INTISARI

KAJIAN KERAGAMAN GENETIK GEN PENYANDI NADH *Dehydrogenase* Sub-unit 1 (ND1) RUSA TIMOR (*Rusa timorensis*) di TAMAN LEMBAH, UNIVERSITAS GADJAH MADA

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Rusa Timor (*Rusa timorensis*) merupakan salah satu satwa liar yang mudah sekali berkembangbiak, namun populasinya di Indonesia terus mengalami penurunan. Rusa merupakan cerminan kekayaan satwa di Indonesia, dapat sebagai, objek pariwisata, ilmu pengetahuan serta estetika. Identifikasi rusa di Indonesia hanya berdasar morfologi saja, sedangkan pencirian spesies-spesies rusa secara genetik molekuler masih terbatas, Upaya konservasi yang telah dilakukan perlu dilengkapi dengan kajian genetika molekuler secara pasti. Tujuan utama penelitian ini adalah mengetahui keragaman genetik *Rusa timorensis* berdasarkan daerah gen ND1.

Pengambilan sampel DNA diisolasi dari darah *Rusa timorensis.* Hasil isolasi diamplifikasi pada segmen gen ND1 dengan metode PCR. Primer yang digunakan adalah APRN1 *Forward* dan APRN1 *Reverse*. Reaksi PCR menghasilkan produk sepanjang 1162 bp yang kemudian dilakukan sekuensing. Hasil sekuensing gen ND1 yang diperoleh (957 bp) selanjutnya dibandingkan dengan rusa lain yang diambil dari Genbank dan dianalisis dengan program MEGA versi 6.0.

Hasil analisis diperoleh variasi perbedaan nukleotida dan asam amino. Jarak genetik berdasarkan sekuen nukleotida ND1 yang dihitung menggunakan *Kimura 2-parameter* ditemukan nilai paling kecil 0% dan nilai paling besar 17,6%. Pohon filogeni menggunakan metode *Neighbor-Joining* berdasarkan urutan nukleotida ND1 dengan nilai *bootstrap* 1000 kali menunjukkan bahwa gen ND1 tidak bisa digunakan sebagai penanda genetik antar rusa yang diteliti, namun dapat sebagai penanda genetik antar spesies rusa dalam satu famili.

Kata kunci : *Rusa timorensis*, *Cervus sp*., DNA, gen ND1, nukleotida, PCR, sekuensing

ABSTRACT

GENETIC DIVERSITY STUDY ON NADH Dehydrogenase Sub-unit 1 (ND1) ENCODING GENE TIMOR DEER (*Rusa timorensis*) IN TAMAN LEMBAH, UNIVERSITAS GADJAH MADA

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Timor deer (*Rusa timorensis*) is one of the wildlife that is easy to breed, but the population in Indonesia continues to decline. Deer is a reflection of the wealth of wildlife in Indonesia, can be as tourism attraction, science and aesthetics. In Indonesia, the identification of the deer is merely morphological, while its characterization on molecular genetic basis is still limited. Conservation, as an effort that has been made, will obtain better results if genetic diversity is acquired definitely, through the study of mitochondrial genetic diversity for instance. The purpose of this study was to determine the genetic diversity Rusa timorensis based ND1 gene region.

DNA Sampling was isolated from the *Rusa timorensis* blood. Isolation results amplified in ND1 gene segments by PCR. APRN1 Forward and APRN1 Reverse were used as Primers. PCR reactions produced 1162 bp product and then sequencing were performed. ND1 gene sequencing resulted 957 bp and then compared with another deer taken from Genbank and analyzed by MEGA program version 6.0.

Results obtained by analysis of variations in nucleotide and amino acid differences. Genetic distances based on nucleotide sequences ND1 was calculated using the Kimura 2-parameter and resulted smallest value 0% and the greatest value 17.6%. Phylogenetic trees using the Neighbor-Joining method based on the nucleotide sequence ND1 with bootstrap value 1000 times shows that ND1 gene could not be used as a genetic marker among deer that were investigated, but can be as genetic markers between species of deer in the family.

Keyword : *Rusa timorensis*, *Cervus sp*., DNA, gen ND1, nukleotida, PCR, sekuencing