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Ultrastructural Study of Germ Cells and Reproductive Cycle *in Female Neptunea arthritica cumingii*

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ABSTRACT

Oogenesis, the gonadosomatic index (GSI), reproductive cycle and first sexual maturation of the female *Neptunea* (Barbitonia) *arthritica* cumingii have been investigated by light and electron microscope observations In the early vitellogenic oocyte, the Golgi complex and mitochondria were involved in the formation of glycogen, lipid droplets and yolk granules. In late vitellogenic oocytes, the rough endoplasmic reticulum and multivesicular bodies were involved in the formation of proteid yolk granules in the cytoplasm. In particular, compared with the results of other gastropods, it is a different result that appearances of cortical granules at the cortical layer and microvilli on the vitelline envelope, which is associated with heterosynthetic vitellogenesis, were not observed in vitellogenic oocytes during oogenesis A mature yolk granule was composed of three components: main body (central core), superficial layer, and the limiting membrane Monthly changes in the gonadosomatic index in females were studied in 2002 and 2003 were closely associated with ovarian developmental phases. Spawning occurred between May and August in 2002 and 2003 and the main spawning occurred between June and July when the seawater temperature rose to approximately 18~23℃. The female reproductive cycle can be classified into five successive stages' early activestage (September to October), late active stage (November to February), ripe stage (February to June), partially spawned stage (May to August), and recovery stage (June to August).