TABLE OF CONTENTS

0318134 P	age
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	vi
ABSTRACT (THAI)	ix
LIST OF TABLES	xix
LIST OF FIGURES xx	vii
ABBREVIATIONS AND SYMBOLS xx	xiv
CHAPTER 1 INTRODUCTION	1
CHAPTER 2 LITERATURE REVIEW	6
2.1 Ethnobotany and evolution of the field	6
2.2 Ethnobotany and its related fields	9
2.3 Importance of ethnobotany	13
2.4 Field techniques for gathering ethnobotanical information	15
2.5 Quantitative ethnobotany	17
2.6 Comparative ethnobotany	23
2.7 Ecological methods used in ethnobotany	27
2.8 Ethnobotanical studies in Thailand	29
2.9 Nan province	29
2.10 Ethnic minorities in Nan province	30
2.10.1 Hmong 2.10.2 Mien (Yao)	30
2.10.2 Mien (Yao)	33
Copyrig 2.10.3 Khamu Chiang Mai Universi	36 41
2.11 Ethnobotanical studies in Nan province	47
2.12 Homegardens	48
CHAPTER 3 MATERIALS AND METHODS	51
3.1 Study sites and historical backgrounds	51
3.2 Qualitatively ethnobotanical fieldwork	55

xiii

	Page
3.2.1 Materials	55
3.2.2 Ethnobotanical field survey	56
3.2.3 Plant identification	58
3.2.4 Preparation of herbarium voucher specimen	59
3.3 Quantitative ethnobotanical study	59
3.3.1 Data analysis	59
3.3.2 Culturally important plant species and shared culture	60
of plant uses	
3.3.3 Questionnaire interview	60
3.3.4 Study of knowledge erosion	61
3.3.5 Prevalence of knowledge	62
3.4 Comparative Study	62
3.4.1 Comparison of uses diversity	64
3.4.2 Comparison of species composition	64
3.4.2.1 Comparison of use of wild plants	64
3.4.2.2 Comparison of use of domesticated plants	65
3.4.2.3 Comparison of plant use patterns	65
CHAPTER 4 RESULTS	66
4.1 Qualitative study	66
4.1.1 Enumeration of useful plants	66
3 2 3 M S 14.1.1.1 Food plants S 1 9 8 5 1 8 5 1 9 1	69
4.1.1.2 Food additives	168
Copyright 4.1.1.3 Animal food lang Mai University	186/
4.1.1.4 Materials	190
4.1.1.5 Fuels S C S C S	216
4.1.1.6 Social uses	222
4.1.1.7 Vertebrate poisons	241
4.1.1.8 Non-vertebrate poisons	245

xiv

	Page
4.1.1.9 Environmental uses	251
4.1.1.10 Medicines: Abnormalities	255
4.1.1.11 Medicines: Blood system disorders	260
4.1.1.12 Medicines: Circulatory system disorder	269
4.1.1.13 Medicines: Digestive system disorders	277
4.1.1.14 Medicines: Endocrine system disorders	316
4.1.1.15 Medicines: Genitourinary system disorders	321
4.1.1.16 Medicines: Ill-defined symptoms	349
4.1.1.17 Medicines: Infections/Infestations	356
4.1.1.18 Medicines: Inflammation	386
4.1.1.19 Medicines: Injuries	388
4.1.1.20 Medicines: Mental disorders	411
4.1.1.21 Medicines: Muscular-skeletal system disorders	413
4.1.1.22 Medicines: Neoplasm	447
4.1.1.23 Medicines: Nervous system disorders	451
4.1.1.24 Medicines: Nutritional disorders	455
4.1.1.25 Medicines: Pain	473
4.1.1.26 Medicines: Poisonings	480
4.1.1.27 Medicines: Pregnancy/Birth/Puerperium disorders	493
4.1.1.28 Medicines: Respiratory system disorders	522
4.1.1.29 Medicines: Sensory system disorders	543
4.1.1.30 Medicines: Skin/Subcutaneous cellular tissue	549
Copyright by Chaisorders Mai Univer	'sitv
4.2 Quantitative Study	558
4.2.1 Informant Consensus Factor (ICF) and Fidelity Level (FL)	558
4.2.2 Cultural Importance index (CI)	558
4.2.3 Culturally important plant species	571
4.2.4 Shared culture of plant use between groups	572

