

External morphology of *Trichogramma dendrolimi* Matsumura (Hymenoptera: Trichogrammatidae) organ and ultrastructure of the sensillae

Sufang Zhang¹, Zhen Zhang^{1*}, Xiangbo Kong¹, Hongbin Wang¹, Gang Zhou², Jinxiu Yu²

(1. Research Institute of Forest Ecology, Environment and Protection, Chinese Academy of Forestry, Beijing 100091, China; 2 Hunan Forestry Academy, Changsha 410004, China)

ABSTRACT: In this paper, we described the ultrastructure of the sensillae on the antenna, eyes, mouthparts, wings, legs, and external genitalia of female and male *Trichogramma dendrolimi* using scanning electron microscopy. The antenna possessed the most sensilla types. We found 13 types of sensilla on female antennae, which were trichoid sensilla (TS) type 1-4, chaetica sensilla (ChS) type 1-2, campaniform sensilla (CaS), falcate sensilla (FS), placoid sensilla (PS) type 1-2, basiconic capitate peg sensilla (BCPS) type 1, coeloconic sensilla (CoS), and styloconic sensilla (StS). 10 types of sensilla were found on the male antennae, some were the same as that on female *T. dendrolimi* antenna, such as TS type 1 and 3, CaS, PS type 1, BCPS type 1, and CoS, but TS type 5 and 6, ChS type 3, and BCPS 2 were specific to male *T. dendrolimi* antenna. The leg possesses 8 types of sensilla and a kind of tympana structure. Four types of TSs were found on the wings. On the mouthparts, sensillae on the maxillary and labial palps were unique, including two TSs and one ChS. The ovipositor possesses three types of sensilla, and the copulatory organ possesses two types. The eyes had only one kind of TS. Furthermore, external morphology of antennae and external genitalia revealed distinct sexual dimorphism. According to their morphology, the possible functions of these sensilla were discussed. These results may further our understanding of the sensory mechanisms of *T. dendrolimi* in response to info-chemicals within the environment.

ACKNOWLEDGMENTS

This work was supported by the Institute Special Fund for Basic Research, Institute of Forest Ecology, Environment, and Protection, Chinese Academy of Forestry (CAFRIFEEP201102-X).