Piyanan Leekaew 2007: Molecular Phylogenetic Study of Thai Domestic Ducks (*Anas platyrhynchos domesticus*). Master of Science (Animal Physiology), Major Field: Animal Physiology, Department of Physiology. Thesis Advisor: Assistant Professor Ukadej Boonyaprakob, Ph.D. 93 pages.

In this study, the phylogenetic relationships between the two Thai native domestic duck breeds (Parknum (PN), n = 5 and Nakornpathom (NP), n = 5) were explored using the nucleotide sequence of the D-loop control region of mitochondrial DNA (mtDNA) and the PCR analysis of microsatellite loci. Both PN and NP genotypes, based on the 667 bp mtDNA control region sequence were identical for all of the ducks used in the present study. The phylogenetic analysis supports the previous data that the two Thai Native breeds are the same species, known as Mallard (*Anas platyrhynchos*). The mtDNA phylogeny also revealed that the Thai mallard was grouped into group A mtDNA haplotype that correspond to Kulikova *et al*. (2005) classification. In addition, 3 microsatellite primers (APH23, CAUD013 and CAUD019) were used to examine phylogenetic relationships among 10 native ducks and 4 Campbell breed ducks. The PCR products of identifical or similar size (200 bp) were observed with primer pair APH23, in all samples, except those from Campbell duck breeds. However, a high level polymorphism was observed with primer pair CAUD019; whereas, no clear band was detected with primer pair CAUD013. Furthermore this study also showed that successful extraction and amplification of the mtDNA could be obtained from a single duck's feather using alkaline digestion providing a simple, rapid and inexpensive method with no hazardous extraction step for preparing mtDNA for use in the study of genetic diversity of duck breeds.

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