

# Last instar larva of *Trypoxylon (Trypoxylon) maidli* Richards (Hymenoptera, Crabronidae), with biological notes on one nest

Sandor Christiano Buys

Laboratório de Entomologia, Departamento de Zoologia, Universidade Federal do Rio de Janeiro. Caixa Postal 68044, 21944-970 Rio de Janeiro, Brasil. E-mail: sbuys@biologia.ufrj.br

**ABSTRACT.** The last larval instar and the cocoon of *Trypoxylon (Trypoxylon) maidli* Richards, 1934 are described. This larva is apparently indistinguishable from that of *T. clavicorum exiguum* Tsuneki, 1956. They can be distinguished from larvae of other species in the subgenus by the following features: integument of body smooth, sensilla on both sensorial area and labrum, and distinct parietal bands. Notes on nesting site and preys from one nest are presented. *Eurycoma insigne* (Millidge, 1991) (Linyphiidae) and *Argiope argentata* (Fabricius, 1775) (Araneidae) are reported as preys.

**KEY WORDS.** Biology, immature, prey, systematic, wasp.

*Trypoxylon* Latreille, 1796 is a large and widespread genus of spider-hunting wasps, which nests in pre-existent cavities or constructs mud nests. This genus is usually split into two subgenera, *Trypoxylon* and *Trypargylum* Richards, 1934, based on morphological and behavioural features (RICHARDS 1934, KROMBEIN 1967, BOHART & MENKE 1976). There are descriptions of the last larval instar of nine species of *Trypoxylon (Trypoxylon)*: *T. elongatum* Smith, 1856 (WILLIAMS 1919, EVANS 1957), *T. figulum* (Linnaeus, 1758); (SOIKA 1934), *T. aldrichi* Sandhouse, 1940; *T. frigidum* Smith, 1856; *T. johnsoni* Fox, 1891, (as *T. adelphiae* Sandhouse, 1940) (EVANS 1957); *T. bicolor* Smith, 1856 (YOSHIMOTO 1964); *T. clavicorum exiguum* Tsuneki, 1956; *T. malaise* Gussakovskij, 1933 (IIDA 1969); and *T. attenuatum* Smith, 1851 (ASIS *et al.* 1994). The last instar larva of the mud-dauber *T. (Trypoxylon) maidli* Richards, 1934 is herein described and notes on its nest are presented.

## MATERIAL AND METHODS

One multicellular nest bearing larvae and preys was collected in the Reserva Biológica de Poço das Antas, Rio de Janeiro State, southern Brazil. The larvae were killed and preserved in alcohol (90%). The head and the entire body of two last instar larvae were separately heated in KOH (10%) for about 10 minutes to eliminate the soft tissues. The description was based on two last instar larvae and one cocoon, but the morphometric features were taken from a single larva. Adult specimens of the wasp have been deposited in the Museu de Zoologia da Universidade de São Paulo, São Paulo State, Brazil (MZUSP); the preys have been deposited in the Museu Nacional / Universidade Federal do Rio de Janeiro, Rio de Janeiro State, Brazil (MNRJ).

## RESULTS

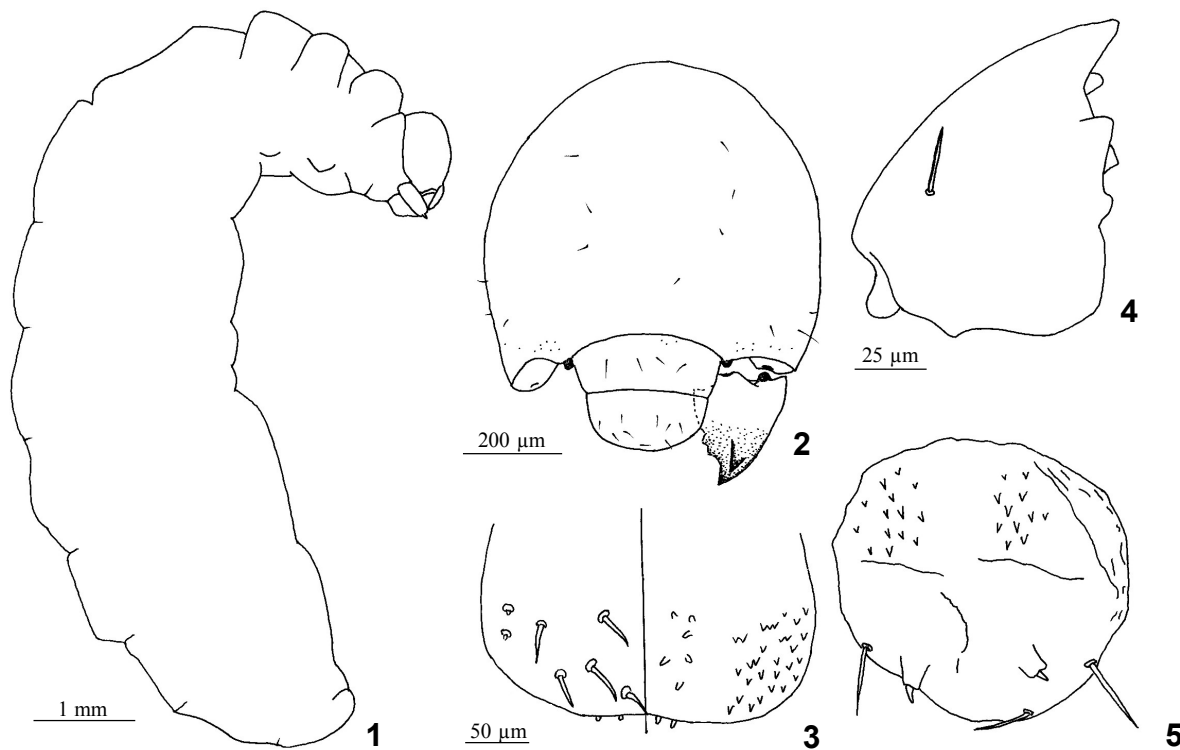
### *Trypoxylon (Trypoxylon) maidli* Richards, 1934

