

A NEW SPECIES FROM INDIA OF THE TERMITE-GENUS *PROCRYPTO-TERMES* HOLMGREN (KALOTERMITIDAE), WITH A DESCRIPTION OF THE HITHERTO UNKNOWN IMAGO OF *P. DHARI* ROONWAL AND CHHOTANI

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ABSTRACT

While working out a collection of termites from southern India a new species of the genus *Procryptotermes* Holmgren, first reported from India by Roonwal and Chhotani (1963), has come to light. It is described from imago, soldier and pseudoworker. The hitherto unknown imago of the species *Procryptotermes dhari* Roonwal and Chhotani is also described here from an associated collection of an imago, soldiers and pseudoworkers from Coimbatore, which is the type-locality of the species. The affinities of the new species with *P. dhari* and *P. hunsurensis* are also discussed.

INTRODUCTION

Roonwal and Chhotani (1963) recorded the occurrence of the genus *Procryptotermes* Holmgren from the Indo-Malayan region and they described the species, *P. dhari*, from soldier and pseudoworker castes. While studying the termites of southern India, I have come across a new species and a collection of *P. dhari* from Coimbatore, the type-locality of the species, containing a dealated imago associated with soldiers and pseudoworkers. Both the new species and the imago of *P. dhari* are described here.

In addition to the usual type categories, the categories 'morphotype' and 'paramorphotype' have been used to designate the specimens of different castes as they are widely used in social insects where caste polymorphism is prevalent.

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Procryptotermes valeriae sp. nov.

DESCRIPTION

Imago (Dealate) (Fig. 1 A & B) : Head-capsule, postclypeus, wing-scales and abdomen light chestnut brown ; head slightly darker near ocelli and in region of frons ; anteclypeus hyaline ; labrum yellowish brown ; antennal segments brownish and chitinized, apically pale yellowish. Head and body sparsely pilose. Total length without wings c 5.9 mm.