	Page
4.2.5 Study of knowledge erosion	573
4.2.5.1 Prevalence of knowledge and use	573
4.2.5.2 Knowledge and actual uses	574
4.2.5.3 Frequency of actual uses	575
4.2.5.4 Unknown medicinal plants	578
4.3 Comparative study	579
4.3.1 Comparison of species composition of all used plants	579
4.3.2 Comparison of species composition of wild plants	579
4.3.3 Comparison of species composition of domesticated plants	580
4.3.4 Comparison of plant uses based on use-category	
4.3.4.1 Food	581
4.3.4.2 Food additives	582
4.3.4.3 Animal food	583
4.3.4.4 Materials	584
4.3.4.5 Fuels	584
4.3.4.6 Social uses	585
4.3.4.7 Vertebrate poisons	586
4.3.4.8 Non-vertebrate poisons	586
4.3.4.9 Environmental uses	587
4.3.4.10 Medicines: Abnormalities	588
4.3.4.11 Medicines: Blood system disorders	588
4.3.4.12 Medicines: Circulatory system disorders	589
4.3.4.13 Medicines: Digestive system disorders	589
4.3.4.14 Medicines: Endocrine system disorders	590
4.3.4.15 Medicines: Genitourinary system disorders	591
4.3.4.16 Medicines: Ill-defined symptoms	591
4.3.4.17 Medicines: Infections/Infestations	592

	Page
4.3.4.18 Medicines: Inflammation	593
4.3.4.19 Medicines: Injuries	593
4.3.4.20 Medicines: Mental disorders	593
4.3.4.21 Medicines: Muscular-skeletal system disorders	594
4.3.4.22 Medicines: Neoplasm	595
4.3.4.23 Medicines: Nervous system disorders	595
4.3.4.24 Medicines: Nutritional disorders	596
4.3.4.25 Medicines: Pain	596
4.3.4.26 Medicines: Poisonings	597
4.3.4.27 Medicines: Pregnancy/Birth/Puerperium disorders	597
4.3.4.28 Medicines: Respiratory system disorders	598
4.3.4.29 Medicines: Sensory system disorders	599
4.3.4.30 Medicines: Skin/Subcutaneous cellular tissue	599
disorders	
CHAPTER 5 DISCUSSION	601
5.1 Plants used by the Hmong, Mien, Khamu, and Lua in Nan province	
5.1.1 Diversity of used plants	601
5.1.2 Food plants	602
5.1.3 Food additives	603
5.1.4 Animal food	603
5.1.5 Materials	604
5.1.6 Fuels	605
pyrig 5.1.7 Social uses/ Chiang Mai University	605
5.1.8 Vertebrate poisons	607
5.1.9 Non-vertebrate poisons	608
Medicinal plants	609
Informant Consensus Factor (ICF)	610
Fidelity level (FL)	611

