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Morphology, Distribution, and Ultrastructure of Antennal Sensilla in  
Adult *Helicoverpa assulta* (Lepidoptera:Noctuidae)

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ABSTRACT

The antenna consisted of scape, pedicel, and flagellum. The flagellum of both sexes had 6 major types of sensilla. The number of flagellar subsegments differed slightly between the two sexes. Sexual dimorphism was also noticed in the total number of sensilla and in the subtypes of sensilla trichodea.

Sensilla chaetica were mechanical and contact chemoreceptors. All sensilla trichodea were thick-walled, multiporous sensilla with pitted surface characteristics typical for olfactory sensilla, and had 2-5 unbranched dendrites. These sensilla were further divided into different subtypes, which were not the same between the sexes. Subtypes I and II by scanning electron microscopy and subtypes A and B by transmission electron microscopy, which existed only in the male, may be pheromone-sensitive sensilla. Sensilla basiconica were thin-walled, grooved, multiporous sensilla and had more than 10 dendritic branches. Sensilla auriculica were thin-walled, grooved, multiporous sensilla, flatter than sensilla basiconica and had >30 dendritic branches. Sensilla coeloconica were double walled, grooved, multiporous sensilla and had spoke channels instead of pore tubules. The last subsegment of flagellum and 2-3 sensilla styloconica. Also, most of sensilla styloconica were distributed uniformly in the upper-middle region of each flagellar subsegment and another sensillum styloconicum was distributed randomly in each flagellar subsegment. The pedicel had 2 groups of Böhm bristles, sensilla basiconica and the Johnston organ. The scape had 2 types of scales, 2 groups of Böhm bristles and the scape muscles attached to cuticle of the pedicel. The antennal socket also had 2 groups of Böhm bristles.

**Keywords** oriental tobacco budworm, *Helicoverpa assulta*, antennae, sensilla, ultrastructure

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Figure. Sensillum styloconicum (the hygro/thermo receptor) in the antenna of the adult *Helicoverpa assulta* (Lepidoptera:Noctuidae). L: lamella structure, Mt : microtubules.