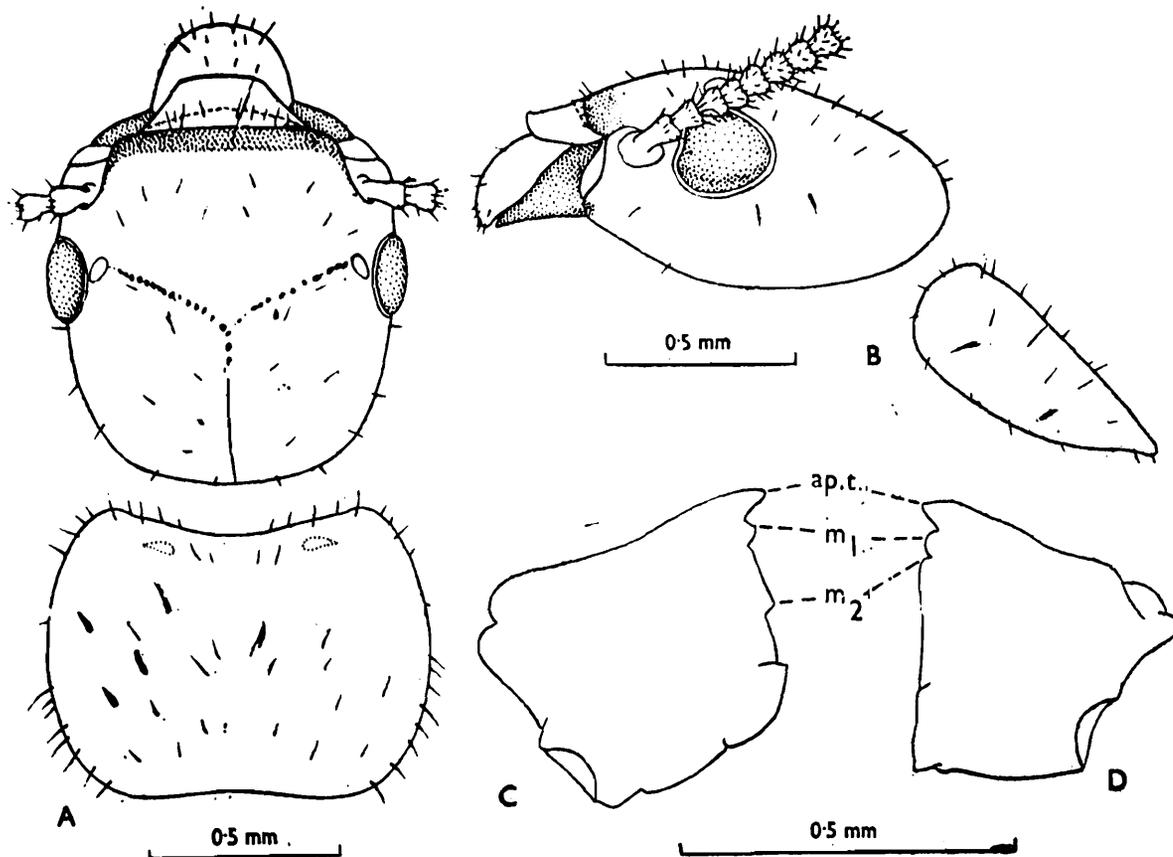


Fig. 1 *Procryptotermes valeriae* sp. n. Imago (de alate) and pseudoworker. A—head and pronotum of imago in dorsal view ; B—head and pronotum of imago in side view ; C, D—left and right mandibles respectively of pseudoworker, in dorsal view. ap. t. - apical tooth ; m_1 , m_2 - first and second marginal teeth, respectively.

Head-capsule subrectangularly oval, broadest in region of eyes ; length to base of mandibles (1.0 mm) equal to width including eyes ; with a few hairs scattered all over ; frons slightly sloping in front up to postclypeus ; Y-suture faint, lateral arms hardly discernible. Eyes medium sized, black, sub-circular (max. diameter 0.30, min. 0.24 mm), anteriorly faintly incurved ; lying close to antennae (eye-antennal distance 0.04 mm). Ocelli suboval (max. diameter 0.1 mm), translucent, small, situated very close to eyes (eye-ocellus distance 0.02 mm). Antennae broken, only 9 segments present ; segment 1 large, cylindrical, 2 shorter than 1, subequal to 3 ; 3 and 5 subequal, shortest ; 6 onwards gradually increasing in size. Postclypeus flat, narrow, faintly demarcated from

frons ; with a few short hairs at anterolateral corners. Anteclypeus trapezoidal, as broad as postclypeus and straight, at anterior margin. Labrum broadly tongue-shaped (length 0.23, width 0.40 mm) ; broadest near middle, converging therefrom to substraight anterior margin and narrowing posteriorly somewhat ; with a number of short, bristle-like hairs anteriorly. Mandibles not examined in the single specimen available. Pronotum stout, shield-like, subrectangular (length 0.73, width 1.04 mm) ; a little broader than head with eyes ; with a few, long and short hairs on anterolateral and posterolateral margins and some on body ; anterior margin concave, posterior margin faintly incurved. Legs rather short and stout ; sparsely pilose with short hairs ; each tibia with 3 apical

spurs; empodium between claws present. Abdomen elongate, oval. Cerci 2-segmented; 0.05 mm long. Styli single-segmented; 0.06 mm long.

Soldier (Fig. 2, Table 1): Head-capsule at frons, postclypeus and mandibles dark chestnut brown; antennae, posterior part of head and thorax paler, reddish brown; legs and abdomen brownish yellow. Head and body fairly pilose.

Head-capsule subrectangular; a little longer than broad; frons impressed centrally and sloping in front up to postclypeus; an erolateral region with two, bluntly pointed, horn-like projections just above antennae on each side, one situated near lateral margin of postclypeus and other as a prolongation of ventral genae. Eyes elongately suboval, translucent; maximum diameter 0.15-0.18 mm, minimum diameter 0.10-0.13 mm; from