xvii

	Page
5.1.10 Medicines: Abnormalities	611
5.1.11 Medicines: Blood system disorders	612
5.1.12 Medicines: Circulatory system disorders	614
5.1.13 Medicines: Digestive system disorders	615
5.1.14 Medicines: Endocrine system disorders	621
5.1.15 Medicines: Genitourinary system disorders	622
5.1.16 Medicines: Ill-defined symptoms	625
5.1.17 Medicines: Infections/Infestations	625
5.1.18 Medicines: Inflammation	628
5.1.19 Medicines: Injuries	629
5.1.20 Medicines: Mental disorders	631
5.1.21 Medicines: Muscular-skeletal system disorders	631
5.1.22 Medicines: Neoplasm	634
5.1.23 Medicines: Nervous system disorders	635
5.1.24 Medicines: Nutritional disorders	635
5.1.25 Medicines: Pain	637
5.1.26 Medicines: Poisonings	638
5.1.27 Medicines: Pregnancy/Birth/Puerperium disorders	639
5.1.28 Medicines: Respiratory system disorders	643
5.1.29 Medicines: Sensory system disorders	646
5.1.30 Medicines: Skin/Subcutaneous cellular tissue disorders	646
5.2 Culturally important plant species	648
5.3 Shared culture of plant use between groups	650
5.4 Medicinal plant knowledge and its trends of erosion	651
5.4.1 Knowledge and actual use	651
5.4.2 Prevalence of knowledge and use	652
5.5 Plant use patterns of the four ethnic groups: cultural or ecological	655
constraints?	

xviii

TABLE OF CONTENTS (continued)

	Page
5.5.1 Comparison of overall useful plant composition, wild plants	655
and domesticated plants	
5.5.2 Comparison of plant uses based on use-category	656
CHAPTER 6 CONCLUSION	663
REFERENCES	665
APPENDICES	698
APPENDIX A	699
APPENDIX B	744
SPECIES INDEX AND VOUCHER NUMBER	747
CURRICULUM VITAE	785
M # /	
C man	
AI UNIVERSITY	
UNIVE	

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

LIST OF TABLES

Table	กมยนต	Page
1	Basic information for twelve villages in Nan province where	52
	ethnobotanical fieldwork was conducted among four ethnic groups	
2	Number of informants for questionnaire interview in twelve	63
1/6	villages where ethnobotanical study was conducted	
3	Number of plant family, plant species and use-category based	67
144	Shannon-Wiener diversity index of useful plants reported from 12	
30%	villages studied	
740 3	Number of plant families and species reported as food in each	70
306	village	
5	Plants used as food by the Hmong, Mien, Khamu and Lua in twelve	72
N Y	villages in Nan province	
6	Number of plant families and species reported as food additive in	168
	each village	
7	Plants used as food additive by the Hmong, Mien, Khamu and Lua	170
	in twelve villages in Nan province	
8	Number of plant families and species reported as animal food in	186
	each village	
9	Plants used as animal food by the Hmong, Mien, Khamu and Lua in	187
an	twelve villages in Nan province	K1
10	Number of plant families and species reported as materials in each	190
ovrig	village by Chiang Mai Univers	sitv
11	Plants used as materials by the Hmong, Mien, Khamu and Lua in	192
	twelve villages in Nan province	e c
12	Number of plant families and species reported as fuels in each	216
	village	
13	Plants used as fuels by the Hmong, Mien, Khamu and Lua in	217
	twelve villages in Nan province	

Table		Page
14	Number of plant families and species reported for social uses in	222
	each village	
15	Plants reported for social uses by the Hmong, Mien, Khamu and	224
	Lua in twelve villages in Nan province	
16	Number of plant families and species reported as used for	241
// &	vertebrate poisons in each village	
17	Plants used for vertebrate poisons by the Hmong, Mien, Khamu	242
	and Lua in twelve villages in Nan province	
18	Number of plant families and species reported as used for non-	245
300	vertebrate poisons in each village	
19	Plants used for non-vertebrate poisons by the Hmong, Mien,	246
	Khamu and Lua in twelve villages in Nan province	
20	Number of plant families and species reported for environmental	251
	uses in each village	
21	Plants reported for environmental uses by the Hmong, Mien,	253
	Khamu and Lua in twelve villages in Nan province	
22	ICF values and number of plant families and species used to treat	256
	abnormalities in each village	
23	Medicinal plants used to treat abnormalities by the Hmong, Mien,	257
	Khamu and Lua in twelve villages in Nan province	
24	ICF values and number of plant families and species used to treat	260
	blood system disorders in each village	
25	Medicinal plants used to treat blood system disorders by the	262
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	0 6
26	ICF values and number of plant families and species used to treat	269
	circulatory system disorders in each village	
27	Medicinal plants used to treat circulatory system disorders by the	271
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	

