *E. karnatakensis* have distribution in Karnataka (Chhotani, 1997). Records of *E. chhotanii* and *E. lighti* make the new additions of the species to the south India. Of the 10 species known from Indian region, *E. urbanii* Roonwal and Chhotani and *E. wittmeri* Roonwal and Chhotani are known only by their imago caste. The two new records of *Euhamitermes* were earlier recorded only from their type locality, however, these present records further to the southern India instigate to the importance of detailed study of termite fauna of India, especially on the highly diverse soil termites. Recently, many new records of soil termites from Kerala were made by Amina et al. (2016) and Amina and Rajmohana (2021), indicating the intensive surveys and extensive taxonomic works in India are required for better understanding of termite diversity and their distribution.

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