Zainal Muttaqin, 2018, Studi Taksonomi *Holothuria sanctori* di kawasan Pantai Timur Surabaya dengan Pendekatan Morfologi dan Genetika Molekuler, Skripsi ini di bawah bimbingan Prof. Dr. Bambang Irawan, M.Sc. dan M. Hilman Fu'adil Amin, S.Si., M.Si., Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini bertujuan untuk mengklarifikasi posisi taksonomi spesimen yang diduga *Holothuria sanctori* di kawasan Pantai Timur Surabaya. Metode yang digunakan dalam penelitian ini adalah deskriptif observasional melalui pendekatan morfologi dan genetika molekuler. Pada pendekatan morfologi dilakukan perbandingan dengan literatur, sedangkan pada pendekatan molekuler menggunakan teknik DNA *barcoding* dengan gen *Cytochrome Oxidase* subunit I (COI) dari mtDNA. Berdasarkan pendekatan morfologi, hasil penelitian menunjukkan bahwa spesimen penelitian berbeda dengan ciri-ciri yang dimiliki oleh spesies *H. sanctori*, spesimen penelitian tersebut secara morfologi memiliki kesamaan dengan spesies *Actinocucumis typicus* berdasarkan karakteristik pada tingkat spesies yaitu bentuk osikula seperti angka 8 dengan tonjolan pada sisi-sisinya serta bentuk *irregular table*. Pada pendekatan molekuler, DNA diamplifikasi menggunakan primer COI-ce dan dilakukan *sequencing*. Hasil *sequencing* dianalisis menggunakan *software* Geneious. Pada hasil BLAST sekuen DNA spesimen tersebut memiliki kesamaan paling tinggi 85% pada spesies voucher *Cucumaria lubrica*. Namun, spesimen dapat dikatakan dalam satu spesies jika memiliki nilai *threshold* sebesar 97%. Spesimen penelitian tidak memiliki kesamaan sekuen dengan *H. sanctori* pada *database* GenBank, sehingga spesimen penelitian bukan *H. sanctori* berdasarkan pendekatan molekuler. Berdasarkan hasil rekonstruksi pohon filogenetik menggunakan *software* MEGA memiliki kekerabatan yang dekat dengan Famili Cucumariidae.

Kata Kunci: Taksonomi, *Holothuria sanctori*, Morfologi, DNA *barcoding*, Gen COI, Pantai Timur Surabaya.

Zainal Muttaqin, 2018, Taxonomy Study of *Holothuria sanctori* at Surabaya's East Coast Region Based on Morphological and Genetical Molecular Approach, this thesis is under the guidance of Prof. Dr. Bambang Irawan, M.Sc. and M. Hilman Fu'adil Amin, S.Si., M.Si., Biology Department, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

This study aimed to clarify the position of the suspected taxonomic specimen of *Holothuria sanctori* in Surabaya's East Coast. This study used observational descriptive method based on morphological and genetical molecular approaches. In the morphological approach, comparisons were made with literature, while in molecular approach using DNA barcoding technique with Cytochrome Oxidase subunit I (COI) gene from mtDNA. Based on morphological approach, the research specimens are different from the characteristics of *H. sanctori*, the morphological of the specimens were similar with *Actinocucumis typicus* based on its characteristics at species level, ie the shape of the ossicles, such as buttons look like figure of 8-shaped fenestrated ellipsoids and irregular tables. In the molecular approach, the DNA were amplified with COI-ce primers and then were sequenced. The sequencing results were analyzed using Geneious software. Using BLAST, the sequence of the specimens' DNA was found to be having 85% similarity to *Cucumaria lubrica* voucher species. However, the specimen can be said in one species if it has a threshold value of 97%. The specimens did not have the same sequence with *H. sanctori* in the GenBank database. So, the research specimens were not *H. sanctori* based on the molecular approaches. Based on the results of the reconstruction of phylogenetic trees using MEGA software it has close kinship with Family of Cucumariidae.

Key words: Taxonomy, *Holothuria sanctori*, Morphology, DNA barcoding, COI Gene, Surabaya's East Coast.