#### Last instar larva (Figs 1-5)

**Body.** White. Cylindrical. Pleural lobes rounded on thorax and abdomen. Thoracic segments dorsally very prominent. Anal segment somewhat truncate. Integument smooth; transverse rows of setae on thoracic segments; prothorax and mesothorax with about ten setae each, 23-40  $\mu\text{m}$  long; metathorax with four setae, 23-30  $\mu\text{m}$  long; setae sparsely distributed on abdominal segments with no distinct pattern of distribution. Spiracles unpigmented, inconspicuous, about 45  $\mu\text{m}$  in diameter.

**Head.** 750  $\mu\text{m}$  in width and about 800  $\mu\text{m}$  in height. Coronal suture indistinct. Top and sides of the head weakly roughened. Parietal bands lightly pigmented. Antennal orbits subcircular, unpigmented, very inconspicuous, about 40  $\mu\text{m}$  in diameter, with three small sensilla. Genal areas with three setae, about 50  $\mu\text{m}$  long. Frontal portion with seven setae, up to 60  $\mu\text{m}$  long, sparsely distributed. Anterior tentorial arms and hypostoma unpigmented; pleurostoma pigmented only in the two points of articulation with the mandibles, with about 7-10 punctures roughly aligned. Epistomal suture distinct. Clypeus with a few sparse punctures and four setae, about 40-45  $\mu\text{m}$  long.

**Mouthparts.** Labrum approximately quadrangular; 258  $\mu\text{m}$  in width and 128  $\mu\text{m}$  in height; with nine setae, 23-30  $\mu\text{m}$  long; lateral margins with two unpigmented, conical, sencilla; apical margin with about ten small pigmented, papilliform sensillae which extend to the epipharynx. Epipharynx



Figures 1-5. *Trypoxylon maidli*, last instar larva. (1) Body, lateral view; (2) head with the mouthparts partially dissected, frontal view, showing distribution of setae; (3) labrum and epipharynx, frontal view; (4) dissected mandible, frontal view; (5) dissected labium, frontal view.

with sparse spines, all of them turned to the apex, concentrated on lateral portions; sensorial area with six pigmented papilliform sensillae. Mandibles pigmented from the middle to the apex, on the mandibular internal articulation and on the apical portion of the external mandibular articulation; with five teeth; one seta, 25 µm long, laterally on the base. Maxillae with six lateral setae, up to 25 µm long; maxillary palpi conic, 50 µm long, unpigmented; galeae with about 15 µm long, unpigmented; lacinial area with sparse spines, up to 5 µm long, and an angular lobe. Labium rounded; 170 µm wide; with two conspicuous setae on lateral portions; six setae on ventral face, up to 25 µm long; labial palpi conic, about 25 µm long; unpigmented; oral portion with two sparsely spinulose areas.

### Cocoon

Cylindrical; wall formed by one layer of silk; brownish in colour, opaque; texture malleable. Meconium in the posterior extremity; dark; cylindrical; isolated from the rest of cocoon by a wall of silk.

### Nest site and preys

The collected nest was firmly attached to a tree trunk in a shaded place, approximately 1.60 m from the ground. This nest was constituted by several cells, but it was not possible to determine the number of cells because the nest broke in the moment of the collect. The nest bore 50 specimens of *Eurycoma*

*insigne* (Millidge, 1991) (Linyphiidae) (nine immature males, two adult males, two immature females, and 31 adult females), and two immature specimens of *Argiope argentata* (Fabricius, 1775) (Araneidae).

## DISCUSSION

The two examined specimens did not have visible spinnerets, but it seems likely that this structure was lost during the treatment of the material. The known larvae of *Trypoxylon* and those of the related genus *Pison* Jurine, 1808 have developed spinnerets (SOIKA 1934, EVANS 1957, YOSHIMOTO 1964, IIDA 1969, ASÍS *et al.* 1994). It was not observed significant morphological variation among the examined specimens. The only remarkable feature is the cephalic rugosity present in only one specimen, although weakly developed.

The larvae of *T. maidli* and *T. clavicerum exiguum* are unique among the described larvae of species of *Trypoxylon* (*Trypoxylon*) in bearing sensilla on both sensorial area and labrum. *T. figulum* has six somewhat conical sensilla on the apical margin of the epipharynx (SOIKA 1934). *T. attenuatum* have small sensilla on lateral margins of the labrum similar to that of *T. maidli* (ASÍS *et al.* 1994), however, the number of sensilla is different. *T. maidli*, *T. clavicerum exiguum*, *T. malaise* (IIDA 1969) and *T. bicolor* (YOSHIMOTO 1964) are similar in having distinguishable parietal bands. *T. aldrichi*, *T. frigidum*, and *T. adelphiae*

are quite similar, but they could be distinguished by features in the labrum and epipharynx (EVANS 1957). *T. malaise* (IDA 1969) and *T. attenuatum* (ASIS *et al.* 1994) bear the body covered with minute spines. This feature distinguishes these two species from the aforementioned ones.

VASEY-FITZGERALD (1936) described the cocoon of *T. maidli* as white rather than brownish and presented notes on the biology of this species from Trinidad, which agree in general lines with those done in Brazil.

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