

PECULIAR APPENDAGES IN MALE PUPAE OF
LEPTOTHORAX SUBDITIVUS (WHEELER)
(HYMENOPTERA: FORMICIDAE)

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In April 1991, two complete colonies of *L. subditivus*, including about 80 ♂♂, numerous larvae and one single queen each, were collected in a mountainous wood region near Monterrey (Nuevo Leon, Mexico) at an elevation of ca. 1600 m in dry wood sticks at the ground. The colonies were reared in the laboratory under conditions described in Buschinger (1974). After some weeks ♂♂-, ♀♀- and ♂♀- pupae were produced. The male pupae are remarkable because of their striking appendages.

Two translucent lateral projections, having their origin at the basis of the third femurs, arch forward around the wing buds. Their length is about 0,4 mm (Fig. 1). In addition, two blunt appendages, originating from the postpetiolar region, point forward, on both sides of the petiole (Fig. 1, 2). Below these projections, two short appendages on both sides of the petiole can be seen. Their length is about 0,15 mm (Fig. 2). The projections are translucent and filled with the pupal liquid. With higher magnification their surface appears roughly sculptured as the result of a partly thickened cuticle (Fig. 3). Histological studies have revealed that there are no cellular structures detectable inside any of these appendages. They seem to be part of the pupal cuticle (Billen, pers. comm.). In black pupae just prior to eclosion the appendages shrivel and finally vanish. In the adults no trace of the peculiar projections is detectable. Neither female nor worker pupae possess similar appendages in any stage of development.

As far as I know, comparable appendages have not been detected before in ant pupae. Larval appendages have been found.

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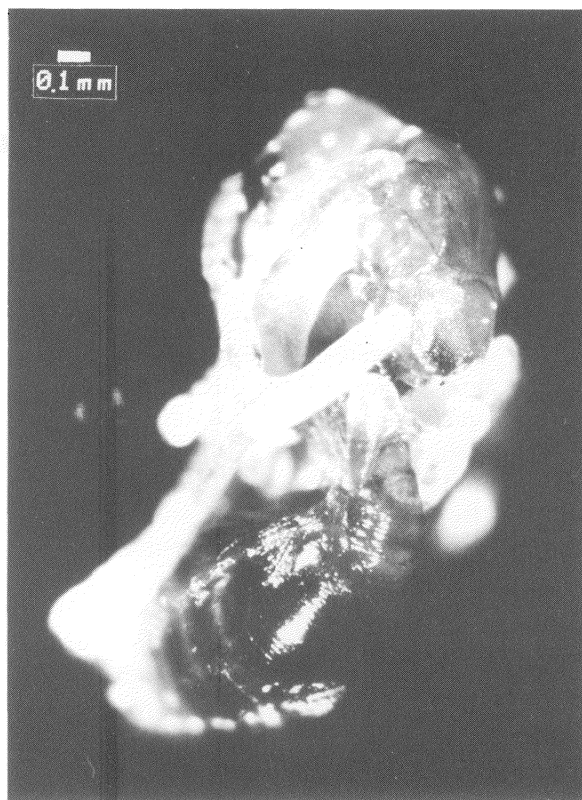


Fig. 1. Male pupa of *L. subditivus*, showing the left hindlegs projection and the large petiole appendages.

Wheeler (1918) described unusual thoracic and abdominal projections in larvae of *Tetraponera* (= *Pachysima*) *latifrons* and interpreted them as exudatoria, producing attractants for the workers. Menozzi (1930) recorded similar structures in certain *Crematogaster* species.

The function of the *L. subditivus* ♂♂-pupae projections is totally unknown. Recently, I detected similar structures in male pupae of another species from the same locality, *L. cf. tenuisculptus*. Colony observations did not reveal any unusual behavior of workers or queens towards the male pupae or their appendages. Since such

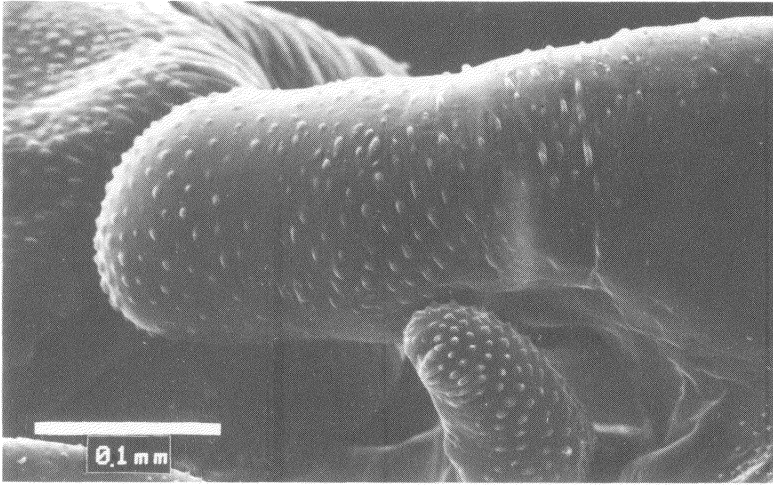


Fig. 2. Lateral view of the petiole appendages.

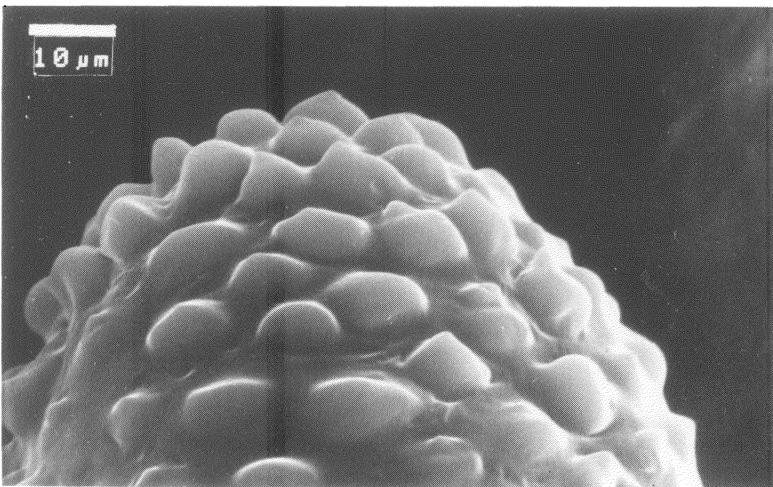


Fig. 3. With higher magnification the appendages (here the top of a hindleg appendage) show a roughly sculptured surface.

appendages have not been reported in male pupae of other *Leptothorax*, and the biology of most species in the subgenus *Macromischa* is very poorly known, it is possible that this trait may prove to be of taxonomic value in defining species groups within *Leptothorax*.

SUMMARY

The male pupae of *Leptothorax subditivus* (Wheeler) possess striking leg and petiole appendages which might be helpful in resolving the difficult taxonomy of the *Leptothorax* complex.

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