Table		Page
28	ICF values and number of plant families and species used to treat	277
	digestive system disorders in each village	
29	Medicinal plants used to treat digestive system disorders by the	279
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	
30	ICF values and number of plant families and species used to treat	316
6	endocrine system disorders in each village	
31	Medicinal plants used to treat endocrine system disorders by the	318
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	
32	ICF values and number of plant families and species used to treat	321
7707	genitourinary system disorders in each village	
33	Medicinal plants used to treat genitourinary system disorders by	323
	the Hmong, Mien, Khamu and Lua in twelve villages in Nan	
11 7	province	
34	ICF values and number of plant families and species used to treat	349
	ill-defined symptoms in each village	
35	Medicinal plants used to treat ill-defined symptoms by the Hmong,	351
	Mien, Khamu and Lua in twelve villages in Nan province	
36	ICF values and number of plant families and species used to treat	356
	infections/infestations in each village	
37	Medicinal plants used to treat infections/infestations by the	358
18111	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	Mi
38	ICF values and number of plant families and species used to treat	386
pyrig	inflammation in each village and wall univer	sity
39	Medicinal plants used to treat inflammation by the Hmong, Mien,	387
	Khamu and Lua in twelve villages in Nan province	t (
40	ICF values and number of plant families and species used to treat	388
	injuries in each village	

Table		Page
41	Medicinal plants used to treat injuries by the Hmong, Mien,	390
	Khamu and Lua in twelve villages in Nan province	
42	ICF values and number of plant families and species used to treat	411
	mental disorders in each village	
43	Medicinal plants used to treat mental disorders by the Hmong,	412
\	Mien, Khamu and Lua in twelve villages in Nan province	
44	ICF values and number of plant families and species used to treat	413
	muscular-skeletal system disorders in each village	
45	Medicinal plants used to treat muscular-skeletal system disorders	415
7101	by the Hmong, Mien, Khamu and Lua in twelve villages in Nan	
1 000	province	
46	ICF values and number of plant families and species used to treat	447
	neoplasm in eah village	
47	Medicinal plants used to treat neoplasm by the Hmong, Mien,	449
	Khamu and Lua in twelve villages in Nan province	
48	ICF values and number of plant families and species used to treat	451
	nervous system disorders in each village	
49	Medicinal plants used to treat nervous system disorders by the	453
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	
50	ICF values and number of plant families and species used to treat	455
ar	nutritional disorders in each village	HI
51	Medicinal plants used to treat nutritional disorders by the Hmong,	457
pyri	Mien, Khamu and Lua in twelve villages in Nan province	sity
52	ICF values and number of plant families and species used to treat	473
	pain in each village	e (
53	Medicinal plants used to treat pain by the Hmong, Mien, Khamu	475
	and Lua in twelve villages in Nan province	

xxiii

Table		Page
54	ICF values and number of plant families and species used to treat	480
	poisonings in each village	
55	Medicinal plants used to treat poisonings by the Hmong, Mien,	482
	Khamu and Lua in twelve villages in Nan province	
56	ICF values and number of plant families and species used to treat	493
25	pregnancy/birth/puerperium disorders in each village	
57	Medicinal plants used to treat pregnancy/birth/puerperium	495
1	disorders by the Hmong, Mien, Khamu and Lua in twelve villages	
300	in Nan province	
58	ICF values and number of plant families and species used to treat	522
1	respiratory system disorders in each village	
59	Medicinal plants used to treat respiratory system disorders by the	524
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	
60	ICF values and number of plant families and species used to treat	543
	sensory system disorders in each village	
61	Medicinal plants used to treat sensory system disorders by the	545
	Hmong, Mien, Khamu and Lua in twelve villages in Nan province	
62	ICF values and number of plant families and species used to treat	549
	skin/subcutaneous cellular tissue system disorders in each village	
63	Medicinal plants used to treat skin/subcutaneous cellular tissue	551
an	system disorders by the Hmong, Mien, Khamu and Lua in twelve	141
	villages in Nan province	
-64	Thirty plant species with high CI value raised as the domain of a	558
Pying	questionnaire in Khang Ho village (Hmong)	Sity
65	Thirty plant species with high CI value raised as the domain of	E 559
	questionnaire in Manee Pruek village (Hmong)	
66	Thirty plant species with high CI value raised as the domain of	560
	questionnaire in Song Khwae village (Hmong)	