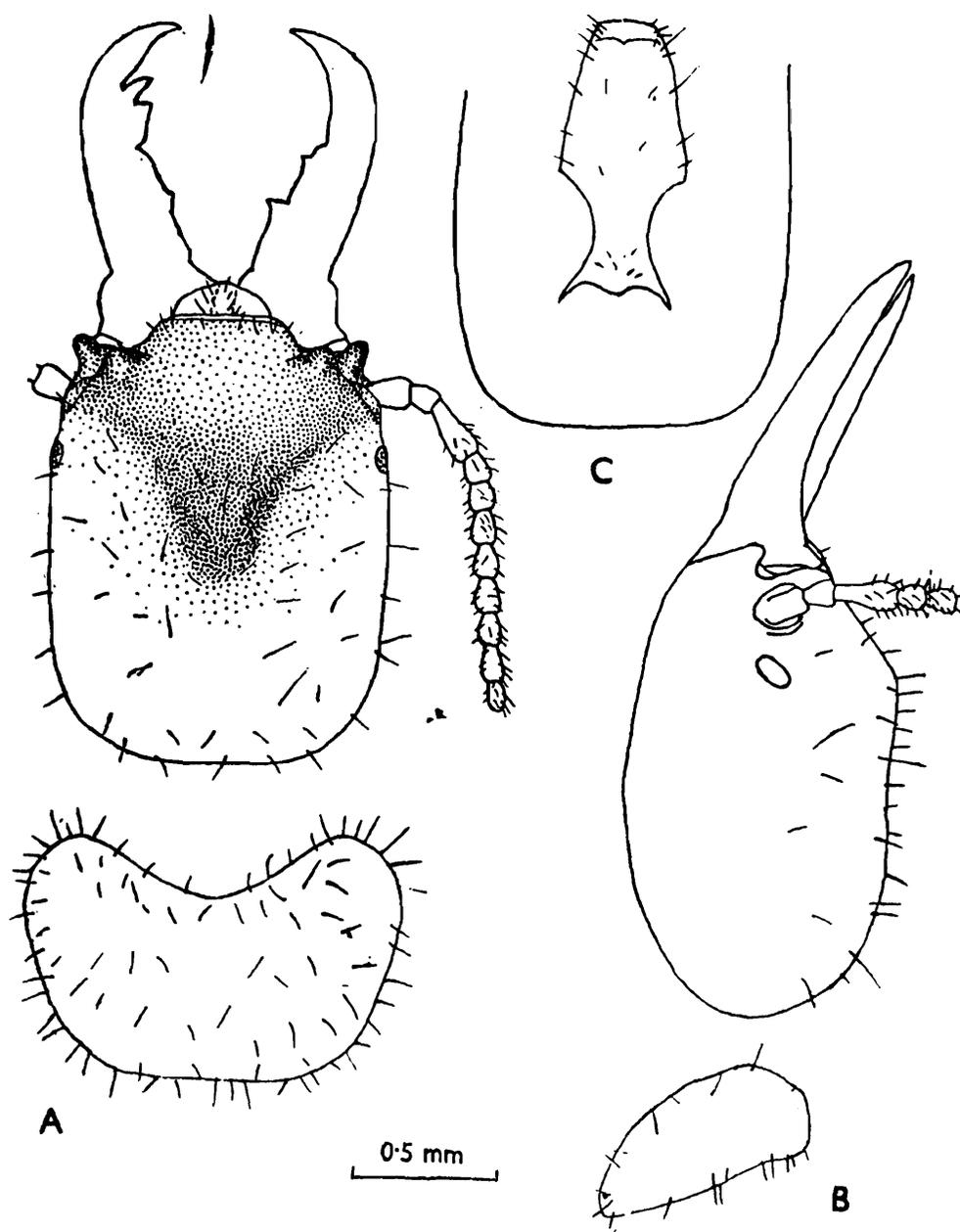


Fig. 2 *Procryptotermes valeriae* sp. n. Soldier, A—head and pronotum in dorsal view; B—head and pronotum in side view; C—head in ventral view; showing postmentum,

TABLE 1. Measurements (in mm), etc, of soldier of *Procryptotermes valeriae*.

