

ANALISIS SIMILARITAS KARAKTER MORFOLOGIS DAN MOLEKULAR UDANG PISANG (*Penaeus* sp.) DENGAN SPESIES ANGGOTA FAMILIA PENAEIDAE DI PROVINSI ACEH

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INTISARI

Udang Pisang (*Penaeus* sp.) merupakan salah satu komoditas perikanan yang mulai dibudidayakan di Provinsi Aceh. Udang Pisang memiliki keunggulan yaitu daya tahan yang lebih kuat terhadap penyakit dan pertumbuhan yang lebih cepat dibandingkan *Penaeus monodon*. Udang Pisang merupakan spesies baru yang perlu diidentifikasi dengan menggunakan data morfologis dan molekular. Data molekular menggunakan gen CO1 penting untuk menunjukkan identitas udang tersebut dalam Familia Penaeidae. Tujuan penelitian untuk mengetahui similaritas karakter morfologis, karakter molekular dan hubungan kekerabatan (filogenetik) Udang Pisang terhadap *P. monodon*, *P. merguensis*, dan *Litopenaeus vannamei*. Pengamatan morfologis sebanyak 84-90 karakter dianalisis dengan MVSP 3.1 terhadap spesimen jantan dan betina dengan UPGMA sebagai *algoritme clustering* dan koefisien *Jacard*. DNA udang diisolasi dari jaringan *pleopoda*, diamplifikasi dengan menggunakan primer CO1 (CrustF1 dan HCO2198) dan di *sequencing*. Sekuen DNA gen CO1 diBLAST, dilakukan *alignment* dengan ClustalX, analisis similaritas menggunakan Phydit, dan pohon filogenetik direkonstruksi dengan program MEGA 6 menggunakan metode *Neighbor Joining* (*bootstrap* 1000). Udang Pisang memiliki similaritas karakter morfologis dengan *P. monodon* sebanyak 66-70%. Similaritas karakter morfologis Udang Pisang dengan *P. merguensis* dan *L. vannamei* secara berurutan yaitu 51-58% dan 39-40%. Sekuen DNA gen CO1 Udang Pisang memiliki kemiripan dengan *P. monodon* sebesar 92%. Sekuen DNA gen CO1 Udang Pisang dengan *P. merguensis* dan *L. vannamei* memiliki persentase nukleotida yang similar sebesar 86% dan 85%. Pohon filogenetik menunjukkan Udang Pisang berkerabat dekat dengan *P. monodon* dan bersifat *monophyletic* sedangkan dengan *P. merguensis* bersifat *paraphyletic*. Data molekular gen CO1 memperlihatkan kedudukan Udang Pisang sebagai anggota Familia Penaeidae, Genus *Penaeus* yang memiliki *ancestor* yang sama dengan *P. monodon*.

Kata kunci: *Penaeus*, CO1, morfologis, dendogram, filogenetik

ANALYSIS OF MORPHOLOGICAL AND MOLECULAR SIMILARITY CHARACTERS OF BANANA SHRIMP (*Penaeus* sp.) WITH OTHER SPECIES OF PENAEIDAE FAMILY IN ACEH PROVINCE

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ABSTRACT

Banana shrimp (*Penaeus* sp.) is one of fisheries commodity that is cultivated in Aceh Province. Banana shrimp has a stronger resistance to disease and faster growth than *Penaeus monodon*. Banana shrimp is a new shrimp that need to identification using morphology and molecular data. Molecular data using CO1 gene is essential to indicate the identity of that shrimp in Penaeidae Family. This research aimed to determine the similarity of morphological character, molecular character and relationship (phylogenetic) Banana shrimp with *P. monodon*, *P. merguensis*, and *Litopenaeus vannamei*. Observation of morphological with 84-90 characters were analyzed using MVSP 3.1 against male and female specimens with UPGMA as clustering algorithms and Jacard coefficient. DNA of shrimp was isolated from pleopode tissue, amplified by using CO1 primer (CrusF1 and HCO2198) and DNA was sequencing. DNA sequence from CO1 gene must be BLAST first, did alignment with ClustalX, similarity analyse using Phytit, and phylogenetic tree had reconstructed with MEGA 6 by using Neighbor-joining method (bootstrap 1000). Banana shrimp has similarity of morphological character with *P. monodon* is 66-70%. Similarity of morphological character from Banana shrimp with *P. merguensis* and *L. vannamei* as in series is 51-58% and 39-40%. DNA sequence using CO1 gene of Banana shrimp has similarity with *P. monodon* as many as 92% nucleotide. DNA sequence using CO1 gene of Banana shrimp with *P. merguensis* and *L. vannamei* has nucleotide percentage with is similar as many as 86% and 85%. The phylogenetic tree showed that Banana shrimp has a closely relationship with *P. monodon* and being *monophyletic*, whereas Banana shrimp with *P. merguensis* being *paraphyletic*. Molecular data using CO1 gene showed position of Banana shrimp as a member of Penaeidae Family and Genus of *Penaeus*, which has the same ancestor with *P. monodon*.

Keyword: *Penaeus*, CO1, morphology, dendogram, phylogenetic