

Z 110 **Ultrastructural Study of the Eyes in *Nephila clavata***
(Araneae: Tetragnathidae)

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This study was focused on the fine structures of the eyes obtained from *Nephila clavata* spiders. The spiders were fixed with 3% glutaraldehyde and routinely processed for the ultrastructural examination. The specimens were observed using the light microscopy, transmission and scanning electron microscopy. The findings we obtained showed that spider eyes were commonly composed of cornea, lens, vitreous body, retina, and rhabdome. The settling spider, *Nephila clavata* had fully developed postero-median eye (PME) and large inner eye cup. The nerve fibers that formed the optic nerve bundles were connected to the brain of settling spider. *N. clavata* had well developed PME. The shape of photoreceptor appeared to be bipolar. This subject had two types of reflex body tapeta, non-tapetum retina and tapetum-retina. The reflex body was observed in the secondary eye, but not in the retina of primary eye, implying adaptation of *N. clavata* to the darkness of environments. However, tapetum located in diverse places, depending on the species, such as inside of retina, posterior of retina, and around visual system. The tapeta were located in between microvilli and pigment cells. Retinal segments traversed the center.

Specialized domains of the photoreceptor plasma membrane were organized as rhabdomers which were composed of arrays of slender microvilli. Glial cells were distinguished, and were deployed in a variety of ways. Posterior portion of eyes contained pigment cell, a photoreceptor segment. Melanosomes with different electron density were packed within the cytoplasm of the pigment cell.

Key words: *Nephila clavata*, cornea, lens, vitreous body, retina, and rhabdome, tapeta