Body - parts	Range (6 ex)	Holotype
Total body-length (excluding antennae) <i>c</i>	4.95—6.44	6.44
Length of head to lateral base of mandibles	.. 1.48—1.57	1.57
Maximum width of head	.. 1.20—1.28	1.27
Maximum height of head	0.85—0.93	0.93
Head Index I (Width/Length)	0.81—0.83	0.82
Head Index II (Height/Width)	0.68—0.73	0.73
Head Index III (Height/Length)	0.57—0.60	0.60
Maximum length of labrum	0.10—0.15	0.13
Maximum width of labrum	... 0.30—0.33	0.33
Length of mandibles (from upper base of condyle to tip) :—		
(a) Left mandible	.. 1.00—1.10	1.10
(b) Right mandible	.. 1.00—1.07	1.05
Head-mandibular length index (Left mandible-length/Head-length)	.. 0.66—0.72	0.71
Maximum diameter of eye	.. 0.15—0.18	0.15
Minimum diameter of eye	.. 0.10—0.13	0.10
Minimum median length of postmentum	.. 0.75—0.84	0.75
Maximum width of postmentum	.. 0.38—0.40	0.40
Width of postmentum at waist	.. 0.20	0.20
Maximum length of pronotum	.. 0.70—0.75	0.70
Maximum width of pronotum	1.20—1.28	1.23
Pronotum-head Index (Pronotum-width/Head-width)	.. 0.96—1.06	0.96
Pronotum Index (Length/Width)	.. 0.54—0.60	0.57
Maximum width of mesonotum	.. 1.00—1.05	1.03
Maximum width of metanotum	1.08—1.13	1.08

antennae lying at a distance of a little less than their minimum diameter. Ocelli absent. Antennae 11 to 13-segmented; segment 1 long cylindrical; 2 shorter than 1, 3 club-shaped 1. almost twice of 2; 4 shorter than 2; 5 to penultimate gradually increasing in size; last short, ovate. Clypeus divided into an ante- and a post-clypeus. Postclypeus much wider than long, trapezoidal; with a few pairs of long hairs on anterior margin. Anteclypeus

thin, hyaline, apilose, strip-like. Labrum broad, short, pointed in front and with a cluster of hairs on tip (2 long and a few shorter ones) and a few medium-sized hairs on body. Mandibles strong and large; curved strongly at apex and robustly toothed. Left mandible with four marginal teeth; 1st marginal short, conically pointed; 2nd broader, with a blunt tip and long posterior margin; 3rd small, with long anterior and

posterior, margins; 4th a short one at base. Right mandible with 2 marginals; 1st situated at about middle, fairly large, sharply pointed and with a long posterior margin; 2nd large, broad, bluntly pointed and with a long posterior margin, situated at about basal one-third of mandible. Postmentum short, club-shaped; at waist about half as wide as at maximum width. Pronotum flat, semicircular; sides rounded; anterior margin deeply concave; posterior margin substraight; with long hairs on margins and on body. Mesonotum narrower than pronotum, pilose. Metanotum as broad as pronotum pilose. Legs moderately long, pilose; apical tibial spurs 3 : 3 : 3. Abdomen oblong, pilose; cerci 2—segmented; 0.08-0.13 mm long; styli, when present, single-jointed; 0.05-0.08 mm long.

Pseudoworker (Fig. 1 C & D): Pale creamy white, generally; postclypeus on sides and labrum basally, yellowish; mandibular teeth dark brown. Fairly pilose.

Head-capsule subcircular. Eyes rudimentary, oval, unpigmented spots. Antennae 13-segmented; segment 1 long, cylindrical; 2 shorter than 1; 3 shorter than 2; 4 and 5 subequal, shorter than 3; 6 onwards increasing in size; last (13th) thin, ovate and a little smaller than penultimate. Labrum broad, tongue-shaped, with a large group of hairs a little below anterior margin and another smaller cluster (of 2-4 hairs) medially. Clypeus divided into an ante and a postclypeus. Postclypeus trapezoidal; with a row of long hairs at base and smaller ones on body. Anteclypeus thin, hyaline, apilose, strip-like. Right mandible with a large apical and 2 marginals; 1st marginal short bluntly pointed; 2nd much shorter, with a long posterior margin; molar plate shorter than posterior margin of 2nd marginal. Left mandible with a large, finger-like apical and 2 marginals; 1st marginal small and weakly

triangular; 2nd pointed backwards, with a long anterior and a short posterior margin. Pronotum broader than long, semicircular, pilose; anterior margin concave; posterior margin substraight. Meso—and metanotum broader than pronotum. Legs fairly long, pilose; apical tibial spurs 3 : 3 : 3. Abdomen oblong, pilose.

