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# Germ cell Differentiation during Oogenesis and Sexual Maturation in Female Meretrix petechialis(Bivalvia: Veneridae) on the West Coast of Korea

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Germ cell differentiationduring oogenesis, gonad index (GI), reproductive cycle, and first sexual maturity of *Meretrix petechialis* were investigated by cytological, histological observations and morphometric analysis. *M. petechialis* is dioecious and oviparous. In the previtellogenic oocyte, the Golgi complexwas involved in formation of the vacuoles and vesicles.the early vitellogenic oocyte, the Golgi complex is involved in the formation of lipid droplets in the vacuoles. On the other hand, the mitochondria, rough endoplasmic reticula and glycogen particles were involved in the formations of lipid droplets and lipid granules autosynthetically in the cytoplasm. In the late vitellogenic oocyte, lipid granular substances and lots of glycogen particles appeared in the germinal epithelium pass into the ooplasm through the microvilli on the vitelline envelop of the vitellogenic oocyte from the germinal epithelium. This phenomenon shows a possibility of heterosynthetic vitellogenesis.

The reproductive cycle in femalescan be classified into five successive stages: early active (February to March), late active (April to May), ripe (April to September), partially spawned (June to October), spent/inactive stages (October to February). The spawning period continued from June to early October, with a peak between June and July when the seawater temperature exceeds over 22 . The spawning period was once a year,

while it was assumed that the number of spawning frequencies might occur more than twice or three during the spawning season.

Percentage of first sexual maturity in femaleclams ranging from 40.1 to 45.0 mm in shell length was over 56.3%, and for clams over 51.0 mm in shell length it was 100%. Therefore, individuals ranging from 40.1 to 45.0 mm in shell length were considered to be three-years old. It was assumed that the hard clams were sexually mature after three-years old in females.