

Chairest Chaladthanyakij 2007: Cladistic Analysis of Ants from Genus *Pheidole* Inferring from Morphological and ITS2 Sequence Variations. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Associate Professor Panapa Saksoong, Ph.D. 118 pages.

Genus *Pheidole* is a second large ant group of the Family Formicidae, playing an important role in the food chain as consumers and decomposers. This research surveyed the species diversity of ants living in Sakaerat Forest area, basing species identification on morphological and nucleotide of ITS2 differences.

The results of morphological study of dominant characters of ant sample, collected during the year 2005 were used to build a species key for genus *Pheidole*. Accordingly 13 species were identified, seven of which have been previously reported and six were potentially new species. However, the phenogram, drawn from morphological similarity by the Pcord version 4 program, produced one cluster less than that of the morphological differences. In regarding the ITS2 nucleotides analysis, the length variation, ranging from 764 basepairs in *Pheidole* sp.C to 1,117 basepairs in *Pheidole* sp.A, was noted. From pairwise nucleotide comparisons among 13 species, it appeared that the percent of GC content varied very little i.e., 64.8 - 67.6 %. Nevertheless, the nucleotide changes occurred differently in the forms of transversion, transition and insertion/deletion. These differences were used to build genetic distant values, then being transformed into the species phylogenetic relationships by the Mega version 3.1 program employing maximum parsimony and neighbour - joining methods. Both yielded similar phylogenetic trees with ten clusters. Hence, the rate of molecular evolutions of ITS2 was surprisingly slower than the rate of that of the morphology generally expected by evolutionists.

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