Measurements (in mm) of pseudoworker (range of five examples): Total body-length (excluding antennae) c 4.8-6.6; length of head to base of mandibles 1.05-1.10; maximum length of pronotum 0.6-0.70; maximum width of pronotum 1.08-1.10.

Material: Holotype Soldier (Z. S. I. Reg. No. 543/H11); Tirunelveli-Nagercoil Road, between 11-12 milestones from Nagercoil, Tamil Nadu, collector *O. B. Chhotani*, 27. ii. 1969, ex dead branch of *Ficus* tree. Paratypes: morphotype imago (dealt) and a pseudoworker (Z. S. I. Reg. No. 544/H11) and paratype soldiers (8) and paramorphotype pseudoworkers (4) (Z. S. I. No. 545/H.1), with the same data as for the holotype. All in spirit, in separate vials, deposited in the National Zoological Collections, Zoological Survey of India, Calcutta.

Distribution: Known only from type-locality.

COMPARISON

This species differs from the other known Indian species as follows:

From *P. dhari* Roonwal & Chhotani (1963):

Imago: (i) Darker; antennae brown, strongly chitinized (pale and weakly chitinized in *P. dhari*). (ii) 2nd segment of antennae subequal to 3 vs. shorter. (iii) Eyes slightly smaller (maximum diameter 0.30, minimum

diameter 0.24 mm vs 0.32 and 0.25 mm, respectively in *dhari*) and different in shape.

So'dier: (i) Head shorter and comparatively wider (length 1.48-1.57 vs 1.68-1.77 mm; index width/length 0.81-0.83 vs 0.72-0.74). (ii) Mandibles stronger, not as strongly incurved at apices as in *dhari* and very different in dentition; 1st marginal tooth on left mandible comparatively small, triangular and pointed (vs large and somewhat roundly triangular). Right mandible with more pro-

(absent in *hunsurensis*). (ii) Eyes smaller and straight anteriorly (vs larger and ovally rounded anteriorly). (iii) Ocelli larger and more widely separated from eyes (vs smaller and very close to eyes). (iv) Pronotum differently shaped.

Soldier: Smaller in size (head length to lateral base of mandibles 1.48-1.57 vs 1.60-1.80 mm). (ii) Mandibles more robust and strongly incurved apically, shorter in length (1.00-1.10 vs 1.15-1.25 mm) and with different

