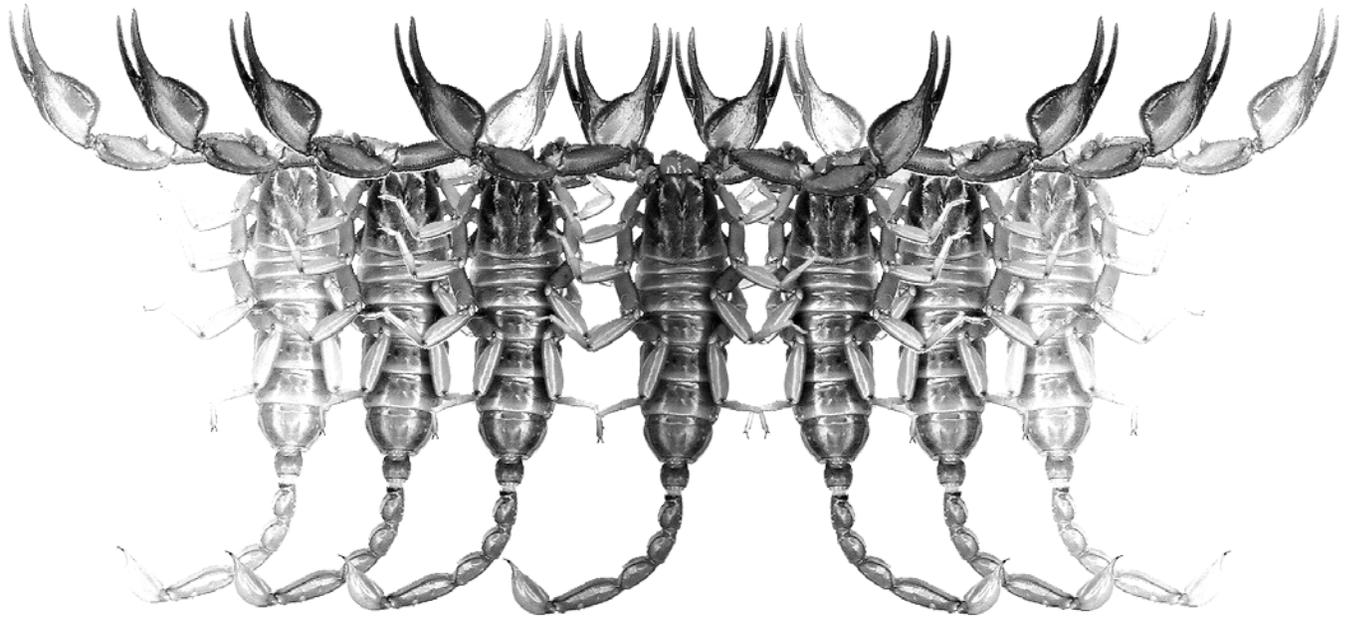


Euscorpius

Occasional Publications in Scorpiology



**Identity of *Planidium* Larvae (Hymenoptera: Chalcidoidea)
Previously Recorded on Antillean Scorpions**

Luis F. de Armas

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Identity of planidium larvae (Hymenoptera: Chalcidoidea) previously recorded on Antillean scorpions

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Summary

The insect planidium larvae found on some Antillean scorpions of the family Buthidae, and previously recorded as belonging to Perilampidae wasps (Hymenoptera: Chalcidoidea), are herein identified as members of Eucharitidae, possibly genus *Kapala*. Their occurrence on scorpions is interpreted as accidental or perhaps phoretic.

Resumen

Las larvas tipo planidio halladas sobre escorpiones antillanos de la familia Buthidae y previamente registradas como pertenecientes a avispa Perilampidae (Hymenoptera: Chalcidoidea), son aquí reconocidas como miembros de la familia Eucharitidae. Su presencia en escorpiones pudiera ser accidental o tratarse de foresis.

Armas & Cruz (1984), Armas & Marcano Fondeur (1987, 1992), and Armas (2003) recorded insect planidium larvae, supposedly of perilampid wasps (Hymenoptera: Chalcidoidea: Perilampidae), on some West Indian scorpions of the genera *Ananteris* Thorell, 1891, *Centruroides* Marx, 1890, *Microtityus* Kjellesvig-Waering, 1966, and *Rhopalurus* Thorell, 1876 (Buthidae) (Table 1). Nevertheless, the true relationship of these larvae with scorpions (whether accidental, phoretic, or parasitic) was not established at that time. The planidium larva was not described, but Armas (2003: 239, fig. 1) included a drawing of its ventral aspect (reproduced here, Fig. 1).

Recently, Victor Fet (Marshall University, West Virginia, USA), by a suggestion of Neil Evenhuis (Bishop Museum, University of Hawaii, USA), brought the paper of Armas (2003) to the attention of John M. Heraty (Department of Entomology, University of California, Riverside, California, USA.). On January 19, 2008, J. M. Heraty wrote to V. Fet and me that "Fig. 1 [of Armas, 2003] is the planidium of an eucharitid wasp, probably *Kapala* (Eucharitidae: Eucharitinae). These larvae are ant parasites and members of this genus have very active larvae that likely often rain down from the plants onto the ground. The scorpion is likely an accidental host. ... "There is probably only one likely species in Cuba, *Kapala terminalis*, which lays its eggs on the underside of broadleaf plants."

