

**STRUCTURE AND FUNCTION OF THE URNULAE IN *BALAUSTIUM* SP.  
(PARASITENGONA: ERYTHRAEIDAE) FEATURING SECRETION OF A DEFENSIVE  
ALLOMONE AND ALARM PHEROMONE**

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**ABSTRACT** - In studying predator-avoidance tactics of adult *Balaustium* sp. mites, a characteristic red fluid was observed leaking from a single pair of tubercles (urnulae) that project from the dorsal idiosoma, just behind the eyes. Until now, the urnulae had no known function, but served a useful taxonomic purpose. When threatened, mites were observed actively secreting urnulae-derived fluid that was spread over their body surface by means of numerous setae. Subsequent application of the fluid to mealworm beetle larvae (*Tenebrio molitor*) resulted in sudden diminished ant attacks, suggesting that this secretion serves a defensive role as an allomone. True to semiochemical parsimony, this secretion also prompted an excited dispersal response among conspecific mites, indicating that it also functions as an alarm pheromone, perhaps as an injury cue. More pronounced predator defense and alarm activities are displayed by mite body fluids, indicating that the activity of the emission from the urnulae parallels that of hemolymph. Based on positive staining with ammoniacal silver nitrate, their capacity to secrete, and additional morphological and histological investigations carried out, the role of the urnulae is clearly glandular. Of interest is that the defensive mechanism appears to operate by a novel form of reflex bleeding reminiscent of aposematic beetles.

**Key words** - Mite, defensive allomone, alarm pheromone, urnulae, *Balaustium*.

Abstract #1

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