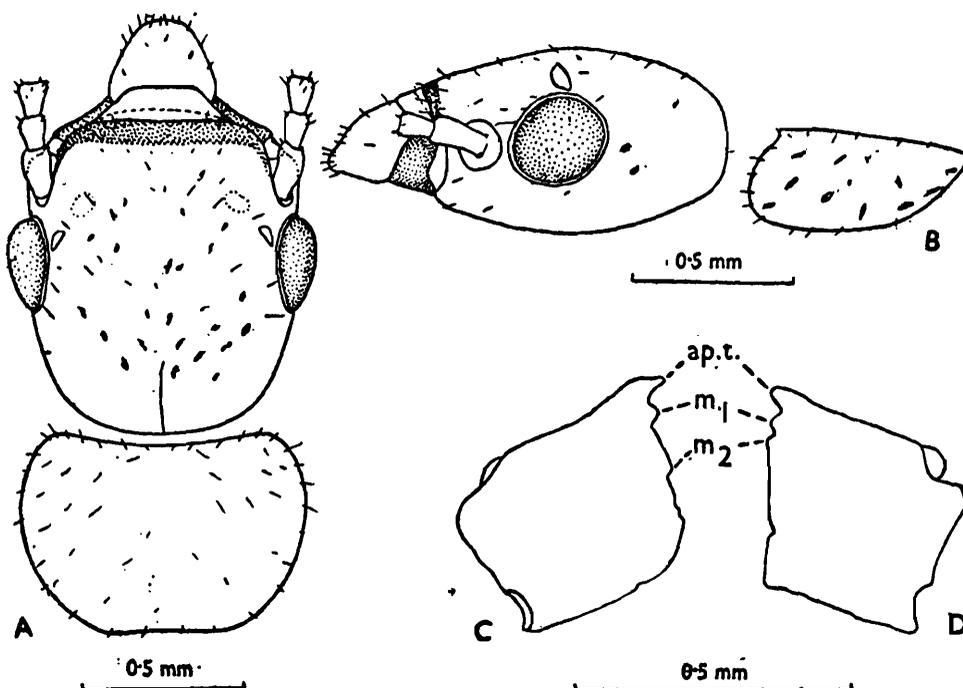


Fig. 3 *Procryptotermes dhari* Roonwal and Chhotani. Imago (dealate) and pseudoworker.

A—head and pronotum of imago, in dorsal view; B—head and pronotum of imago in side view; C, D—left and right mandibles respectively of pseudoworker, in dorsal view. ap. t. -Apical tooth,; m_1 , m_2 -first and second marginal teeth respectively,

minent marginal teeth. (iii) Postmentum stalk short and broad (long and slender in *dhari*).

From *P. hunsurensis* Thakur (1975):

Imago: (i) Head-capsule somewhat sub-rectangular and narrower (vs subcircular and somewhat wider) and with a faint Y-suture

dentition. (iii) Pronotum strongly incurved anteriorly vs less so in *hunsurensis*.

Imago of *Procryptotermes dhari* Roonwal and Chhotani

Imago (Dealate) (Fig. 3 A & B): Head-capsule, postclypeus and mandibles dark reddish brown; anteclypeus hyaline;

antennae, labrum and palpi deep golden yellow; thorax and abdomen darker dorsally, paler ventrally; legs pale reddish brown. Fairly pilose, pilosity pale yellowish. Length without wings 4.90 mm.

Head-capsule slenderly oval; a little longer than broad; head-length to base of mandibles (0.95 mm), equal to head-width with eyes; only longitudinal arm of epicranial suture discernible in posterior region. Eyes medium-sized (max. diameter 0.29, min. 0.25 mm), oval, anteriorly substraight and situated close to antennae. Ocelli elongate, oval, small (long diameter 0.10, short diameter 0.06 mm); lying very close to eyes (eye-ocellus distance 0.02 mm). Antennae broken, only 8 segments present; segment 1 long, cylindrical; 2 shorter than 1; 3 little longer than 2; 4 and 5 slightly shorter than 2 and subequal; 6-8 elongate. Postclypeus faintly demarcated from frons; roughly trapezoidal; with a few short hairs on anterior margin. Anteclypeus also roughly trapezoidal, hyaline and apilose. Labrum broad, tongue-shaped (length 0.2, width 0.33 mm); with a cluster of hairs anteriorly. Mandibles not

examined in the single specimen available. The pseudocoker mandibles examined (Fig. 3 C and D) are generally similar to those of *P. valeriae*. Pronotum flatly rhomboidal; much wider than long (length 0.58, width 0.93 mm) and as wide as head with eyes; with a few long and short hairs on margins and body; anterior margin weakly concave; posterior margin substraight. Legs short, stout, sparsely pilose; tibia whitish, each with 3 apical spurs; empodium between claws pale yellow. Abdomen oval, strongly chitinized; cerci 2-jointed, 0.08 mm long; styli single-jointed, 0.06 mm long.

Comparison : see *P. valeriae* above.

REFERENCES

- ROONWAL, M. L. AND CHEBOTANI, O. B. 1963. Discovery of termite genus *Procryptotermes* (Isoptera, Kalotermitidae) from Indo-malayan region, with a new species from India. *Biol. Zbl.*, 82 (3) : 265-273.
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