The planidium larva illustrated by Armas (2003, fig. 1), was found on the Cuban species *Centruroides anchorellus* Armas, 1976. Compared with that of the Mexican *Kapala izapa* Carmichael in Pérez-Lachaud et al. (2006), it matches in most of the morphological characters that distinguish Eucharitidae planidium larva from that of Perilampidae (for a detailed review on this matter, see Heraty & Darling, 1984).

Eucharitid wasps are specialized parasitoids of ants and have a very modified life cycle. Female deposit their eggs in or on plant tissue, whereas the active first instar (planidium) enters in relations with the host ant larvae by using various phoretic behaviors (for references see Pérez-Lachaud et al., 2006). The genus *Kapala* Cameron, 1884 is widespread in the Neotropical region, including the West Indies, and the most commonly collected in this area (Heraty, 2003; Pérez-Lachaud et al., 2006). At the present, eucharitid planidium larvae have been found on nine species of scorpions from four Antillean islands (Cuba, Hispaniola, St. Martin, and Trinidad; Table I).

Armas (2003) stated that planidium larvae were always found attached by their mouthparts to the membranous tissues of the ventral surface of the scorpion prosoma and/or mesosoma, especially on pectines. The number of these organisms associated with one scorpion varies between 2 and 30, with a very low incidence.

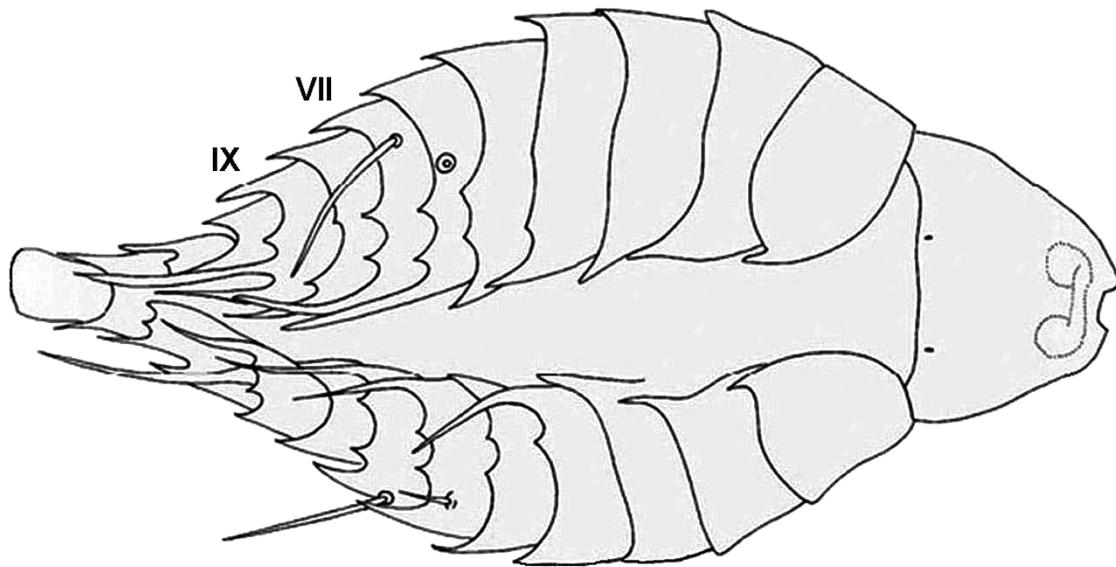


Figure 1: Ventral aspect of the planidium found on *Centruroides anchorellus* (Scorpiones: Buthidae) (after Armas, 2003, fig. 1).

Species	Country	Reference
<i>Ananteris cussinii</i> Borelli, 1910	Trinidad (Lesser Antilles)	Armas & Cruz (1984)
<i>Centruroides alayoni</i> Armas, 1999	Dominican Republic	Armas (2003)
<i>Centruroides anchorellus</i> Armas, 1976	Cuba	Armas & Cruz (1984)
<i>Centruroides barbudensis</i> (Pocock, 1898)	St. Martin (Lesser Antilles)	Armas & Cruz (1984)
<i>Centruroides guanensis</i> Franganillo, 1930	Cuba	Armas & Cruz (1984)
<i>Microtityus consuelo</i> Armas et Marcano Fondeur, 1987	Dominican Republic	Armas & Marcano Fondeur (1992)
<i>Microtityus paucidentatus</i> Armas et Marcano Fondeur, 1992	Dominican Republic	Armas & Marcano Fondeur (1992)
<i>Rhopalurus junceus</i> (Herbst, 1800)	Cuba	Armas & Cruz (1984)
<i>Rhopalurus princeps</i> (Karsch, 1879)	Dominican Republic	Armas & Marcano Fondeur (1987)

Table 1: West Indian buthid scorpions on which planidium larvae (Hymenoptera: Chalcidoidea: Eucharitidae) have been found (after Armas, 2003).

As eucharitid wasps are only known as parasitoids of ants, its presence on scorpions should be explained as accidental or phoretic. Several years ago, one adult female of *Centruroides anchorellus* taken in the field and having “*Kapala*” planidia on her venter was kept in captivity for two months, but the planidia did not abandon the scorpion (L. F. de Armas, unpublished data). Thus, without field or experimental additional data, it is difficult to say if the planidium larvae found on scorpions are accidental or phoretic, although the latter seems likely.

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