Keanekaragaman Genetik Kepiting Biola Tubuca spp. (Crustacea: Decapoda: Ocypodidae) dari Kawasan
Mangrove Pangkal Babu, Tanjung Jabung Barat, Jambi
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KEANEKARAGAMAN GENETIK KEPITING BIOLA *Tubuca* spp. (CRUSTACEA: DECAPODA: OCYPODIDAE) DARI KAWASAN MANGROVE PANGKAL BABU, TANJUNG JABUNG BARAT, JAMBI

INTISARI

Kepiting (Crustacea: Decapoda) merupakan kelompok krustasea yang tersebar luas di berbagai ekosistem, termasuk mangrove. Identifikasi kepiting umumnya didasarkan pada karakter morfologis, namun pendekatan ini sering kurang akurat karena adanya spesies kriptik yang sulit dibedakan. DNA *barcoding* menggunakan gen mitokondria *cytochrome c oxidase* subunit I (*COI*) merupakan metode yang efektif untuk identifikasi spesies sekaligus analisis keanekaragaman genetik. Penelitian ini bertujuan untuk mengeksplorasi keanekaragaman genetik kepiting di Kawasan Mangrove Pangkal Babu, Tanjung Jabung Barat, Jambi.

Sebanyak 30 spesimen kepiting dikoleksi dari tiga lokasi, yaitu Mangrove Pangkal Babu, Sungai Betara, dan Sungai Pengabuan. DNA diekstraksi, diamplifikasi menggunakan gen *COI,* kemudian dianalisis melalui DNA barcoding, rekonstruksi filogenetik menggunakan metode *Neighbor-Joining*, *Maximum Likelihood*, dan *Bayesian Inference*, serta analisis komposisi nukleotida, jarak genetik, *haplotype network*, dan *Principal Coordinate Analysis* (PCoA). Hasil identifikasi berdasarkan *Nucleotide* BLAST menunjukkan bahwa spesimen yang diperoleh yaitu 3 species yang termasuk dalam genus *Tubuca* dan famili Ocypodidae serta memiliki kemiripan sekuens sebesar 96,96–100% dengan *Tubuca forcipata*, *Tubuca paradussumieri*, dan *Tubuca rosea*. Analisis filogenetik menunjukkan bahwa *T. forcipata* membentuk kelompok monofiletik yang terbagi menjadi dua klad dengan dukungan bootstrap NJ/ML/posterior probability BI sebesar 100/98/1 dan rata-rata jarak genetik sebesar 3,90%. Selain itu analisis variasi genetik mengungkap adanya keragaman genetik intraspesifik pada *Tubuca forcipata*, *T. paradussumieri*, dan *T. rosea*. Hasil penelitian ini menunjukkan bahwa kepiting di Kawasan Mangrove Pangkal Babu memiliki keanekaragaman genetik yang dapat menjadi dasar bagi identifikasi spesies secara molekuler serta mendukung pengelolaan dan konservasi sumber daya kepiting di ekosistem mangrove.

Kata kunci: Kepiting, DNA barcoding, gen *COI*, mangrove

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GENETIC DIVERSITY OF FIDDLER CRABS *Tubuca* spp. (CRUSTACEA: DECAPODA: OCYPODIDAE) FROM THE PANGKAL BABU MANGROVE AREA, TANJUNG JABUNG BARAT, JAMBI, SUMATRA, INDONESIA

ABSTRACT

Crabs (Crustacea: Decapoda) are widely distributed in various ecosystems, including mangrove forests. Crab identification is generally based on morphological characteristics; however, this approach is often less accurate because cryptic species are difficult to distinguish morphologically. DNA barcoding using the mitochondrial *cytochrome c oxidase* subunit I (*COI*) gene is an effective method for species identification as well as genetic diversity analysis. This study aimed to explore the genetic diversity of crabs in the Pangkal Babu Mangrove, West Tanjung Jabung, Jambi.

A total of 30 crab specimens were collected from three sampling sites, namely Pangkal Babu Mangrove, Betara River, and Pengabuan River. DNA was extracted, the *COI* gene was amplified, and the sequences were analyzed using DNA barcoding, phylogenetic reconstruction based on the Neighbor-Joining, Maximum Likelihood, and Bayesian Inference methods, nucleotide composition, genetic distance, haplotype network, and Principal Coordinate Analysis (PCoA). The results revealed the findings of three species belonging to genus Tubuca and family Ocypodidae. Based on the Nucleotide BLAST the obtained sequences shared 96.96–100% similarity with *Tubuca forcipata*, *Tubuca paradussumieri*, and *Tubuca rosea*. Phylogenetic analysis showed that *T. forcipata* formed a monophyletic group consisting of two clades, supported by NJ/ML bootstrap values and Bayesian posterior probability of 100/98/1, with an average genetic distance of 3,90%. In addition, genetic variation analysis revealed the presence of intraspecific genetic diversity in *T. forcipata*, *T. paradussumieri*, and *T. rosea*. These findings indicate that crab populations in the Pangkal Babu Mangrove possess genetic diversity that provides a basis for molecular species identification and supports the management and conservation of crab resources in mangrove ecosystems.

Keyword: Crab, DNA *barcoding*, *COI* gene, mangrove