ABSTRACT

Arija Qoshasi, 24020122130067. ***Identification of Species of the Potamididae Family in Karimunjawa Based on Morphological and Molecular Characteristics****.*
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Gastropods of the Potamididae family are commonly found in various regions of Indonesia, including Karimunjawa. The identification of gastropod species is generally based on morphological characteristics, but often faces challenges because gastropods are classified as cryptic species, necessitating an approach that combines morphological and molecular identification. The objective of this study is to identify species of the Potamididae family based on morphological characteristics and molecular analysis using the CO1 marker, as well as to analyze the phylogenetic relationships among species. The morphological analysis method utilizes characteristics of the ventral and dorsal shell surfaces, as well as molecular analysis through phylogenetic tree construction, polymorphism analysis, and haplotype analysis. The results indicate the presence of diagnostic characters within each genus that serve as distinctive features for distinguishing between species of the Potamididae family. Based on molecular analysis, the DNA concentration and purity of sample AQ01 fall within safe limits, ranging from 52–63.2 ng/µL with a purity of 1.85–1.87. The DNA visualization results correspond to the CO1 target size of 600–700 bp. The GC content analysis ranges at 41.5%. BLASTn results showed similarity to Terebralia sulcata and Cerithideopsilla cingulata. Sample AQ01 forms a long branch distinct from other species in the phylogenetic tree and has a genetic distance ranging from 0.782 to 0.836 from other individuals within the same subclade. Analysis of the sample's polymorphism revealed 5 transitions and 31 transversions, with a total of 229 mutation sites based on haplotype analysis, thereby reinforcing the potential for sample AQ01 to be a new subspecies of Cerithidea cingulata. Further research is needed to confirm the potential for the discovered sample to be a new subspecies and to address the conservation of species in the Potamididae family.

Keyword: CO1, DNA Barcoding, Family Potamididae, Gastropods