Table		Page
67	Thirty plant species with high CI value raised as the domain of	561
	questionnaire in Huai Labaoya village (Mien)	
68	Thirty plant species with high CI value raised as the domain of	562
	questionnaire in HuaiSanao village (Mien)	
69	Thirty plant species with high CI value raised as the domain of	563
25	questionnaire in Santiphap village (Mien)	
70	Thirty plant species with high CI value raised as the domain of	564
	questionnaire in Huai Pook village (Khamu)	
71	Thirty plant species with high CI value raised as the domain of	566
500	questionnaire in Huai Satang village (Khamu)	
72	Thirty plant species with high CI value raised as the domain of	567
	questionnaire in Nam Pan village (Khamu)	
73	Thirty plant species with high CI value raised as the domain of	568
11 7	questionnaire in Joon village (Lua)	
74	Thirty plant species with high CI value raised as the domain of	569
	questionnaire in Manee Pruek2 village (Lua)	
75	Thirty plant species with high CI value raised as the domain of	570
	questionnaire in Toei Klang village (Lua)	
76	Twelve culturally important plant species of the Hmong	571
77	Nine culturally important plant species of the Mien	572
78	Five culturally important plant species of the Khamu	572
79	Shared culture of plant uses among ethnic groups	572
-80	Average number of medicinal plants known and actually used by	576
Pying	informants in each village	SILY
81	Medicinal plants commonly used to treat blood system disorders	613
	and similar uses/corroboration of their therapeutic effects reported	
	in the literature	

Table		Page
82	Medicinal plants commonly used to treat blood system disorders	614
	and similar uses/corroboration of their therapeutic effects reported in the literature	
83	Medicinal plants commonly used to treat digestive system	616
	disorders and similar uses/corroboration of their therapeutic	
// &	effects reported in the literature.	
84	Medicinal plants commonly used to treat digestive system	621
	disorders and similar uses/corroboration of their therapeutic	
	effects reported in the literature	11
- 85	Medicinal plants commonly used to treat genitourinary system	623
202	disorders and similar uses/corroboration of their therapeutic	
	effects reported in the literature.	
86	Medicinal plants commonly used related to infections/infestations	626
11.5	and similar uses/corroboration of their therapeutic effects reported	
	in the literature.	
87	Medicinal plants commonly used to treat injuries and similar	629
	uses/corroboration of their therapeutic effects reported in the	
	literature.	
88	Medicinal plants commonly used to treat muscular-skeletal system	632
	disorders and similar uses/corroboration of their therapeutic	
Sagn	effects reported in the literature.	121
C_{89}	Medicinal plants commonly used to treat nutritional disorders and	636
Copyrig	similar uses/corroboration of their therapeutic effects reported in the literature.	sity
90	Medicinal plants commonly used to treat pain and similar uses/	637
	corroboration of their therapeutic effects reported in the literature.	
91	Medicinal plants commonly used to treat poisionings and similar	638
	uses/corroboration of their therapeutic effects reported in the	
	literature.	

