

ANTENNAL SENSILLA OF *OPISINA ARENOSELLA* WALKER [LEPIDOPTERA: CRYPTOPHASIDAE]

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ANTENNAL sensilla play an important role in sensory perception in insects. These sensilla are of different types, serving different functions. The present report deals with preliminary light microscopic observations on the antennal sensilla of *Opisina arenosella* Walker (*Nephantis serinopa* Meyr).

Antennae of newly emerged moths were severed, fixed in 5% formalin, dehydrated, cleared, mounted in Canada balsam and examined. To distinguish chemoreceptors, the animal was fixed in 5% formalin, stained in 0.5% crystal violet solution, processed, and the antennae removed were mounted in DPX¹. The head of the animal was immersed in 0.1% silver nitrate solution in 70% ethyl alcohol for two days, processed and was mounted in Canada blasam². As the chemoreceptors have at least one opening on the setal cuticle through which the neuronal process is kept in contact with the outside, the silver nitrate or crystal violet will stain this nerve ending through the pore and hence the chemoreceptors could easily be distinguished from other types of sensilla. These stained preparations were examined either under ordinary light or under a phase contrast microscope.

The antenna is 5–7 mm long, with 38–42 segments. These segments are cylindrical but the final segment is rather conical.

The characteristic features of different types of sensilla on the antenna are given in table 1.

Slifer³ surmised that the stainability of the sensilla is indicative of the permeability of cuticle to water or dye molecule and hence indicative of their nature as hygroreceptors or chemoreceptors. It appears that sensilla chaetica of *O. arenosella* are contact chemoreceptors; coeloconic sensilla may be hygroreceptors; basiconic and trichoid sensilla are olfactory. Styloconic sensilla may be contact chemoreceptors. Trichoid sensilla could be concerned with pheromone perception because of their larger number and prominent position in the antennae.

A research grant from the Department of Science and Technology, Government of India, is gratefully acknowledged.

Table 1 Characteristic features of different types of sensilla on the antenna of *O. arenosella*

Type	Number of sensilla per segment of antenna	Characteristic features	Probable function
Sensilla coeloconica	1–6	Small conical projections arising from a circular cup-like depression of 9 μ m diameter, from the rim of which 5–6 spines project towards centre; takes silver nitrate	Hygro-reception
Sensilla basiconica	2–7	of 9–18 μ m length, peg-like with blunt end, situated in a small pit, takes up silver nitrate	Olfaction
Sensilla chaetica	3–4	Straight hair like; about 50 μ m length and silver nitrate stains only the tip	Contact chemo-reception
Sensilla trichoidea	12–20	Long and hair like; 28–48 μ m curved inwards towards the tip of antenna. Takes up both silver nitrate and crystal violet stains	Olfaction
Styloconic sensilla	*7–12	Stout cylindrical column of 15 μ m length and 5 μ m breadth at base, with minute sensillum at the tip of the column, stainable with silver nitrate.	Contact chemo-reception

* Total number of sensilla present on the antenna.

1. Slifer, E. H. and Bresicia, V. T., *Entomol. News*, 1960, 71, 221.
2. Venkatesh, S. and Singh, R. N., *Int J Insect Morphol. Embryol.*, 1984, 13, 51.
3. Slifer, E. H., *Biol. Bull.*, 1954, 106, 122.