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Ultrastructural investigation of antennae in bot flies (Diptera: Oestridae)

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The bot flies are economically important obligate parasites that can cause severe myiasis in mammals. As essential olfactory organs, the antennae of these host-specific oestrids, Gasterophilus spp. [*G. nasalis* (Linnaeus), *G. pecorum* (Fabricius), *G. intestinalis* (Geer), *G. haemorrhoidalis* (Linnaeus) and *G. nigricornis* (Loew)], *Rhinoestrus purpureus* (Brauer) and *Hypoderma lineatum* (Villers) are scrutinized using stereoscopic microscope and scanning electron microscope. General morphology of antennae is provided in detail, combined with distribution, types, size and ultrastructures of antennal sensilla. On antennal funiculus, five types of sensilla are observed, including trichoid, basiconic, coeloconic, clavate and auriculate sensilla. Three common characters are shared among these species: (1) the prolonged or enlarged antennal pedicel tend to envelop the antennal funiculus; (2) the much higher diversity in the morphology of antennal sensilla; (3) the numerous sensory pits and pit sensilla on antennal funiculus. An unusual phenomenon in Gasterophilus species is the presence of sensilla on antennal arista. Disparity and diversity of the antennal and sensory structures are analyzed from the phylogenetic and functional perspective.

Biography

Li Xin-yu has accomplished her Bachelor's degree and is continuing her Postgraduate studies in Beijing Forestry University, focusing on the morphology of Oestridae (Diptera), a group of obligate parasites with great economic importance. She has begun her research since she was a Junior and published some papers in reputed parasitology journals. With her ever deeper research, the work will contribute to the development of synthetic attractants for the monitoring studies, and ultimately in the control of these parasitic flies.

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