	Page
Medicinal plants commonly used to treat pregnancy/birth/	640
puerperium disorders and similar uses/corroboration of their	
therapeutic effects reported in the literature.	
Medicinal plants commonly used to treat respiratory system	643
disorders and similar uses/corroboration of their therapeutic	
effects reported in the literature.	
Medicinal plants commonly used to treat sensory system disorders	646
and similar uses/corroboration of their therapeutic effects reported	
in the literature.	1
Medicinal plants commonly used to treat skin/subcutaneous	647
cellular tissue disorders and similar uses/corroboration of their	
therapeutic effects reported in the literature.	
Summary of clustering patterns found in the dendogram topology	659
for each use-category resulting from Cluster Analysis based on	
presence/absence matrix and Jaccard's similarity index.	
M. CRS	
A IINIVE	
	puerperium disorders and similar uses/corroboration of their therapeutic effects reported in the literature. Medicinal plants commonly used to treat respiratory system disorders and similar uses/corroboration of their therapeutic effects reported in the literature. Medicinal plants commonly used to treat sensory system disorders and similar uses/corroboration of their therapeutic effects reported in the literature. Medicinal plants commonly used to treat skin/subcutaneous cellular tissue disorders and similar uses/corroboration of their therapeutic effects reported in the literature. Summary of clustering patterns found in the dendogram topology for each use-category resulting from Cluster Analysis based on

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

LIST OF FIGURES

Figure	ं भग्नाहासक	Page
1	Some key questions and disciplines relevant to applied	13
	ethnobotany	
2 &	Twelve villages in Nan province in northern Thailand where	51
	ethnobotanical fieldwork was conducted among four different	
	ethnic groups	
3	Number of all useful plant species in each family reported from	67-69
500	twelve villages studied	١
4	Number of plant species in each family reported as food in each	70-71
	village	
5	Number plant species in each family reported as food additive in	169
11.5	each village	
6	Number plant species in each family reported as animal food in	186
	each village	
7	Number plant species in each family reported as used for	191
	materials in each village	
8	Number plant species in each family reported as fuels in each	216
	village	
9	Number plant species in each family reported for social uses in	223
	each village	LM:
10	Number plant species in each family reported as used for	241
	vertebrate poisons in each village	1311
11	Number of plant species in each family reported as used for non-	245
_	vertebrate poisons in each village	
12	Number of plant species in each family reported as used for	252
	environmental purposes in each village	

xxviii

Figure		Page
13	Number plant species in each family used to treat abnormalities	256
	in each village	
14	Number plant species in each family used to treat blood system	261
	disorders in each village	
15	Number plant species in each family used to treat circulatory	270
6	system disorders in each village	
16	Number plant species in each family used to treat digestive	278
	system disorders in each village	
17%	Number plant species in each family used to treat endocrine	317
705	system disorders in each village	
18	Number plant species in each family used to treat genitourinary	322
	system disorders in each village	
19	Number plant species in each family used to treat ill-defined	350
	symptomps in each village	
20	Number plant species in each family used to treat	357
	infections/infestations in each village	
21	Number of plant species in each family used to treat	386
	inflammation in each village	
22	Number plant species in each family used to treat injuries in	389
	each village	
23	Number of plant species in each family used to treat mental	411
	disorders in each village	
24	Number plant species in each family used to treat muscular-	414
1	skeletal system disorders in each village.	
25	Number plant species in each family used to treat neoplasms in	448
	each village	
26	Number plant species in each family used to treat nervous	452
	system disorders in each village	

Figure		Page
27	Number plant species in each family used to treat nutritional	456
	disorders in each village	
28	Number plant species in each family used to treat pain in each	474
	village	
29	Number plant species in each family used to treat poisonings in	481
1	each village	
30	Number of plant species in each family used to treat pregnancy/	494
	birth/puerperium disorders in each village	
31	Number of plant species in each family used to treat respiratory	523
	system disorders in each village	
32	Number of plant species in each family used to treat sensory	544
	system disorders in each village	
33	Number of plant species in each family used to treat	550
	skin/subcutaneous cellular tissue disorders system disorders in	
	each village	
34	Percentage of responses regarding plant knowledge and actual	575
	use of medicinal plants compared to all questions asked in	
	questionnaire interviews in each village	
35	Frequency of actual uses of medicinal plants reported in	577
	questionnaire interviews	
36	Frequency of past and recent uses of medicinal plants reported in	577
	questionnaire interviews	
37	Percentage of three cases of informants' experiences related to	578
1	plants for which they do not know the medicinal use.	
38	Dendrogram topology for comparison of all used plant	579
	composition among all villages studied	
39	Dendrogram topology for comparison of wild used plant	580
	composition among all villages studied	

