

3-1-2. Fine Structural Analysis of the Changes in Ovarian Epithelium and Egg During Maturation in the Orb-web Spider, *Nephila clavata*

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Fine structural changes of the ovary during oocyte maturation in the orb-web spider, *Nephila clavata*, are investigated with light and electron microscopes. Matured eggs are typically round and oval in any directional sections. The most of cytoplasm of an egg at full-grown stage is filled with yolk granules, and the cytoplasmic organelles and nucleus occupy only a small portion. There are three kinds of bodies - protein, lipid, and glycogen particles. By the electron microscopic examination, three types of yolk granules are classified: electron-dense protein yolk, electron-lucent lipid yolk, and glycogen particles that are small and electron-dense. Among them, protein bodies are the most abundant. In addition, full-grown eggs contain two types of layers, such as vitelline membrane and chorion. During ovarian maturation, each oocyte attaches to the surface of the elongated ovarian epithelium through its peculiar short stalk (*the funicules*) attachments. In immature eggs, they are bounded with ovarian epithelium (septa), but after maturation, they are located externally, each by each.