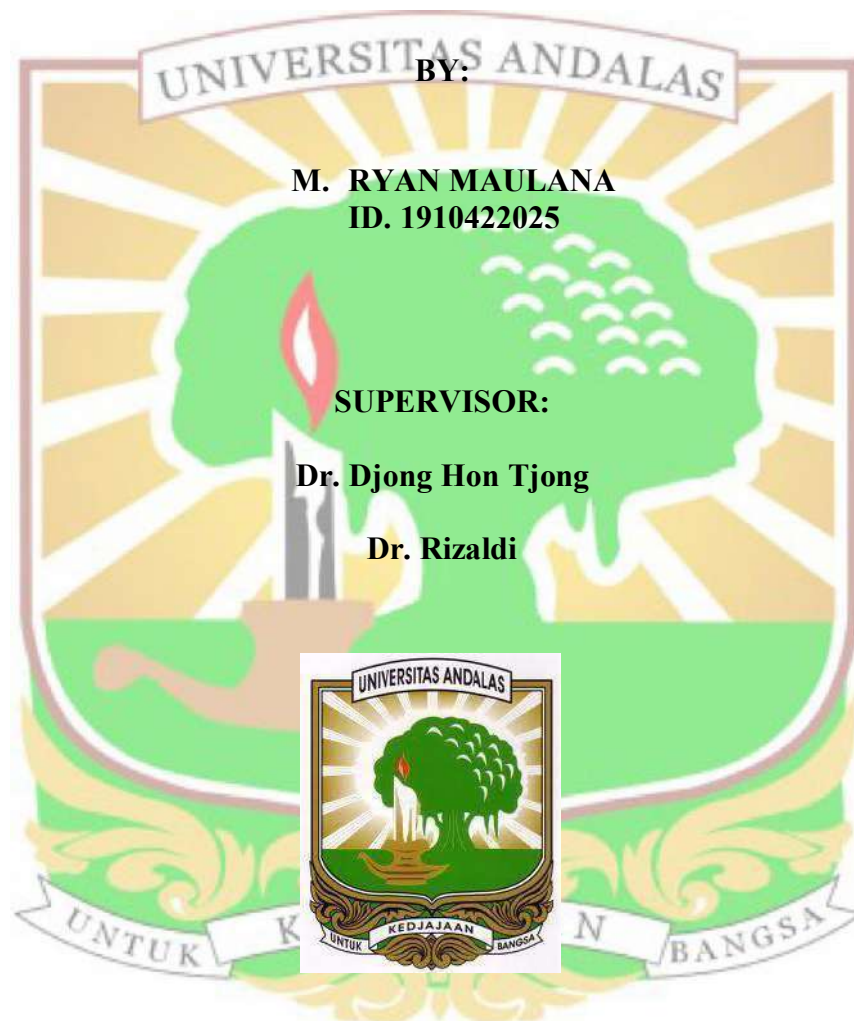


**DNA BARCODING CHARACTERIZATION OF SUN BEAR (*Helarctos
malayanus*, Raffles 1821) BASED ON THE COI GENE**

UNDERGRADUATE THESIS



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ABSTRAK

Beruang madu (*Helarctos malayanus*) merupakan satwa yang terancam punah karena perdagangan ilegal dan kehilangan habitat. Sampai saat ini, identifikasi sampel sitaan perdagangan ilegal sulit dilakukan karena sampel tidak utuh. Penelitian ini dilakukan untuk membuat *barcode* DNA guna membantu identifikasi sampel beruang madu secara forensik. Sampel darah beruang madu dikoleksi dari Pusat Rehabilitasi Harimau Sumatra Dharmasraya (PR-HSD) berjumlah tiga individu dari Riau, Dharmasraya dan Solok Selatan. Karakterisasi *barcode* DNA dilakukan berdasarkan fragmen gen COI dan dibandingkan dengan 49 sekuen subfamili Ursinae. Berdasarkan fragmen gen COI dengan panjang 652 bp ditemukan tiga sampel beruang madu berbeda haplotipe. Karakteristik sekuen DNA pembeda beruang madu asal Sumatra dengan beruang madu daerah lainnya yaitu basa adenin pada urutan ke-652. Jarak genetik antar sekuen beruang madu intraspesies memiliki nilai 0,78-1,57% dan interspesies dengan nilai 7,83-14,50%. Berdasarkan analisis filogenetik, sampel beruang madu asal sumatra mengelompok ke subklaster Sundaland dengan jarak genetik yang rendah (0-0,93%). Hasil penelitian dapat digunakan sebagai referensi identifikasi beruang madu yang berasal dari Sumatra.

Kata kunci: DNA *barcoding*, COI, *Helarctos malayanus*, Ursinae Filogenetik



ABSTRACT

Sun bear (*Helarctos malayanus*) is an endangered species due to illegal trade and habitat loss. Until now, identification of illegal trade confiscated samples has been difficult because the samples are not intact. This study was conducted to create DNA barcodes to assist forensic identification of sun bear samples. Blood samples of sun bears were collected from the Sumatran Tiger Rehabilitation Center Dharmasraya (PR-HSD) totaling three individuals from Riau, Dharmasraya and South Solok. DNA barcode characterization was carried out based on COI gene fragments and compared with 49 sequences of the Ursinae sub-family. Based on the COI gene fragment with a length of 652 bp, three samples of sun bears were found to have different haplotypes. The characteristic DNA sequence that distinguishes Sumatran sun bears from other sun bears is the adenine base at the 652nd sequence. Genetic distance between intraspecies sun bear sequences has a value of 0.78-1.57% and interspecies with a value of 7.83-14.50%. Based on phylogenetic analysis, sun bear samples from Sumatra are clustered into the Sundaland subcluster with low genetic distance (0-0.93%). The results of the study can be used as a reference for identification of sun bears originating from Sumatra.

Keywords: DNA barcoding, COI, *Helarctos malayanus*, Ursinae Phylogenetic

