

Sexual Dimorphism in the Sensorial Structures of the Antenna of *Thygater aethiops* (Hymenoptera: Apidae) and Its Relation with Some Corporal Parameters

Authors : Wendy Carolina Gomez Ramirez, Rodolfo Ospina Torres

Abstract : *Thygater aethiops* is a species of solitary bee with a neotropical distribution that has been adapted to live in urban environments. This species of bee presents a marked sexual dimorphism since the males have antenna almost as long as their body different from the females that present antenna with smaller size. In this work, placoid sensilla were studied, which are structures that appear in the antenna and are involved in the detection of substances both, for reproduction and for the search of food. The aim of this study was to evaluate the differences between these sensory structures in the different sexes, for which males and females were captured. Later some body measures were taken such as fresh weight with abdomen and without it, since the weight could be modified by the stomach content; other measures were taken as the total antenna length and length of the flagellum and flagelomere. After negative imprints of the antenna were made using nail polish, the imprint was cut with a microblade and mounted onto a microscope slide. The placoid sensilla were visible on the imprint, so they were counted manually on the 100x objective lens of the optical microscope. Initially, the males presented a specific distribution pattern in two types of sensilla: trichoid and placoid, the trichoid were found aligned in the dorsal face of the antenna and the placoid were distributed along the entire antenna; that was different to the females since they did not present a distribution pattern the sensilla were randomly organized. It was obtained that the males, because they have a longer antenna, have a greater number of sensilla in relation to the females. Additionally, it was found that there was no relationship between the weight and the number of sensilla, but there was a positive relationship between the length of the antenna, the length of the flagellum and the number of sensilla. The relationship between the number of sensilla per unit area in each of the sexes was also calculated, which showed that, on average, males have 4.2 ± 0.38 sensilla per unit area and females present 2.2 ± 0.20 and likewise a significant difference between sexes. This dimorphism found may be related to the sexual behavior of the species, since it has been demonstrated that males are more adapted to the perception of substances related to reproduction than to the search of food.

Keywords : antenna, olfactory organ, sensilla, sexual dimorphism, solitary bees

Conference Title : ICAP 2018 : International Conference on Animal Physiology

Conference Location : Prague, Czechia

Conference Dates : May 24-25, 2018