

C105 **Fine Structural Change of Tubuliform Silk Gland during the Eggcase Production in the Spider, *Argiope aurentia***

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The principal fibers used in constructing the eggcase are products of the tubuliform (or cylindrical) glands, which are present only in females. It has been noted by the behavior evidence, development of this gland parallels maturation of the ovaries. In order to understand functional changes of the tubuliform gland according to the eggcase formation, we have analysed fine structural characteristics using high magnification of electron microscope. Examinations of formed fibers from this glands indicate a multicomponent internal structure, and electron micrographs reveal each fiber contains numerous electron lucent fibrils embedded in an amorphous electron dense matrix. These heterogeneous fibers not necessarily taking place in a uniform manner throughout the length of this gland. By the several evidences obtained from our electron microscopical observation, a mechanism related to eggcase silk formation has been also discussed.

C106 **Fine Structural Aspects on Epithelial Changes during Silk Production in the Barn Spider, *A. cavaticus***

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Synthesis of protein by the major ampullate silk glands in the barn spider, *Araneus cavaticus* was stimulated by depleting the storage of silk protein in the ampulla by mechanically pulling fiber from the spigot. After this stimulation, fine structural changes of the glandular epithelial cells during silk production were examined using transmission electron microscope. Secretory silk was synthesized from rough endoplasmic reticulum (rER) of glandular epithelial cells, and was transported from the rER into the secretory vesicles which were grown up by fusion with surrounding small vesicles including the secretory silk. Mature secretory product in glandular epithelium appeared almost spherical vacuoles with no more than 3 μm in diameter. The Golgi complex did not seem to play an important role in the process of secretion. In contrast to the secretory epithelium of the pre-extruding stage, the epithelium of post-extruding stage was composed of a thinner layer of tall columnar cells with less definitive cell membranes. There were few secretory droplets within these cells, thus causing this region to stain much lighter. It was obvious that cells lose parts of their cytoplasm in this process. In addition, disorganization of the secretory product occurred when it was extruded from the cells by an apocrine process.