

INTISARI

KAJIAN KERAGAMAN GENETIK RUSA JAWA (*Rusa timorensis*) BERDASARKAN SEKUEN GEN ADENOSINE TRIPHOSPHATE SYNTHASE (ATP) SUBUNIT 8

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Rusa Jawa (*Rusa timorensis*) berdasarkan kategori *International Union for Conservation of Nature (IUCN) Red List* tahun 2008 termasuk dalam kategori rentan (*vulnerable*). Konservasi dilakukan untuk menjaga kelestarian dari satwa tersebut. Keragaman genetik penting dalam konservasi karena keragaman genetik yang tinggi akan sangat membantu suatu populasi dalam bertahan hidup. Penelitian ini bertujuan untuk mengkaji keragaman genetik berdasarkan gen ATP₈ *Rusa timorensis* di Taman Rusa Universitas Gadjah Mada (UGM).

Molekul DNA diisolasi dari lima sampel darah rusa yang berbeda. Molekul DNA selanjutnya diamplifikasi dengan metode *polymerase chain reaction (PCR)*. Primer APRA8C2F dan APRA8C2R didesain untuk mengamplifikasi gen ATP₈. Produk PCR yang telah dimurnikan selanjutnya digunakan sebagai cetakan untuk penentuan runutan nukleotida. Penjajaran berganda antara hasil runutan nukleotida ATP₈ sampel rusa dengan spesies pembandingan dari famili *Cervidae* menggunakan *Clustal W*. Runutan asam amino dianalisis berdasarkan runutan basa yang diterjemahkan mengikuti *vertebrae mitochondrial translation code* yang ada pada MEGA versi 6.0. Pohon filogeni dikonstruksi menggunakan metode *neighbor joining tree*. Hasil penelitian ini menunjukkan bahwa keragaman genetik antar rusa Jawa sangat rendah. Penelitian lebih lanjut menggunakan fragmen mtDNA yang lain dengan sampel yang lebih beragam perlu dilakukan.

Kata kunci: keragaman, genetik, *Rusa timorensis*, DNA, gen ATP₈, PCR

ABSTRACT

THE STUDY OF GENETIC DIVERSITY OF JAVAN DEER (*Rusa timorensis*) BASED ON ADENOSINE TRIPHOSPHATE SYNTHASE (ATP) SUBUNIT 8 GENE SEQUENCE

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Javan deer (*Rusa timorensis*) based on International Union for Conservation of Nature (*IUCN*) Red List Category 2008 was listed as vulnerable. Conservation is done to keep species eternality. Genetical diversity were important on conservation due the high diversity of genetic will much aiding one population to survive. This research was aimed to study the genetical diversity based on ATP_8 gene of *Rusa timorensis* at Taman Rusa UGM.

DNA molecules were isolated from five samples of different blood sample. DNA molecules then amplified with PCR method. Primer APRA8C2F and APRA8C2R were designed to amplify ATP_8 gene. PCR product which has been purified then were used as template for identifying the nucleotide sequences. Multiple alignment among the result of ATP_8 nucleotide sequences of deer samples with the comparable species from cervidae family using Clustal W. Amino acid sequences were analysed based on nucleotide sequence which has been translated, following vertebrate mitochondrial translation code that was available on MEGA version 6.0. Phylogenetic tree were constructed using neighbor joining tree method. The result showed that genetical diversity among Javan deer is low. Advanced research using other different mtDNA fragments is necessary.

Keywords: diversity, genetic, *Rusa timorensis*, DNA, ATP_8 gene, PCR