



Gibbons are the mammals belonging to the genus *Hylobates*. In Thailand, 5 species in 3 subgenera of gibbons have been recorded. Thus far, the information on genetic data at chromosomal and DNA levels of Thai gibbons are scarce and available data are not applicable to Thai gibbons. Therefore, this research aims to investigate genetic variation among Thai gibbons species at chromosome and DNA levels. Karyotypes derived from chromosomes stained by conventional and G-banding methods showed that the chromosome numbers of gibbons in subgenera *Hylobates*, *Nomascus*, *Symphalangus* were  $(2n) = 44, 52$  and  $50$ , respectively. In the subgenus *Hylobates*, no variation in chromosome number and shape was detected among 3 species and the karyotype was consisted of 24 metacentric, 16 submetacentric and 2 acrocentric, including a pair of satellite chromosomes; X-chromosome was submetacentric and Y-chromosome was possibly telocentric. The karyotype of the subgenus *Nomascus* was consisted of 34 metacentric, 10 submetacentric and 6 acrocentric while X-chromosome was submetacentric and Y-chromosome was acrocentric. The karyotype of the subgenus *Symphalangus* was composed with 44 metacentric, 4 submetacentric and 2 telocentric but sex chromosomes could not be identified. Phylogenetic analyses of the control region D-loop of mitochondrial Phe-tRNA indicated that the subgenus *Nomascus* lineage was the first to separate from the other subgenera, and followed by the separation of the subgenus *Hylobates* lineage from the lineage of the subgenus *Symphalangus* and the subgenus *Bunopithecus*. This relationship showed that the subgenera of gibbons had diversified long time ago while species within the genus *Hylobates* had recently diversified. The results of chromosomal and Phe-tRNA sequence analyses were different in the term of relationships among subgenera. However, the results from this research suggested the relationships based on DNA sequence analyses seemed to be more reliable than that of the chromosomal analyses.

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