

**TABLE OF CONTENTS**

	<b>Page</b>
TABLE OF CONTENTS	i
LIST OF TABLES	ii
LIST OF FIGURES	iii
INTRODUCTION	1
OBJECTIVES	3
LITERATURE REVIEW	4
MATERIALS AND METHODS	13
RESULTS	22
DISCUSSION	41
CONCLUSION	46
LITERATURE CITED	47
APPENDIX	60

## LIST OF TABLES

Table	Page	
1	Case fatality rates of malaria situation in Thailand from January 2006 to December 2006	8
2	Enzyme systems used in electrophoretic studies on the adult <i>An. minimus s.l.</i>	23
3	Allele frequencies and sample sizes ( <i>n</i> ) at 6 populations of <i>An. minimus s.l.</i>	24
4	Genetic variability at 8 loci of pooled populations of <i>An. minimus s.l.</i>	26
5	<i>F</i> -statistic analysis of polymorphic loci in 6 populations of <i>An. minimus s.l.</i>	28
6	Pairwise <i>F</i> -statistics at all loci between any of 6 populations of <i>An. minimus s.l.</i>	29
7	Matrix of genetic distance between 6 <i>An. minimus s.l.</i> populations	30
8	Number of <i>An. minimus s.l.</i> in four time periods collected from human during 20 collection nights in huts 1 and 2 at Pu Teuy Village, Sai Yok District, Kanchanaburi Province	35
9	Number of <i>An. minimus s.l.</i> in four time periods collected from human during 10 collection nights in hut treated with DDT, hut treated with deltamethrin, and untreated hut	38

### Appendix Table

1	Morbidity, mortality and case fatality rates of malaria situation in Thailand, 2006	61
---	---	----

## LIST OF FIGURES

Figure	Page	
1	World map depicting endemic areas of malaria in 2006	5
2	The ranges with risk of malaria in these regions	6
3	Morbidity and mortality rates (per 1000,000 populations) of malaria (1972-2005)	7
4	Collection sites located within Kanchanaburi Province	14
5	Wing pattern between <i>Anopheles minimus s.s.</i> and <i>An. minimus C</i>	15
6	Hut frames from iron pipe and custom-welded galvanized pipes	18
7	All three windows, one on each of three side-walls, and one door affixed with traps	18
8	Two huts positioning 100 m apart in an isolated area, surrounded by mountainous terrain and agricultural fields	19
9	A series of panels for holding treated netting which positioned around the interior surface of the hut	21
10	Unweighted pair group method averaging phenogram from Wright (1978) unbiased genetic distance matrix among the collections of <i>An. minimus s.l.</i> from 6 populations (cophenetic correlation = 0.969)	32
11	Unweighted pair group method averaging phenogram from Wright (1978) unbiased genetic distance matrix among the collections of <i>An. minimimus s.s.</i> and <i>An. minimus C</i> (cophenetic correlation = 0.901)	33
12	Number of <i>An. minimus s.l.</i> collected from human landing collection during 20 collection nights in huts 1 and 2	35
13	Normal Q-Q Plot in pre-spray of entering behavior of <i>An. minimus s.l.</i> using experimental huts (hut 1 and hut 2)	36
14	Comparison of the average number of <i>An. minimus s.l.</i> collected from human landing collection (HLC) during 20 collection nights inside DDT treated huts compared with unsprayed hut	39

**LIST OF FIGURES (Continued)**

<b>Figure</b>		<b>Page</b>
15	Comparison of the average number of <i>An. minimus s.l.</i> collected from human landing collections (HLC) during 10 collection nights inside deltamethrin treated huts compared with unsprayed hut	40
<b>Appendix Figure</b>		
1	Example of eletrophoretic pattern of Glutamate oxaloacetate transaminase (Got) from <i>Got-1</i> and <i>Got-2</i> loci	65
2	Example of eletrophoretic pattern of Phosphoglucomutase (Pgm) from <i>Pgm-1</i> locus	65