Figure		Page
40	Dendrogram topology for comparison of domesticated used	581
	plant composition among all villages studied	
41	Dendrogram topology for comparison of plant composition of	582
	species used as food among all villages studied	
42	Dendrogram topology for comparison of plant composition of	583
100	species used as food additive among all villages studied	
430/	Dendrogram topology for comparison of plant composition for	583
	species used for animal food among all villages studied	
44	Dendrogram topology for comparison of plant composition for	584
	species used as materials among all villages studied	
45	Dendrogram topology for comparison of plant composition for	585
	species used for fuels among all villages studied	
46	Dendrogram topology for comparison of plant composition	585
	reported for species used for social purposes among all villages	
	studied.	
47	Dendrogram topology for comparison of plant composition for	586
	species used for vertebrate poisons among all villages studied	
48	Dendrogram topology for comparison of plant composition for	587
	species used for non-vertebrate poisons among all villages	
2	studied	
49	Dendrogram topology for comparison of plant composition for	587
	species used for environmental purposes among all villages	24.
Dyri	studied by Chiang Mai Univer	rsity
50	Dendrogram topology for comparison of medicinal plant	588
	composition for species used to treat abnormalities among all	
	villages studied	

xxxi

Figure		Page
51	Dendrogram topology for comparison of medicinal plant	588
	composition for species used to treat blood system disorders	
	among all villages studied	
52	Dendrogram topology for comparison of medicinal plant	589
	composition for species used to treat circulatory system	
(9)	disorders among all villages studied	
530/	Dendrogram topology for comparison of medicinal plant	590
	composition for species used to treat digestive system disorders	11
	among all villages studied	
54	Dendrogram topology for comparison of medicinal plant	590
	composition for species used to treat endocrine system disorders	
13	among all villages studied	
55	Dendrogram topology for comparison of medicinal plant	591
	composition for species used to treat genitourinary system	
	disorders among all villages studied	
56	Dendrogram topology for comparison of medicinal plant	592
	composition for species used to treat ill-defined symptoms	
	among all villages studied	
57	Dendrogram topology for comparison of medicinal plant	592
2	composition for species used to treat infections/ infestations	271
di	among all villages studied	lni
58	Dendrogram topology for comparison of medicinal plant	593
DALIS	composition for species used to treat injuries among all villages	SIL
	studied of the state of the sta	6
59	Dendrogram topology for comparison of medicinal plant	594
	composition for species used to treat mental disorders among all	
	villages studied	

xxxii

Figure		Page
60	Dendrogram topology for comparison of medicinal plant	594
	composition for species used to treat muscular-skeletal system	
	disorders among all villages studied	
61	Dendrogram topology for comparison of medicinal plant	595
	composition for species used to treat neoplasms among all	
19	villages studied	
620	Dendrogram topology for comparison of medicinal plant	595
	composition for species used to treat nervous system disorders	11
	among all villages studied	
63	Dendrogram topology for comparison of medicinal plant	596
Y	composition for species used to treat nutritional disorders among	
10	all villages studied	
64	Dendrogram topology for comparison of medicinal plant	596
	composition for species used to treat pain among all villages	
	studied	
65	Dendrogram topology for comparison of medicinal plant	597
	composition for species used to treat poisonings among all	
	villages studied	
66	Dendrogram topology for comparison of medicinal plant	598
2	composition for species used to treat pregnancy/birth/	
din	puerperium disorders among all villages studied	lh
67	Dendrogram topology for comparison of medicinal plant	598
Dyrig	composition for species used to treat respiratory system	rsity
	disorders among all villages studied	
68	Dendrogram topology for comparison of medicinal plant	599
	composition for species used to treat sensory system disorders	
	among all villages studied	

xxxiii

LIST OF FIGURES (continued)

