

Ultrastructural observation on spermatogenesis of *Urechis uncinatus*

ZHANG Zhifeng, SHAO Ming-Yu, *Kang Kyoung Ho and *Kim Jae Min
College of Marine Life Sciences, Ocean University of Qingdao, China, 266003
*Department of Aquaculture, Yosu National University, Korea, 550-749

Introduction

The gonad of Urechidae animal has not a fixed shape. Most genesis processes of germ cell go along in the coelomic fluid freely. All process has no assistant cell. Many scholar were interested in these features.

Urechis uncinatus is Urechidae animal which is a familiar benthos community in inter-tide lower section and infralittoral zone of coastal sand areas. It main distribute in China, Korea, Russia and Japan. Sperm genesis and its structure is an important content in reproductive biology. Up to now the research on this subject in *Urechis uncinatus* was not reported. In this paper we studied its sperm genesis and ultrastructure in order to open out the sperm genesis feature in the lower orders animal of deuterocoel.

Materials and Methods

The coelomic fluid was taken out by syringe penetrating the body wall directly. The germ cells were gained by centrifugation. Mature sperm was gained from store duct by dissecting animal.

Spermatogonium cluster from coelomic fluid was fixed in Bouins liquid. It was embedded by agar-paraffin double embed method. The section was cut by AO ring style slicer. The thickness of section was $5\mu\text{m}$. H. E. stain. The sections were observation by Olympus BH-2 microscope.

The samples for electronic microscope were fixed in 2.5% glutaraldehyde first and postfixed in the 1% osmium acid. Epon-812 embed. The sections were cut by LKB microtome. Uranium and lead double stain. The sections were obserbation by Hitachi H-7000 type transmission electronic microscope(TEM).

Results and Disscussion

The spermatogenesis and the sperm ultrastructure of *Urechis uncinatus* were observed by light microscope and transmission electron microscope. The result showed that the spermiogenesis process mainly went on in the coelom. Many cells united during these stages. The mature sperm can be found in the kidney tube (storage organs). At primary spermatocyte stage, the chromatin becomes denser and the organella was rich, such as mitochondria, free ribosome and rough endoplasmic reticulum. At second

spermatocyte stage, the central body presents. During the spermiogenesis, the chromatin of sperm concentrated obviously. First the mitochondria aggregate in the cytoplasm, then the acrosome was formed gradually by Golgi complex. The mature sperm was flagellum type, consisting of head part, middle part and tail part. The acrosome on top of the head was nipple_type. The nucleus shape looked like a cup. There were nuclear vacuoles in it. The middle part was consisted of mitochondrium, a ring shape, encircling the proximal and the distal centriole . The axial filament of tail was typical "9+2" type.

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