MIMICRY OF TRIGONA BEES BY A REDUVIID
(HEMIPTERA) FROM BRITISH HONDURAS

JAMES F. JACKSON
Department of Zoology, University of Florida, Gainesville

ABSTRACT

The rediviid Notocyrthus vesiculosus Stal mimics workers of the meliponine bee Trigona fulviventris Guerin both structurally and in coloration. It frequents flowers visited by the bee, but the function of the mimicry is unknown.

The frequency of elaborate modifications of the pronotum in the rediviid subfamily Harpactorinac has been noted (Miller 1956), but their functions remain obscure. It is suggested here that the expanded pronotum of Notocyrthus vesiculosus Stal contributes to its mimicry of meliponine bees of the genus Trigona. Observations of the mimic and its model were made 20-30 December 1972, near Blancaneaux Lodge 15 km north of Augustine, Cayo District, British Honduras.

The model is the worker of Trigona fulviventris Guerin, which is 6.5-7.0 mm in length. The head, thorax, and legs are black; the antennae and eyes are dark-brown. The abdomen is orange-yellow. The wings are transparent but slightly tinted with sepia. The head is large and is slightly wider than the thorax in the transverse axis. The hind tibia, particularly the distal portion, is greatly enlarged and flattened.

Imagos of Notocyrthus vesiculosus are 8.5-9.5 mm long, with males being smaller than females. When viewed from more than a few centimeters away, they strongly resemble Trigona fulviventris (Fig. 1). The mimicry is achieved both by structural modifications and by similarity in coloration. The head is small and partly hidden beneath the enormously expanded pronotum that doubles the depth of the thoracic region. In the anterior-posterior axis, the pronotum extends forward over the posterior third of the head and backward over the entire thorax and the anterior third of the abdomen. The pronotal excrescence is hollow and relatively thin-walled. Being black, it effectively suggests the head and thorax of T. fulviventris. The proximal two-thirds of the hind tibia is enlarged, flattened, and densely clothed with short black hairs. This modification and the black to dark-brown color of the legs contributes to the mimetic resemblance. The abdomen is the same shade of yellow as that of T. fulviventris. A row of 3 white spots runs along each side of the abdomen. The spots are external to the cuticle and are made of secreted material. They may function in the mimicry by suggesting the glare spots of reflected sunlight often seen on the abdomen of the bee. The wings of N. vesiculosus are transparent with a sepia tint. Another point of resemblance between the model and mimic is the matte surface of the thorax and legs that is caused in both species by an abundance of small hairs.

Species of Notocyrthus often vary geographically in coloration (Champion 1901). This may be a result of mimicking different Trigona species in different localities. Such geographic variation in mimetic characters and models is well
established in lepidopteran mimics (Ford 1936). Schwarz (1948) cited mimicry of meliponine bees by neotropical cerambicid beetles and syrphid flies.

*Notocyrtus vesiculosus* was most commonly found (13 of 15 individuals) on the melastome shrub *Clidemia rubra* Mart., and both courtship and egg-laying were observed on this plant. The sedentary imagoes typically rest on or below a leaf or along a stem near the flowers. When approached quickly, they move slowly to the opposite side of the stem or leaf. If touched, the imagoes sometimes produce a buzz with the wings; if harassed, they take flight which is rapid and strong. The flowers of *C. rubra* are sessile and axillary and are produced for several months in winter and spring. Imagoes and nymphs were seen to insert their rostra into both open and immature flowers. Imagoes that had been kept without food for several days became active when *C. rubra* flowers were placed in their container and quickly inserted their rostra into them. *Trigona fulviventris* workers visit *C. rubra* flowers regularly and were seen to crawl near *N. vesiculosus* imagoes without eliciting a response from them. No *N. vesiculosus* were seen with prey, so whether the reduviid uses *C. rubra* only as a direct food source or also as a base for predation is unknown. Without such knowledge it is impossible even to speculate whether the mimicry is Batesian or aggressive, or whether it functions in both ways.
Thanks are extended to Drs. F. Mead and S. Hubbell for aid with identifications.

LITERATURE CITED


The Florida Entomologist 56(3) 1973

ENTOMOLOGY IN ACTION

Members needing audio-visual material to aid in giving talks on entomology to students and organizations may borrow free a display of 72 color, 2x2 slides with a script. Write for reservations giving date and alternate date to Secretary, Florida Entomological Society (i.e., Frank Mead), P. O. Box 12425, Gainesville, Florida 32601.