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Characterization of eggs of *Saxidomus purpuratus* (Sowerby, 1852) (Bivalvia: Veneridae), and developing antibody for quantitative estimation of the reproductive output

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Abstract

Biochemical and biometric features of eggs of the Washington clam, *Saxidomus purpuratus,* are reported in this study. In addition, a polyclonal antibody against the purified clam egg was employed to quantitative assessment of eggs of the clams collected from Geoje Island, Korea in May 2002. Mean egg diameter was 70.81 ± 7.52 ㎛ (histological preparation) or 88.56 ± 11.31 ㎛ (purified oocytes), and individual egg weighed 95 ng in dry weigt. The predominant egg constituent was protein (35.57 ng, 37.44%), followed by lipid (10.83 ng, 11.40%) and carbohydrate (9.20 ng, 9.68%). SDS-PAGE reveled that the eggs consist of proteins with molecular mass of approximately 163 and 95 kDa under non-denaturing condition, and 99, 54, and 47 kDa under denaturing condition. Egg dry weight in a female clam measured by Enzyme-Linked Immunosorbent Assay (ELISA) varied from 0.884 g to 2.362 g (mean 1.609 g ± 0.594 g) per clam. Gonad somatic index, a ratio of egg to the total tissue weight, varied from 0.082 to 0.268 with a mean value of 0.154. Fecundity of the clams ranged from 9,307,309 to 31,156,333 with a mean number of 16,931,893. Microscopic observation of gonad indicated that the clams used in this study were fully mature, suggesting that egg masses measured by ELISA could be a maximum value of the year.

Key words: Reproduction, *Saxidomus purpuratus*, egg, fecundity, antibody, ELISA, Korea.

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