

Siti Umi Hanik, 2015, Studi Pendahuluan Gametogenesis Teripang *Phyllophorus dobsoni* yang Hidup di Selat Madura, Skripsi dibawah bimbingan Dr. Dwi Winarni, M.Si. dan Sugiharto, S.Si., M.Si. Departemen Biologi Fakultas Sains dan Teknologi, Universitas Airlangga.

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## ABSTRAK

Penelitian ini bertujuan mengidentifikasi struktur sel gametogenik dan memprediksi perubahan struktur sel gametogenik selama proses gametogenesis teripang *Phyllophorus dobsoni* berdasarkan pengamatan histologi. Lima puluh satu sampel *Phyllophorus dobsoni* diambil di perairan Selat Madura pada bulan Agustus sampai Oktober 2013. Sampel diukur dan diambil gonadnya untuk difiksasi dan dibuat sediaan histologi dengan metode parafin dengan pewarnaan Hematoxylin dan Eosin. Sediaan histologi gonad yang diamati adalah sel oogenik dan spermatogenik yang strukturnya terlihat jelas untuk mengidentifikasi struktur sel gametogenik, proses pembentukan sel gametogenik, dan keberadaan sel gametogenik pada tahap perkembangan gonad. Data dianalisis secara deskriptif dan diuji dengan *One Way Anova* untuk mengetahui perbedaan diameter sel, diameter inti, diameter kromatin, dan tebal *jelly layer* jenis oosit di berbagai tahap kematangan gonad. Hasil penelitian menunjukkan bahwa teripang *Phyllophorus dobsoni* betina memiliki beberapa jenis sel oogenik yaitu; oosit *previtellogenic*, oosit *vitellogenic*, dan oosit *postvitellogenic*. Struktur yang membedakan antara oosit *previtellogenic*, oosit *vitellogenic*, dan oosit *postvitellogenic* adalah ukuran sel, ukuran inti sel, letak sel, letak inti sel, diameter kromatin, sifat terhadap pewarna. Hasil analisis *One Way Anova* menunjukkan bahwa Oosit *previtellogenic* memiliki diameter sel dan diameter inti yang tidak berbeda signifikan di setiap tahap kematangan gonad. Oosit *vitellogenic* memiliki diameter oosit, diameter inti, dan tebal *jelly layer* yang berbeda signifikan di setiap tahap kematangan gonad. Sedangkan oosit *postvitellogenic* memiliki diameter oosit yang berbeda signifikan di setiap tahap kematangan gonad, namun diameter inti dan tebal *jelly layer* oosit *postvitellogenic* tidak berbeda signifikan di setiap tahap kematangan gonad. *Phyllophorus dobsoni* jantan ditemukan 6 jenis sel spermatogenik antara lain: spermatogonia, spermatosit, spermatid I, spermatid II, spermatid III, dan spermatozoa. Struktur yang membedakan di antara 6 sel spermatogenik *Phyllophorus dobsoni* adalah ukuran sel, ukuran inti sel, bentuk sel, bentuk inti sel, dan ada tidaknya ekor.

*Kata kunci* : *Phyllophorus dobsoni*, *previtellogenic*, *vitellogenic*, *postvitellogenic*, *gametogenik*.

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## ABSTRACT

This study was aimed to identify the structure of gametogenic cells sea cucumber *Phyllophorus dobsoni* and to predict changes structure of gametogenic cells sea cucumber *Phyllophorus dobsoni* during process of gametogenesis based on histological observations. Fifty one samples of sea cucumber *Phyllophorus dobsoni* were taken in Madura strait on August to October 2013. The samples were measured and taken the gonad for fixation and histological preparations made with paraffin method by using Hematoxylin and Eosin staining. Gonadal histology preparations were observed the oogenic and spermatogenic cells whose structure is evident to identify structure of gametogenic cells, development of gametogenic cells, and existence of gametogenic cells in variety of gonad maturation stage by measure diameter of oocyte in female sea cucumber *Phyllophorus dobsoni*. Data were analyzed descriptively and tested by *One Way Anova* to determine differences in the diameter of the type of oocytes at different stages of gonad maturity. The result showed that female sea cucumber *P. dobsoni* have several types of oogenic cells namely; oogonia, previtellogenic oocytes, vitellogenic oocytes and postvitellogenic oocytes. The structure that distinguishes between previtellogenic, vitellogenic, and postvitellogenic oocytes is the size of cell, the size of the nucleus, the location of cell, the location of the nucleus, chromatin distribution, characteristics of the dye. The result of *One Way ANOVA* analysis showed that cell and nucleus diameter of previtellogenic oocytes was no significant difference, while the cell diameter, nucleus diameter, and thickness of jelly layer of vitellogenic oocytes was significant difference, and the cell diameter of postvitellogenic oocytes was significant difference but the nucleus diameter and thickness of jelly layer of this oocytes was no significant difference. The male *Phyllophorus dobsoni* found 6 spermatogenic cell types namely: spermatogonia, spermatocytes, spermatids I, spermatids II, spermatids III, and spermatozoa. Structure that distinguishes between 6 spermatogenic cells is the size of the cell, the size of the nucleus, the shape of cell, the shape of the nucleus, and the presence or absence of a tail.

*Key word : Phyllophorus dobsoni, previtellogenic, vitellogenic, postvitellogenic, gametogenic*