Figure		Page
69	Dendrogram topology for comparison of medicinal plant	600
	composition for species used to treat skin/subcutaneous	
	cellular tissue disorders among all villages studied	
70	Residence of the Hmong	696
71	Residence of the Hmong	697
72	Life style of the Hmong	698
730/	Residence of the Mien	699
74	Life style of the Mien	700
75	Mien rituals	701
76	Residence of the Khamu	702
77	Lifestyle of the Khamu	703
78	Residence of the Lua	704
79	Spiritual and rice-related rituals of the Lua	705
80	Uses of bamboos	706
81	Plants used for thatching	707
82	Uses of plants as materials	708
83	Hmong traditional way to make clothes from hemp	709
84	Uses of Strobilanthes cusia	710
85	Use of Solanum erianthum as started for making gun powder	711
86-113	Used plants of the Hmong, the Mien, the Khamu, and the Lua 7	12-739
	in Nan province	in

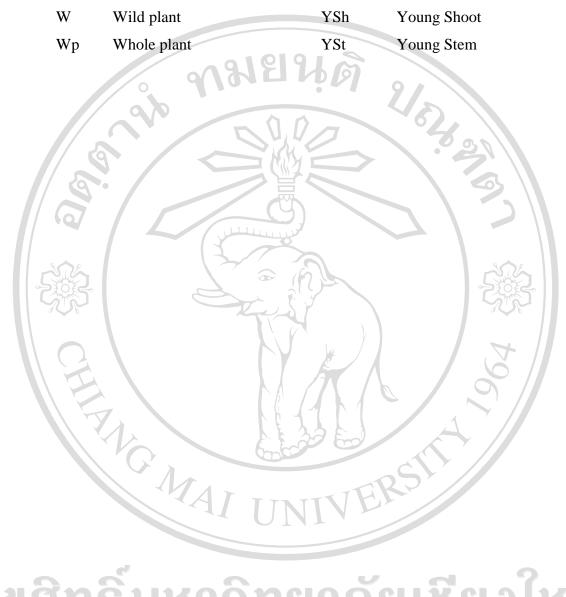
Copyright[©] by Chiang Mai University All rights reserved

xxxiv

ABBREVIATIONS AND SYMBOLS

#	Number 9199	KH	Khang Ho village
(G)	(Green Hmong/blue Hmong)	L	Lua
(W)	(White Hmong)	Lf	Leaves
Arl	Aril	LfSh	Leaf Sheet
Bbl	Bulbils	Lfv	Leaf vein
Bk	Bark	M	Mien
Blb	Bulb	MNP	Manee Pruek village
Br	Branches	MNP2	Manee Pruek 2 village
Clx	Calyx	Nbd	Node with bud
Cn	Cones	NP	Nam Pan village
Co	Corm	NTFPs	Non-Timber Forest Products
D	Domesticated plant	Pd	Peduncle
EG	Ethnic group	Pt	Petiole
Ex	Exudate	PT	Plant Type
Fig.	Figure	PU	Part Used
FL	Fidelity Level	Rh	Rhizome
Fl	Flower	Rt	Root
Fr	Fruit	Sd	Seeds
Н	Hmong	Sh	Shoot
HBY	Huai Labaoya village	SK	Song Khwae village
HP	Huai Pook village	Sp	Stipule
HSN	Huai Sanao village	St_	Stem
HST	Huai Satang village	STP	Santiphap village
ICF	Informant Consensus Factor	Str	Strawe / V e
Infl	Inflorescence	TK	Toei Klang village
JN	Joon village	Un	Unspecified aerial parts
K	Khamu	URs	Use-Reports

VL	Village	YFr	Young Fruit
VN	Voucher number	YLf	Young Leaves
W	Wild plant	YSh	Young Shoot
Wp	Whole plant	YSt	Young Stem



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved