



**Studies on the Ethnobotany of the *Phom-Naga*
tribe in Longleng district, Nagaland**

By

Kilangnaro Imchen

Ph.D. Registration No: 391/2009



**A THESIS SUBMITTED
IN FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY IN BOTANY**

Central Library, Lumami

Acc. No.

Date.

Sign.

**DEPARTMENT OF BOTANY
NAGALAND UNIVERSITY
HEADQUARTERS : LUMAMI**

SEPTEMBER 2014



NAGALAND

UNIVERSITY

(A Central University Estd. by the act of Parliament No.35 of 1989)

**Department of Botany
Headquarters: Lumami**

PROF.N.S.JAMIR
Ref No:.....

CERTIFICATE

I certify that the thesis entitled '*Studies on the Ethnobotany of the Phom-Naga tribe in Longleng distric , Nagaland*', submitted by Kilangnaro Imchen for the Degree of Doctor of Philosophy to the Nagaland University embodies the record of the original investigation carried out by her under my supervision. She has been duly registered and the thesis is worthy of being considered for the award of Doctor of Philosophy Degree. This work has not been submitted for any degree to any other University.

Dated: 16-09-14
Place: N.U., Lumami


(Prof.N.S.Jamir)
Supervisor

Supervisor
Prof. N.S. Jamir
Department of Botany
Nagaland University
Hqs.: Lumami Nagaland



NAGALAND

UNIVERSITY

(A Central University Estd. by the act of Parliament No.35 of 1989)

**Department of Botany
Headquarters: Lumami**

DECLARATION

I, **Kilangnaro Imchen**, bearing Registration Number 391/2009 hereby, declare that the subject matter of my thesis entitled : '**Studies on the Ethnobotany of the Phom-Naga tribe in Longleng district , Nagaland**', is the record of original and independent research work done by me under the supervision and guidance of Prof.N.S.Jamir, Department of Botany, Nagaland University, and that the contents of this thesis did not form the basis for award of any degree to me or to anybody else to the best of my knowledge. The thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Nagaland University for the degree of Doctor of Philosophy in Botany.

Kilangnaro Imchen
25/09/14

(KILANGNARO IMCHEN)

Candidate

Prof. N.S. Jamir

(PROF.N.S.JAMIR)

Supervisor

**Supervisor
Prof. N.S. Jamir
Department of Botany
Nagaland University
Hqs.: Lumami Nagaland**

Dr. C.R. Deb
26/09/14

(DR.C.R.DEB)

Head, Department of Botany

CONTENTS

	Page
<i>Declaration</i>	
<i>Acknowledgement</i>	i-ii
<i>List of Tables</i>	iii
<i>List of Figures</i>	iv
<i>List of Photo plates</i>	v-ix
<i>Abbreviations</i>	x
Chapter 1. Ethnobotany-Its general view and nature	1-8
1.1. Introduction	
1.2. Ethnobotany and its relation to different branches of science	
1.3. Purpose of the study	
1.4. Aims and objectives of the present work	
Chapter 2. Longleng district: The land and the people	9-20
2.1. The land	
2.1.1. Location and area	
2.1.2. Topography	
2.1.3. Drainage	
2.1.4. Geology and mining	
2.1.5. Industries	
2.1.6. Climate	
2.1.7. Flora and fauna	
2.2. The people- <i>Phom-Naga</i>	
2.2.1. History	
2.2.2. Religion	
2.2.3. Language and script	
2.2.4. Social life	
2.2.5. Socio –political life	
2.2.6. Cultural life	
2.2.7. Economic life	
2.2.8. Food and drink	

Chapter 3. Materials and method 21-28

- 3.1. Review of literature
- 3.2. Methods of study
 - 3.2.1. Procedure followed
 - 3.2.2. Approach and rapport
 - 3.2.3. Methods of producing information
 - 3.2.4. Methods of recording information
 - 3.2.5. Evaluation of data
 - 3.2.6. Presentation of data

Chapter 4. A comprehensive survey of Ethnobotany of the *Phom-Naga* tribe 29-227

- 4.1. Ethno-medicinal plants
- 4.2. Ethno-veterinary plants
- 4.3. Plants used as fodder
- 4.4. Food and beverages
- 4.5. Plants associated with fish poisoning
- 4.6. Plants used for bird snaring
- 4.7. Dye yielding plants
- 4.8. Plants used as bio-fencing
- 4.9. Plants used as fibre
- 4.10. Plants used as firewood
- 4.11. Plants associated with socio-religious practices
- 4.12. Plants used for wrapping food item
- 4.13. The uses of bamboo and cane
- 4.14. Plants used in construction of house
- 4.15. Plants used for mastication
- 4.16. Plants used for making household articles, agricultural implements and furniture.
- 4.17. Musical instrument of the *Phom-Naga* tribe and the plants associated with it
- 4.18. Plants associated with indigenous sports and games
- 4.19. Plants associated with inscribing of tattoo
- 4.20. Plants of miscellaneous use

Chapter 5. General discussions and conclusions 228-252

Chapter 6. Summary 253-254

Chapter 7. References i - xix
List of publications

DEDICATED
TO
MY BELOVED HUSBAND

Yunglo Pongon

For your unfailing love, support and encouragement.

ACKNOWLEDGEMENTS

I want to reach down to the bottom of my heart and express my sincere gratitude to my guide Prof N.S. Jamir, Department of Botany, Nagaland University, who has really helped set and mould me along this entire journey of completing the research work. You have been a tremendous mentor for me. Your encouragement, patience, loving and dedication have been priceless and influenced me greatly. Thank you sir so much.

Of course, there are a host behind-the-scene people who make the publication of this thesis into a reality.

Dr. Deb: Head of Department, Nagaland University for providing all the necessary facilities.

My loving husband: for your constant support and willingness to sacrifice your time to accompany me in my field works. You have been my driver, field assistant, photographer and even my editor.

To all my family members and in-laws: Thank you all for your unconditional love and support. Your prayer for me was what sustained me thus far.

My mom and dad: For being the first to encourage me take up my research work and for taking care of my kids during my course of work.

Mr & Mrs. Lanunochet: For always taking care of us during our stay in Longleng District. Your hospitality has really amazed me over and over.

Mr. Atuba: Youth Director, Longleng Ao Baptist Church for your time by always accompanying us in the field work in spite of your busy schedules.

To Longpong Association: Your team has helped me a lot by providing vehicles while visiting those villages where transportation was unavailable.

Mr. Noklu Phom: Executive Secretary, Longpong Association, for your willingness to bridge communication between villagers and myself for a comfortable stay and friendly atmosphere.

My fellow research scholars: For your willingness to help & co-operation. I would like to express my appreciation for their encouragement and support during my study period.

I also would like to extend my sincere thanks to all the village chiefs, elders, local healers, and gaon-poras, for their support, co-operation and help during my field works, without their co-operation I could have never completed my work. All of you have been there to support me when I recruited information and collected data for my Ph.D. thesis

Above all, I would like to thank our Almighty God for His constant guidance throughout my journey in completing my research work. He has been so amazing and never failed me.

(Kilangnaro Imchen)

LIST OF TABLES

- Table 3.1: List of the names of the villages chosen as the study site under Longleng District of Nagaland
- Table 5.1: Plants of different groups which are used for various purposes.
- Table 5.2: Number of ailments recorded with the number of plants used.
- Table 5.3: Family wise distribution of the Ethno-veterinary plants.
- Table 5.4: Uses of plants as food and beverages.
- Table 5.5: Family wise distribution of the Bird snaring plants.
- Table 5.6: Family wise distribution of fibre yielding plant
- Table 5.7: Family wise distribution of plants used for wrapping food items
- Table 5.8: Family wise distribution of plants used for Mastigatory substance
- Table 5.9: Family wise distribution of plants used for inscribing of tattoo
- Table 5.10: Table 5.10: Table showing significant findings use only by the *Phom-Naga* tribe

LIST OF FIGURES

- Fig 1.1:** Map showing location of Longleng District
- Fig 5.1:** No. of family, genus and Species of different plant groups
- Fig 5.2:** Percentage of plant species of different plant groups
- Fig 5.3:** No. of ethnobotanical plant species of different habit
- Fig 5.4:** Percentage of categories of habitat of plants
- Fig 5.5:** No. of species among the families of Monocotyledons having maximum number of species
- Fig 5.6:** No. of species among the families of Dicotyledons with maximum number of species
- Fig 5.7:** Ethnobotanically important plants arranged under different categories
- Fig 5.8:** Percentage of ethnobotanical plant species used for different purposes
- Fig 5.9:** Different parts of plants used in treating the diseases
- Fig 5.10:** Method of application of prescriptions
- Fig 5.11:** Categories of edible plants with total no. of species
- Fig 5.12:** Percentage of edible plant parts of different categories

List of photo plates

Plate 1: Forest area of the study site

Plate 2: A clear forest ready for Jhum cultivation

Plate 3: Forest area of the study site

Plate 4: Field trip in the study area

Plate 5: A, B & C: Morung (Pang)
D: A traditional house of Phom- Naga tribe
E & F: Inside view of a traditional kitchen

Plate 6: Social life of the *Phom-Naga* tribe

A. Traditional container for storing salt B. An old woman working in
the field C & D. Husking of rice grain E. Entrance to Morung
F. A man wearing traditional head gear and necklace

Plate 7: The cultural life of the *Phom-Naga* tribe

A, B & C. A *Phom-Naga* man & woman in traditional attire
D, E & F. Traditional dances

Plate 8: Cultural life of the *Phom-Naga* tribe

A, B & C. Traditional spear, Dao and different items D. Shield used in
dances E. Traditional attire worn by man F. Dao belt
(Yanpishongvüh) G. Necklace H. Ornament worn in ears
I. Dao used during traditional dances

Plate 9: Cultural life of the *Phom-Naga* tribe

A, B & C. Variety of traditional necklaces
D - H. Different lower garments for women I. Head band for women

Plate 10: Ethnomedicinal Plants

A. *Solanum spiral* Roxb. B. *Phyllanthus urinaria* Linn.
C. *Adhatoda zeylanica* Medic. D. *Acorus calamus* Linn.
E. *Thalictrum foliolosum* DC. F. *Jatropha curcus* Linn.

Plate 11: Ethnomedicinal Plants

- A. *Molineria capitulate* (Lour) Herb. B. *Ocimum basilicum* Linn.
B. *Phlogacanthus thyrsiflorus* Nees. D. *Arisaema tortuosum* (Wall.) Schott
C. *Urtica ardens* Link F. *Solanum torvum* Sw.

Plate 12: Ethnomedicinal Plants

- A. *Gynocardia odorata* R. Br B. *Kalanchoe pinnata* (Lam.) Pers.
C. *Catharanthus roseus* (Linn.) G. Don. D. *Solanum viarum* Dunal
E. *Curcuma caesia* Roxb. F. *Houttuynia cordata* Thunb.

Plate 13: Ethnomedicinal Plants

- A. During collection of plants B. Interview with the healers during
field work C. A women with the medicinal herbs
D. A local healer displaying the herbal medicines he prepared
E. A man showing a medicinal stone

Plate 14: Ethno -veterinary plants

- A. *Tegetes erectus* Linn. B. *Ricinus communis* Linn.
C. *Lasia spinosa* (Linn.) Thw. D. *Costus speciosus* (Koenig ex Retz.)
E. *Cannabis sativa* Linn. F. *Wedelia chinensis* (Osborne) Merr.

Plate 15: Tender shoots and leaves taken as vegetable

- A. *Clerodendrum colebrookianum* Walp. B. *Amaranthus spinosus*
C. Dried leaves of *Hibiscus sabdariffa* Linn. D. *Sauropus androgynus* (Linn.)
Merr. E. *Phaseolus vulgaris* Linn. F. *Begonia picta* Linn.

Plate 16: Tender shoots and leaves taken as vegetable

- A. *Diplazium esculentum* (Retz.) Sw. B. Dried Bamboo shoot
C. *Zanthoxylum armatum* DC. D. *Polygonum chinense* Linn.
E. *Centella asiatica* Linn. F. Leaves of *Brassica campestris* Linn.

Plate 17: Fruits used as vegetable

- A. *Cucurbita maxima* Duch. B. *Solanum indicum* Linn.
C. *Lycopersicon lycopersicum* (Linn.) Karsten D. *Solanum melongena*
Linn. E. *Cyphomandra betacea* Cav. F. *Psophocarpus tetragonolobus* DC.

Plate 18: Fruits used as vegetable

- | | |
|----------------------------------|---------------------------------------|
| A. <i>Capsicum annum</i> Linn. | B. <i>Solanum gilo</i> Raddi. |
| C. <i>Momordica dioica</i> Roxb. | D. <i>Sechium edule</i> Sw. |
| E. <i>Mucuna prurita</i> Hook. | F. <i>Cajanus cajan</i> (Linn.) Mill. |

Plate 19: Rhizome and tubers used as vegetable

- | | |
|---|--|
| A. <i>Colocasia esculenta</i> (Linn.) Schott. | B. <i>Zingiber officinale</i> Roxb. |
| C. <i>Allium chinense</i> G. Don. | D. <i>Zingiberaceae cassumunar</i> Roxb. |
| E. <i>Manihot esculenta</i> Crantz. | F. <i>Curcuma longa</i> Linn. |

Plate 20: Edible stem

- | | |
|---------------------------------------|---|
| A. <i>Saccharum officinarum</i> Linn. | B. <i>Colocasia esculenta</i> (Linn.) Schott. |
| C. <i>Musa paradisiaca</i> Linn. | D. <i>Lasia spinosa</i> (Linn.) Thw. |
| E. <i>Caryota urens</i> Linn. | F. Dried stem of <i>Colocasia esculenta</i> |

Plate 21: Inflorescences, flowers and buds used as vegetables

- | | |
|--------------------------------------|--|
| A. <i>Curcuma angustifolia</i> Roxb. | B. <i>Hibiscus sabdariffa</i> Linn. |
| C. <i>Cucurbita pepo</i> Linn. | D. <i>Elsholtzia communis</i> Colt. Et. Hemsl. |
| E. <i>Brassica campestris</i> Linn. | F. <i>Clerodendrum cordatum</i> D. Don. |

Plate 22: Plants used as spices and flavouring agent

- | | |
|-----------------------------------|----------------------------------|
| A. <i>Eryngium foetidum</i> Linn. | B. <i>Allium hookerii</i> Thw. |
| C. <i>Piper nigrum</i> Linn. | D. <i>Metha spicata</i> Linn. |
| E. <i>Piper nigrum</i> Linn. | F. <i>Amomum subulatum</i> Roxb. |

Plate 23: Seeds used as vegetables

- | | |
|--|--|
| A. <i>Hodgsonia macrocarpa</i> (Bl.) Cogn. | B. <i>Datura stramonium</i> Linn. |
| C. <i>Glycine max</i> (Linn.) Merr. | D. <i>Perilla ocimoides</i> Linn. |
| E. <i>Phaseolus vulgaris</i> Linn. | F. <i>Canavalia ensiformis</i> (Linn.) DC. |

Plate 24: Edible fruits

- | | |
|--------------------------------------|----------------------------------|
| A. <i>Averrhoa carambola</i> Linn. | B. <i>Cucumis sativus</i> Linn. |
| C. <i>Citrus limon</i> (Linn.) Burm. | D. <i>Calamus erectus</i> Roxb. |
| E. <i>Psidium guajava</i> Linn. | F. <i>Musa paradisiaca</i> Linn. |

Plate 25: Edible fruits

- A. *Syzygium cumini* (Linn.) Skeels B. *Livistona jenkinsiana* Griff.
C. *Canarium resineferum* Bruce ex King. D. *Coccinia adoensis* (A. Rich.)
Cogn. E. *Ficus semicordata* Buch.-Ham. ex J.E. Smith F. *Citrus grandis* Linn.

Plate 26: Cereals and millets

- A. *Zea mays* Linn. B. *Oryza glutinosa* Lour.
C. *Oryza sativa* Linn. D. *Coix lacryma-jobi* Linn.
E. *Triticum aestivum* Linn.

Plate 27: Edible mushrooms

- A & F *Schizophyllum commune* Fries B. *Auricularia polytricha* (Mont.) Sacc.
C. *Termitomyces clypeatus* R. Heim. D. *Pleurotus pulmonarius* (Fr.) Quel.
E. Growing of *Pleurotus ostreatus* in paddy straw

Plate 28: Alcoholic beverages

- A. Rice cake B. Rice cake with a thumb sign
C. A fermented rice pot D. Bamboo cup (*Shongshoh*) for serving rice beer
E. *Capsicum annum* Linn. F. *Solanum indicum* Linn. (E & F - Plant used in preparation of rice beer)

Plate 29: An indigenous food item (Amphet)

Plate 30: Plants associated with fish poisoning

- A. *Zanthoxylum armatum* DC. B. *Thelypteris palustris* Schott.
C. *Polygonum hydropiper* Linn. D. *Juglans regia* Linn.
E & F. *Diospyros lanceifolia* Roxb.

Plate 31: Technique involved in fish poisoning

- A. Making of temporary dam B. Beating of the plant's part
C & D. Crushed parts are thrown into the water body
E & F. Poisoning of water body & catching of fishes manually

Plate 32: Plants used for snaring of birds

- A. *Caryota mitis* Lour. B. *Ficus elastic* Roxb.
C. Traps made of threads from C. *Mitis* D. *Artocarpus heterophyllus* Lamk.

Plate 33: Dye yielding plants

- A. *Melastoma malabathricum* Linn. B. *Curcuma longa* Linn.
C. *Hibiscus rosa-sinensis* Linn. D. *Dendrobium fimbriatum* Hook.

Plate 34: Plants used as fibre

- A. *Entada pursaetha* DC. B. *Grewia serrulata* DC.
C. *Caryota mitis* Lour. D. Basket holder (*Pak*) made of *P. acerifolium*
E. Basket made of *Grewia serrulata* F. *Gossypium arboreum* Linn.

Plate 35: Plants used for wrapping food item

- A. *Pterospermum acerifolium* (Linn.) Willd. B. *Canna indica* Linn.
C. *Phrynium capitatum* Willd. D. *Ficus carica* Linn.
E. *Musa paradisiaca* Linn.
F. Wrapping up of *Rhus semialata* with banana leaf

Plate 36: The uses of Bamboo and Cane

- A. Different bamboo species B. Bamboo mugs
C. *Aglet made of bamboo species*. D. Head gear made of bamboo species
E. Variety of domestic articles F. Manual fire blower made of bamboo

Plate 37: The uses of Bamboo and Cane

- A. Baskets of different shape made of bamboo and cane
B. Traditional wrapper made of bamboo culms.
C. Different weaving implement D. Mat (*Amnyü*) made of bamboo
E. Cane rope to tie wild animals F. Bamboo basket (*Mühto*)

Plate 38: The uses of Bamboo and Cane

- A. A show piece made of bamboo & skull B. A man making bamboo mat
(*Amnyü*) C. Cloth basket (*Shaonyu*) made of cane
D. Basket made of bamboo (*Gho*) E & F. Cane tray

Plate 39: Musical instruments

- A. Kongkhi (Bamboo mouth organ) B. Jemji (Bamboo Flute)
C. Um-oh (Cup violin) D. A man playing Kongkhi (Mouth organ)
E. Shüm (Log drum)

Plate 40: Plants associated with inscribing of tattoo

- A. *Calamus erectus* Roxb. (Used for puncturing of skin)
B, C & D. Tattoo displayed on the legs of women
E & F. Pattern of tattoo displayed on the chest of men

Plate 41: Plants of miscellaneous use

- A. Decorative item made of *Zea mays* Linn.
- B. Rosary made of *Elaeocarpus angustifolius* Blume
- C. Basket made of *Luffa acutangula* (Linn.) Roxb.
- D. Bottle made of *Lagenaria siceraria* Mol. E. *Arundo donax* Linn.
- F. Head band made of *Dendrobium fimbriatum* Hook.

ABBREVIATIONS

°C	Degree Celsius
cm	Centimeter
ed.	Edition
eg.	Exempli gratia/for example
et al.	And others
etc.	Etcetra
Fig.	Figure
G	Gram
hrs	Hours
i.e.	Exempli gratia/for example
Km	Kilometer Kg Kilogram
m	Meter
Sq.km	Square Kilometer
ml	Milliliter
No.	Number
Prof.	Professor
Sp.	Species
Vern.	Vernacular
Viz.	Videlicet/namely
°E	Degree East
°N	Degree North

CHAPTER ONE

ETHNOBOTANY-ITS

GENERAL VIEW AND

NATURE

CHAPTER ONE

ETHNOBOTANY-ITS GENERAL VIEW AND NATURE

1.1. INTRODUCTION

Ethno-botany is the scientific study of the relationships that exist between people and plants. It is derived from the word "*ethnology*" – which means study of culture and "*botany*" means study of plants. Ethno-botany is a study of how plants are used by the indigenous people of a particular culture or region. Uses of the plant may include food, medicine, shelter, hunting, clothing and even religious occasions. The term "ethno-botany" was first used by a botanist named John W. Harshberger in 1895 while he was teaching at the University of Pennsylvania. Although the term was not used until 1895, practical interests in ethno-botany go back to the beginning of civilization when people relied on plants for survival. The historical dimensions of ethno-botany that were largely listings of plants, names, and uses play a role in contemporary approaches to traditional plant knowledge.

In 1895, at a lecture in Philadelphia, Dr. John Harshberger used the term "Ethno-botany" to describe his field of inquiry, which he defined as the study of "plants used by primitive and aboriginal people". In 1896, Harshberger published the term and suggested "Ethno-botany" be a field which elucidates the "cultural position of the tribes who used the plants for food, shelter or clothing" (Harshberger 1896). The term quickly began to be used and a new field was opened. Until the turn of the 20th century, ethno-botany was primarily the study of native uses of plants.

But in 1916, Robbins *et al.* began to introduce some new theoretical notions and methodologies. Primarily, they noted that ethno-botany is more than collecting plants and procuring native names, but is "scientific work" worthy of scientific methods of investigation. They suggested that ethno-botanists should strive to explain deep understandings of plant life and plant relationships as perceived by the indigenous peoples (Robbins *et al.* 1916).

They also noted several questions ethno-botanists should consider when conducting field work: a) what are primitive ideas and conceptions of plant life? b) What are the effects of a given plant environment on the lives, customs, religion, thoughts, and everyday practical affairs of the people studied? c) What use do they make of the plants about them for food, for medicine, for material culture, for ceremonial purposes? d) What is the extent of their knowledge of the parts, functions, and activities of plants? e) Into what categories are plant names and words that deal with plants grouped in the language of the people studied, and what can be learned concerning the working of the folk-mind by the study of these names? (Robbins *et al.* 1916). The questions raised by Robbins *et al.* appear similar to questions modern ethno-botanists should ask when considering traditional ecological knowledge. Robbins *et al.* no doubt provided ethno-botanists many questions to ponder and added greatly to the theory and methodology of a fledgling field.

It was another 25 years before Volney Jones published "The Nature and Status of Ethno-botany" and attempted additional definition of the field (Jones 1941). Jones acknowledged that others before him had agreed that ethno-botany should be "concerned not only with uses of plants, but with the entire range of relations between primitive man and plant" (Jones 1941). He described man's dependency and co-existence with plants and other fields that concern themselves with similar applications. He laid the groundwork for the future evolution of ethnobotany.

In an important follow-up paper, "The Domain of Ethnobiology," Edward Castetter (1944) sought to further define ethnobiology, which includes ethnobotany and also to set some guidelines by which researchers should conduct their studies. The guidelines encouraged researchers to keep certain "factors" in mind when conducting field studies, including plant identification, relative abundance and availability of the plants, local names for the plant, purposes of use, season of collection, whether or not the plant is native to the area, the economic value, species not used in the region, and importance of the plant in the economy of the culture.

Since Harshberger, the definition of ethno-botany has changed and evolved along with the formation and evolution of the field (Jain 1987, 1989; Schultes 1972; Schultes and Reis 1995). In 1978, Richard Ford, a colleague of Jones, described a New Synthesis of ethno-botany, noting that modern ethno-botanists: "must be able to identify what plants are significant: to discover how the people of a culture classify, identify, and relate to them; and to examine how the perception of the plant world actually guides their action and concomitantly structures the floral environment" (Ford 1978). Ford modified Jones' definition to accommodate the changes in the field. He concluded that "Ethno-botany is the study of the direct interrelations between humans and plants" (Ford 1978). The addition of the term "direct" permitted the field to acknowledge those who were in continual contact with plants permitting them to classify, in their way, the plants and to generate cultural rules for manipulating the plants and their local environments. The deletion of the word "primitive" was to allow expansion of the field of study. Jain and Mitra (1991) pointed out that the term ethno-botany should rightly be applied to natural and direct relationship with plants of any people, at any level of antiquity, primitiveness or acculturation, and even to the most sophisticated of gentlemen and women.

Although the definition of ethno-botany seems to be very simple, it involves a broad approach, where the entire reciprocal and dynamic aspect of human relationship with plants is anticipated. However, studies and publications on various aspect of man plant relationship have led to the emergence of many discipline of ethno-botany (Jain 1986, 1987a, 1987b, 1989a, 1991, 2001; Ford 2001). The studies have taken up in various subgroups of plant kingdom like algae, fungi, bryophytes, pteridophytes, ethnobryology, ethnopteridology, ethnolichenology, etc.

Since plants are related with all aspect of human affairs, they are studied through a number of unrelated disciplines which render the subject of ethno-botany a different branch. When the enquiry in ethno-botany extends beyond ordinary realm of botany and has significant inputs of other branches of science, the work becomes interdisciplinary in nature. During the last few decades there have been concerted efforts to recognize ethno-botany as an interdisciplinary

science and have stimulated different forms of research under more specialized titles like ethnopharmacology, ethnomedicine, ethnogynaecology, ethnopaediatrics, ethnoorthopaedics, ethnotoxicology, ethnolinguistics, ethnophytochemistry, ethnocosmetics, etc. However interdisciplinary approaches essential for ethno-botanical studies can be achieved only through collaborative work involving specialists from different disciplines (Rao, 1989a, 1989b)

1.2. ETHNO-BOTANY AND ITS RELATION TO DIFFERENT BRANCHES OF SCIENCE

Although ethno-botany is distinctive as an academic field of study, it maintains a multidisciplinary character in both theory and methods. In the botanical tradition, the theoretical distinctions are clear. Plants and plant uses are the focus, although ecological patterns, plant dispersals, resource utilization, and horticultural and agricultural patterns have become popular avenues of study among botanists (Bye 1976; F. Cardenal 1993; Castetter and Bell 1937; Castetter and Opler 1936; Castetter and Underhill 1935; Densmore 1928; Felger *et al.* 1976; Gentry 1942; Gilmore 1919; Harvard 1895, 1896; Johnston 1943a, 1943b; LeFerrière 1991; LeFerrière *et al.* 1991; Newberry 1887; Shreve and Wiggins 1964; Whiting 1939; Yetman *et al.*

Ethno-botany has its roots in botany, the study of plants. Botany, in turn, originated in part from an interest in finding plants to help fight illness. In fact, medicine and botany have always had close ties. Many of today's drugs have been derived from plant sources. Pharmacology is the study of medicinal and toxic products from natural plant sources. At one time, pharmacologists researching drugs were required to understand the natural plant world, and physicians were schooled in plant-derived remedies. However, as modern medicine and drug research advanced, chemically-synthesized drugs replaced plants as the source of most medicinal agents in industrialized countries and research in plant sources continued and plants were still used as the basis for some drug development.

Ethno-botanists of the "New Synthesis," the holistic merger of all methods and theories (Ford 1978), often rely on several theoretical avenues in order to conduct their research. They use botanical theories with those from anthropology, and often they introduce theory and methods from other fields including linguistics, pharmacology, musicology, architecture, conservation biology and many others, depending on the questions being asked by the study (Alcorn 1984; Bye 1976; Felger and Moser 1985; Ford 1978, 1983; Hunn and Selam 1990; Jones 1941; Linares and Bye 1987; Litzinger 1983; Nabhan 1985, 1991; E. Salmon 1995; Salopek 1986; Turner and Davis 1993; Winkelman 1991).

Among anthropologically-oriented ethnobotanists, distinctions remain. Many in this field have concentrated on discovering plant/ human interactions through indigenous symbols, epistemology, folklore, and ceremony (Bahr 1983; Bahr *et al.* 1974; Basauri 1927; Bourke 1892; Conklin 1954; Crosswhite 1980; Cushing 1920; Hill 1992; Mares Trias 1986; Mooney 1891; Myerhoff 1970; Opler 1938; E. Salmon 1995; Schultes and Hofmann 1992). Others concentrate on plant classifications among non-western peoples (Atran 1985; Berlin 1976, 1978, 1992; Berlin *et al.* 1973; Brown 1977; Clément 1995; Hays 1982, 1983; Posey 1984; Taylor 1984).

In the archaeological realm, agricultural origins and prehistoric plant use are central. Archaeoethnobotanists often rely on plant and coprolite remains, fossilized pollen, and ancient food caches to determine prehistoric plant use and relationships (Adams 1980; Ford 1985; Kaplan 1963; Lepofsky *et al.* 1996; Matson 1991; Minnis 1985a, 1985b, 1991; Reinhard *et al.* 1991; Sobolik and Gerick 1992; Wills 1988; Zingg 1940).

Although ethnobotany seems to be a loose composition of theory and methods, common methodologies and theory can be found. Theoretically, direct contact with the vegetation of a region is encouraged and essential in order for researchers to fully comprehend the flora of a small geographic area on which they usually focus. From close contact with the plants, ethnobotanists are able to relate local and specialized plant taxonomies and study all the physical properties of the plants. Ethnobotanists sometimes pay attention to culturally

relative cognitive and symbolic properties of the plants in a region. Ecological relationships within the plant community are central to these studies as well as the larger plant/human relationship in terms of community economics. Here anthropological economic theory plays an important role as it helps the ethnobotanist assess and quantify human requirements and their impact on a local environment (Ford 1978).

1.3. PURPOSE OF THE STUDY

As we have seen, ethnobotany as a field is on the rise. However, it is still the laboratory-based molecular biologists whose work centres in the laboratory that garnishes more status and funding. Field ethnobotanists have not yet received the same level of support and respect, primarily because interest in this field has only just re-emerged. Yet, the field is growing. New scientific journals and societies have begun to disseminate the studies of the ethnobotanists to peers, other scientists, and policy makers worldwide.

During the last two decades many countries in the world, including India, have known the importance of ethnobotany, particularly in the search of new drugs, food, indigenous genetic material for improvement of biological entities, conservation of biodiversity through indigenous knowledge and participation of the indigenous people along with the ethnobotanists.

Ethnobotany issues are the focus of much public attention. Due to increased public interest and policy making in conservation, companies are looking for plants for new approaches to food, medicines, and energy sources. University departments are opening positions for interdisciplinary-trained ethnobotanists. The future looks promising for these dedicated scientists in a fascinating and vital field of research.

The choice of ethnobotanical study of the *Phom*-Naga in Longleng district of Nagaland is that, the indigenous people are still closely associated with nature and they have great fond of using plants in all aspects of life especially in the field of medicines, food, and different socio-cultural activities. Nagaland is one of the north-eastern states of India and Longleng district is in the North-

Eastern part of Nagaland. The region is an abode of fascinating landscape, lush green mountains and forests which leaves the place with an ideal repository deposit of a rich bio-diversity location. However the region has still remained unexplored inspite of the progress work done all over the world in the field of ethnobotany. The various reasons that drags behind the field is mainly due to poor communication facilities, prolong insurgency conditions and lack of adequate facilities.

1.4. AIMS AND OBJECTIVES OF THE PRESENT WORK

Since ethnobotanists aim to document, describe and explain complex relationships between cultures and uses of plants, focusing primarily on how plants are used, managed and perceived across human societies, the main aim of the present study is to know the plants used by the *Phom-Naga* tribe in Longleng district and to record its uses and relationship with the tribal people. This includes use for food, clothing, ritual, medicine, dye, construction, musical instruments and more.

There are large part of Longleng district which are covered by jungles and forests. Within this wilderness, there are many plant species which have potential medicinal value, some of which are known, others which have yet to be discovered. Indigenous cultures have used these plants for centuries and we, the ethnobotanist aims to learn the full value of these plants. The culture of *Phom-Naga* tribe in Longleng district of Nagaland, India, is very rich which includes the inherited behaviours and thoughts of the forefathers that have been passed from generation to generation.

The main objective is to understand the sensitivity of the culture that use the plants and the value of how they are used. An expedition to collect the relevant data for the study of the plants takes many months of preparation and an equal amount of time in collecting the relevant data and plants, obtained by co-operation with the local people and healers.

Through the study of ethnobotany, the implication of the loss of the dense forests have been highlighted due to deforestation which they use it for

timber, furniture, etc., and has become a major source of income for many of the native people without knowing the consequences of the practise. The lost of many tropical plants, in addition to the extinction of some indigenous plants have been informed, which is detrimental to the ecology of the earth. One of the factors that wipe out the forest cover is due to coal mining in some villages due to its rich deposit. Also the native people are being driven from traditional values to western ways due to modernisation.

Therefore preservation of the value of plants can only be maintained with the help of the ethnobotanist along with the indigenous people who have used this knowledge for centuries. Plants have cultural histories and practices as well, but their applications may change over time. So the recent research has been undertaken to survey documentation and conservation of these rich folklore plants from the region. Therefore, the present research work on the ethnobotanical studies of Longleng district of Nagaland has been taken up for extensive survey of the available resource material with a concern thought that it is a high time for a formal compilation regarding the traditional knowledge and usage of various plants by tribal people in Longleng district of Nagaland.

CHAPTER TWO

LONGLENG DISTRICT: THE LAND AND THE PEOPLE

CHAPTER TWO

LONGLENG DISTRICT: THE LAND AND THE PEOPLE

2.1. THE LAND

2.1.1. LOCATION AND AREA

Nagaland is a state in the far north-eastern part of India. It borders the state of Assam to the west, Arunachal Pradesh and part of Assam to the north, Myanmar to the east and Manipur to the south. It has an area of 16,579 km² with a population of 1,980,602 as per the 2011 census, making it one of the smallest states of India. It lays between the parallels of 98° and 96° East Longitude and 26.6° and 27.4° latitude north of the equator. Nagaland is largely a mountainous state. The Naga Hills rise from the Brahmaputra Valley in Assam to about 2,000 feet and rise further to the southeast, as high as 6,000 feet. Mount Saramati at an elevation of 12,601.70 feet (3,841.00 m) is the state's highest peak. Rivers such as the Doyang and Diphu to the north, the Barak River in the southwest and the Chindwin river of Burma in the southeast, dissect the entire state. Nagaland has a largely monsoon climate with high humidity levels. Annual rainfall averages around 1,800–2,500 mm, concentrated in the months of May to September. Average temperatures range from 21 °C to 40 °C. Nagaland was established on 1 December 1963 to be the 16th state of the Indian Union. It is divided into eleven districts: Kohima, Phek, Mokokchung, Wokha, Zunheboto, Tuensang, Mon, Dimapur, Kiphire, Longleng and Peren. Its native inhabitants are the Naga tribes. Agriculture is the most important economic activity

Longleng, the present study site is the districts headquarter of the *Phom-Nagas*. Earlier the Phom tribe was considered as a sub tribe of konyak. It was separated as a new district from Tuensang district on 24 January 2004. The altitude of the district varies from 150 meters to 2000 meters above the sea level. Longleng town, which is the head quarter of the District, is situated at an altitude

of around 1100 meters above sea level. Longleng district is located between 94°E and latitude 26°N-27°N of the Equator. The district is bounded on the north by Sibsagar district of Assam, on the south by Tuensang District, on the east by Mon district and in the west by Mokokchung district of Nagaland. Longleng District has a total area of 1066.80 sq k.m. The principle rivers that flows through Longleng District includes Dikhu and Yongmon.

Tamlu and Longleng are the major towns in the district. An industrial Growth Center promoted by the state government functions in these districts. Tamlu, yongnya and Sakshi are the sub-divisions of the Longleng district. Also the deparment of tourism has identified the village of Pongo as a festival destination of the Phoms.

Longleng District is rich in natural vegetation. It enjoys the distinction of being one of the few places in Nagaland where virgin forests are still found. Sub-Tropical Mixed Forest characterized by broad-leafed evergreen trees and deciduous trees abounds. The main/dominating species in the high altitude are Bonsum, Gogra, Alder, Oak species. Also wild cherries and wild apples, wild lemon, wild banana, wild walnut, wild fig, varieties of edible plants and leaves are found. The verdant forest of the District is also home to variety of fauna - a paradise for animals and birds lovers and researchers. Dominant wild animals include Stag, Bear, Mithun, Sloth, Barking Deer, Mountain Deer, Wild Hog, the rare Pangolin, etc. The low lying areas/Foothills of the District are fertile and have the potential for wet paddy cultivation. Very few of the people are engaged in white collar jobs and majority of the people are agriculturists.

2.1.2. TOPOGRAPHY

Longleng District is a strip of mountainous territory having no plains and it occupies the elongated Northern part of Nagaland State. Longleng district is located between longitude 94°E - 95°E and latitude 26°N - 27°N of the Equator. Longleng District has a total area of 1066.80 sq k.m. The District can be divided into three regions topographically, namely;

- a) Chingmei Range in the Northern part

b) Shemong Range in the Middle part and

c) Yingnyu Range in the Southern part.

2.1.3. DRAINAGE

There are numerous streams and rivers flowing through Longleng district of Nagaland. The principle rivers that flow through Longleng district includes Dikhu and Yongmon. Dikhu River is one of the most prominent rivers of Nagaland. The river flows across the Mokokchung and the Longleng districts. The Dikhu River is one of the tributaries of Brahmaputra, one of the mightiest rivers of India. The Dikhu River is not only a prime tourist attraction, but also a significant source of livelihood for the people. The water makes the area around the river fertile. Since Longleng is primarily an agricultural district, the Dikhu River serves as a lifeline to its people.

2.1.4. GEOLOGY AND MINING

There are no facilities and infrastructure in the District, but mineral wealth is immense, though unexplored as yet. Some minor minerals found in Longleng District are clay, sandstone, boulder stone, and granite. Coal is another major mineral found in the district and there are many coal mines in the area where heavy exploration of coal takes place.

2.1.5. INDUSTRIES

The inhabitants of the District indicate a promising future in industry. There are around fifty registered industrial unit which include both minor and major industries. Different types of industries found in Longleng District are Agro based; cotton textile; woolen, silk, and artificial thread based clothe industry; readymade garment and Embroidery based industry; Wood/Wooden based furniture industry; Mineral based industry and Engineering based industry. Bamboo mat, Cane Furniture, Wood curving, Pottery, etc., are also found in small scale unit which are available in the market.

2.1.6. CLIMATE

Longleng district enjoys monsoon type of climate with a minimum temperature of 10 ° C in winter and a maximum of 28 ° C in summer. The district has a fairly moderate climate where days are warm and nights are cool. Rainy season sets in during the month of May and lasts till October. From November to April, the District has dry weather relatively cool and days are bright and sunny. The average rainfall is between 2000mm and 3000mm.

2.1.7. FLORA AND FAUNA

Longleng district is rich in natural vegetation. Forest covered in the Longleng district is 4228 Ha. It enjoys the distinction of being one of the few places in Nagaland where virgin forests are still found. Sub-Tropical Mixed Forest characterized by broad-leafed evergreen trees and deciduous trees abounds. The main or dominating species in the high altitude are such as Bonsum, Gogra, Alder, Oak species. Also wild cherries and wild apples, wild lemon, wild banana, wild walnut, wild fig, varieties of edible plants and leaves, and cane and reed are found at selected places. At the foothill, Gomari, Holloc, Koroi, Mesua, Tita-Chapa, Neem, Wild Mango, Amla and Bamboo species are the dominant species. Varieties of shrubs, herbs, many with medicinal values, climbers, ferns and grasses are also found. Varieties of bamboo are found in patches throughout the District. There also occurs a rare species of bamboo - finger size and cane - like in structure.

The verdant forest of the District is also home to variety of fauna - a paradise for animals and birds lovers and researchers. Dominant wild animals includes Stag, Bear, Mithun, Sloth, Barking Deer, Mountain Deer, Wild Hog, the rare Pangolin, varieties of Monkeys, varieties of wild cats, varieties of Porcupine, Flying Fox, Flying Squirrel, Himalayan Giant Squirrel and other different varieties of squirrels, Civet Cats, snakes, Python, Otter etc. The rivulets and rivers teem with different varieties of fishes and other water creatures, of which trout is rare species. Dominant birds includes Hornbill, varieties of pigeons including royal pigeon, parrot, mama, mountain peacock, the rare and elusive Blythe's Tragopan, varieties of jungle fowls, and other varieties of smaller birds

2.2. THE PEOPLE- *PHOM NAGA*

Longleng district is the home land of the Phom-Naga. According to official Census 2011, Longleng have a population of 50,593 of which male and female were 26,588 and 24,005 respectively.

Average literacy rate of Longleng in 2011 were 73.10. If things are looked out at gender wise, male and female literacy were 75.60 and 70.35 respectively. Total literate in Longleng district were 30,518 of which male and female were 16,548 and 13,970 respectively. With regards to Sex Ratio in Longleng, it stood at 903 per 1000 male where the average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. Longleng district population constituted 2.55 percent of total Nagaland population.

2.2.1. HISTORY

The origin of the word "*Phom*" have different opinions so its origin is obscure. Some says the word *Phom* is originated from the word "*Bhum*" which means "cloud". This name was given by the Britishers, because the Phom area was covered by clouds especially during winter seasons. Some claim that it is derived from the word "*Bham*" which means "Rubber tree or Banyan tree". While the Britishers invaded *Phom* area, they found the Banyan tree in every main entrance of the *Phom* villages, so the Britishers decided to call this particular tribe "*Bham*". Others claim that it originated from the word "*Bhumla*" which means "*Lady of the clouds*". A man got married with this lady of the clouds and they had many offspring and their descendants were called "*Phom*". Thus the name Phom came into existence.

Nothing has written about the origin of the Phom tribe. As per the historical tradition Phom believed that they are the descendants of "*Meihongnyu*" which means "Supreme God, creator, sustainer of life". They believed that all human beings on earth were created by "*Meihongnyu*".

In the beginning, human were born by "*Meihongnyu*" and the migrated to "*Yungnyushang*" and from this great and high mountain the *Phom* people scattered all over the Nagaland. Today *Phom* are located in eastern part of Nagaland

surrounded by *Konyak*, *Chang* and the *Aos*. They believed that their socio-political and socio-religious lives were originated in "*Yingnyu*" village. However modern scholars go further and believe that *Phoms* migrated from Burma along with other Naga tribes.

2.2.2. RELIGION

The *Phom* Naga concept of divinity is recognized in the existence of many deities and supernatural powers. They believed in '*Shang Kahvang*' the god of the celestial world and in '*Chong Khavang*' the god of the terrestrial world. They also believed in the god of house, god of river, god of sun and the god of the moon and the stars. People believed in tribal gods but after the arrival of Christianity (1925-1940) almost all the people in the *Phom* villages converted into Christianity.

2.2.3. LANGUAGE AND SCRIPT

The *Phoms* have their own languages which is called '*Phoms*'. Other tribes in Nagaland have one or at the most two to three dialects but among the *Phoms* there are not less than five distinctive dialects. So now attempts are made to make one major dialect, spoken by eight villages called '*Yongnyah shah*' as the common language of the *Phoms*. Ao, English, Nagamese and Hindi are also spoken by the people. They use English script.

2.2.4. SOCIAL LIFE

In the recent years there have been considerable changes in the system of social control, but in the conditions which prevailed until well into the 1940's the primary social unit was the household. Most *Phoms* lived and still live in long-houses comprising several families. It is only the members of such a giant household who have the duty to support each other in any dispute with outside adversaries.

2.2.4.i. Village set-up

The *Phom* villages comprises of 20-350 houses. Most of the *Phom* village stands on the hill tops as a natural defense from enemy attack. A *Phom* village is

divided into *khels* (sector or wards), usually a village has two to five *khels*. A village is an autonomous unit within the tribe. Each village has its own chief and elders. Their rule is not a dictatorship but rather a democratic system. They give guidance and direction in the village functioning.

2.2.4.ii. Family structure

Family life plays an important role in the *Phom* society. The family is a unit in a village. In certain village there are joint families but this practice is declining rapidly. And in certain villages, as soon as the marriage is solemnized, the parents construct a separate house for the new couple. The father of a family is highly regarded and respected by the family members.

2.2.4.iii. Marriage

Marriage can be done only among members of different clans. Boys and girls have the freedom to choose their partners. *Phom* practice love marriage and monogamy and there is no dowry system. A man should help his parents-in-law in their domestic works, like working in paddy fields and also by giving presents such as brass plates, etc. Parents do not share land with their daughters but they give things like baskets, daos, shawls, sickles, seedlings, etc., at the time of marriage. If husband or wife dies, they are allowed to remarry.

2.2.4.iv. Customary law of inheritance

The oldest man of the family acts as a titular head over the land and its resources. Individual land could be self acquired as a share of partitioned clan land, which is regarded as ancestors land. Land, house and the household properties are considered as a wealth which can be owned by the male child. Landholding system is guided by customary laws. Four types of land ownership are found among the *Phoms*- Village land, Clan land, lineage land and individual land. The first three types of ownership are collective. Clan and lineage land is accessible to all male members but female child do not have any share of the properties.

2.2.5. SOCIO-POLITICAL LIFE

2.2.5.i. Village administration

The *Phom* village is a unit of social relations in which all the institutions are interrelated, interdependent and inter-linked. Kinship provides the major basic for the frame work of social organization. The village is heterogeneously composed containing representatives from two or more clans. The political institutions of *Phom* consisted of the three heads, such as *Chinglong* (perform administrative controls), *Metbupa* (perform sacred sacrificial duties), and *Ngongpa* (their duties were to take part in every worship).

Today this administrative institution is known as village council and is constituted by the male representatives of each clan in the village. Some of the moral qualifications required to be a member of village council are, he should not be a son of undeclared father, a widower, a handicapped, a man known for immoral behavior but he must be a respectable full fledged citizen of the village. The restriction is due to the fact that village council is considered as the holiest and seat which should remain unpolluted and sanctified.

2.2.5.ii. Morung (pang)

Pang means a bachelor Dormitory. In the middle of every *Khel* (sector or ward) *Pang* will be built. The members present were the boys of same age group, batch by batch. Each batch has its own duty in the *morung*. All the young men sleep in the *morung* till they get married. *Morung* served as a place where young people learnt all social norms, histories, folk-songs, folk-dances, folk-tales, legends, war techniques and also a place to discuss the affairs of the village. Violators of the rules of the *morung* were either fined, severely punished or both.

Girls also had their own dormitories which is called '*Ywo*'. Each clan has an '*Ywo*' of their own. As for boys, '*Ywo*' is the learning place for the girls in every aspect of their lives. But this system is rapidly declining and the functional aspect of the '*Morung*' and '*Ywo*' have almost lost their significance and relate to the young generation only as part of the history.

2.2.6. CULTURAL LIFE

2.2.6.i. Folk-tales, folk-songs and folk-dances

Folk-tales, folk-songs and folk-dances play an important role in the life of *Phoms*. These three methods are used in transmitting their tradition, culture and the moral values to their children. Folk-tales were passed down from generation to generation orally and it was embodied in the folk-songs. The folk-songs can be divided into two categories. The first category of songs was called 'wannyau' which were sung during *Mongyu* and *Moha* festivals and these songs embody the native histories. The second category of songs was called 'Maipong' or 'Mailok' and they are just love songs. Dances were demonstration of fight with enemies. The other dances were performed in times of killing ferocious animals, and also for amusements. The dances and songs were always accompanied by their indigenous musical instruments like *kongkhi*, *um-oh*, *flutes* and *log-drums*.

2.2.6.ii. Arts and crafts

Phoms have great love for arts and crafts. The carvings of human and animal figure on pillars of the *morung* (pang) were practiced since time immemorial. The blacksmith made daos, spears, sickles, axes, and the guns of various kinds. Pottery, mats, baskets in different designs are their professional tasks.

2.2.6.iii. Dresses

The *Phoms* make colorful clothes of different designs. The art of knitting and weaving were known to them and each village or clan have clothes of unique designs and colors. In the past there was a distinction in dresses of warriors, or the rich and the ordinary people. The shawls such as *Henryu*, *Nyio-am*, and *Lakshung* were generally used by all. Nowadays *Henryu* and *Nyio-am* are used by the man and *Lakshung* by the women. Cowrie shawl (*Appha Ashak*) was used by the warriors and the rich people.

They used ivory, conch shells, cowrie shells, and pearls, tusk of elephants, jungle pigs and bears as ornaments. Along with it they use hairs of goats and horses dyed in red and black, horn bill feathers, swallow tail, forked tails were popularly to decorate their dresses used by the people.

2.2.6.iv. Feasts and ceremonies

The *Phoms* have four major festivals each having unique significance. They are *Mongyu*, *Moha*, *Bongvum* and *Paangmo*.

Mongyu is the most popular and biggest festival which falls in the month of April every year soon after the sowing season. The festival is celebrated for six days beginning from 1st to 6th April every year. It also marks the end of winter and the beginning of summer or monsoon. A day or two prior to festival the green signals of the dawn of festival is made by beating log drums with a distinct tune synchronize purposely for the event, traditionally named '*Lan Nyangshem*'.

Moha is a one day festival in the month of May to pray for the better growing of the seeds/plants. The new crop plants of various kind are taken to the village by the elders or the Priests of the village and put in a ritual or an alter called '*Moidu*' invoking blessing by the priests called '*Ngongpathu*' for the better growth of the seeds.

The *Bongvum* festival generally falls in the month of October every year after the major harvest and is observed only for a day. This festival may be best interpreted as the festival of thanks giving to the unseen Almighty God for whatever has yielded during the preceding months. On this occasion only chicken is killed and sprinkled its hot blood against the outer surface of the bamboo pail for storing grains. The other ritual associated with this festival is the preparation of stick rice and meat. This prepared food is wrapped in leaves and tied to the main post of the house as a token of giving thanks to the Almighty God for all the blessings. Also predicting the future of the family by taking out the chicken's intestine performed by the father who is the head of the family forms another part of ritual during the festival.

Paangmo is another important event of the *Phoms*. It is celebrated in the month of November which stretches over three days. At this festival, the whole surroundings of the village are cleaned. Wells and homes are repaired and decorated. Every household of varying age-group brew special rice beer called 'Yu' and kill animals. Parents present gifts mostly meat and prepare food to their daughters already married who also reciprocate in the same way with love and respect.

Phom Day : One More important festival of *Phoms* is *Phom Day* which is celebrated every year on 6th June. On this date of the year 1952 *Phom* People stopped Head Hunting and became loyal to Government.

2.2.7. ECONOMIC LIFE

The land is fertile and is covered with thick and green forests. The forest resources are the main source of livelihood. *Phoms* practice both terrace and jhum cultivation. 'Jhum' cultivation is a shifting system of cultivation where forests are cut down, and bushes are burned.

'Jhum' sites are selected during the month of October to November. Trees and shrubs of the sites are felled early in the month of February and are burnt down to ashes later when it gets dried up. Then the loosening of soil is done with the implements like spades, dao, hoe, etc. All kinds of seeds are sown before the onset of monsoon. In the Jhum field both men and women work equally from morning till night. After cultivating the lands for two years they are abandoned and new plots are chosen and then prepare for jhum cultivation. They cultivate mixed crops in their jhum site. Besides principal crop rice (*Oriya sativa*), they cultivate maize (*Zea mays*), chillies (*Capsicum sp.*), gourds (*Curcubita sp.*), ginger (*Zingiber officinalis*), squash, mustard leaves, potatoes, pulses, pumpkins, tapioca, yams, and various seasonal vegetables. The fruits commonly found are bananas, pear, orange, jack fruit, quava, pineapple, papaya and many other seasonal fruits.

The common livestock found in *Phom* area are cows, mithuns, pigs, buffaloes, goats, dogs, chicken, ducks, pigeons, goose, etc. Though they breed

cattle, they are not using them for ploughing nor for marketing but they use it as their food. The cattle are breed mainly to kill during festive seasons and share with their relatives, neighbors and near and dear ones.

Handicrafts, handlooms and blacksmithing of different designs are other economic resources which are made sold in the market. These sustainable means of income helps them to support their daily life affairs. Weaving is another important source of income for the family. The girls and women are expert weavers and make beautiful designs which are sold in the market. Rearing of silk worm is an important sustainable income for the people. They make Eri silk out of which clothes are woven at home and are sold in the market.

Knitting of bamboo and cane articles are also one of the major cottage industries. Different types of cane and bamboo baskets, mats, different creative household goods and show pieces are made by the people which bring great income to the people.

2.2.8. FOOD AND DRINK

Rice is the staple food of the Phoms. Along with rice they grow corns, millets, yams, tapioca, etc. in their 'Jhum' paddy and in their kitchen gardens. They also use wild roots, seeds and leaves from the nearby forest to supplement their diets. They cook vegetables, fishes, meat and sea foods with bamboo shoots and chillies.

The Phoms are keen in hunting and fishing. They hunt wild animals with spears, bows, arrows and firearms. They also catch fishes, crabs and prawns in the rivers and streams by using biological fish poisoning of different plant derivatives. Dried and fermented fish is another delicacy for the *Phom-Nagas*.

The most favorite beverage of the *Phoms* is the rice beer which they called it 'Yu' or 'Shet'. It is brewed at home and used in all the celebrations of the community, in different occasions and festivals. They also drink black tea daily and also use to serve it to the guests.

CHAPTER THREE

MATERIALS AND METHOD

CHAPTER THREE

MATERIALS AND METHODS

3.1. REVIEW OF LITERATURE

Ethnobotany literature has been growing rapidly over the last hundred years. There are several journals, bulletins, magazines, and newspapers like *Ethnology*, *Ethnohistory*, *Folklore*, *Asian Folklore Studies*, *Journal of Ethnobiology*, *Indian Journal of Traditional Knowledge*, *Ethnobotany*, *The Journal of Indian Botanical Society*, *Journal of Economic and Taxonomic Botany*, *Bulletin of Medico-Ethno-Botanical research*, *Pleione* etc., which cater to the needs of researchers and others engaged in various aspects of Ethnobotany.

There are many research work that have contributed for Ethnobotanical studies such as Aldrenate (1983), Anderson (1986), Arnason *et al.*, (1981), Ayengle *et al.*, (1972), Berlin (1992), Bhat *et al.*, (1990), Bolver (1970), Cotton (1996), Chang Tein-His (1966), Dangoi & Gurung (1991), Duke (1970), Faulks (1958), Ford (1978), France (1984), Harsberger (1895), Jones (1941), Joshi & Edington (1990), Katherine (1963), Mahunnah (1991), Pei Shengji *et al.*, (1996), Posey *et al.*, (1990), Robbins and Harington (1916), Schultes and Reis (1995), Wymen and Harris (1951), Xlao and Pei Gen (1983), Yashida (1980), etc.

Glimpses of Indian Ethnobotany (Jain, 1981) is the first book dealing with Indian Ethnobotany. Apart from that, research work have been done on Ethnobotanical studies in India by quiet a number of scholars such as Abraham (1978), Asbudhi & Choudhury (1985), Bedi(1978), Bhargave (1978), Chopra *et al.*, (1969), Goel and Aswal (1990), Hebrom (1990),Jain and Mudgal (1999), Jain & Sikarwar (1998), Joshi (1995), Lakshman & Narayan(1990), Manohar (1994), Maheswari *et al.*, (1990), Rao *et al.*, (1996), Saklani and Jain (1994), Singh and Chunekar (1972), Varma *et al.*, (1998), Verma & Pandey (1990).

Besides these, some interesting papers on general ethnobotany, one or the other aspect of ethnobotany and studies covering more than one states have been published by Bhattacharjee & Nair (1978), Jain & Dam (1989), Majumdaar *et al.*, (1978), Islam (1984,1995), Borthakur & Sharma (1986), Baruah & Sarma (1987), Biswas & Ahmed (1987), Nath & Bordoloi (1988b, 1991), Saklani & Jain (1989, 1992, 1994), Borthakur & Gogoi (1994), Chandra (1993), Gogoi & Borthakur (1996), Nath (1996), Chaudhury & Neogi (1999) and Laha (2000).

Eventhough North Eastern region of India is dominated by aboriginal tribes, there is no comprehensive work on ethnobotany of the people of this region but there are only few contributions that have been made from this region such as Borthakur (1976, 1981 a and b) reported on medicinal plants and certain plants in folklore and folk life of Karbi (Mikir) of Assam; Bhattacharjee *et al.*, (1980) reported on folklore medicine from district Kampur, Assam; Boissya & Majumdar (1980) gave an account of folklore claims from Brahmaputra Valley, Assam; Hajra & Boissya (1981) gave an account of ethnobotanical notes on the Miris (Mishing) of Assam plains; Gogoi & Borthakur (1991) reported on plants in religio-cultural beliefs of the Tai Khamtis of Assam; Mahanta & Gogoi (1988) surveyed on ethnobotanical studies in Assam; Dam & Hajra (1981) reported on plants used in various ways by the Monpas tribe of Kameng district, Arunachal Pradesh; Pal (1984) carried out ethnobotanical study of the tribal of Subansiri, Arunachal Pradesh; Nath & Bordoloi (1989) gave an account of medicinal folklore of Tirap district; Haridasan *et al.*, (1990) studied the ethnobotany of wild edible plants; Rao & Neogi (1980) studied the ethnobotany of Khasi and Garo tribes, Meghalaya; Joseph & Kharkonger (1981) reported on plants used in medicine, food, agricultural implements, musical instruments, religious ceremonies, folklore medicines by the Khasi and Jaintia tribe in Meghalaya; Rao (1989) investigated 30 interesting herbal medicines used by the Garo tribes in the state; Chhetri *et al.*, (1992) documented 33 plant species employed by the Khasis, Jaintias and Garos for ichthyotoxi purposes; Hajra (1991) described about the nature conservation of Khasi folk beliefs and

taboos; Rao and Jamir (1982, a, b) reported on medicinal plants used by the Nagas, Nagaland; Megoneitso & Rao (1983) reported medicinal plant species used by the Angamis of Kohima District, Nagaland; Rao & Jamir (1990) recorded the ethnobotany of the Ao and Angami Naga; Bennet (1983) carried out ethnobotanical studies in Sikkim.

Our knowledge of economic plants of Northeastern India is still meagre but there are some important publication on the subject done by Masters (1844, 1848a, 1848b); Watt (1889, 1896); Hutton (1923); Deb (1968, 1975, 1976, 1978) and Sinha (1996); Singh & Arora (1978); Majumdar *et al.*, (1978); Rao (1979); Tiwari *et al.*, (1979, 1984, 2009); Boissya *et al.*, (1981); Thothathri & Pal (1987); Baruah & Sharma (1987); Pandey *et al.*, (1990); Mahanti (1994); Borthakur & Goswami (1995); Borthakur (1996 a, b); Dam & Hajra (1878); Hajra & Baishya (1978); Jain & Namita (1978); Jain Borthakur (1980); Jamir (1987, 1990, 1997); Joseph & Kharkonger (1978); Jamir and Lal (2005); Kayang (2007); Mao & Odyo (2007); Savitri & Bhalla (2007); Raghmani Singh & Singh (1985); Rao (1979); Saklani & Jain (1994); Shimray (1986); etc.

Looking at the Ethnobotanical status in Nagaland very few works have been done so far. So far no one has completed the Ethnobotanical work in any of the tribes of Nagaland despite endowed with rich natural resources. Some of the works contributed by the Ethnobotanist in Nagaland are Rao, R.R & Jamir, N.S. (1990); Jamir, N.S.; Jungdan & Madhabi, S. (2008) ; Rao, R.R. & Jamir, N.S. (1982); Jamir, N.S. (1997); Lanusunep & Jamir, N.S. (2010); Sapu Changkija (1996); Kilangnaro Imchen & Jamir, N.S. (2011); Renchumi *et al.*, (2011); Chaturvedi and Jamir (2007); Jamir and Lal (2005); Sumitra, S., Jamir, N.S. & Singh, (P.K. 2009); Jamir *et al.*, (2011); Takatemjen, N.S. Jamir & Madahabi S. Deb (2009); N.S. Jamir, Limasenba & Nungshikokla Jamir (2009). The present work have been done amongst one of the tribes in Nagaland i.e. The *Phom-Naga* Tribe as it has been lying unexplored and untouched inspite of its rich treasure of traditional knowledge on usage of plants for multiple purposes.

3.2. METHODS OF STUDY

3.2.1. PROCEDURE FOLLOWED

The present work done is the result of intensive survey and field studies carried out in the villages of the *Phom-Naga* tribe in the Longleng district of Nagaland. While planning the field work various techniques suggested by different investigators such as Jones 1941; Woodward 1956; Schultes 1960, 1962, 1963; Porteres 1961; Von Reis 1962; Jain 1964a, 1978, 1979a, 1991; De 1968; Friedberg 1969; Croom 1983; Alcorn 1984; Rao & Hajra 1987; Rao 1989a; Plotkin 1991; Bellany 1993; Martin 1995; Alexiades 1996 and Jain & Mudgal 1999, were taken into consideration. Several weeks, sometimes even month together, were spent among the local people in each visit in a particular area and a close study of the uses and names of plants was made in the field. An effort was made to visit the same locality in different seasons, but it was not always possible for obvious reasons. Field observations on plants and information on their uses were recorded in a field note book. Voucher specimens were collected for all the plants used by the four ethnic groups and preserved according to the conventional herbarium techniques (Jain & Rao 1977). The field data were incorporated in the herbarium sheets. The specimens, on which the study is based, have been deposited in the herbarium of the Botany Department, Nagaland University for future reference.

3.2.2. APPROACH AND RAPPORT

Longleng town is the headquarter of the *Phom-Naga* Tribe. Under this district there are about 38 villages and each village is under the administrative control of the village chairman and its board members. So through verbal or written permission, prior permission of the chairman is taken before entering the village. Before taking up the task the author disclose the purpose of the visit to the Gaonburas (village Headmen) and they will deputed a person as an informant who have the knowledge of the usage of plants.

The author tried to make a friendly relationship with the informant as well as the villagers to gain traditional knowledge from them by participating with them in their feasts, festivals and ceremonial occasions. Once a rapport is established the author can collect information as they become more confident to disclose their traditional knowledge in full co-operation.

The villages are generally situated far away from the urban areas and most of the villages have no facilities for transportation due to very poor road conditions. In that case the author either walks 4-5 hours to the villages or hires heavy motor vehicle reliable for the poor road conditions.

When given the emphasis of the purpose of collection, the inhabitants understand that the information would be preserved for the benefit of their children and coming generations. So they were willing enough to deliver the information without much doubt and secrecy.

The only problem faced was the language because the *Phom* Tribe have not less than 5 distinctive dialects and it became difficult for the author to sort out the name given to the same plant.

3.2.3. METHODS OF PRODUCING INFORMATION

The general procedure for gathering data was as described by Jain (1963, 1964, 1965, 1981, 1987), Rao & Hajra(1987), Rao (1989a) and Ahmed & Borthakur (2005) and comprised of either interviewing the informants or by witnessing the uses during the stay in the field. During field work, the informants accompanied to the field and give the information required. Both men and women were employed to collect information as both have different knowledge of the usages of the plants in different fields.

Sometimes the purpose of the author's visit were announce in the community gathering such as in churches and meetings held, and the villagers themselves collect the plants and bring it to the author and the information is noted down serially.

Discussions were also made regarding various aspects related to the subject studied. All the observations and information were noted in the field itself and are verified by accompanying voucher specimen to the Herbarium of Botany Department, Nagaland University for proper identification.

3.2.4. METHODS OF RECORDING INFORMATION

In order to get as much information as could, regarding a particular plant, different questions were asked and discussed with different informants on different days at different villages. This widely helped in gathering new information or even contradiction of some usages to the previously recorded one. Once the information on a particular plant was considered reliable after repeated verification, its local name, parts used, quantity of use, uses, etc were recorded.

3.2.5. EVALUATION OF DATA

The data obtained during the field work are scrutinised with earlier publications. For medicinal plants Glossary of Indian Medicinal Plants and its supplements (Chopra *et al.*, 1956, 1969; Asolkar *et al.*, 1992), Wealth of India: Raw Materials (Anonymous 1948-1976, 1985, 1988, 2000, 2001, 2002, 2003, 2005), Useful plants of India (Ambasta 1986), Dictionary of Indian Folk Medicine and Ethnobotany (Jain 1991), Medicinal Plants of India (Jain & Fillips 1991) and Cross Cultural Ethnobotany of Northeast India (Saklani & Jain (1994) are taken as standard references. For use on other aspects, Wealth of India, Useful Plants of India, Dictionary of India Folk Medicine and Ethnobotany, and Cross Culture Ethnobotany of North-East India are taken as standard ones because these works have synthesised all the earlier publication on Indian plants.

3.2.6. PRESENTATION OF DATA

The study is done purely on ethnobotanical plants, used for various aspects of life by the *Phom-Naga* tribe in Longleng district of Nagaland.

Therefore the author is not presenting the taxonomic description of the plants. Wild as well as cultivated plants are included in the study.

The plant's scientific names have been arranged in alphabetical order under major head of uses or of ethnobotanical significance. An effort has been made to present as far as possible, the nomenclature accepted valid in current literature and for which mostly the work on Bennet (1987) has been followed.

After the scientific name, the local name(s) and common name(s) are listed out. The description of the plants are also given along with the parts they are used. The uses of the plants as practised by the *Phom-Naga* tribe are well explained followed by the specimen examined number.

Table 3.1: List of the names of the villages chosen as the study site under Longleng District of Nagaland

Sl.No.	Village Name	Administration HQ.
1	Yachem Village	Longleng
2	Yaongyimchen Village	Longleng
3	Orangkong Village	Longleng
4	Bhumnyu Village	Longleng
5	Hukpang Village	Longleng
6	Pongching	Longleng
7	Longleng Town	Longleng
8	Longleng Mission compound	Longleng
9	Leprosy Colony Longleng	Longleng
10	Sakchi Village	Sakchi
11	Sakchi HQ.	Sakchi
12	Yangching Village	Sakchi
13	Pongo Village	Sakchi
14	Pongo Mission Compound	Sakchi

15	BuraNamsang Village	Tamlu
16	Tamlu HQ	Tamlu
17	Tamlu Village	Tamlu
18	Shetap Village	Tamlu
19	Ngetchungching Village	Tamlu
20	Kangching Village	Tamlu
21	Yongya Village	Yongya
22	Yongya HQ	Yongya
23	Yongshei Village	Yongya
24	Nian Village	Yongya
25	Yongam Village	Yongya



Plate 1: Forest area of the study site



Plate 2: A clear forest ready for Jhum cultivation



Plate 3: Forest area of the study site



Plate 4: Field trip in the study area



Plate 5: **A, B & C:** Morung (Pang)
D: A traditional house of Phom- Naga tribe
E & F: Inside view of a traditional kitchen



A



B



C



D



E



F

Plate 6: Social life of the *Phom-Naga* tribe

A. Traditional container for storing salt

B. An old woman working in the field

C & D. Husking of rice grain

E. Entrance to Morung

F. A man wearing traditional head gear and necklace



Plate 7: The cultural life of the *Phom-Naga* tribe

A ,B & C. A *Phom-Naga* man & woman in traditional attire

D, E & F. Traditional dances



Plate 8: Cultural life of the *Phom-Naga* tribe

- A,B & C.** Traditional spear, Dao and different items **D.** Shield used in dances
E. Traditional attire worn by man **F.** Dao belt (Yanpishongvüh) **G.** Necklace
H. Ornament worn in ears **I.** Dao used during traditional dances

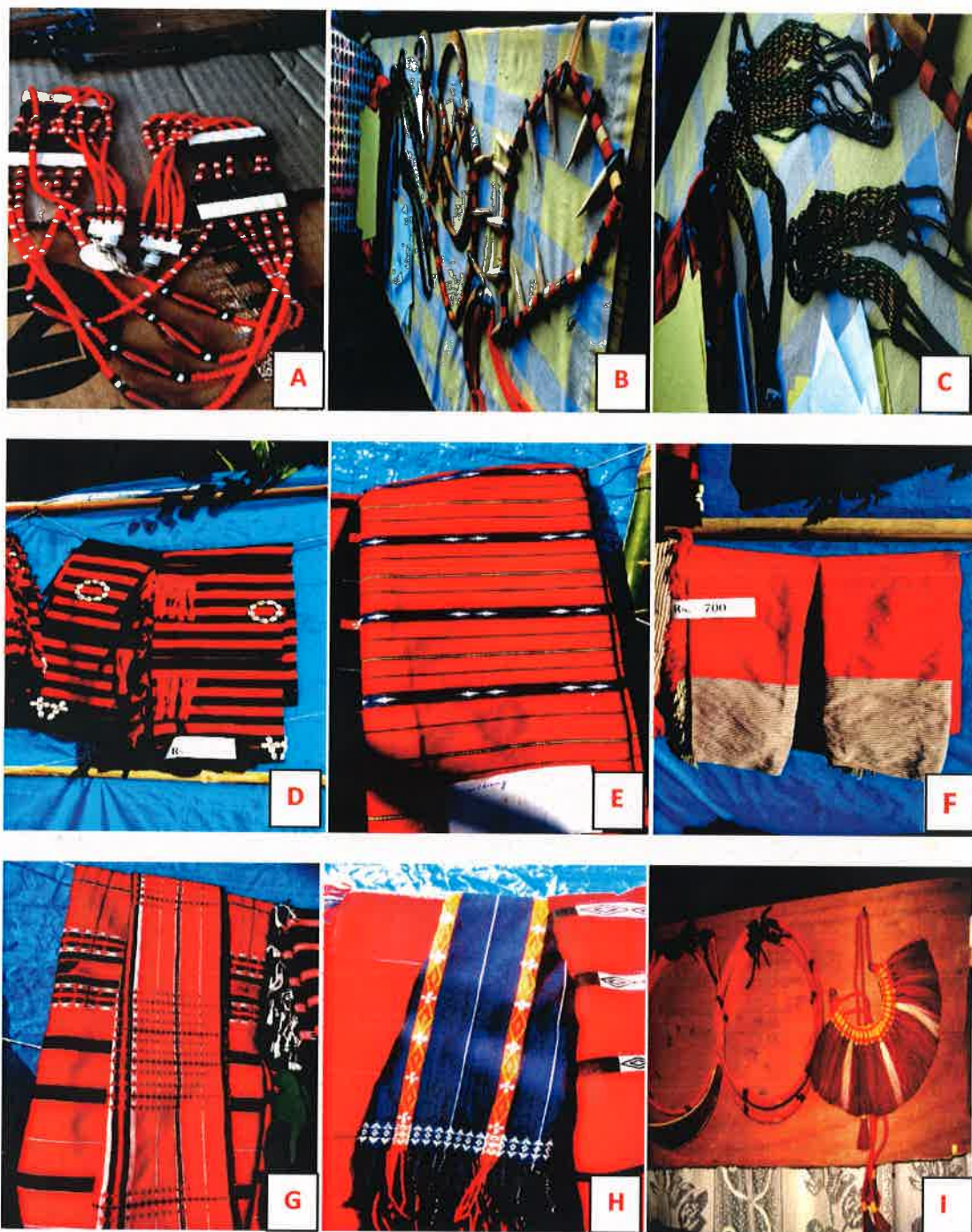


Plate 9: Cultural life of the *Phom-Naga* tribe

A, B & C. Variety of traditional necklaces

D - H. Different lower garments for women

I. Head band for women

CHAPTER FOUR

A COMPREHENSIVE SURVEY OF ETHNOBOTANY OF THE *PHOM-NAGA* TRIBE

CHAPTER FOUR

A COMPREHENSIVE SURVEY OF ETHNOBOTANY OF THE *PHOM-NAGA* TRIBE

INTRODUCTION

Plants play an important role in all aspects of human life in all the different spheres of the globe. The *Phom-Naga* tribe also have the same impact caused by the role played by the plants as rest of the world. All together there are 309 plants collected having different ethnobotanical uses. The plants have extensively listed in alphabetical order with the major head of the scientific names, local name or common name, part(s) used and its uses have been listed briefly. The field collection number is also mentioned along with the place from where it has been collected. The ethnobotanical uses of plants are arranged under 19 categories such as : 1) Ethnomedicinal plants 2) Ethnoveterinary plants 3) Plants used as Fodder 4) Food and Beverages 5) Plants used for Fish poisoning 6) Plants used for Bird snaring 7) Dye yielding plant 8) Plants used as Bio-fencing 9) Plants used as Fibre 10) Plants used as firewood 11) Plants associated with socio-religious practices and belief 12) Plants used for wrapping food item 13) Bamboo and Cane 14) Plants used in construction of house 15) Plants used as Masticatories 16) Household Items and Agricultural Implement 17) Musical Instrument 18) Plants associated with Indigenous Sports and Games 19) Plants used for inscribing of tattoo 20) Plants of Miscellaneous uses

4.1. ETHNOMEDICINAL PLANTS

Plants have been known for their healing capacities and pain relieving purposes or say have medicinal properties since our forefathers and even today it is still practicing to some extent. Men have depended on nature for sustaining life. The ancient man discovered many knowledge of the usage of plants for different aspects of life. And it has been passed down through generations orally as a treasure.

The *Phom-Naga* Tribe is still very close to the nature and they remain connected with the traditional way of practicing medicine. They use trees, shrubs, herbs and even lower plants not only as food but also as medicine. They used it boiled, dried, powdered, raw, preserved, etc and in all these ways it has been found to be in profound way of healing. In most cases the freshly collected herbs have been used. The Ethno-medicinal plants used the Phom-Naga tribe are arranged in alphabetical order giving their botanical name, followed by the local name and a short description of the plant. The parts used usage of the plants and the Specimen number are also given.

***Achyranthes aspera* Linn. (Amaranthaceae)**

Common and Vern. Name: *Prickly chaffi flower* (E), *Kotembü* (P)

Description: An erect herb, 1 m in height, branches pubescent.

Part(s) used: Entire plant

Usage: The plant is diuretic and astringent. Decoction of the herb is used in abdominal pain, diabetes, digestion and in dysentery.

Specimen examined: KL-174, Bura Namsang (9/7/2011)

***Acorus calamus* Linn. (Araceae)**

Common and Vern. Name: *Sweet flag* (E), *Yongmei* (P)

Description: An erect, robust herb upto 2 m high with aromatic rootstock.

Part(s) used: Rhizome, Leaves.

Usage: It is used dried or raw. The decoction of the plant is also used. It is used as carminative, high blood pressure, unconsciousness, any kind of stomach ache, malaria, dysentery, diarrhoea, fever. The plants also have a charisma to expel evil spirit.

Specimen examined: KL-2346, Yaong Yimchen (13/04/2009)

***Adhatoda zeylanica* Medic. (Acanthaceae)**

Common and Vern. Name: *Vasaka* (E), *Shepe palak* (P)

Description: An evergreen gregarious shrub 1-2 m high with foetid smell.

Part(s) used: Leaves

Usage: The decoction of leaves is used in fever, headache, dysentery and in stomach pain.

Specimen examined: KL-2404, Pongo (30/06/2010)

***Adiantum philippense* Linn. (Adiantaceae)**

Common and Vern. Name: *Walking maiden hair fern* (E), *Nya lae* (P),

Description: A terrestrial fern. Rhizome erect, scaly, glabrous and short. **Part(s) used:** Aerial part & rhizome

Usage: Rhizome is used in fever. The plant is used to treat sore throat and cough. It is also used in dysentery, ulcers, muscular pain, diarrhoea, rabies and snake bite.

Specimen examined: KL-167, Yachem (05/07/2009)

***Ageratum conyzoides* Linn. (Asteraceae)**

Common and Vern. Name: *Goat weed* (E), *Asok aso* (P)

Description: A herb 16-60 cm high, with hairy stem.

Part(s) used: Leaves and roots

Usage: Leaf juice is used to check the bleeding from cut, sores, insect bites and skin disorders. Roots are used as anthelmintic and antiallergic.

Specimen examined: KL-103, Tamlu (05/10/2011); KL-3228

***Albizia chinensis* (Osbeck) Merr. (Mimosaceae)**

Common and Vern. Name: *Chinese albizia* (E), *Thai bū* (P)

Description: A medium sized deciduous tree with smooth bark.

Part(s) used: Bark

Usage: Paste of the bark is wrapped around the wound externally as a plaster which provides support to the fractured part. It is also used as anthelmintic and used as fish poisoning.

Specimen examined: KL-104, Yangching (12/06/2010)

***Albizia lebbbeck* (Linn.) Benth. (Mimosaceae)**

Common and Vern. Name: *Sirish* (E), *Nok-polang* (P)

Description: A large deciduous tree with dark, rough, irregular cracked bark.

Part(s) used: Leaves and seeds

Usage: The bark and seeds are used to treat skin diseases by applying its paste. The leaves and the seeds are used in treating womb weakness in women.

Specimen examined: KL-176, Pongo (08/08/2009)

***Allium cepa* Linn. (Liliaceae)**

Common and Vern. Name: *Onion* (E), *Lothi* (P)

Description: A bulbous herb with numerous roots at the base of the bulb.

Part(s) used: Bulb

Usage: The bulbs are stomachic, diuretic and used to treat typhoid. It also helps in proper blood circulation.

Specimen examined: KL-106, Yongya (09/05/2012)

***Allium chinense* G.Don. (Liliaceae)**

Common and Vern. Name: *Chinese onion* (E), *Koang Lothi* (P)

Description: An annual bulbous herb with narrowly linear, basal leaves.

Part(s) used: Bulb

Usage: The plant is used to treat early stages of cancer. It is also used in stomach ache, high blood pressure and even constipation.

Specimen examined: KL-107, Yachem (24/07/2009)

***Allium hookeri* Thw. (Liliaceae)**

Common and Vern. Name: *Hooker chives* (E), *Tongpa* (P)

Description: An annual bulbous slender herb with linear leaves.

Part(s) used: Rhizome and leaves

Usage: Leaves and rhizome juice is used as vermifuge. The dried powder plant is used to treat Leukaemia.

Specimen examined: KL-108, Orangkong (02/08/2010); Yachem (05/07/2009)

***Allium sativum* Linn. (Liliaceae)**

Common and Vern. Name: *Garlic* (E), *Shüh mai* (P)

Description: It is a glabrous, bilbous herb which grows to about 30 cm.

Part(s) used: Bulb

Usage: Garlic is used to reduce high blood pressure, reduces blood cholesterol, blood sugar. It is also used to treat digestion problem and acts as vermifuge. Add a little salt and ash to the garlic paste mix it with a little water then filter the solution in a strainer. The filtered solvent is used for the treatment of dysentery.

Specimen examined: KL-2435, Ngetchungching (22/07/2009)

***Allium tuberosum* Rottl. ex Spreng. (Liliaceae)**

Common and Vern. Name: *Garlic chives* (E), *Lothi* (P)

Description: A scapigerous herb with fleshy root fibres.

Part(s) used: Leaves and roots

Usage: The decoction of the plant is used for epilepsy treatment and considered to be good diuretic.

Specimen examined: KL-109, Yongshei (14/07/2010)

***Alocasia macrorrhiza* (Linn.) G. Don. (Araceae)**

Common and Vern. Name: *Giant taro* (E), *Avilavo nü* (P)

Description: A perennial herb upto 1m high with cylindric, long, stout rhizome.

Part(s) used: Leaves and rhizome

Usages: The extract of the leaf is used to treat inflammatory diseases and the rhizome and leaves are used as vermifuge.

Specimen examined: KL-164, Orangkong (02/08/2010)

***Alnus nepalensis* D.Don. (Betulaceae)**

Common and Vern. Name: *Alder tree* (E), *Süngyang süngta* (P)

Description: A deciduous tree upto 30m high with compact, silvery grey bark.

Part(s) used: Leaves

Usage: Decoction of the leaves is taken orally for the treatment of dysentery and diarrhoea.

Specimen examined: KL-111, Yongya (27/09/2010)

***Aloe vera* (Linn.) Burm. F. (Liliaceae)**

Common and Vern. Name: *Indian aloe* (E), *Oma meli* (P)

Description: It is a short stemmed with a spiny toothed leaves which are very succulent and very juicy.

Part(s) used: Leaves

Usage: Aloe vera is very useful medicine in a number of health problems. It is used to treat stomach ache, piles, and rectal fissures. It is used as a coolant and can be applied externally on eyes, burns and

various skin diseases and itching. It is also used to treat gastritis, inflammations and constipation.

Specimen examined: KL-2317, Yaong Yimchen (24/07/2009)

***Alpinia galangal* (Linn.) Willd. (Zingiberaceae)**

Common and Vern. Name: *Greater galangal* (E), *Shomlou* (P)

Description: The plant grows from rhizomes in clumps of stiff stalks up to 2 m in height with abundant long leaves which bears red fruits.

Part(s) used: Rhizome

Usage: The rhizome paste is used in reducing high body temperature and in skin diseases. The decoction is use as carminative, in digestion problem, in stomach ache, in rheumatism and in treating piles. It is also used as vegetable because of its strong flavour.

Specimen examined: KL-2485, Kangching (22/08/2011)

***Alstonia scholaris* (Linn.) R. Br. (Apocynaceae)**

Common and Vern. Name: *Devil tree* (E), *Kolisüng* (P)

Description: A tall evergreen tree upto 25m high with milky juice.

Part(s) used: Seeds and bark.

Usage: The seeds are used to treat constipation and the bark is used in stomach ache, diarrhoea, and stops bleeding from the wounds. It is also used as carminative and febrifuge.

Specimen examined: KL-112, Ngetchungching (22/07/2010)

***Amaranthus spinosus* Linn. (Amaranthaceae)**

Common and Vern. Name: *Prickly amaranth* (E), *Ak alo* (P)

Description: A much branched, erect, spinous annual herb which grows upto 50 cm tall.

Part(s) used: Flowers and leaves

Usage: The plant is used to treat womb problem in women. It is also used as febrifuge and laxative.

Specimen examined: KL-165, Yongam (19/05/2010)

***Amaranthus viridis* Linn. (Amaranthaceae)**

Common and Vern. Name: *Amaranth* (E), *Apong yangba* (P)

Description: An erect stout herb, some varieties green or bright pink.

Part(s) used: Leaves

Usage: Leaves are used as laxative and as liver tonic. It is also used as a febrifuge.

Specimen examined: KL-2315, Yongam (19/05/2010)
15/09/2011)

***Ananas comosus* (Linn.) Merrill (Bromeliaceae)**

Common and Vern. Name: *Pine apple* (E), *Tongpelong* (P)

Description: A tufted perennial herb with numerous, spirally arranged leaves.

Part(s) used: Fruits and leaves

Usage: Fruit is used as urine tonic, anthelmintic, digestive and febrifuge. It is also used as blood purifier, used in constipation, jaundice, diuretic and carminative. Leaf juice is antihelmintic and also used in cough.

Specimen examined: KL-131, Sakchi (15/09/2011)

***Aquilaria malaccensis* Lamk. (Thymelaeaceae)**

Common and Vern. Name: *Eagle wood* (E), *Püuh* (P)

Description: A large evergreen tree with alternate, oblong-lanceolate, elliptic to ovate leaves.

Part(s) used: Wood

Uses: The decoction of wood is applied externally in leprosy, skin disease, rheumatism and in headache. It is mostly valued for its perfume.

Specimen examined: KL-506, Pongching (24/08/2010)

***Areca catechu* Linn. (Arecaceae)**

Common and Vern. Name: *Betel nut palm* (E), *Koyü* (P)

Description: Stems cylindrical, about 20m high, surrounded by the crown of leaves.

Parts used: Seeds and pericarp

Usage: The pericarp is used to brush teeth to remove stain. The seeds are soaked in water, then powdered and is used as an effective vermifuge. It is also effective in diarrhoea, dysentery and malaria.

Specimen examined: KL-114, Ngetchungching (22/07/2010)

***Arisaema tortuosum* (Wall.) Schott (Araceae)**

Common and Vern. Name: *Whipcord cobra lily* (E), *Sam hao* (P)

Description: A perennial tuberous herb, monocious having spadix with a whip like appendages.

Parts used: Corms and roots

Usage: Corm has insecticidal and insect repellent properties. Roots are used to kill the worms in cattle. The leaves are used as vegetables.

Specimen examined: KL-171, Bura Namsang (09/07/2011)

***Artemisia indica* Willd. (Asteraceae)**

Common and Vern. Name: *Nya-volüng thang*

Description: A perennial tall aromatic shrub upto 2.5 m high with leafy branched stem.

Part(s) used: Leaves and young shoots

Usage: The leaf and young shoot's juice is taken orally and it helps to cure stomach pain, high blood pressure and diarrhoea. The leaf paste is applied on the head during headache and it is also useful in treating skin disease and itching. It is also used as insecticide.

Specimen examined: KL-2347, Ngetchungching (23/07/2010)

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Common and Vern. Name: *Jack fruit* (E), *Polong* (P)

Description: Large evergreen tree with stiff hairs on young shoots.

Part(s) used: Seeds, bark

Usage: Decoction of bark is used to treat cancer. The seeds are dried and used to cure Asthma.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Asparagus racemosus* Willd. (Asparagaceae)**

Common and Vern. Name: *Asparagus* (E), *Pongi jo* (P)

Description: Climbing perennial herb, with a tuberous rootstock.

Part(s) used: Roots and leaves.

Usage: Roots are dried, powdered, and then used to treat diabetes, blood pressure. The leaves and roots are used to treat tonsil and epilepsy.

Specimen examined: KL-119, Ngetchungching (23/07/2010)

***Averrhoa carambola* Linn. (Averrhoaceae)**

Common and Vern. Name: *Carambola apple* (E), *Shen jük* (P)

Description: A small tree upto 8m in height with compact crown, and branches drooping.

Part(s) used: Fruit

Usage: Fruits are used in diarrhoea and fever. They are also used against intestinal worms and widely use in jaundice.

Specimen examined: KL-132, Pongching (24/08/2010)

***Azadirachta indica* A. Juss. (Meliaceae)**

Common and Vern. Name: *Indian lilac* (E), *Neem* (P)

Description: A large deciduous tree with rough bark which grows upto 12m high.

Part(s) used: All parts of the tree

Usage: Twigs are used to brush teeth and cure toothache and gum diseases. Decoction of leaves cures fever and skin diseases. The plant is also used as insect repellent.

Specimen examined: KL-120, Yangching (12/06/2010)

***Bambusa tulda* Roxb. (Bambusoidae)**

Common and Vern. Name: *Calcutta cane* (E), *Nüet* (P)

Description: Culms tufted upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Part(s) used: Shoots

Usage: The juice of the shoot is used in the treatment of piles. The paste of the shoot is even applied in injuries and bites.

Specimen examined: KL-168, Nian (17/05/2010)

***Bauhinia glauca* (Wall. ex Benth.) (Caesalpinaceae)**

Common and Vern. Name: *Monkey Ladder* (E), *Bem phong* (P)

Description: A large cirrhose climber with shoots and inflorescence clothed with copper coloured hairs when young.

Part(s) used: Roots, bark

Usage: It is used in the treatment of womb problem. Decoction of the bark is used in dysentery and its paste is applied in bites.

Specimen examined: KL-122, Ngetchungching (23/07/2010)

***Begonia bowerae* var. *nigramarga* (Begoniaceae)**

Common and Vern. Name: *Begonia tiger* (E), *Vong-nam* (P)

Description: A small rhizomatous type of plant which grows about 10-20 cm tall with clearly marked dark patches on the leaves.

Part(s) used: Leaves

Usage: The broad leaves are slightly allowed to warm in the fire and then it is wrapped around the blood clotted portion of the body part after injury. It helps in subsiding the blood clot and pain.

Specimen examined: KL-2323, Yongshei (14/07/2010)

***Begonia palmata* D. Don. (Begoniaceae)**

Common and Vern. Name: *Begonia* (E), *Kochi naro* (P)

Description: A perennial herb with thick rhizome or tubers.

Part(s) used: Leaves

Usage: The leaves are used in the treatment of fever. The sour leaves are dried and also used to treat malaria.

Specimen examined: KL-170, Yongshei (14/07/2010)

***Bidens pilosa* Linn. (Asteraceae)**

Common and Vern. Name: *Cobblers pegs* (E), *Ajüng hangha* (P)

Description: Much branched annual herb which grows upto 50-60 cm in height.

Part(s) used: Leaves, shoot and seeds

Usage: The leaf juice is mixed with water and use in bath for the treatment of skin disease, leaf paste applied in nostrils in an unconscious person and is also applied in cuts and wounds. It is their believes that the leaves have the capacity to put away the evil spirit, sickness, etc.

Specimen examined: KL-2314, Ngetchungching (22/07/2010)

***Brugmansia suaveolens* (Humb. & Bonpl. ex Willd.) Bercht. & Presl.**
(Solanaceae)

Common and Vern. Name: *Mad apple* (E), *Ajan chüh* (P)

Description: A herb with large, simple, alternate and oblong leaves.

Part(s) used: Leaves

Usage: Leaf paste is applied on forehead to cure dizziness and helps in boosting memory power.

Specimen examined: KL-124, Pongo (08/08/2009)

***Cajanus cajan* (Linn.) Mill.** (Fabaceae)

Common and Vern. Name: *Pigeon pea* (E), *Maha jang* (P)

Description: An erect undershrub which grows upto 1.5-2m high.

Part(s) used: Seeds and leaves

Usage: Seeds and leaves are used in the treatment of womb cancer. Leaves are diuretic, laxative, and also use in oral ulcers.

Specimen examined: KL-125, Shetap (07/09/2009)

***Canna edulis* Linn.** (Cannaceae)

Common and Vern. Name: *Indian shot* (E), *Ontsü on* (P)

Description: A perennial, rhizomatous herb which grows upto 2-3m high.

Part(s) used: Leaves and rhizome.

Usage: Leaves are febrifuge that treats toothache along with *Solanum myriacanthum*. Also the rhizome paste is used in skin diseases and injuries.

Specimen examined: KL-169, Yongshei (20/08/2011)

***Cannabis sativa* Linn.** (Cannabaceae)

Common and Vern. Name: *Indian Hemp* (E), *Ganja* (P)

Description: A strong smelling, resinous, annual to perennial herb which grows upto 2m tall.

Part(s) used: Leaves

Usage: The grounded leaves are applied in cuts and wounds. It is taken after poisonous consumption and also used as appetizer. The plant is stomachic, antispasmodic, analgesic, sedative and stimulant. It is also used in dysentery and taken orally in case of food poisoning.

Specimen examined: KL-172, Ngetchungching (23/07/2010)

***Carica papaya* Linn. (Caricaceae)**

Common and Vern. Name: *Papaya* (E), *Ameta* (P)

Description: A small hollow stemmed laticiferous and soft wooden tree.

Part(s) used: Latex, fruits

Usage: Latex is used in liver diseases, dog bite, ring worm and other skin diseases. Fruits help in digestion and good in urinary and bladder problem. Unripe fruits are eaten for abortion by the women.

Specimen examined: KL-118, Pongo (30/06/2010)

***Catharanthus roseus* Linn. (Apocynaceae)**

Common and Vern. Name: *Periwinkle* (E), *Ampok naro* (P)

Description: A small perennial herb about 40-100 cm in height.

Part(s) used: Leaves and flower

Usage: Plant has anticancer activity. The leaves are used in diabetes and also used as diuretic. Decoction of the plant or its extract is used in hypertension.

Specimen examined: KL-175, Sakchi (08/08/2009)

***Celosia cristata* Linn. (Amaranthaceae)**

Common and Vern. Name: *Cockscomb* (E), *Choü hak* (P)

Description: An erect, glabrous annual herb which grows about 40 cm high.

Part(s) used: Leaves and flower

Usage: Flowers are used in diarrhoea and urinary tract infection. Leaf extract is used in cuts and injuries.

Specimen examined: KL-2458, Shetap (08/08/2009)

***Centella asiatica* (Linn.) Urb. (Apiaceae)**

Common and Vern. Name: *Indian pennywort* (E) *Jelok alük* (P)

Description: A prostrate perennial herb, rooting at nodes.

Part(s) used: Entire plant

Usage: The plant extract is used for hair growth and also to treat cough. Plant paste is applied on boils and other skin diseases. It is commonly used in malaria, indigestion, gastric and kidney trouble.

Specimen examined: KL-181, Yangching (12/06/2010)

***Chenopodium album* Linn. (Chenopodiaceae)**

Common and Vern. Name: *Wild spinach* (E), *A-Phom* (P),

Description: An erect herb usually coated with a mealy substance, stem and inflorescence sometimes tinged with purple or red.

Part(s) used: Seeds and leaves

Usage: Plant is carminative, laxative, diuretic and tonic. It also purifies blood.

Specimen examined: KL- 2451, Shetap (09/07/2009)

***Cinnamomum tamala* Nees. (Lauraceae)**

Common and Vern. Name: *Cassia cinnamon* (E), *Kalep long* (P)

Description: An evergreen, medium sized, aromatic tree with rough, dark brown, wrinkled bark.

Part(s) used: Bark and leaves

Usage: Leaves are used in diarrhoea, cough and cold. It is also used as carminative and spice.

Specimen examined: KL-2447, Ngetchungching (23/07/2010)

***Cinnamomum zeylanicum* Blume (Lauraceae)**

Common and Vern. Name: *Ceylon cinnamon* (E), *Yang bü sho* (P),

Description: A moderate sized tree of about 15 m height with reddish brown bark.

Part(s) used: Bark

Usage: The bark is astringent, diuretic and anthelmintic. It is also used in diarrhoea, nausea and fever.

Specimen examined: KL-2378, Hukpang (21/05/2011)

***Citrus grandis* Linn. (Rutaceae)**

Common and Vern. Name: *Forbidden fruit* (E), *Ngüleng hempo* (P)

Description: A medium sized evergreen tree with thorny shoots.

Part(s) used: Leaves, fruits

Usage: Inhalation of the fresh leaves helps in treatment of influenza, headache, and nasal blockage. The fruit is used as diuretic. Burning of dried pericarp expel mosquitoes and insect.

Specimen examined: KL-2408, Yangching (12/06/2010)

***Citrus limon* Linn. (Rutaceae)**

Common and Vern. Name: *Japanese lemon* (E), *Nok ak* (P)

Description: A large shrub or small evergreen tree with spreading branches.

Part(s) used: Fruits and leaves

Usage: Fruits are used as laxative, anthelmintic, stimulant, stomachic and carminative. The fresh leaves are rubbed on the forehead during headache and act as a coolant. The fruit along with salt is taken to

treat dysentery. Juice is mixed with few drops of mustard oil, boiled and is used in dysentery.

Specimen examined: KL-177, Yongshei (20/08/2011)

***Clerodendrum colebrookianum* Walp. (Verbenaceae)**

Common and Vern. Name: *East India Glory Bower* (E), *Kai-nem* (P),

Description: A perennial shrub with a globose crown.

Part(s) used: Leaf and bark

Usage: Decoction of leaf and root is used in malaria. Leaves are eaten boiled to reduce high blood pressure. Decoction of the leaves is taken in stomach disorder.

Specimen examined: KL-2391, Longleng town (20/07/2009)

***Coccinia adoensis* (A.Rich.) Cogn. (Cucurbitaceae)**

Common and Vern. Name: *Wild spinach*, *Vang hai-mükjang*,

Description: Climber or trailer to 3m long, rootstock perennial and woody. **Part(s) used:** Roots

Usage: The root is bitter in taste. It is cleaned, then made paste along with water and taken orally for diabetic patient.

Specimen examined: KL-2354, Sakchi (15/09/2011)

***Colocasia esculenta* (Linn.) Schott. (Araceae)**

Common and Vern. Name: *Cocoyam* (E), *Shitsü nü* (P)

Description: A rhizomatous herb.

Part(s) used: Entire plant

Usage: The plant is a good laxative and the paste of the corm is applied on pain from stings, cuts and burns. It is also used as vermifuge.

Specimen examined: KL-200, Kangching (11/06/2010)

***Colosia argentea* Linn. (Amaranthaceae)**

Common and Vern. Name: *Plumed Cockscomb* (E), *Phenlo naro* (P)

Description: A herbaceous perennial herb of tropical origin which grows upto 30-100 cm tall.

Part(s) used: Flowers and leaves

Usage: The extract/decoction of the flower is used for the treatment of gastric and leaf extract is used in cut and injuries.

Specimen examined: KL-133, Kanching (11/06/2010)

***Coriandrum sativum* Linn. (Apiaceae)**

Common and Vern. Name: *Coriander* (E), *Dunia* (P)

Description: An annual aromatic herb.

Part(s) used: Aerial part

Usage: The leaves are aromatic, astringent, digestive, carminative, stimulant and used as blood purifier.

Specimen examined: KL-2301, Tamlu (5/10/2011)

***Costus speciosus* (Koenig ex Retz.) J.E.Smith. (Costaceae)**

Common and Vern. Name: *Wild zinzer* (E), *Yempi tongsa* (P)

Description: An aromatic herb with fleshy, branched underground rhizome.

Part(s) used: Rhizome and stem

Usage: Raw stem juice is taken orally for jaundice and even the tender stem inside is eaten for the same treatment. Decoction of rhizome is used to cure urinary infection, bronchitis, fever, inflammations, anaemia, rheumatism and cough. It is also used as tonics. Juice obtained from the smashed stem, after a little warming is used externally in ear ache and ear infection.

Specimen examined: KL-2307, Shetap (07/09/2009)

***Crotalaria pallida* Ait. (Fabaceae)**

Common and Vern. Name: *Sunhemp* (E), *Yangliong* (P)

Description: Undershrub with slender sulcate branches which grows upto 1m high.

Part(s) used: Leaves and flowers

Usage: The leaves and flowers of Sunhemp are used for the treatment of jaundice. Leaf paste is applied in skin irritation.

Specimen examined: KL-2309, Ngetchungching (23/07/2010)

Curculigo orchioides Gaerth. (Hypoxidaceae)

Common and Vern. Name: *Golden Eye Grass* (E), *Achi kelok* (P)

Description: A herbaceous perennial plant with tuberous roots and stem short.

Part(s) used: Rhizome

Usage: The decoction of the rhizome is used for the treatment of gastric. It is also used in treatment of asthma, jaundice, skin diseases, urinary infections and the plant is also diuretic.

Specimen examined: KL-145, Longleng (08/08/2010)

Curcuma angustifolia Roxb. (Zingiberaceae)

Common and Vern. Name: *Tumeric* (E), *Haldi* (P)

Description: Small herb with small globose rhizome, tubers at the end of fibres.

Part(s) used: Rhizome

Usage: The rhizome paste is used in bath which has a soothing effect for body ache. The paste is even rubbed in swollen body parts. The juice is taken orally with water in food poisoning. It is even applied in cuts and wounds. The paste is applied and wrapped with a cloth on the injured or fractured area.

Specimen examined: KL-2308, Tangha (16/04/2009)

***Curcuma caesia* Roxb. (Zingerberaceae)**

Common and Vern. Name: *Black zedoary* (E), *Ohaü hung* (P)

Description: Rhizomatous perennial herb.

Part(s) used: Rhizome

Usage: The plant has numerous medicinal values. Rhizome is used as anthelmintic, antipyretic, carminative and stimulant. The paste of rhizome is used in bruises and in rheumatic pains. It is even used to treat T.B, cancer and even widely used to treat toothache. It is useful in asthma, piles and tumours.

Specimen examined: KL-2304, Yongshei (14/07/2010)

***Cymbopogon flexuosus* (Nees ex steud.) Wats. (Poaceae)**

Common and Vern. Name: *Lemon grass* (E), *She song* (P)

Description: An aromatic, perennial herb.

Part(s) used: Leaves

Usage: Leaf paste is applied in cuts and wounds. Leaves of lemon grass are used in treating nausea and dysentery.

Specimen examined: KL-3201, Pongching (24/08/2010)

***Datura stramonium* Linn. (Solanaceae)**

Common and Vern. Name: *Thorn apple* (E), *Jayep- Jük* (P)

Description: A coarse glabrous annual herb.

Part(s) used: Roots, leaves and seeds

Usage: Seeds and roots have a soothing or sleeping-inducing action. Leaves are used in the treatment of asthma and even applied on boils and ulcers.

Specimen examined: KL-2379, Bura Namsang (09/07/2011)

***Dendrobium fimbriatum* Hook. (Orchidaceae)**

Common and Vern. Name: *Maric orchids* (E), *Lokong chü* (P)

Description: An epiphytic orchid, with compressed stem, yellowish and furrowed.

Part(s) used: Leaves

Usage: The leaf paste is applied in ringworms and other skin related diseases.

Specimen examined: KL-2379, Bura Namsang (09/07/2011)

***Dichroa febrifuga* Lour. (Hydrangeaceae)**

Common and Vern. Name: *Blue bell* (E), *Tejeyoklek* (P)

Description: An erect shrub up to 3 m high with greyish stem.

Part(s) used: Leaves and bark

Usage: The juice of the leaves is used to treat malarial fever, coughs, cold and bronchitis. It is also used for the treatment of womb related problems.

Specimen examined: KL-2472, Bhumnyu (09/09/2010)

***Dioscorea bulbifera* Linn. (Dioscoreaceae)**

Common and Vern. Name: *Aerial Yam* (E), *She* (P)

Description: A perennial herb with tuberous root and warty bulbils of irregular shape and size.

Part(s) used: Tubers

Usage: The tubers are used in the treatment of piles, dysentery, sprains and injuries. It is also used for the treatment of ulcers and syphilis.

Specimen examined: KL-2303, Shetap (09/07/2009)

***Drymaria cordata* (Linn.) Willd. (Caryophyllaceae)**

Common and Vern. Name: *Chickweed* (E), *Pipi* (P)

Description: A diffuse glabrous shrub, branching from the base.

Part(s) used: Whole plant

Usage: The paste of the plant is applied in cuts, wounds, used as an antidote for snake and insect bite. The plant is rubbed and inhaled which is used as a good remedy for sinusitis.

Specimen examined: KL-142, Longleng (20/07/2009)

***Elettaria cardamomum* Mat. (Zingiberaceae)**

Common and Vern. Name: *Cardamom* (E), *Elaichi* (P)

Description: A herbaceous perennial with subterranean branched rootstock.

Part(s) used: Seeds

Usage: The seeds are aromatic, digestive, carminative, stimulant, stomachic and diuretic.

Specimen examined: KL-2380, Tamlu (09/07/2009)

***Elsholtzia blanda* Benth. (Lamiaceae)**

Common and Vern. Name: *Tulsi* (E), *Nyapa* (P)

Description: Perennial, slender, puberulous undershrub.

Part(s) used: Whole plant

Usage: The paste of the plant is applied in cuts and wounds, rashes and skin diseases. It is rubbed against the forehead during dizziness. It is also useful in treatment of urinary infection, stomach ache, constipation and in hypertension.

Specimen examined: KL-140, Pongo (08/08/2009)

***Elsholtzia communis* Colt. Et. Hemsl. (Lamiaceae)**

Common and Vern. Name: *Lomba* (P)

Description: An annual herb with tetragonous branches.

Part(s) used: Whole plant

Usage: The plant is aromatic, stomachic, carminative and for hypertension. The plant's paste is applied on cuts and wounds.

Specimen examined: KL-3211, Yangching (12/06/2010)

***Entada pursaetha* DC. (Leguminaceae)**

Common and Vern. Name: *Elephant creeper* (E), *Shakok* (P)

Description: A large climber, wild with compound leaves.

Part(s) used: Seeds and bark

Usage: Cotyledons are used as shampoo. After being soaked in water for a short period of time, the cotyledons can be eaten raw. Bark powder is applied in headache and skin irritation.

Specimen examined: KL-2452, Sakchi (15/09/2011)

***Equisetum ramosissimum* Desf. Subsp. Debile (Roxb.ex Dc.) Hanke (Equisetaceae)**

Common and Vern. Name: *Horse tail* (E), *Tetet naro* (P)

Description: A perennial and rigid pteridophyte with hollow stem which grows upto 3 feet long.

Part(s) used: Entire plant

Usage: The decoction of the plant is prescribed to treat cough, urinary problem. The plant is used for rheumatic pain, arthritic problem and the plant's extract is used for hair growth.

Specimen examined: KL-136, Longleng (08/08/2010)

***Eryngium foetidum* Linn. (Apiaceae)**

Common and Vern. Name: *Culantro* (E), *Moajü* (P)

Description: An erect, aromatic, glabrous, diffuse, perennial herb.

Part(s) used: Whole plant

Usage: The plant is aromatic and tonic. Leaf paste is applied on forehead to reduce fever. The plant is stomachic, diuretic and blood purifier.

Specimen examined: KL-2453, Hukpang (21/05/2011)

***Eupatorium adenophorum* Spreng. (Asteraceae)**

Common and Vern. Name: *Cotton weed* (E), *Ahjök* (P)

Description: It is an erect, perennial herb with glandular hairy, dark purple stem.

Part(s) used: Leaves

Usage: The leaf paste is applied in cuts and wounds, in allergic diseases and in skin rashes.

Specimen examined: KL-2439, Tamlu (05/10/2011)

***Eupatorium odoratum* Linn. (Asteraceae)**

Common and Vern. Name: *Eupatorium* (E), *Ajek- hük* (P)

Description: Much branched woody herbaceous perennial growing upto 3 m high.

Part(s) used: Leaves

Usage: The leaf paste is applied in cuts and wounds, in allergic and in skin rashes.

Specimen examined: KL-2439, Tamlu (05/10/2011)

***Euphorbia royleana* Boiss. (Euphorbiaceae)**

Common and Vern. Name: *Cactus* (E), *Ow-ma* (P)

Description: An erect fleshy shrub or small tree.

Part(s) used: Latex

Usage: Latex is applied in burns, and even used in toothache.

Specimen examined: KL-182, Yaongyimchen (13/04/2009)

***Ficus altissima* Bl. (Moraceae)**

Common and Vern. Name: *Fig* (E), *Hamsu* (P)

Description: A large, spreading tree to 80ft or more, often with aerial roots, and a crown.

Part(s) used: Fruit

Usage: The fruit is a good source of nutrient and is often used as an appetizer. The fruit is often used in constipation.

Specimen examined: KL-178, Yachem (19/03/2011)

***Ficus hispida* Linn. (Moraceae)**

Common and Vern. Name: *Hairy fig* (E), *Momo* (P)

Description: A small tree or shrub with hollow branches.

Part(s) used: Fruit

Usage: The fruit is used to treat womb cancer. Fruit decoction is used in dysentery and bark is chewed in dysentery and intestinal infections.

Specimen examined: KL-148, Yaongyimchen (13/04/2009)

***Fragaria nilgerrensis* Sch. ex J. Gay (Rosaceae)**

Common and Vern. Name: *Straw berry* (E), *Chumen* (P)

Description: A stout herb with long runners.

Part(s) used: Aerial part

Usage: The fruit is nutritious and the plant's decoction is used as diuretic. It also helps in urinary and kidney stones.

Specimen examined: KL-196, Shetap (09/07/2009)

***Gossypium arboreum* Linn. (Malvaceae)**

Common and Vern. Name: *Cotton plant* (E), *Pemba* (P)

Description: An annual or perennial shrub.

Part(s) used: Seeds

Usage: Smashed seeds taken orally during measles and allergic. It is also a good refrigerant. White cotton threads along with dried bottle gourd are burnt and make paste. Then it is applied on the forehead and body joints during unconsciousness.

Specimen examined: KL-199, Yaongyimchen (24/07/2009)

***Gynocardia odorata* R. Br. (Flacourtiaceae)**

Common and Vern. Name: *Chaulmogra* (E), *Ajük mangbai* (P)

Description: A medium sized tree with oblong, abruptly acuminate leaves.

Part(s) used: Bark

Usage: The bark of the tree, small dried fish and water ia made paste and can be applied on allergies, skin rashes or skin diseases.

Specimen examined: KL-2356, Tangha (16/04/2009)

***Hedychium spicatum* Hamilt. ex Smith (Zingiberaceae)**

Common and Vern. Name: *Spiked Ginger Lily* (E), *Pongshu /Chentsüng* (P)

Description: A herb upto 1.5 m high with leaves robust and broadly lanceolate.

Part(s) used: Rhizome

Uses: The decoction of the rhizome is used in cough and asthma. The paste is even applied in pain and body ache. It is also use as a carminative, stimulant and a tonic.

Specimen examined: KL- 2462, Longleng town (20/07/2009)

***Hibiscus rosa-sinensis* Linn. (Malvaceae)**

Common and Vern. Name: *China rox* (E), *Lejing* (P)

Description:A shrub with ovate, acuminate, coarsely serrate leaves.

Part(s) used: Leaves and flower

Usage: Leaves are used as laxative, in indigestion, gastric problem and in dysentery. Leaves and flowers are good remedy for hair growth and hair colour. Leaves are often used as shampoo for washing hair.

Specimen examined: KL-179, Yongam (19/05/2010)

***Hibiscus sabdariffa* Linn. (Malvaceae)**

Common and Vern. Name: *Red sorrel* (E),

Description: An annual herb, stem glabrous and unarmed.

Part(s) used: Flowers and leaves

Usage: Dried or fresh flowers and leaves are used in stomach disorder, indigestion and also act as carminative. Leaves along with rice is cooked and taken in case of dysentery.

Specimen examined: KL-2392, Nian (17/05/2010)

***Hodgsonia macrocarpa* (Bl.) Cogn. (Cucurbitaceae)**

Common and Vern. Name: *Hodgsonia* (E), *Bai* (P)

Description: Woody liana with stout and bifid tendrils.

Part(s) used: Fruit

Usage: The fruit pulp is applied on skin infections and also used in stomach disorder. Cotyledons of seed are a delicacy and eaten after roasting and used in chutney and curry.

Specimen examined: KL-2459, Ngetchungching (23/07/2010)

***Houttuynia cordata* Thunb. (Saururaceae)**

Common and Vern. Name: *Stink grass* (E), *Tensü meli* (P)

Description: A perennial herb with creeping rootstock.

Part(s) used: Leaves and roots

Usage: Juice of the leaves is used in stomach ache and dysentery. Decoction of the rhizome is used for the treatment of malaria. The

plant is name after the ailment it treats, that is tensü means malaria and meli means medicine.

Specimen examined: KL-126, Yaongyimchen (24/07/2009)

***Impatiens balsamina* Linn.** (Balsaminaceae)

Common and Vern. Name: *Babom* (E), *Phale* (P)

Description: An annual, erect herb, having swollen nodes with alternate, lanceolate and serrate leaves.

Part(s) used: Leaves

Usage: Leaf paste rubbed in forehead during headache as they act as a cooling agent,. The extract of flower, seeds and leaves are rubbed in body pain which improves circulation and relieve pain.

Specimen examined: KL-2471, Longleng (08/08/2010)

***Jatropha curcas* Linn.** (Euphorbiaceae)

Common and Vern. Name: *Physic nut* (E), *Pah meli* (P)

Description: A soft wooden deciduous shrub with yellowish brown bark.

Part(s) used: Stalk and leaves

Usage: Stalk used in brushing teeth in toothache. Leaves are used in jaundice, diarrhoea, stomach ache. Fresh juice os the stem stops bleeding from cuts and wounds.

Specimen examined: KL-184, Yongya (09/05/2011)

***Juglans regia* Linn.** (Juglandaceae)

Common and Vern. Name: *Common walnut* (E), *Ngüh* (P)

Description: A large deciduous tree with greyish bark.

Part(s) used: Bark and fruits

Usage: Bark and unripe fruit are used to poison the fishes. The fruit are tonic and carminative. Leaves are used as an astringent, anthelmintic and can even apply in skin diseases.

Specimen examined: KL- 2364, Yongshei (20/08/2011)

***Kalanchoe pinnata* (Lam.) Pers. (Crassulaceae)**

Common and Vern. Name: *Air plant* (E), *Yongkum pükum* (P)

Description: A perennial succulent herb, 40-50 cm in height.

Part(s) used: Leaves

Usage: Fresh leaves are used in burns and wounds and also used for the treatment of diabetes, dysentery and even gastric problem.

Specimen examined: KL-191, Longleng (08/08/2010)

***Lasia spinosa* (Linn.) Thw. (Araceae)**

Common and Vern. Name: *Lasia* (E), *Sham-hüh* (P)

Description: It is a prickly herb with branched rhizome.

Part(s) used: Aerial part

Usage: The leaf paste is applied on wounds. The plant is anthelmintic and vermifuge. It is eaten as vegetable and also fed the domestic animals for the same purpose.

Specimen examined: KL-198, Longleng (20/07/2009)

***Leucas aspera* (Willd.) Link (Lamiaceae)**

Common and Vern. Name: *Thimbe* (E), *Shong pang meli* (P)

Description: An annual hispid or scabrid herb, erect and much branched.

Part(s) used: Whole plant

Usage: Plant boiled in water is infuse in treatment of sinusitis and fever. Plant paste is applied on snake bite and wounds.

Specimen examined: KL-2409, Bura Namsang (10/02/2011)

***Lycopersicon lycopersicum* (Linn.) Karsten (Solanaceae)**

Common and Vern. Name: *Tomato* (E), *Kilok* (P)

Description: It is a pubescent herb with irregularly pinnate, serrate leaves.

Part(s) used: Fruits

Usage: The fruit is mainly used as liver and kidney stimulant. The decoction is believed to be a remedy in treating urinary tract infection. **Specimen examined:** KL-804, Pongching (17/08/2010)

***Mangifera indica* Linn. (Anacardiaceae)**

Common and Vern. Name: *Mango* (E), *Ashoi* (P)

Description: A large evergreen tree with thick bark which grows upto 25m high.

Part(s) used: Leaves and fruits

Usage: Leaves used in diabetes, jaundice and stomachache. Leaf juice is used in burns. The fruit has rich nutritive value.

Specimen examined: KL-2305, Yangching (12/06/2010)

***Manihot esculenta* Crantz. (Euphorbiaceae)**

Common and Vern. Name: *Tapioca* (E), *Pü-She* (P)

Description: A sub-herbaceous shrub with large tuberous roots and milky juice.

Part(s) used: Leaves and tubers

Usage: Leaves used in skin diseases. Juice of tubers used to treat constipation and indigestion. The paste of the tuber is applied on sores and cuts.

Specimen examined: KL-2448, Kangching (11/06/2010)

***Mentha spicata* Linn. (Lamiaceae)**

Common and Vern. Name: *Spearmint* (E), *Pudina* (P)

Description: A strong aromatic perennial herb with runners.

Part(s) used: Leaves

Usage: Leaf juice is used in indigestion, diarrhoea and stomach disorder. The plant is used as a refrigerant, stimulant and diuretic. The plant is used as a flavouring agent.

Specimen examined: KL-2460, Longleng (20/07/2009)

***Mikania cordata* (Burm.) Rob. (Asteraceae)**

Common and Vern. Name: *Heartleaf Hempvine* (E), *Jang aso* (P)

Description: Twining herb with cordate-hastate, ovate and acute leaves.

Part(s) used: Leaves

Usage: Paste of leaf applied on wounds, itches, cuts, insect bites, various skin irritation, and stops bleeding.

Specimen examined: KL-195, Ngetchungching (22/07/2010)

***Mimosa pudica* Linn. (Mimosaceae)**

Common and Vern. Name: *Sensitive plant* (E), *Vaũ thũng* (P)

Description: A spreading undershrub with stem and branches prickly and clothed with bristles.

Part(s) used: Leaves

Usage: Leaf paste applied in wounds, insect bites and cuts. Juice of the leaves is used for treating jaundice.

Specimen examined: KL-192, Tamlu (22/07/2012)

***Mirabilis jalapa* Linn. (Nyctaginaceae)**

Common and Vern. Name: *Four O'clock plant* (E), *Lejem naro* (P)

Description: A large fruticose herb with soft stem with swollen joints.

Part(s) used: Leaves

Usage: Leaf paste is applied in skin irritation that gives a soothing action on the skin, in skin inflammation and in bruises. The decoction of the seeds is used in dysentery and stomach pain.

Specimen examined: KL-192, Tamlu (22/07/2012)

***Molineria capitulata* (Lour.) Herb. (Hypoxidaceae)**

Common and Vern. Name: *Palm grass* (E), *Shok pen* (P)

Description: A tuberous herb with lanceolate leaves.

Part(s) used: Rhizome

Usage: Epidermis of the rhizome is soaked in water, then taken orally for treatment of gastritis. It is also used as eye drop, used in biles, jaundice and diarrhoea.

Specimen examined: KL-2318, Tangha (16/04/2009)

***Momordica charantia* Linn. (Cucurbitaceae)**

Common and Vern. Name: *Bitter gourd* (E), *Karala* (P)

Description: An annual slender climber with palmately 5-8 lobed leaves.

Part(s) used: Leaves and fruits

Usage: The plant is a good remedy for diabetes, high blood pressure, stomach ache and in hypertension. It is also used as carminative and vermifuge.

Specimen examined: KL-2321, Nian (17/05/2010)

***Musa paradisiaca* Linn. (Musaceae)**

Common and Vern. Name: *Plantain* (E), *Ngü* (P)

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Part(s) used: Latex, flower and fruits

Usage: Latex of the plant is taken orally in case of dysentery. Core of the stem is eaten as vegetables and is used as antiacidity. Flowers used in dysentery and diabetes. The fruit is a good remedy for diabetes.

Specimen examined: KL-185, Yangching (12/06/2010)

***Myrica esculenta* ex D.Don. (Myricaceae)**

Common and Vern. Name: *Box myrtle* (E), *Yang jūk* (P)

Description: A moderate sized evergreen tree with rough, greyish-brown bark.

Part(s) used: Bark

Usage: Burnt bark is made paste and is applied on burns. Fruit used in indigestion. Decoction of the bark is used in asthma, diarrhoea, dysentery and in fever.

Specimen examined: KL-2345, Pongching (24/08/2010)

***Nicotiana tabacum* Linn. (Solanaceae)**

Common and Vern. Name: *Common tobacco* (E), *Mükü* (P)

Description: An erect pubescent herb with ovate, oblong-lanceolate leaves.

Part(s) used: Seeds

Usage: Tobacco seed is a good remedy for cough.

Specimen examined: KL-2306, Longleng (08/08/2010)

***Ocimum basilicum* Linn. (Lamiaceae)**

Common and Vern. Name: *Sweet basil* (E), *Chionum* (P)

Description: A slender aromatic herb, generally purple coloured.

Part(s) used: Leaves and inflorescence

Usage: Leaf juice mixed with honey is taken in cough. Leaf paste rubbed in nostrils in cold and unconsciousness. It is even applied on

skin diseases and stings. The inflorescence is used in diarrhoea, dysentery, bile and in cholera.

Specimen examined: KL-197, Tangha (16/04/2009)

***Oroxylum indicum* (Linn.) Vent. (Bignoniaceae)**

Common and Vern. Name: *Indian trumpet tree* (E), *Meyong pü* (P)

Description: A deciduous tree upto 8m tall branched.

Part(s) used: Bark

Usage: Bark is boiled in the water for 15-20 minutes and in the decoction a small quantity of sugar and salt is added. It is given to the patient suffering from jaundice. It is also used to treat dysentery and diarrhoea.

Specimen examined: KL-2410, Bura Namsang (10/02/2011)

***Oxalis corniculata* Linn. (Oxalidaceae)**

Common and Vern. Name: *Indian sorrel* (E), *Meih-sü* (P)

Description: A diffuse herb with procumbent branches.

Part(s) used: Entire plant

Usage: Leaf juice is used in cough and stomachache. Leaves are refrigerant and use to treat fever. The plant is used for the treatment of dysentery, diarrhoea and jaundice.

Specimen examined: KL-188, Yongya (09/05/2011)

***Panax quinquefolium* Linn. (Araliaceae)**

Common and Vern. Name: *Ginseng* (E), *Jensüing khaonying* (P)

Description: A perennial herbaceous rhizomatous erect plant with elongated tuberous root.

Part(s) used: Entire plant

Usage: Ginseng is used for loss of appetite, asthma, normalize high blood pressure, use in stomach disorder, and the juice is even applied in skin infection and irritation.

Specimen examined: KL-2470, Bhumnyu (09/09/2010)

***Parkia timoriana* (A. DC.) Merr.** (Mimosaceae)

Common and Vern. Name: *Tree bean* (E), *Yangchak* (P)

Description: A middle sized tree with spreading branches with light grey bark.

Uses: Fruit is a good remedy for constipation and helps in digestion. It is eaten raw or cooked and it is also used for the treatment of dysentery and biles.

Specimen examined: KL-2450, Yachem (28/07/2010)

***Passiflora edulis* Sins.** (Passifloraceae)

Common and Vern. Name: *Passion fruit* (E), *Aticheük* (P)

Description: A perennial climber with 3 lobed, toothed, glabrous, serrate leaves.

Part(s) used: Fruits and leaves

Usage: Leaves are used in diabetes and high blood pressure. Fruit juice is diuretic and a good tonic for dysentery.

Specimen examined: KL-2384, Yangching (12/06/2010)

***Phlogacanthus thyrsiflorus* Nees.** (Acanthaceae)

Common and Vern. Name: *Nongmangkha* (E), *Kikinga* (P)

Description: An evergreen shrub up to 2.4 m high, branchlets quadrangular.

Part(s) used: Leaves

Uses: Leaves are used as expectorant in cough, bronchitis and asthma. It is boiled along with tea leaves with a little salt and the decoction is used in dysentery, stomach pain and stomach disorder.

Specimen examined: KL-3230, Yongya (13/07/2010)

***Phyllanthus acidus* (Linn.) Skeels** (Euphorbiaceae)

Common and Vern. Name: *Star goose berry* (E), *Phü pang jük* (P)

Description: A small evergreen tree upto 9m tall.

Part(s) used: Fruits and leaves

Usage: Fruit is taken raw in dyspepsia and in jaundice. Leaf paste is also applied in cuts and wounds.

Specimen examined: KL-2385, Tamlu (05/10/2011)

***Phyllanthus emblica* Linn. (Euphorbiaceae)**

Common and Vern. Name: *Indian gooseberry* (E), *Pang jük/Phanga aliak* (P)

Description: A deciduous tree with smooth greenish grey, exfoliating bark.

Part(s) used: Fruit, bark and seeds

Usage: Fruit is a natural source of vitamin c and helps in good eye sight. It is cooling, refrigerant and diuretic. The seeds are used for the treatment of asthma and bronchitis. The bark burn in fire, then make a paste using water and is applied on burns.

Specimen examined: KL-2302, Longleng (20/07/2009)

***Phyllanthus urinaria* Linn. (Phyllanthaceae)**

Common and Vern. Name: *Gripe weed* (E), *Phangkhalek* (P)

Description: An annual herb with angled branchlets. The leaves are sessile, glaucous beneath.

Part(s) used: Whole plant

Usage: Juice of the plant is used in jaundice and in liver problem. It is also used in diarrhoea and dysentery. The latex of the plant is applied on sores.

Specimen examined: KL-2363, Bura Namsang (10/02/2011)

***Physalis minima* Linn. (Solanaceae)**

Common and Vern. Name: *Capa goose berry* (E), *Kashi-linga* (P)

Description: An annual bushy herb which grows upto a height of about 15-30 cm high. .

Part(s) used: Shoots

Usage: The decoction of the shoot is taken during cough, bronchitis, stomach pain and in gasthopathy. It is also taken in jaundice and urinary disorder.

Specimen examined: KL-2483, Kangching (22/08/2011)

***Piper betle* Linn. (Piperaceae)**

Common and Vern. Name: *Betel laef vine* (E), *Bülou* (P)

Description: A slender climber with adventitious roots.

Part(s) used: Leaves

Usage: Leaves are aromatic and carminative. It is also used as antiseptic and haemostatic agent in cuts and wounds. It is also used in cough and toothache. The leaves along with salt are chewed for gastritis. The leaves mixed with lime are applied on cuts and wounds.

Specimen examined: KL-193, Yongshei (20/08/2011)

***Polygonum capitatum* Buch.- Ham. (Polygonaceae)**

Common and Vern. Name: *Pink knotweed* (E), *Theokvü* (P)

Description: A perennial creeping herb with woody rootstock.

Part(s) used: Whole plant

Usage: Leaf and flower paste are applied in cuts and wounds. It is also used in bites and stings. The leaf paste is rubbed in forehead during headache and fever.

Specimen examined: KL-2469, Bhumnyu (09/09/2010)

***Pratia begonifolia* (Wall.) Lindl. (Lobeliaceae)**

Common and Vern. Name: *Pratia* (E), *Yimpi muko* (P)

Description: A small prostrate herb, rooting at the nodes. The leaves are alternate, small, petiolate and dentate

Part(s) used: Whole plant

Usage: The leaf paste is applied in bleeding wounds. The decoction of the plant is useful in urinary trouble and in kidney stone.

Specimen examined: KL-2484, Kangching (22/08/2011)

***Psidium guajava* Linn. (Myrtaceae)**

Common and Vern. Name: *Guava* (E), *Kong kai* (P)

Description: A small to large evergreen or sub-deciduous tree with smooth bark.

Part(s) used: Bark and leaves

Usage: Bark and leaves are chewed raw in stomach-ache, dysentery and helps indigestion. Decoction of leaves is boiled with tea leaves with a little salt and is used in the treatment of diarrhoea and dysentery. It is also used as an agent of germicide.

Specimen examined: KL-189, Yongam (19/05/2010)

***Psophocarpus tetragonolobus* DC. (Fabaceae)**

Common and Vern. Name: *Winged bean* (E), *Long long* (P)

Description: A twining herb with trifoliolate leaves.

Part(s) used: Seeds

Usage: Seeds used in cough. The fruit is taken as vegetable.

Specimen examined: KL-2386, Yangching (12/06/2010)

***Punica granatum* Linn. (Punicaceae)**

Common and Vern. Name: *Pomgranate* (E), *Jarem* (P)

Description: A small deciduous shrub or tree with brownish bark.

Part(s) used: Fruits and Seeds

Usage: Decoction of leaves and seeds is used in stomach-ache, dysentery and cholera. Dried fruit ectoderm is a good remedy for dysentery and stomach-ache. Burning of dried fruit is a good repellent of mosquitoes.

Specimen examined: KL-2454, Pongching (24/08/2010)

***Rhus semialata* Murr. (Anacardiaceae)**

Common and Vern. Name: *Nutgall tree* (E), *Po* (P)

Description: A small deciduous tree about 3 m high, bark is ash-grey and warty.

Part(s) used: Fruits and seeds

Usage: Powdered seeds are taken for indigestion, stomach-ache, constipation and allergy. It is even applied on allergies and skin rashes. It is also taken along with *Ocimum basilicum* and salt as carminative or in dysentery.

Specimen examined: KL-2387, Orangkong (02/08/2010)

***Ricinus communis* Linn. (Euphorbiaceae)**

Common and Vern. Name: *Caster oil plant* (E), *Benben* (P)

Description: A tall soft wooded shrub with leaves palmately 5-9 lobed and serrate.

Part(s) used : Fruits and seeds

Usage: Leaves are made warm and wrap around swollen body parts, boils, rheumatic pain, blood clot and in bone fractures.

Specimen examined: KL-183, Pongo (08/08/2009)

***Saccharum officinarum* Linn. (Poaceae)**

Common and Vern. Name: *Sugar cane* (E), *Nga* (P)

Description: Culms 2-6 m tall, erect, waxy below the nodes.

Part(s) used : Culms

Usage : Juice of culm is used in jaundice and gall bladder disorder.

Specimen examined: KL-2455, Yachem (05/07/2009)

***Saccharum spontaneum* Linn. (Poaceae)**

Common and Vern. Name: *Kans grass* (E), *Pok nyü* (P)

Description: It is a perennial grass, growing up to three meters in height, with spreading rhizomatous roots.

Part(s) used: Culms

Usage : Culms eaten for headache, stomach-ache, dizziness, unconsciousness, motion sickness and urinary infection.

Specimen examined: KL-2416, Bura Namsang (10/02/2011)

***Schima wallichii* (DC.) Korth. (Theaceae)**

Common and Vern. Name: *Chakpü* (P), *Needlewood Tree* (E)

Description: A large tree upto 30 m in height, with grey to black bark.

Part(s) used : Leaves and bark

Uses: Young leaves and bark are used to subside pain in skin infection, used as anthelmintic. It is also used to kill intestinal worms in cattle and pig.

Specimen examined: KL-329, Sakchi (15/09/2011)

***Solanum indicum* Linn. (Solanaceae)**

Common and Vern. Name: *Poison berry* (E), *Kangku* (P)

Description: A prickly undershrub, upto 1.5m high. The leaves are large, ovate, lobed and sparsely prickly.

Part(s) used : Fruit

Usage: Fruit used in high blood pressure, diabetes and in stomach ailments. Dried powdered fruit is used in the preparation of local rice beer.

Specimen examined: KL-129, Sakchi (15/09/2011)

***Solanum myriacanthum* Duna.** (Solanaceae)

Common and Vern. Name: *Lengkok* (P)

Description: It is a much branched and prickly herb.

Part(s) used: Seeds

Usage: The seeds are use as a germicide. The seeds are burnt in a plate and infusion of the gas is use for the treatment of toothache.

Specimen examined: KL-187, Yaongyimchen (13/04/2009)

***Solanum nigrum* Linn.** (Solanaceae)

Common and Vern. Name: *Shamsha* (P), *the black night shade* (E)

Description: It is an annual herb with ovate-lanceolate, entire, sinuate leaves.

Part(s) used: Berries

Usage: It is helpful in cardiac activity and in regulation of blood pressure. It is also considered as a good remedy for the treatment of asthma and skin diseases. .

Specimen examined: KL-2468 Bhumnyu, (09/09/2010)

***Solanum spiral* Roxb.** (Solanaceae)

Common and Vern. Name: *Mandarin* (E), *Shamsa alok* (P)

Description: An undershrub with elliptical, acute, membranous leaves.

Part(s) used: Leaves

Usage: Leaf juice taken orally during stomach ache and also use as digestive and diuretic.

Specimen examined: KL-2401, Bura Namsang (09/07/2011)

***Solanum torvum* Sw.** (Solanaceae)

Common and Vern. Name: *Turkey berry* (E), *Phaü shamshah* (P)

Description: An erect tomentose shrub with ovate, serrate or lobed leaves.

Part(s) used: Berries

Usage: The immature fruits are grounded and the paste is applied on the skin diseases. Decoction of the plant used in abdominal pain, indigestion and also diuretic.

Specimen examined: KL-2372, BuraNamsang (09/07/2011)

***Spilanthes acmella* Linn. (Asteraceae)**

Common and Vern. Name: *Toothache plant* (E), *Pakang thüng* (P)

Description: An annual erect herb, rooting at basal nodes, upto 80 cm high.

Part(s) used: Flowers and Leaves

Usage: The plant is antidysenteric and diuretic. Flowers are used in throat infection, sore mouth, and germicide and very efficacious in toothache.

Specimen examined: KL-190, Yongya (09/05/2011)

***Tagetes erecta* Linn. (Asteraceae)**

Common and Vern. Name: *Marigold* (E), *Lichüng chü* (P)

Description: An annual herb of varying height, strongly aromatic.

Part(s) used: Leaves

Usage: Leaf rubbed on forehead during headache and muscular pain. Juice of the leaf is applied in boils and decoction helpful in kidney trouble.

Specimen examined: KL-194, Shetap (09/07/2009)

***Tamarindus indica* Linn. (Caesalpinaceae)**

Common and Vern. Name: *Tamarind tree* (E), *Heshingbo* (P)

Description: A large evergreen tree with dark grey bark and pinnate leaves.

Part(s) used: Fruit

Usage: The fruit is refrigerant, digestive, carminative and laxative.

Specimen examined: KL-2456, Sakchi (15/09/2011)

***Terminalia bellirica* (Gaertn.) Roxb. (Combretaceae)**

Common and Vern. Name: *Balliric myrobalan* (E), *Nüngka* (P)

Description: A medium sized deciduous tree.

Part(s) used: Fruit

Usage: Fruits used in cough, stomach ache and in high blood pressure. It is also used as antipyretic, digestive and laxative.

Specimen examined: KL-2388, Tangha (16/04/2009)

***Thelypteris palustris* Schott (Thelypteridaceae)**

Common and Vern. Name: *Marsh fern* (E), *Atak Mükhat* (P)

Description: A deciduous herb which are mostly found in marshy, swampy places or along the river banks.

Part(s) used: Leaves

Usage: The entire leaf is fan upon the snake, scorpion or spider bitten wound. It is also used as insecticides.

Specimen examined: KL-2373, BuraNamsang (09/07/2011)

***Tithonia diversifolia* (Hemsl.) A.Gray (Asteraceae)**

Common and Vern. Name: *Mexican sunflower* (E), *Sayak jeü/ Bang klang*(P)

Description: A large shrub with leaves 3-5 lobed, triangular, crenate-serrate on margin.

Part(s) used: Leaves

Usage: Leaf paste applied in wounds and cuts. The leaves are carminative and also helpful in dysentery and blood pressure.

Specimen examined: KL-2343, Pongching (24/08/2010)

***Thalictrum foliolosum* DC. (Ranunculaceae)**

Common and Vern. Name: *Leafy Meadow- Rue* (E), *Lamlu Chiü* (P)

Description: It is an erect perennial herb with hollow stem.

Part(s) used: Leaves

Usage: Leaf extract is used in jaundice and in treating indigestion, fever and also toothache.

Specimen examined: KL-2362, BuraNamsang (09/07/2011)

***Urtica ardens* Link. (Urticaceae)**

Common and Vern. Name: *Stinging nettle* (E), *Shishok* (P)

Description: A perennial herb upto 1m high.

Part(s) used: Bark and root

Usage: Paste of the bark is used in dog bite. Decoction of the root used in constipation.

Specimen examined: KL-2389, Tangha (17/04/2009)

***Wedelia chinensis* (Osborne) Merrill (Asteraceae)**

Common and Vern. Name: *Chinese Wedelia* (E), *Anyü lak hao* (P)

Description: A straggling herb upto 1 m high, rooting at lower nodes.

Part(s) used: Leaves

Usage: Leaves are tonic and used in cough. Leaf paste is wrapped around wound and bone fracture. It is also used as laxative.

Specimen examined: KL-2457, Yangching (12/06/2010)

***Zanthoxylum rhetsa* (Roxb.) DC. (Rutaceae)**

Common and Vern. Name: *Prickly ash* (E), *Hang- jük* (P)

Description: A deciduous tree upto 35m tall, with spreading crown, branchlets with prickles and hollow.

Part(s) used: Leaves and seeds



Plate 10: Ethnomedicinal Plants

- A.** *Solanum spiral* Roxb.
- C.** *Adhatoda zeylanica* Medic.
- E.** *Thalictrum foliolosum* DC.

- B.** *Phyllanthus urinaria* Linn.
- D.** *Acorus calamus* Linn.
- F.** *Jatropha curcas* Linn.



Plate 11: Ethnomedicinal Plants

- A. *Molineria capitulate* (Lour) Herb.**
- C. *Phlogacanthus thyrsiflorus* Nees.**
- E. *Urtica ardens* Link**

- B. *Ocimum basilicum* Linn.**
- D. *Arisaema tortuosum* (Wall.) Schott**
- F. *Solanum torvum* Sw.**

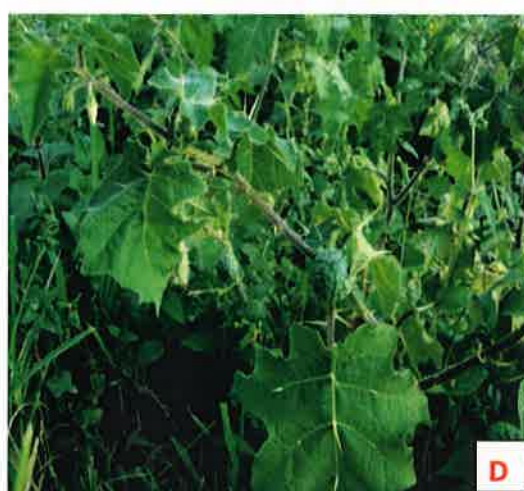
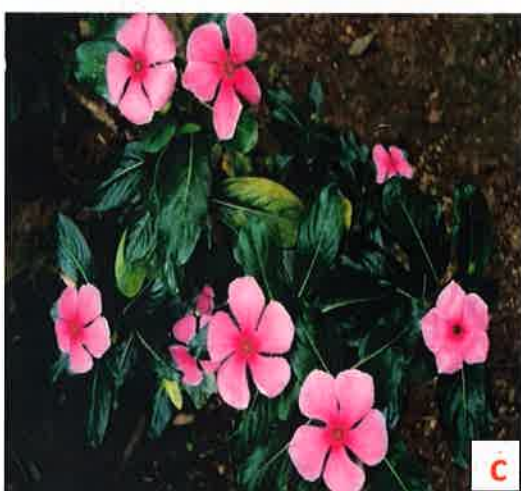


Plate 12: Ethnomedicinal Plants

A. *Gynocardia odorata* R. Br

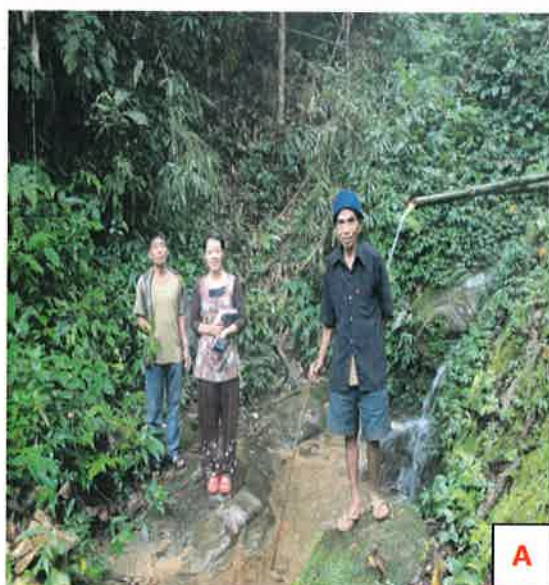
C. *Catharanthus roseus* (Linn.) G. Don.

E. *Curcuma caesia* Roxb.

B. *Kalanchoe pinnata* (Lam.) Pers.

D. *Solanum viarum* Dunal

F. *Houttuynia cordata* Thunb.



A



B



C



D



E

Plate 13: Ethnomedicinal Plants

A. During collection of plants

B. Interview with the healers during field work

C. A women with the medicinal herbs

D. A local healer displaying the herbal medicines he prepared

E. A man showing a medicinal stone

Usage: Leaf paste used as febrifuge and fruit used in asthma, toothache and in the treatment of malaria. Leaves are used as vegetable and the seed as spice.

Specimen examined: KL-2390, Ponching (24/08/2010)

***Zingiber officinale* Rosc. (Zingiberaceae)**

Common and Vern. Name: *Ginger* (E), *Cheng* (P)

Description: Rhizomatous herb with erect leafy, reddish stem.

Part(s) used: Rhizome

Usage: Rhizome paste is used in body massaging. Its juice or powdered rhizome is used in stomach trouble, throat pain, and cough and in cold.

Specimen examined: KL-186, Yachem (05/07/2009)

***Ziziphus mauritiana* Lam. (Rhamnaceae)**

Common and Vern. Name: *Indian plum* (E), *Binok* (P)

Description: A spiny shrub or deciduous tree upto 4 m tall.

Part(s) used: Fruit

Usage: Fruit is used as a cooling agent, laxative, tonic, helps in improving liver functioning and also as blood purifier.

Specimen examined: KL-812, Yongshei (20/08/2011)

4.1.1. INERT MATERIAL USED ALONG WITH PLANTS AS MEDICINE

Treatment of stomach pain caused by some food substance

*For the treatment of stomach pain caused by some food substance the following mixture is being used. A fine paste is made by mixing the bulb of *Allium sativum* (Shüh mai), seeds of *Brassica campestris* (Hao yong) and *Piper nigrum* (Omdong hang). To this paste a pinch of salt is added and to it, the food that

caused trouble in stomach is also added. It is taken orally and it helps to cure the pain in the stomach.

Treatment of dysentery

*To 3 tablespoon of ash powder and bulb of *Allium sativum* (Shüh mai) paste, a pinch of salt is added along with water. It is mixed thoroughly and then the solution is filtered. Then it is taken orally for the treatment of dysentery.

*The skin of *Musa balbisiana* (Ngü) is burnt in the fire then it is mixed with one tablespoon of ashes. To it a little amount of water is added and the solution is filtered. The filtered solvent is then ready to drink for the treatment of dysentery.

*To the fruit juice of *Citrus aurantium* (Chu chet), a pinch of salt is added and taken orally for the treatment of dysentery.

*One teaspoon of mastered oil is added to half of the quarter cup of *Citrus limon* (Nok ak) juice, then boil it. Then it is taken orally for the treatment of dysentery.

Treatment of measles

*Fruit of *Gynorcordia odorata* (Ajek mangbai), seeds of *Gossypium arboretum* (Pemba) and dry fish is made paste and is applied on measles.

Treatment of cuts and wounds

*Leaf of *Piper betle* (Bülou) and bulb of *Allium sativum* (Shüh mai) is made paste and to it a pinch of salt is added. This mixture is effective when applied on cuts and wounds.

*A little lime is added to the leaves of *Piper betle* (Bülou) then made paste and it is applied on cuts and wounds.

Treatment of cough

*Two tablespoon honey is added to leaf juice of *Ocimum basilicum* (Chionum) and it is taken orally which is a good remedy for the treatment of cough.

Treatment of jaundice

*Bark of *Oroxylum indicum* (Meyong-pü) is boiled in the water for 20 minutes and in the decoction a small quantity of sugar and salt is added. It is given to the patient suffering from jaundice.

4.2. ETHNO- VETERINARY PLANTS

Herbal medicine has long been recognized as one of the oldest forms of remedies used by humans for both men and animals. Many people in rural areas still rely on traditional healing practices and medicinal plants for their daily healthcare needs, in spite of the advancement in modern medicine. There is abundant undocumented traditional knowledge of herbal remedies used to treat diseases of animals in many villages of the *Phom-Naga* tribe.

The use of medicinal plants in the treatment of diseases has generated renewed interest in recent times, as herbal preparations are increasingly being used in both human and animal healthcare systems. There is however a dearth of information with respect to traditional knowledge system and practices in Longleng district of Nagaland, due to rural-urban migration, substitution of traditional with modern practices and preference for drugs, or outright disregard for traditional practices. However a study was undertaken to provide information on the medicinal plants used by farmers in managing animal in Longleng District of Nagaland.

Alocasia macrorrhiza (Linn.) G. Don. (Araceae)

Common and Vern. Name : *Giant taro (E), Avilavo nü (P)*

Description: A perennial herb upto 1m high with cylindric, long, stout rhizome.

Part(s) used: Leaves and rhizome

Uses: The leaves are feed to the pig cooked along with rice which is used as vermifuge.

Specimen examined: KL-164, Shetap (22/09/2011)

Amaranthus spinosus Linn. (Amaranthaceae)

Common and Vern. Name: *Prickly amaranth (E), Ak alo (P)*

Description: A much branched, erect, spinous annual herb which grows upto 50 cm tall.

Part(s) used: Entire plant

Uses: The plant is cooked with other plants or can be given raw in case of constipation.

Specimen examined: KL-165, Tamlu (09/09/2011)

***Amaranthus viridis* Linn. (Amaranthaceae)**

Common and Vern. Name : *Amaranth (E), Apong yangba (P)*

Description: An erect stout herb, some varieties green or bright pink.

Part(s) used: Leaves

Uses: Leaves are feed to the cattle cooked or raw, which is used as a good remedy for constipation and used as laxative.

Specimen examined: KL-2315, Shetap (22/09/2011)

***Arisaema tortuosum* (Wall.) Schott (Araceae)**

Common and Vern. Name: *Whipcord cobra lily (E), Sam hao (P)*

Description: A perennial tuberous herb, monocious having spadix with a whip like appendages.

Part(s) used: Entire plant

Uses: The plant is feed cooked which is used to kill the worms in cattle.

Specimen examined: KL-171, Yongya (13/07/2010)

***Artemisia indica* Willd. (Asteraceae)**

Common and Vern. Name : *Wormwood (E), Nya-volüing thang (P)*

Description: A perennial tall aromatic shrub upto 2.5 m high with leafy branched stem.

Part(s) used: Leaves

Uses: Leaf paste is used as insecticide. It is also rubbed against skin in case of some skin infections.

Specimen examined: KL-2347, Ponching (17/08/2010)

***Artemisia nilagirica* (Clarke) Pamp. (Asteraceae)**

Common and Vern. Name : *Indian Wormwood* (E), *Ak lakso* (P)

Description: An aromatic shrub, erect, hairy, pubescent. It grows upto 1- 2 m high.

Part(s) used: Whole plant

Uses: The plant is feed fresh or dried. It helps the pig in proper growth and also used as vermifuge.

Specimen examined: KL-117, Bura Namsang (29/05/2011)

***Asparagus racemosus* Willd. (Asparagaceae)**

Common and Vern. Name : *Asparagus* (E), *Pongi jo* (P)

Description: Climbing perennial herb, with a tuberous rootstock.

Part(s) used: Roots

Usage: The decoction of roots is orally given to the cattle and pig for common cold 3-4 times a day till the disease cease.

Specimen examined: KL-119, Ngetchungching (23/07/2010); Shetap (09/7/2010)

***Azadirachta indica* A. Juss (Meliaceae)**

Common and Vern. Name : *Indian lilac* (E), *Neem* (P)

Description: A large deciduous tree with rough bark which grows upto 12m high:

Part(s) used: Leaves

Uses: Leaf paste is applied on the body of the cattle to treat skin diseases. It is also feed to the cattle to treat fever and flues.

Specimen examined: KL-120, Ponching (17/08/2010)

***Cannabis sativa* Linn. (Cannabaceae)**

Common and Vern. Name : *Indian Hemp* (E), *Ganja* (P)

Description: A strong smelling, resinous, annual to perennial herb which grows upto 2m tall.

Part(s) used: Leaves

Uses: The leaves are cut and feed the fowl in case of constipation.

Specimen examined: KL-172, Ngetchungching (23/07/2010)

***Colocasia esculenta* (Linn.) Schott (Araceae)**

Common and Vern. Name : *Cocoyam*(E), *Shitsü nü* (P)

Description: A rhizomatous herb.

Part(s) used: Entire plant

Uses: The plant is a good laxative. It is also used as vermifuge for the cattles.

Specimen examined: KL-200, Yongya (13/07/2010)

***Costus speciosus* (Koenig ex Retz) J.E.Smith. (Costaceae)**

Common and Vern. Name : *Wild zinzer* (E), *Yempi tongsa* (P)

Description: An aromatic herb with fleshy, branched underground rhizome.

Part(s) used: Stem

Uses: It is used as a vermifuge. The length of the pig is measured and the plant is cut exactly the same length as that of the sick pig. Then the bark of the stem is removed and places the stem above the fire place. This kills the worm in the pig and becomes worm free in few days.

Specimen examined: KL-2307, Bura Namsang (29/05/2011)

***Elsholtzia blanda* Benth. (Lamiaceae)**

Common and Vern. Name *Tulsi (E), Nyapa (P)*,
Description: Perennial, slender, puberulous undershrub.
Part(s) used: Entire plant
Uses: Dried as well as fresh plant is feed to the cattle in case of common cold and fever.
Specimen examined: KL-140, Pongo (30/06/2010)

***Hibiscus sabdariffa* Linn. (Malvaceae)**

Common and Vern. Name : *Red sorrel (E), Pü thiaok (P)*
Description: An annual herb, stem glabrous and unarmed.
Part(s) used: Leaves
Usage: Decoction of dried or fresh leaves are feed orally for 3-4 times a day in case of stomach disorder and dysentery to cattle or pig.
Specimen examined: KL-2392, Nian (17/05/2010)

***Kalanchoe pinnata* (Lam.) Pers. (Crassulaceae)**

Common and Vern. Name : *Air plant (E), Yongkum pükum (P)*
Description: A perennial succulent herb, 40-50 cm in height.
Part(s) used: Leaves
Usage: Decoction of fresh leaves is administered 3-4 times a day to the cattle and pig in case of dysentery.
Specimen examined: KL-191, Longleng (08/08/2010)

***Lasia spinosa* (Linn.) Thw. (Araceae)**

Common and Vern. Name : *Lasia (E), Sham-hüh (P)*,
Description: It is a prickly herb with branched rhizome.
Part(s) used: Entire plant
Uses: The plant is dried in the sun and feed the cattle which is used as a vermifuge.
Specimen examined: KL-198, Yongya (13/07/2010)

***Manihot esculenta* Crantz. (Euphorbiaceae)**

Common and Vern. Name : *Tapioca* (E), *Pü-She* (P)

Description: A sub-herbaceous shrub with large tuberous roots and milky juice.

Part(s) used: Entire plant

Uses: The plant is cooked along with rice or wheat bran and feed the cattle to treat constipation and indigestion.

Specimen examined: KL-2448, Tangha (09/07/2011)

***Ocimum basilicum* Linn. (Lamiaceae)**

Common and Vern. Name : *Sweet basil* (E), *Chionum* (P)

Description: A slender aromatic herb, generally purple coloured.

Part(s) used: Leaves

Uses: The leaf paste of *ocimum basilicum* and *Azadirachta indica* is mixed along with the food of the cattle and feed them to treat fever and common flue.

Specimen examined: KL-197, Pongching (17/08/2010)

***Psidium guajava* Linn. (Myrtaceae)**

Common and Vern. Name : *Guava* (E), *Kong kai* (P)

Description: A small to large evergreen or sub-deciduous tree with smooth bark.

Part(s) used: Leaves

Uses: Leaves of *Psidium guajava* and *Azadirachta indica* is cooked with the food of the cattle and feed them for the treatment of diarrhoea and dysentery. It is also used as an agent of germicide.

Specimen examined: KL-189, Longleng (08/08/2010)

***Rhus semialata* Murr. (Anacardiaceae)**

Common and Vern. Name : *Nutgall tree* (E), *Po* (P)

Description: A small deciduous tree about 3 m high, bark is ash-grey and warty.

Part(s) used: Fruits

Uses: Powdered fruit is mixed with water and feed the cattle for indigestion or any kind of sickness.

Specimen examined: KL-2387, Orangkong (02/08/2010)

***Ricinus communis* Linn. (Euphorbiaceae)**

Common and Vern. Name : *Caster oil plant* (E), *Benben* (P)

Description: A tall soft wooded shrub with leaves palmately 5-9 lobed and serrate.

Part(s) used : Leaves

Uses: Paste of leaves are used in the treatment of cut or injury in cattle and pigs. The decoction of leaves is also given orally to the animals in case of constipation.

Specimen examined: KL-183, Pongo (08/08/2009)

***Schima wallichii* (DC.) Korth. (Theaceae)**

Common and Vern. Name : *Chakpü* (P), *Needlewood Tree* (E)

Description: A large tree upto 30 m in height, with grey to black bark.

Part(s) used : Leaves

Uses: The leaves are used to feed the pigs to kill worms. It is feed cooked with other food item, rice or even can be feed alone.

Specimen examined: KL-329, Sakchi (15/09/2011)

***Solanum torvum* Sw. (Solanaceae)**

Common and Vern. Name : *Turkey berry* (E), *Phaü shamshah* (P)

Description: An erect tomentose shrub with ovate, serrate or lobed

leaves.

Part(s) used: Fruits

Usage: The immature fruits are grounded and the paste is applied on the skin diseases of pigs and cattle.

Specimen examined: KL-2372, BuraNamsang (09/07/2011)

***Tagetes erecta* Linn. (Asteraceae)**

Common and Vern. Name : *Marigold* (E), *Lichüing chü* (P)

Description: An annual herb of varying height, strongly aromatic.

Part(s) used: Leaves

Uses: Leaf of the plant is cooked along with other fodder and feed the cattle in case of fever or common flue.

Specimen examined: KL-194, Shetap (22/09/2011)

***Wedelia chinensis* (Osborne) Merrill (Asteraceae)**

Common and Vern. Name : *Chinese Wedelia* (E), *Anyü lak hao* (P)

Description: A straggling herb upto 1 m high, rooting at lower nodes.

Part(s) used: Leaves

Uses: Decoction of leaves is given orally to the cattle as laxative. It can be feed mixed with other fodder to the animals.

Specimen examined: KL-2457, Yangching (12/06/2010)

***Zanthoxylum rhetsa* (Roxburgh) DC. (Rutaceae)**

Common and Vern. Name : *Prickly ash* (E), *Hang-jük* (P)

Description: A deciduous tree upto 35m tall, with spreading crown, branchlets with prickles and hollow.

Part(s) used: Leaves

Usage: Leaf paste is applied in skin infection or skin disease in domestic animals.

Specimen examined: KL-2390, Ponching (24/08/2010)



A



B



C



D



E



F

Plate 14: Ethno -veterinary plants

A. *Tegetes erectus* Linn.

C. *Lasia spinosa* (Linn.) Thw.

E. *Cannabis sativa* Linn.

B. *Ricinus communis* Linn.

D. *Costus speciosus* (Koenig ex Retz.)

F. *Wedelia chinensis* (Osborn) Merr.

4.3. PLANTS USED AS FODDER

Ageratum conyzoides Linn. (Asteraceae)

Common and Vern. Name: *Goat weed* (E), *Asok aso* (P)

Description: A herb which grows upto 16-60 cm high, with hairy stem.

Uses: Leaves are used as fodder for the cattle.

Specimen examined: KL-103, Tamlu (05/10/2011)

Albizia lebbeck (Linn.) Benth. (Mimosaceae)

Common and Vern. Name: *Sirish* (E), *Nok-polang* (P)

Description: A large deciduous tree with dark, rough, irregular cracked bark.

Uses: Leaves are used as fodder for the cattle.

Specimen examined: KL-176, Pongo (08/08/2009)

Alocasia macrorrhiza (Linn.) G. Don. (Araceae)

Common and Vern. Name: *Giant taro* (E), *Avilavo nü* (P)

Description: A perennial herb upto 1m high with cylindric, long, stout rhizome.

Uses: The whole plant is used as fodder for the pigs. It is fed cooked along with rice and other leaves.

Specimen examined: KL-164, Orangkong (02/08/2010)

Amaranthus spinosus Linn. (Amaranthaceae)

Common and Vern. Name: *Prickly amaranth* (E), *Ak alo* (P)

Description: A much branched, erect, spinous annual herb which grows upto 50 cm tall.

Uses: The aerial part of the plant is used as fodder for the cattle as well as pigs.

Specimen examined: KL-165, Yongam (19/05/2010)

***Amaranthus viridis* Linn. (Amaranthaceae)**

Common and Vern. Name: *Amaranth* (E), *Apong yangba* (P)

Description: An erect stout herb, some varieties green or bright pink.

Uses: The aerial part of the plant is used as fodder for the cattle as well as pigs.

Specimen examined: KL-2315, Yongam (19/05/2010)

***Artemisia indica* Willd. (Asteraceae)**

Common and Vern. Name: *Nya-volüing thang*

Description: A perennial tall aromatic shrub upto 2.5 m high with leafy branched stem.

Uses: The whole plant is fed as a fodder to the pig.

Specimen examined: KL-2347, Ngetchungching (23/07/2010)

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Common and Vern. Name: *Jack fruit* (E), *Polong* (P)

Description: Large evergreen tree with stiff hairs on young shoots.

Uses: The fruit is fed cooked along with rice to the pig.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Bidens pilosa* Linn. (Asteraceae)**

Common and Vern. Name: *Cobblers pegs* (E), *Ajüng hangha* (P)

Description: Much branched annual herb which grows upto 50-60 cm in height.

Uses: Leaves and tender shoots are fed to the cattle.

Specimen examined: KL-2314, Ngetchungching (22/07/2010)

***Cajanus cajan* (Linn.) Mill. (Fabaceae)**

Common and Vern. Name: *Pigeon pea* (E), *Maha jang* (P)

Description: An erect undershrub which grows upto 1.5-2m high.

Uses: Fruits are fed to the pig cooked.

Specimen examined: KL-125, Shetap (07/09/2009)

***Callicarpa arborea* Roxb. (Verbenaceae)**

Vern. Name: *Shenpü*

Description: A small evergreen tree with corky, brown bark.

Uses: Leaves are used as a fodder for the pig.

Specimen examined: KL-314, Tangha (09/07/2011)

***Carica papaya* Linn. (Caricaceae)**

Common and Vern. Name: *Papaya* (E), *Ameta* (P)

Description: A small hollow stemmed laticiferous and soft wooden tree.

Uses: Immature fruits are cooked along with rice and fed to the pig.

Specimen examined: KL-118, Pongo (30/06/2010)

***Chenopodium album* Linn. (Chenopodiaceae)**

Common and Vern. Name: *Wild spinach* (E), *A-Phom* (P),

Description: An erect herb usually coated with a mealy substance, stem and inflorescence sometimes tinged with purple or red.

Uses: Leaves and shoots are fed to the cattle as well as to the pig.

Specimen examined: KL- 2451, Shetap (09/07/2009)

***Colocasia esculenta* (Linn.) Schott (Araceae)**

Common and Vern. Name: *Cocoyam* (E), *Shitsü nü* (P)

Description: A rhizomatous herb.

Uses: The whole plant is used as a fodder for the pig. It is fed cooked along with rice.

Specimen examined: KL-200, Kangching (11/06/2010)

***Dioscorea alata* Linn. (Dioscoreaceae)**

Common and Vern. Name: *Greater yam* (E), *She* (P)

Description: A tuberous, twining herb with winged stem.

Uses: Leaves are fed to the cattle and entire plant is used as fodder for the pig.

Specimen examined: KL-808, Yongshei (14/07/2010)

***Ipomea batatas* (Linn.) Lam. (Convolvulaceae)**

Common and Vern. Name: *Sweet potato*(E), *Vütong shi* (P)

Description: It is a prostrate perennial herbaceous vine.

Uses: The whole plant is used as fodder for the pig.

Specimen examined: KL-822, Ponching (24/08/2010)

***Lagenaria siceraria* Mol. (Cucurbitaceae)**

Common and Vern. Name: *Yao*

Description: It is a vigorous, annual, running or climbing vine with large

leaves and a lush appearance.

Uses: Entire part of the plant is used as fodder for the pig.

Specimen examined: KL-714, Pongching (24/08/2010)

***Manihot esculenta* Crantz. (Euphorbiaceae)**

Common and Vern. Name: *Tapioca* (E), *Pü-She* (P)

Description: A sub-herbaceous shrub with large tuberous roots and milky juice.

Uses: Entire part of the plant is used as fodder for the pig.

Specimen examined: KL-2448, Kangching (11/06/2010)

***Melastoma malabathricum* Linn. (Melastomataceae)**

Common and Vern. Name: *Malabar Melastome* (E), *Nyukse* (P)

Description: A bushy shrub with oblong-lanceolate leaves.

Uses: The entire plant is used as fodder for the pigs.

Specimen examined: KL-306, Ngetchungching (24/07/2010)

***Musa paradisiaca* Linn. (Musaceae)**

Common and Vern. Name: *Plantain* (E), *Ngü* (P)

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Uses: leaves and stem are used as fodder for the pig as well as cattle.

Specimen examined: KL-185, Yangching (12/06/2010)

***Oryza sativa* Linn. (Poaceae)**

Common and Vern. Name: *Rice* (E), *Ong* (P)

Description: It is an annual herb.

Uses: Rice is fed cooked to the pig and straws used as fodder for cattle.

Specimen examined: KL-327, Yachem (20/07/2010)

***Prunus persica* (Linn.) Batsch (Rosaceae)**

Common and Vern. Name: *Peach*, *Pangjuk*

Description: A small tree upto 8m tall with oblong to lanceolate, serrate, glabrous leaves.

Uses: Fruits are fed as fodder to the pig.

Specimen examined: KL-419, Pongching (24/08/2010)

***Ricinus communis* Linn.** (Euphorbiaceae)

Common and Vern. Name: *Caster oil plant* (E), *Benben* (P)

Description: A tall soft wooded shrub with leaves palmately 5-9 lobed and serrate.

Uses: Leaves are used as fodder for the pig.

Specimen examined: KL-183, Pongo (08/08/2009)

***Sechium edule* Sw.** (Cucurbitaceae)

Common and Vern. Name: *Squash* (E), *Squash* (P)

Description: It is a climber with perennial rootstock.

Uses: Mature leaves and fruits used as fodder for the pigs. It is cooked along with rice.

Specimen examined: KL-3212, Longleng (27/06/2011)

***Zea mays* Linn.** (Poaceae)

Common and Vern. Name: *Maize* (E), *Ang ha* (P)

Description: It is an annual, monoecious grass with culms rooting from lower nodes.

Uses: Seeds are fed to the fowls. It is also used as fodder for the pigs and it is feed cooked along with rice.

Specimen examined: KL-501, Orangkong (02/08/2010)

4.4. FOODS AND BEVERAGES

There always existed a connection between plants and human being since time immemorial and its continuing till the present age. Plants are the only source of living for many people in the villages. They depend on plant for food, shelter, medicines, fibre, oil, etc in multiple ways. Due to fascinating environment

and climatic condition, Longleng district in Nagaland is an ideal repository of a rich bio-diversity of plants. The place has a variety of edible plants, both wild and cultivated ones. Both wild and cultivated ones are available in the market and is a source of livelihood for people in the villages of the *Phom-Naga* tribe. A single plant can be used in variety of ways and some can be even eaten cooked or raw. They seldom use boiled food.

4.4.1. Tender shoots and leaves used as vegetable

***Achyranthes aspera* Linn.** (Amaranthaceae)

Vern. Name: *Kotembü*

Description: An erect herb, 1 m in height, branches pubescent.

Uses: Young tender leaves are eaten cooked.

Specimen examined: KL-174, Bura Namsang (9/7/2011)

***Allium cepa* Linn.** (Liliaceae)

Vern. Name: *Lothi*

Description: A bulbous herb with numerous roots at the base of the bulb.

Uses: The leaves are taken raw in salad or can be cooked. It can be even added as spices in various local dishes.

Specimen examined: KL-106, Yachem (20/07/2009)

***Allium chinense* G.Don.** (Liliaceae)

Vern. Name: *Koang lothi*

Description: An annual bulbous herb with narrowly linear, basal leaves.

Uses: The plant is used in chutneys and salads. It can be pickled and even used as spices.

Specimen examined: KL-107, Yachem (20/07/2009)

***Allium hookerii* Thw. (Liliaceae)**

Vern. Name: *Tongpa*

Description: An annual bulbous slender herb with linear leaves.

Uses: The plant is taken raw and even added in dishes which add flavour and taste to it.

Specimen examined: KL-180, Yaong yimchen (24/07/2009)

***Allium sativum* Linn. (Liliaceae)**

Vern. Name: *Shüh mai*

Description: It is a glabrous, bilbous herb which grows to about 30 cm.

Uses: Leaves are eaten cooked or raw.

Specimen examined: KL-2435, Ngetchungching (22/07/2009)

***Allium tuberosum* Rottl. ex Spreng. (Liliaceae)**

Vern. Name: *Lothi*

Description: A scapigerous herb with fleshy root fibres.

Uses: The green leaves are eaten raw or cooked along with other vegetables.

Specimen examined: KL-109, Yongshei (14/07/2010)

***Alocasia indica* (Roxb.) Schott (Araceae)**

Vern. Name: *Dhong*

Description: A robust herb with long, cylindrical caudex, upto 1.8 m tall.

Uses: The shoots and leaves are eaten cooked alone or mixed with other vegetables. It is consumed even after been dried in the sun which is known as Okshi.

Specimen examined: KL-318, Pongching (17/08/2010)

***Amaranthus spinosus* Linn. (Amaranthaceae)**

Vern. Name: *Ak alo*

Description: A much branched, erect, spinous annual herb which grows upto 50 cm tall.

Uses: Leaves are eaten boiled or fried mixed with other vegetables.

Specimen examined: KL-165, Yongam (19/05/2010)

***Amaranthus viridis* Linn. (Amaranthaceae)**

Vern. Name: *Apong yangba*

Description: An erect stout herb, some varieties green or bright pink.

Uses: Leaves are eaten cooked by simply boiling it.

Specimen examined: KL-2315, Yongam (19/05/2010)

***Arisaema tortuosum* (Wall.) Schott (Araceae)**

Vern. Name: *Sam hao*

Description: A perennial tuberous herb, monocious having spadix with a whip like appendages.

Uses: Young tender leaves are eaten cooked as simple boiled vegetable.

Specimen examined: KL-171, Bura Namsang (09/07/2011)

***Apium graveolens* Linn. (Apiaceae)**

Vern. Name: *Tania*

Description: An aromatic biennial herb which grows upto 1 m tall.

Uses: Leaves are cooked with other vegetables or can be added as a flavouring agent to the dish.

Specimen examined: KL-705, Longleng (20/07/2009)

***Bambusa tulda* Roxb. (Bambusoidae)**

Vern. Name: *Nüet*

Description: Culms tufted upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: Tender shoot is eaten cooked and also pickled.

Specimen examined: KL-168, Nian (17/05/2010)

***Begonia picta* Smith (Begoniaceae)**

Vern. Name: *Phang Phang*

Description: A perennial herb with thick rhizome or tuber.

Uses: Leaves and young shoots are used as vegetables. It is eaten cooked especially with crabs and fishes.

Specimen examined: KL-319, Shetap (22/09/2011)

***Bidens pilosa* Linn. (Asteraceae)**

Vern. Name: *Ajüng hangha*

Description: Much branched annual herb which grows upto 50-60 cm in height.

Uses: The young shoots and leaves are eaten cooked mostly with fishes, crabs and prawns

Specimen examined: KL-2314, Ngetchungching (22/07/2010)

***Brassica campestris* Linn. (Brassicaceae)**

Vern. Name: *Hao yong*

Description: A stout erect herb commonly available, often with a swollen tap-root.

Uses: Leaves boiled and taken as vegetable. It can be even dried and used in various dishes in place of dried bamboo shoots.

Specimen examined: KL-2430, Yachem (20/07/2010)

***Brassica napus* Linn. (Brassicaceae)**

Vern. Name: *Mora*

Description: An annual herb about 30 cm tall or more with long, usually thin taproot.

Uses: The leaves are used as vegetables and eaten cooked by simply boiling it in water with a little salt.

Specimen examined: KL-814, Yachem (28/07/2010)

***Celosia cristata* Linn. (Amaranthaceae)**

Vern. Name: *Choü hak*

Description: An erect, glabrous annual herb which grows about 40 cm high.

Uses: Young tender leaves are eaten cooked.

Specimen examined: KL-2381, Shetap (08/08/2009)

***Centella asiatica* Linn. (Apiaceae)**

Vern. Name: *Jelo alük*

Description: A prostrate perennial herb, rooting at nodes.

Uses: Eaten raw in salads and also eaten cooked.

Specimen examined: KL-181, Yangching (12/06/2010)

***Chenopodium album* Linn. (Chenopodiaceae)**

Vern. Name: *A-Phom*

Description: An erect herb usually coated with a mealy substance, stem and inflorescence sometimes tinged with purple or red.

Uses: Leaves and tender shoots eaten boiled mostly mixed with other vegetables.

Specimen examined: KL- 2451, Shetap (09/07/2009)

***Cinnamomum tamala* Nees.** (Lauraceae)

Vern. Name: *Kalep long*

Description: An evergreen, medium sized, aromatic tree with rough, dark brown, wrinkled bark.

Uses: The leaves are used as condiment in some dishes.

Specimen examined: KL-2447, Ngetchungching (23/07/2010)

***Clerodendrum bracteatum* Wall. ex Walp.** (Verbenaceae)

Vern. Name: *Kai nem*

Description: A perennial shrub with ash coloured bark and the leaves ovate, acuminate and entire.

Uses: Young shoots and leaves eaten cooked as boiled vegetable.

Specimen examined: KL-2383, Longleng town (20/07/2009)

***Clerodendrum colebrookianum* Walp.** (Verbenaceae)

Vern. Name: *Kai nem*

Description: A perennial shrub with a globose crown with broad-ovate leaves.

Uses: Leaves and shoots are eaten cooked as simple boiled vegetable with a little bamboo shoot or powdered fruit of *Rhus semialata*.

Specimen examined: KL-2383, Longleng town (20/07/2009)

***Colocasia esculenta* (Linn.) Schott.** (Araceae)

Vern. Name: *Shitsü*

Description: A rhizomatous herb with ovate, peltate leaves.

Uses: Leaves eaten cooked or even sun dried and cooked with other vegetables, fishes and pork.

Specimen examined: KL-200, Kangching (11/06/2010)

***Cordia dichotoma* Forster f. (Boraginaceae)**

Vern. Name: *Shamboa*

Description: A small to moderate-sized deciduous tree with a short bole and spreading crown.

Uses: Leaves are eaten cooked alone or mixed with other vegetables.

Specimen examined: KL-411, Hukpang (21/05/2011)

***Coriandrum sativum* Linn. (Apiaceae)**

Vern. Name: *Dunia*

Description: An annual aromatic herb with leaves compound, petiolated and subsessile.

Uses: The leaves are eaten raw or even cooked with other vegetables which adds aroma to the dishes.

Specimen examined: KL-2301, Tamlu (5/10/2011)

***Crassocephalum crepidioides* S. Moore (Asteraceae)**

Vern. Name: *Tenai*

Description: An erect annual slightly succulent herb growing up to 180 cm tall.

Uses: Young leaves are eaten raw in salad or cooked as simple boiled vegetable.

Specimen examined: KL-813, Tangha (09/07/2011)

***Curcuma angustifolia* Roxb. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: A small herb with small globose rhizome, tubers at the end of fibres.

Uses: Young leaves are eaten cooked by adding to the dish as a condiment.

Specimen examined: KL-200, Yaongyimchem (24/07/2010)

***Curcuma longa* Linn. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: A small herb with small globose rhizome, tubers at the end of fibres.

Uses: Young leaves are added to the dishes as a condiment.

Specimen examined: KL-407, Yaongyimchem (24/07/2010)

***Cucurbita ficifolia* Bouche (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: A climbing vine that is an annual in temperate climates and a perennial in tropical zones.

Uses: Young green leaves are eaten cooked alone or mixed with other vegetables. It is often cooked along with chilli and crab with a little bamboo shoot.

Specimen examined: KL-815, Pongching (17/08/2010)

***Dendrocalamus gigantean* Linn. (Poaceae)**

Vern. Name: *Müng*

Description: It is a tall bamboo with large culms.

Uses: The young tender shoots are eaten cooked as vegetables. It is also kept fermented which can be used for years. The shoots are sun dried which they call it as *Meishei* and use as a common ingredient in many local dishes.

Specimen examined: KL-3202, Tangha (09/07/2011)

***Diplazium esculentum* (Retz.) Sw. (Dryopteridaceae)**

Vern. Name: *Ajak*

Description: It is a vegetable fern grown mostly in moist to wet soil and it is found in abundant

Uses: Tender leaves are eaten cooked as vegetables. It is mostly cooked with fishes and crabs mostly during outdoor dinner in bamboo.

Specimen examined: KL-142, Longleng (20/07/2009)

***Drymaria cordata* (Linn.) Willd. (Caryophyllaceae)**

Vern. Name: *Pipi*

Description: A diffuse glabrous shrub, branching from the base.

Uses: Tender leaves are eaten cooked as vegetables.

Specimen examined: KL-142, Longleng (20/07/2009)

***Elsholtzia blanda* Benth. (Lamiaceae)**

Vern. Name: *Nyapa*

Description: It is a perennial, slender, puberulous undershrub.

Uses: The leaves are eaten cooked or raw. It is used as a condiment in local dishes. It can be use fresh or can be preserved after sun drying.

Specimen examined: KL-140, Pongo (08/08/2009)

***Elsholtzia communis* Colt. Et. Hemsl. (Lamiaceae)**

Vern. Name: *Lomba*

Description: An annual herb with tetragonous branches.

Uses: The plant is aromatic so the leaves are used as a condiment in fish and meat curries. It is also eaten raw or cooked with other vegetables.

Specimen examined: KL-3211, Yangching (12/06/2010)

***Eryngium foetidum* Linn. (Apiaceae)**

Vern. Name: *Moajü*

Description: An erect, aromatic, glabrous, diffuse, perennial herb.

Uses: The plant can be taken raw with chutneys and salads. It is also eaten cooked.

Specimen examined: KL-2453, Hukpang (21/05/2011)

***Ficus hispida* Linn. (Moraceae)**

Vern. Name: *Momo*

Description: A small tree or shrub with hollow branches and bark greenish grey and warty.

Uses: The young tender leaves are eaten cooked mostly cooked with pork and chicken.

Specimen examined: KL-148, BuraNamsang (29/05/2011)

***Hibiscus sabdariffa* Linn. (Malvaceae)**

Vern. Name: *Pü thiaok*

Description: It is an annual erect glabrous under shrub.

Uses: Leaves are eaten cooked. It can even be used after sun dry and cook along with fish and pork.

Specimen examined: KL- 801, Yachem (28/07/2010)

***Houttuynia cordata* Thunb. (Saururaceae)**

Vern. Name: *Tensü meli*

Description: A perennial herb with creeping rootstock.

Uses: Leaves eaten raw or cooked. It is also cooked along with other vegetables.

Specimen examined: KL-126, Yaongyimchen (24/07/2009)

***Ipomea batatas* (Linn.) Lam. (Convolvulaceae)**

Vern. Name: *Vütong shi*

Description: It is a prostrate perennial herbaceous vine.

Uses: Young tender leaves eaten cooked as simple boil vegetable.

Specimen examined: KL-822, Ponching (24/08/2010)

***Lactuca sativa* Linn. (Asteraceae)**

Vern. Name: *Pü shi*

Description: An annual or perennial garden plant having succulent leaves and it is widely grown.

Uses: It is mostly taken raw with chutney or use in salad.

Specimen examined: KL-802, Orangkong (02/08/2010)

***Lasia spinosa* (Linn.) Thw. (Araceae)**

Vern. Name: *Sham hüh*

Description: It is a prickly herb with branched rhizome.

Uses: The plant is a commonly used vegetable consumed after been cooked.

Specimen examined: KL-198, (Longleng 20/07/2009)

***Luffa acutangula* (Linn.) Roxb. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is an annual herbaceous climber.

Uses: Tender shoots and young leaves are eaten cooked, mostly boiled alone or mixed with other vegetables.

Specimen examined: KL-401, Hukpang (21/05/2010)

***Luffa cylindrical* (Linn.) M.J.Roem. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is a tropical annual herbaceous climber with broad leaves.

Uses: The tender shoots and young leaves are eaten cooked, mostly boil alone or mixed with other vegetables.

Specimen examined: KL-402, Hukpang (21/05/2010)

***Manihot esculenta* Crantz.** (Euphorbiaceae)

Vern. Name: *Pū -she*

Description: A sub-herbaceous shrub with large tuberous roots and milky juice.

Uses: The young tender leaves are eaten as vegetables mostly cooked.

Specimen examined: KL-2448, Yaongyimchen (13/04/2009)

***Mentha spicata* Linn.** (Lamiaceae)

Vern. Name: *Pudina*

Description: A strong aromatic perennial herb with runners.

Uses: The plant is generally used as spices and flavouring agent. It can be eaten raw or even cooked.

Specimen examined: KL-2460, Longleng (20/07/2009)

***Momordica charantia* Linn.** (Curcubitaceae)

Vern. Name: *Asha*

Description: An annual slender climber with palmately 5-8 lobed leaves

Uses: The leaves can be eaten fried or boiled along with other vegetables.

Specimen examined: KL-2321, Nian (17/05/2010)

***Murraya koenigii* (Linn.) Spreng.** (Rutaceae)

Vern. Name: *Curry leaves*

Description: A shrub attaining the height of a small tree with dark grey bark.

Uses: Leaves are added to the dish as condiments.

Specimen examined: KL-816, Nian (17/05/2010)

***Ocimum americanum* Linn.** (Lamiaceae)

Vern. Name: *Chionum*

Description: A much-branched erect pubescent aromatic undershrub.

Uses: Leaves are eaten raw in salad and also can be added to the dishes as condiments.

Specimen examined: KL-323, Tangha (16/04/2009)

***Ocimum basilicum* Linn.** (Lamiaceae)

Vern. Name: *Chionum*

Description: A slender aromatic herb, generally purple coloured.

Uses: Leaves are eaten raw in salads and also can be added to the dishes as condiments.

Specimen examined: KL-197, Tangha (16/04/2009)

***Oxalis corniculata* Linn.** (Oxalidaceae)

Vern. Name: *Meih-sü*

Description: A diffuse herb with procumbent branches.

Uses: leaves are either eaten raw in salad or can be eaten cooked as vegetable.

Specimen examined: KL-188, Yongya (09/05/2011)

***Passiflora edulis* Sims.** (Passifloraceae)

Vern. Name: *Aticheük*

Description: A perennial climber with 3 lobed, toothed, glabrous, serrate leaves.

Uses: Tender leaves are either eaten cooked or fried.

Specimen examined: KL-2384, Yangching (12/06/2010)

***Phaseolus vulgaris* Linn. (Fabaceae)**

Vern. Name: *Püve hao*

Description: It is an annual climbing herb

Uses: Tender young leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables.

Specimen examined: KL-818, Ponching (24/08/2010)

***Pisum sativum* Linn. (Fabaceae)**

Vern. Name: *Motor*

Description: It is an annual twinning shrub.

Uses: Tender young leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables.

Specimen examined: KL-819, Ponching (24/08/2010)

***Polygonum chinense* Linn. (Polygonaceae)**

Vern. Name: *Yongha mei mei*

Description: It is a perennial plant that grows to a height of 3 feet with a woody base.

Uses: Tender young leaves are used as vegetable especially because of its sour taste. It is used in many traditional dishes.

Specimen examined: KL-2417, Bura Namsang (09/07/2011)

***Raphanus sativus* Linn. (Brassicaceae)**

Vern. Name: *Tengha haoyang*

Description: It is an annual herb with swollen fleshy tuberous root.

Uses: Tender young leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables.

Specimen examined: KL-324, Longleng (28/07/2009)

***Rumex crispus* Linn. (Polygonaceae)**

Vern. Name: *Palak*

Description: It is a perennial herb.

Uses: Leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables. It is commonly cooked with chicken.

Specimen examined: KL-820, Longleng (08/08/2010)

***Sauropus androgynus* Linn. Merr. (Phyllanthaceae)**

Vern. Name: *Otu-anjo*

Description: It is a shrub with long upright trunk reaching upto 3.5 m in height.

Uses: Tender twig and young leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables.

Specimen examined: KL-2406, Yangching (12/06/2010)

***Sechium edule* Sw. (Cucurbitaceae)**

Vern. Name: *Squash*

Description: It is a climber with perennial rootstock.

Uses: Tender twig and young leaves are used as vegetable. It is eaten cooked as simple boil alone or mixed with other vegetables.

Specimen examined: KL-3212, Longleng (27/06/2011)

***Wedelia chinensis* (Osborn) Merr. (Asteraceae)**

Vern. Name: *Anyü lak hao*

Description: A straggling herb upto 1 m high, rooting at lower nodes.

Uses: Leaf eaten cooked or raw in chutney and it is also use in salad.

Specimen examined: KL-2457, Yangching (12/06/2010)

***Zanthoxylum acanthopodium* DC. (Rutaceae)**

Vern. Name: *Hang jük*

Description: A small aromatic tree upto 8m high and the prickles are straight.

Uses: Leaf eaten cooked along and even cooked mixed with other vegetables. It can be stored dried.

Specimen examined: KL-817, Ponching (24/08/2010)

***Zanthoxylum armatum* DC. (Rutaceae)**

Vern. Name: *Hang jük*

Description: A small aromatic tree upto 8m high and the prickles are straight.

Uses: Leaf eaten cooked along and even cooked mixed with other vegetables. It can be stored dried.

Specimen examined: KL-2325, Ponching (24/08/2010)

***Zanthoxylum rhetsa* (Roxb.) DC. (Rutaceae)**

Vern. Name: *Hang jük*

Description: A deciduous tree upto 35m tall, with spreading crown, branchlets with prickles and hollow.

Uses: Leaf eaten cooked along and even cooked mixed with other vegetables. It can be stored dried.

Specimen examined: KL-2390, Ponching (24/08/2010)

***Zingiberaceae officinale* Rosc. (Zingiberaceae)**

Vern. Name: *Hung lak*

Description: Rhizomatous herb with erect leafy, reddish stem.

Uses: The leaf adds aroma to the dishes, it is eaten cooked.

Specimen examined: KL-186, Yachem (05/07/2009)

4.4.2. Fruits used as vegetable



Plate 15: Tender shoots and leaves taken as vegetable

- | | |
|--|--|
| A. <i>Clerodendrum colebrookianum</i> Walp. | B. <i>Amaranthus spinosus</i> Linn. |
| C. Dried leaves of <i>Hibiscus sabdariffa</i> Linn. | D. <i>Sauropus androgynus</i> (Linn.) Merr. |
| E. <i>Phaseolus vulgaris</i> Linn. | F. <i>Begonia picta</i> Linn. |

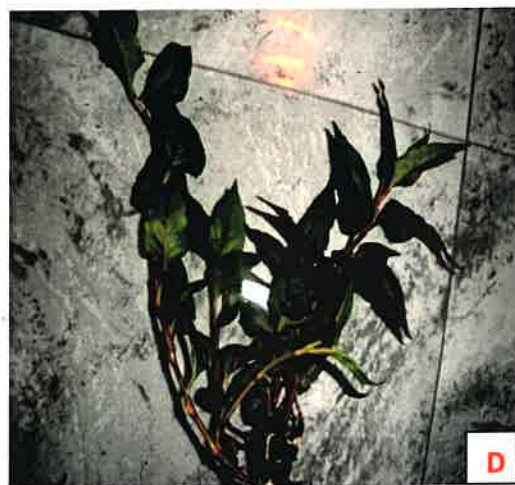


Plate 16: Tender shoots and leaves taken as vegetable

A. *Diplazium esculentum* (Retz.) Sw.

C. *Zanthoxylum armatum* DC.

E. *Centella asiatica* Linn.

B. Dried Bamboo shoot

D. *Polygonum chinense* Linn.

F. Leaves of *Brassica campestris* Linn.

***Abelmoschus esculentus* (Linn.) Moench. (Malvaceae)**

Vern. Name: *Vehao*

Description: It is a variable annual, erect and stout stemmed herb growing upto 2 m high.

Uses: The fruit is eaten cooked either boiled or fried.

Specimen examined: KL-325, Longleng (20/07/2009)

***Alpinia galangal* (Linn.) Willd. (Zingiberaceae)**

Vern. Name: *Shomlou*

Description: The plant grows from rhizomes in clumps of stiff stalks up to 2 m in height with abundant long leaves which bears red fruits.

Uses: The fruits are used in dishes because of its strong flavour.

Specimen examined: KL-2485, Kangching (22/08/2011)

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Vern. Name: *Polong*

Description: Large evergreen tree with stiff hairs on young shoots with dark-grey to blackish brown bark.

Uses: The young fruit eaten cooked either boiled or fried.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Benincasa hispida* Cogn. (Cucurbitaceae)**

Vern. Name: *Yaü*

Description: It is an annual large trailing climber growing upto 6m.

Uses: The fruit is eaten cooked mostly boiled alone as simple boiled vegetable. It is also commonly cooked with beef or pork with a little bamboo shoot.

Specimen examined: KL-3213, Longleng (08/08/2010)

***Cajanus cajan* (Linn.) Mill. (Fabaceae)**

Vern. Name: *Maha Jang*

Description: An erect undershrub which grows upto 1.5-2m high.

Uses: The young fruits are either eaten raw with chutneys or simple boiled as vegetables.

Specimen examined: KL-125, Shetap (07/09/2009)

***Canavalia ensiformis* (Linn.) DC. (Fabaceae)**

Vern. Name: *Pūli hao*

Description: It is a twining runner which grows upto 1 metre in height. It has deep roots, which makes it drought resistant.

Uses: The immature fruit is eaten cooked alone or mixed with other vegetable as simple boiled food.

Specimen examined: KL-3214, Longleng (08/08/2010)

***Capsicum annum* Linn. (Solanaceae)**

Vern. Name: *Haül*

Description: An annual herb with ovate, acuminate leaves.

Uses: The fruit is eaten cooked, sometimes raw and even pickled. It is mostly used in the preparation of chutney. It can be stored after sun drying.

Specimen examined: KL-2444, Pongching (24/08/2010)

***Capsicum chinensis* Jacq. (Solanaceae)**

Vern. Name: *Haül*

Description: A small annual to biennial herb.

Uses: It is commonly use as spices and can be even pickled. It is widely use in almost all the dishes, especially to make chutneys. It can be stored after sun dry.

Specimen examined: KL-2445, Pongching (24/08/2010)

***Capsicum frutescens* Linn. (Solanaceae)**

Vern. Name: *Haül*

Description: An annual herb with ovate-lanceolate leaves.

Uses: The fruit is widely use in chutney, as spices and can be even pickled. It is also eaten raw.

Specimen examined: KL-2446, Pongching (24/08/2010)

***Cucurbita maxima* Duch. (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: It is a large climbing annual herb.

Uses: The fruits are eaten cooked as simple boiled vegetable. It is even cooked with pork and chicken.

Specimen examined: KL-2301, Tamlu (5/10/2011)

***Curcuma pepo* Linn. (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: It is a large climbing annual herb which has yellow blossoms that blooms from July to August.

Uses: The fruits are eaten cooked as simple boiled vegetable. It is even cooked with pork and chicken.

Specimen examined: KL-2487, Tamlu (5/10/2011)

***Cyphomandra betacea* Cav. (Solanaceae)**

Vern. Name: *Pento*

Description: It is an evergreen tree growing upto 5 m at a fast rate.

Uses: The ripe fruit is eaten roasted in chutneys or cooked mixed with other vegetables.

Specimen examined: KL-824, Sakchi (15/09/2011)

***Glycine max* (Linn.) Merr. (Leguminosae)**

Vern. Name: *Holongie*

Description: It is a sub-erect, stout annual herb.

Uses: Immature fruits are eaten raw with chutneys or can be even eaten cooked.

Specimen examined: KL-803, Longleng (27/06/2011)

***Hibiscus sabdariffa* Linn. (Malvaceae)**

Vern. Name: *Pü thiaok*

Description: It is an annual erect glabrous under shrub.

Uses: Fruits eaten cooked and even used as a substitute for bamboo shoot because of its sour taste. It is also preserved for future use after sun drying.

Specimen examined: KL- 801, Yachem (28/07/2010)

***Hodgsonia macrocarpa* (Bl.) Cogn. (Cucurbitaceae)**

Vern. Name: *Bai*

Description: A perennial herb with creeping rootstock.

Uses: Fruit is eaten raw or can be roasted to make chutney with dry fish.

Specimen examined: KL-2459, Yaongyimchen (24/07/2009)

***Lagenaria siceraria* Mol. (Cucurbitaceae)**

Vern. Name: *Yao*

Description: It is a vigorous, annual, running or climbing vine with large leaves and a lush appearance.

Uses: Fruits are eaten cooked alone or can be cooked with pork or beef.

Specimen examined: KL-714, Pongching (24/08/2010)

***Litsea citrate* Blume.** (Lauraceae)

Vern. Name: *Lüh bü*

Description: It is an evergreen tree or shrub of 5-12 m high.

Uses: The fruit is eaten cooked with chutney.

Specimen examined: KL-2413, Bura Namsang (09/07/2011)

***Luffa acutangula* (Linn.) Roxb.** (Cucurbitaceae)

Vern. Name: *Maoh-ha*

Description: It is an annual herbaceous climber.

Uses: The fruit is eaten cooked. It can be boiled as simple vegetable or fried.

Specimen examined: KL-401, Hukpang (21/05/2010)

***Luffa cylindrical* (Linn.) M.J.Roem.** (Cucurbitaceae)

Vern. Name: *Maoh-ha*

Description: It is a tropical annual herbaceous climber with broad leaves.

Uses: It is eaten cooked, mostly boiled alone or mixed with other vegetables.

Specimen examined: KL-402, Hukpang (21/05/2010)

***Lycopericon lycopericum* (Linn.) Karsten** (Solanaceae)

Vern. Name: *Kilok*

Description: It is a pubescent herb with irregularly pinnate, serrate leaves.

Uses: Fruit eaten cooked or raw. It is widely used in local dishes and also used to make chutneys.

Specimen examined: KL-804, Pongching (17/08/2010)

***Momordica dioica* Roxb. (Cucurbitaceae)**

Vern. Name: *Asha*

Description: It is a perennial climbing creeper having tuberous root and slender stem.

Uses: Fruits are cooked with spices, sometimes it is eaten with fish and meat.

Specimen examined: KL-3215, Longleng (27/06/2011)

***Momordica charantia* Linn. (Cucurbitaceae)**

Vern. Name: *Asha*

Description: An annual climber with 5-angled stem.

Uses: Fruit is eaten cooked or can be even pickled. It is also eaten fried with lot of spices.

Specimen examined: KL-2321, Yongya (13/07/2010)

***Mucuna prurita* Hook. (Fabaceae)**

Vern. Name: *Shitok*

Description: A slender hairy climber with alternate leaves.

Uses: Fruits are eaten cooked with traditional dishes and also cooked along with pork and beef.

Specimen examined: KL-320, Pongching (17/08/2010)

***Parkia timoriana* (A. DC.) Merr. (Mimosaceae)**

Vern. Name: *Yangchak*

Description: A middle sized tree with spreading branches with light grey bark.

Uses: Fruits are mostly taken raw with chutney after peeling off the outer ectoderm. It can be even eaten cooked or pickled.

Specimen examined: KL-2450, Yachem (28/07/2010)

***Phaseolus acutifolius* A. Gray (Fabaceae)**

Vern. Name: *Leplang*

Description: An annual, climbing, trailing or erect plant with stem upto 4m.

Uses: Immature fruits are eaten cooked as simple boiled vegetable.

Specimen examined: KL-313, Pongching (17/08/2010)

***Phaseolus lunatus* Linn. (Fabaceae)**

Vern. Name: *Vehao*

Description: It is mostly an annual and have erect bush forms and twining and grows upto 1 m.

Uses: Immature fruits are eaten cooked.

Specimen examined: KL-403, Pongching (17/08/2010)

***Phaseolus vulgaris* Linn. (Fabaceae)**

Vern. Name: *Püve hao*

Description: It is an annual climbing herb.

Uses: Fruits are eaten cooked as simple boiled vegetables alone or mixed with other vegetables. It is used to make pickles.

Specimen examined: KL-818, Ponching (24/08/2010)

***Piper nigrum* Linn. (Piperaceae)**

Vern. Name: *Omdong hang*

Description: A stout glabrous shrub, climbing, rooting at the nodes.

Uses: The dried fruits are use in chutneys after roasting and also in pork and fishes.

Specimen examined: KL-701, Ngetchungching (23/07/2010)

***Pisum sativum* Linn. (Leguminosae)**

Vern. Name: *Püve-hao*

Description: It is a herbaceous, annual plant with a life cycle of 1 year.

Uses: Immature fruit is mostly eaten boiled as simple vegetable along or mixed with other vegetables.

Specimen examined: KL-702, Ngetchungching (23/07/2010)

***Psophocarpus tetragonolobus* DC. (Fabaceae)**

Vern. Name: *Long long*

Description: It is an annual twining herb with large tuberous root.

Uses: The fruit is eaten raw in salad and with chutney. It can even be pickled and also eaten boiled mixed with other vegetables.

Specimen examined: KL-404, Pongching (24/08/2010)

***Rhus semialata* Murr. (Anacardiaceae)**

Vern. Name: *Majük*

Description: A small deciduous tree about 3 m high, bark is ash-grey and warty.

Uses: Powdered seeds eaten raw or cooked along with pork and fishes. It is used as a substitute to bamboo shoot.

Specimen examined: KL-2387, Orangkong (02/08/2010)

***Sechium edule* Sw. (Cucurbitaceae)**

Vern. Name: *Squash*

Description: It is a climber with perennial rootstock.

Uses: It is widely available and widely used. It can be eaten cooked alone or mixed with other vegetables.

Specimen examined: KL-3212, Longleng (27/06/2011)

***Solanum gilo* Raddi. (Solanaceae)**

Vern. Name: *Sham sha*

Description: An erect herbaceous plant which is commonly cultivated for its fruit which is used as vegetable.

Uses: The fruit is normally cooked as vegetable but it is pickled or cooked when it is green.

Specimen examined: KL-326, Ngetchungching (23/07/2010)

***Solanum indicum* Linn. (Solanaceae)**

Vern. Name: *Sham sha ha*

Description: A prickly undershrub, upto 1.5m high. The leaves are large, ovate, lobed and sparsely prickly.

Uses: The fruit can be pickled, dried or can eat cooked.

Specimen examined: KL-129, Sakchi (05/09/2011)

***Solanum melongena* Linn. (Solanaceae)**

Vern. Name: *Pento*

Description: It is a delicate tropical perennial or half-hardy annual in temperate climates which grows upto 40-150 cm tall.

Uses: Fruits are eaten cooked as simple boiled or eaten cooked with chutney.

Specimen examined: KL-405, Pongching (24/08/2010)

***Solanum nigrum* Linn. (Solanaceae)**

Vern. Name: *Sham sha*

Description: An annual herb with angled stem.

Uses: It can be eaten raw with chutney, cooked with other vegetables and can be pickled as well.

Specimen examined: KL-806, Shetap (07/09/2009)

***Solanum torvum* Sw. (Solanaceae)**

Vern. Name: *Phaü shamshah*

Description: An erect tomentose shrub with ovate, serrate or lobed leaves.

Uses : Fruits are eaten cooked mostly with chutney of fermented dry fish.

Specimen examined: KL-2372, BuraNamsang (09/07/2011)

***Solanum viarum* Dunal. (Solanaceae)**

Vern. Name: *Sham sha shaha*

Description: A stout undershrub about 1 m high.

Uses: Mostly eaten cooked but can be stored after sun drying using salt as the preservative. It is even pickled.

Specimen examined: KL-807, Yachem (19/03/2011)

***Vigna unguiculata* (Linn.) Walp. (Fabaceae)**

Vern. Name: *Longpang longi*

Description: It is a vigorous climbing annual herb or occasionally subshrub.

Uses: Fruits eaten cooked either as simple boiled or fried. Local people mostly prefer it eating raw with dry fish chutney.

Specimen examined: KL-406, Yangching (12/06/2010)

***Zanthoxylum acanthopodium* DC. (Rutaceae)**



Plate 17: Fruits used as vegetable

A. *Cucurbita maxima* Duch.

C. *Lycopersicon lycopersicum* (Linn.) Karsten

E. *Cyphomandra betacea* Cav.

B. *Solanum indicum* Linn.

D. *Solanum melongena* Linn.

F. *Psophocarpus tetragonolobus* DC.



A



B



C



D



E



F

Plate 18: Fruits used as vegetable

A. *Capsicum annum* Linn.

C. *Momordica dioica* Roxb.

E. *Mucuna pruri* Hook.

B. *Solanum gilo* Raddi.

D. *Sechium edule* Sw.

F. *Cajanus cajan* (Linn.) Mill.

Vern. Name: *Hang jük*

Description: A small aromatic tree upto 8m high and the prickles are straight.

Uses: Fruit used as condiments in local dishes. It is roasted to make chutneys and also widely used in pork and fishes.

Specimen examined: KL-817, Ponching (24/08/2010)

4.4.3. Tubers, bulb, corms and rhizomes used as vegetables

Allium cepa Linn. (Liliaceae)

Vern. Name: *Lothi*

Description: A bulbous herb with numerous roots at the base of the bulb.

Uses: The bulb is taken raw or can be used in salads and even add as spices in various local dishes. It can be pickled as well.

Specimen examined: KL-106, Shetap (22/09/2011)

Allium chinense G.Don. (Liliaceae)

Vern. Name: *Koang lothi*

Description: An annual bulbous herb with narrowly linear, basal leaves. **Uses:** The bulb is used in chutneys and salads. It can be pickled and even used as spices.

Specimen examined: KL-107, Yaongyimchen (24/07/2009)

Allium hookeri Thw. (Liliaceae)

Vern. Name: *Tongpa*

Description: An annual bulbous slender herb with linear leaves.

Uses: The fibrous roots along with leaves are widely used raw in chutneys, in pork and in boiled vegetables.

Specimen examined: KL-108, Orangkong (02/08/2010)

***Allium sativum* Linn. (Liliaceae)**

Vern. Name: *Shüh mai*

Description: It is a glabrous, bilbous herb which grows to about 30 cm. **Uses:** Bulb is widely used in chutneys, various dishes and in pickles.

Specimen examined: KL-2435, Tamlu (07/09/2009)

***Alocasia macrorrhiza* (Linn.) G.Don. (Araceae)**

Vern. Name: *Avilavo nü*

Description: A perennial herb upto 1m high with cylindric, long, stout rhizome.

Uses: The underground corm is eaten cooked, mostly boiled.

Specimen examined: KL- 164, Yongya (13/07/2011)

***Alpinia galangal* (Linn.) Willd. (Zingiberaceae)**

Vern. Name: *Shomlou*

Description: The plant grows from rhizomes in clumps of stiff stalks up to 2 m in height with abundant long leaves which bears red fruits.

Uses: The rhizome has sweet taste and has strong flavour. So it is use as a common ingredient in their curries and soups, where it is use fresh which is cut into thin slices, mashed and mixed into the curry paste.

Specimen examined: KL-2485, Kangching (22/08/2011)

***Colocasia esculenta* (Linn.) Schott (Araceae)**

Vern. Name: *Shitsü nü*

Description: It is a tuberous stout rhizomatous herb.

Uses: The underground corm is eaten cooked, mostly boiled with dry fish. It is widely cultivated.

Specimen examined: KL-200, Kangching (11/06/2011)

***Curcuma angustifolia* Roxb. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: Small herb with small globose rhizome, tubers at the end of fibres.

Uses: The powdered rhizome is used as spices.

Specimen examined: KL-200, Tangha (16/04/2009)

***Curcuma caesia* Roxb. (Zingiberaceae)**

Vern. Name: *Ohaü hung*

Description: Rhizomatous perennial herb.

Uses: The underground rhizome is used as spices in dishes. It is rarely available.

Specimen examined: KL-2304, Yongshei (14/07/2010)

***Curcuma longa* Linn. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: Root-stock perennial, tubers bright yellow inside.

Uses: The powdered rhizome is used as spices.

Specimen examined: KL-407, Nian (17/05/2010)

***Daucus carota* Linn. (Apiaceae)**

Vern. Name: *Hoyang tüng*

Description: A biennial plant which usually grows upto 1m tall and flowering from June to August.

Uses: The root is taken raw in salad, cooked, and can be pickled as well.

Specimen examined: KL-809, Yachem (20/07/2010)

***Dioscorea alata* Linn.** (Dioscoreaceae)

Vern. Name: *She*

Description: A tuberous, twining herb with winged stem.

Uses: Sweet tubers are eaten cooked.

Specimen examined: KL-808, Yongshei (14/07/2010)

***Elettaria cardamomum* Mat.** (Zingiberaceae)

Vern. Name: *Shushe*

Description: A herbaceous perennial with subterranean branched rootstock.

Uses: The seeds are widely used spices in preparation of different food item.

Specimen examined: KL-2380, Tamlu (09/09/2011)

***Houttuynia cordata* Thunb.** (Saururaceae)

Vern. Name: *Tensü meli*

Description: A perennial herb with creeping rootstock.

Uses: The aromatic root mostly taken raw in vegetable salad and chutneys.

Specimen examined: KL-126, Yaongyimchen (24/07/2009)

***Ipomoea batata* (Linn.) Lamk.** (Convolvulaceae)

Vern. Name: *Vütong shi*

Description: Annual trailing on ground with milky juice.

Uses: The swollen sweet tubers are eaten cooked. It is mostly steamed with a little salt added to it.

Specimen examined: KL-408, Yongam (19/05/2010)

***Manihot esculenta* Crantz. (Euphorbiaceae)**

Vern. Name: *Pü -she*

Description: A sub-herbaceous shrub with large tuberous roots and milky juice.

Uses: The underground root of the plant is eaten cooked. It can be powdered and even dried after slicing it.

Specimen examined: KL-2448, Kangching (11/06/2010)

***Raphanus sativus* Linn. (Brassicaceae)**

Vern. Name: *Tengha haoyang*

Description: It is an annual herb with swollen fleshy tuberous root.

Uses: The fleshy tuberous root is eaten raw in salad or can be eaten cooked.

Specimen examined: KL-324, Longleng (28/07/2009)

***Solanum tuberosum* Linn. (Solanaceae)**

Vern. Name: *Alo*

Description: An erect, perennial, aromatic herb upto 1m tall, with tuber bearing underground stolons.

Uses: Tuber of this plant can make multiple dishes. It is eaten cooked.

Specimen examined: KL-703, Pongo (08/08/2009)

***Zingiberaceae cassumunar* Roxb. (Zingiberaceae)**

Vern. Name: *Ching mambo*

Description: It is an aromatic rhizomatous herb.

Uses: The aromatic rhizome is used as spices.

Specimen examined: KL-707, Pongching (24/08/2010)

***Zingiberaceae officinale* Rosc. (Zingiberaceae)**

Vern. Name: *Hung lak*

Description: Rhizomatous herb with erect leafy, reddish stem.

Uses: The aromatic rhizomes are used in salads, can be pickled and even used as spices in various local dishes.

Specimen examined: KL-186, Yachem (05/07/2009)

4.4.4. Edible stem

Calamus erectus Roxb. (Arecaceae)

Vern. Name: *Vai-nyü jük*

Description: Stems clustered, non-climbing, free standing or sometimes leaning plant.

Uses: The soft tender stem inside is eaten cooked as simple vegetable mostly cooked mixed with other vegetable.

Specimen examined: KL-302, Ngetchungching (23/07/2010)

Caryota urens Linn. (Arecaceae)

Vern. Name: *Phom-lok*

Description: Tall unarmed palms, covered with long shallow cracks with corky edges.

Uses: The stem after removing the outer layer is dried then grounded into fine flour to make biscuits.

Specimen examined: KL-710, BuraNamsang (29/05/2011)

Cinnamomum zeylanicum Blume (Lauraceae)

Vern. Name: *Yang bü sho*

Description: A moderate sized tree of about 15 m height with reddish brown bark.

Uses: The stem bark is used as spices and condiments in various dishes.

Specimen examined: KL-2378, Hukpang (21/05/2011)

***Colocasia esculenta* (Linn.) Schott (Araceae)**

Vern. Name: *Shitsü nü*

Description: A rhizomatous herb.

Uses: Stem eaten cooked and also sun dried which is known as Okshü-van and cook along with fish and pork.

Specimen examined: KL-200, Kangching (11/06/2010)

***Lasia spinosa* (Linn.) Thw. (Araceae)**

Vern. Name: *Sham-hüh*

Description: It is a prickly herb with branched rhizome.

Uses: The stem of the plant along with leaves are eaten cooked as simple boil mixed with other vegetables along with dry fish, chilli and bamboo shoot.

Specimen examined: KL-198, Longleng (20/07/2009)

***Musa paradisiaca* Linn. (Musaceae)**

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Uses: The inner core of the tender stem is most commonly eaten which can be cooked along with other vegetables and even with pork and fishes. It is also cooked with ferns, bamboo shoots and chillies.

Specimen examined: KL-185, Yangching (12/06/2010)

***Saccharum officinarum* Linn. (Poaceae)**

Vern. Name: *Nga*

Description: Culms 2-6 m tall, erect, waxy below the nodes.

Uses : Juice of culm is chewed for its sweet juice.



Plate 19: Rhizome and tubers used as vegetable

- A.** *Colocasia esculenta* (Linn.) Schott.
C. *Allium chinense* G.Don.
E. *Manihot esculenta* Crantz.

- B.** *Zingiber officinale* Roxb.
D. *Zingiberaceae cassumunar* Roxb.
F. *Curcuma longa* Linn.



Plate 20: Edible stem

A. *Saccharum officinarum* Linn.

C. *Musa paradisiacal* Linn.

E. *Caryota urens* Linn.

B. *Colocasia esculenta* (Linn.) Schott.

D. *Lasia spinosa* (Linn.) Thw.

F. Dried stem of *Colocasia esculenta*

Specimen examined: KL-2455, Yachem (05/07/2009)

4.4.5. Inflorescences/flowers/buds used as vegetables

***Allium chinense* G.Don.** (Liliaceae)

Vern. Name: *Koang Lothi*

Description: An annual bulbous herb with narrowly linear, basal leaves.

Uses: The inflorescence eaten cooked which adds taste and flavour to the dishes.

Specimen examined: KL-107, Yachem (24/07/2009)

***Allium hookerii* Thw.** (Liliaceae)

Vern. Name: *Tongpa*

Description: An annual bulbous slender herb with linear leaves.

Uses: The inflorescence is use in dishes which add flavour and taste.

Specimen examined: KL-180, Yachem (05/07/2009)

***Amaranthus spinosus* Linn.** (Amaranthaceae)

Vern. Name: *Ak alo*

Description: A much branched, erect, spinous annual herb which grows upto 50 cm tall.

Uses: The inflorescence along with young shoots and leaves are eaten cooked as vegetables.

Specimen examined: KL-165, Sakchi (15/09/2011)

***Amaranthus viridis* Linn.** (Amaranthaceae)

Vern. Name: *Apong yangba*

Description: An erect stout herb, some varieties green or bright pink.

Uses: The inflorescence along with young shoots and leaves are eaten cooked as vegetables.

Specimen examined: KL-2315, Sakchi (15/09/2011)

***Brassica campestris* Linn. (Brassicaceae)**

Vern. Name: *Hao yong*

Description: A stout erect herb commonly available, often with a swollen tap-root.

Uses: The inflorescence with the tender shoot and leaves are eaten cooked as simple boiled vegetables.

Specimen examined: KL-2430, Yachem (20/07/2010)

***Brassica napus* Linn. (Brassicaceae)**

Vern. Name: *Mora*

Description: An annual herb about 30 cm tall or more with long, usually thin taproot.

Uses: The inflorescence with the tender shoot and leaves are eaten cooked as simple boiled vegetables.

Specimen examined: KL-814, Yachem (28/07/2010)

***Brassica oleracea* Linn. (Brassicaceae)**

Vern. Name: *Kobi*

Description: It is a leafy green biennial plant, grown as an annual vegetable crop which grows upto 1.2 m.

Uses: It is taken raw in salad or even eaten boiled alone or mixed with other vegetables.

Specimen examined: KL-2443, Tangha (09/07/2011)

***Cajanus cajan* (Linn.) Mill. (Fabaceae)**

Vern. Name: *Maha jang*

Description: An erect undershrub which grows upto 1.5-2m high.

Uses: Young flowers are eaten cooked mixed with other vegetables.

Specimen examined: KL-125, Shetap (07/09/2009)

***Centella asiatica* (Linn.) Urb. (Apiaceae)**

Vern. Name: *Jelok alük*

Description: A prostrate perennial herb, rooting at nodes.

Uses: The buds and flowers along with leaves are eaten raw in salads or eaten cooked mixed with other vegetables.

Specimen examined: KL-181, Yangching (12/06/2010)

***Chenopodium album* Linn. (Chenopodiaceae)**

Vern. Name: *A-Phom*

Description: An erect herb usually coated with a mealy substance, stem and inflorescence sometimes tinged with purple or red.

Uses: Flowers along with the young tender leaves are eaten cooked as vegetable.

Specimen examined: KL- 2451, Shetap (09/07/2009)

***Clerodendrum bracteatum* Wall. ex Walp. (Verbenaceae)**

Vern. Name: *Kai nem*

Description: A perennial shrub with ash coloured bark and the leaves ovate, acuminate and entire.

Uses: Flowers with young shoots and leaves are eaten cooked as boiled vegetable.

Specimen examined: KL-2383, Longleng town (20/07/2009)

***Clerodendrum colebrookianum* Walp. (Verbenaceae)**

Vern. Name: *Kai nem*

Description: A perennial shrub with a globose crown with broad-ovate leaves.

Uses: Flowers with young shoots and leaves are eaten cooked as boiled vegetable.

Specimen examined: KL-2383, Longleng town (20/07/2009)

***Coriandrum sativum* Linn. (Apiaceae)**

Vern. Name: *Dunia*

Description: An annual aromatic herb.

Uses: The aromatic flowers along with leaves are eaten raw in salad and can be even eaten cooked along with other vegetables.

Specimen examined: KL-2301, Tamlu (5/10/2011)

***Crotalaria pallida* Ait. (Fabaceae)**

Vern. Name: *Yangliong*

Description: Undershrub with slender sulcate branches which grows upto 1m high.

Uses: Flowers eaten cooked mixed with other vegetables.

Specimen examined: KL-2309, Ngetchungching (22/07/2010)

***Curcuma pepo* Linn. . (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: It is a large climbing annual herb which has yellow blossoms that blooms from July to August.

Uses: The blossoms are excellent in soups and stews. It is also boiled mixed with other vegetables.

Specimen examined: KL-2487, Tamlu (5/10/2011)

***Curcuma angustifolia* Roxb. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: Small herb with small globose rhizome, tubers at the end of fibres.

Uses: The flowers are eaten cooked mixed with other vegetables which add taste and aroma to the dish.

Specimen examined: KL-2308, Tangha (16/04/2009)

***Elsholtzia blanda* Benth. (Lamiaceae)**

Vern. Name: *Nyapa*

Description: Perennial, slender, puberulous undershrub.

Uses: Flowers are used as a condiment in various dishes. It can be preserved after sun drying.

Specimen examined: KL-140, Pongo (08/08/2009)

***Elsholtzia communis* Colt. et. Hemsl. (Lamiaceae)**

Vern. Name: *Lomba*

Description: An annual herb with tetragonous branches.

Uses: The plant is aromatic and so the flowers are used as condiments. It can be preserved after sun drying.

Specimen examined: KL-3211, Yangching (12/06/2010)

***Eryngium foetidum* Linn. (Apiaceae)**

Vern. Name: *Moajü*

Description: An erect, aromatic, glabrous, diffuse, perennial herb.

Uses: The plant is aromatic and so the inflorescences are used as condiments in various dishes.

Specimen examined: KL-2453, Hukpang (21/05/2011)

***Luffa acutangula* (Linn.) Roxb. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is an annual herbaceous climber.

Uses: The flower is eaten cooked.

Specimen examined: KL-401, Hukpang (21/05/2010)

***Luffa cylindrical* (Linn.) M.J.Roem. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is a tropical annual herbaceous climber with broad

Uses: The flower is eaten cooked, mostly boiled.

Specimen examined: KL-402, Hukpang (21/05/2010)

***Momordica charantia* Linn. (Cucurbitaceae)**

Vern. Name: *Asha*

Description: An annual slender climber with palmately 5-8 lobed leaves.

Usage: Flowers and buds are eaten cooked as simple boil mixed with other vegetables.

Specimen examined: KL-2321, Nian (17/05/2010)

***Musa paradisiaca* Linn. (Musaceae)**

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Uses: Inflorescence of the plant is eaten cooked mixed with other vegetables, with dry fish and chilli and it can be also added to the chutney.

Specimen examined: KL-185, Yangching (12/06/2010)

***Ocimum americanum* Linn. (Lamiaceae)**

Vern. Name: *Chionum*



Plate 21: Inflorescences, flowers and buds used as vegetables

A. *Curcuma angustifolia* Roxb.

C. *Cucurbita pepo* Linn.

E. *Brassica campestris* Linn.

B. *Hibiscus sabdariffa* Linn.

D. *Elsholtzia communis* Colt. et. Hemsl.

F. *Clerodendrum cordatum* D. Don.

Description: A much- branched erect pubescent aromatic undershrub.

Uses: As the plant is very aromatic in nature, its inflorescence is used as a condiment in various dishes.

Specimen examined: KL-323, Tangha (16/04/2009)

***Ocimum basilicum* Linn. (Lamiaceae)**

Vern. Name: *Chionum*

Description: A slender aromatic herb, generally purple coloured.

Uses: The plant is very aromatic in nature so its inflorescence is used as a condiment in various dishes.

Specimen examined: KL-197, Tangha (16/04/2009)

***Wedelia chinensis* (Osborne) Merr. (Asteraceae)**

Vern. Name: *Anyü lak hao*

Description: A straggling herb upto 1 m high, rooting at lower nodes.

Uses: The flowers are eaten as vegetables mostly boiled mixed with other vegetables.

Specimen examined: KL-2457, Yangching (12/06/2010)

***Zingiber officinale* Roscoe (Zingiberaceae)**

Vern. Name: *Cheng*

Description: Rhizomatous herb with erect leafy, reddish stem.

Uses: Immature flowers are used as condiment in various dishes because of its strong flavour.

Specimen examined: KL-186, Yachem (05/07/2009)

4.4.6. Plant used as spices and flavouring agent

***Allium cepa* Linn. (Liliaceae)**

Vern. Name: *Lothi*

Description: A bulbous herb with numerous roots at the base of the bulb.

Part(s) used: Leaves & bulb

Uses: The leaves and bulb are eaten cooked or raw and used as a flavouring agent in many dishes.

Specimen examined: KL-106, Shetap (07/09/2009)

***Allium chinensis* G.Don. (Liliaceae)**

Vern. Name: *Koang lothi*

Description: An annual bulbous herb with narrowly linear, basal leaves. **Part(s) used:** Leaves & bulb

Uses: It can be eaten raw or cooked.

Specimen examined: KL-107, YaongYimchen (24/07/2009)

***Allium hookerii* Thw. (Liliaceae)**

Vern. Name: *Tongpa*

Description: An annual bulbous slender herb with linear leaves.

Part(s) used: Leaves & bulb

Uses: It can be eaten raw in salad or cooked with other vegetables and it adds strong flavour to the dish.

Specimen examined: KL-108, Yaongyimchen (24/07/2009)

***Allium sativum* Linn. (Liliaceae)**

Vern. Name: *Shüh mai*

Description: It is a glabrous, bilbous herb which grows to about 30 cm.

Part(s) used: Leaves & bulb

Uses: Leaves and bulb are widely used as spices by the local people.

Specimen examined: KL-2435, Ngetchungching (22/07/2009)

***Allium tuberosum* Rottl. ex Spreng. (Liliaceae)**

Vern. Name: *Lothi*

Description: A scapigerous herb with fleshy root fibres.

Part(s) used: Leaves & bulb

Uses: The plant is aromatic and mostly added to the dishes after making a paste.

Specimen examined: KL-109, Tangha (17/04/2009)

***Amomum subulatum* Roxb. (Zingiberaceae)**

Vern. Name: *Sepsai*

Description: A tall herb with leafy stem.

Part(s) used: Fruit

Uses: The fruit is added especially in fried food item along with other spices. It is mostly used in making chutney.

Specimen examined: KL-704, Bhumnyu (09/09/2010)

***Apium graveolens* Linn. (Apiaceae)**

Vern. Name: *Tania*

Description: An aromatic biennial herb which grows upto 1 m tall.

Part(s) used: Leaves

Uses: Leaves are widely used spices in many local dishes because of its strong aroma.

Specimen examined: KL-705, Longleng (20/07/2009)

***Brassica campestris* Linn. (Brassicaceae)**

Vern. Name: *Hoa yong*

Description: A stout erect herb commonly available, often with a swollen tap-root.

Part(s) used: Seeds

Uses: The powdered seeds are used as spices in various dishes and it adds great taste to the dishes.

Specimen examined: KL-2430, Yachem (20/07/2010)

***Capsicum annum* Breyn (Solanaceae)**

Vern. Name: *Haül*

Description: An annual herb with ovate, acuminate leaves.

Part(s) used: Fruit

Uses: The fruit is a spicy food substance which is very commonly used in chutneys and pickles.

Specimen examined: KL-2444, Pongching (24/08/2010)

***Capsicum chinensis* Jacq. (Solanaceae)**

Vern. Name: *Haül*

Description: A small annual to biennial herb.

Part(s) used: Fruit

Uses: The fruit is a spicy food substance which is very commonly used in chutneys and pickles.

Specimen examined: KL-2445, Pongching (24/08/2010)

***Capsicum frutescens* Linn. (Solanaceae)**

Vern. Name: *Haül*

Description: An annual herb with ovate-lanceolate leaves.

Part(s) used: Fruit

Uses: The fruit is a spicy food substance which is very commonly used in chutneys and pickles.

Specimen examined: KL-2446, Pongching (24/08/2010)

***Cinnamomum tamala* Nees (Lauraceae)**

Vern. Name: *Longlak*

Description: An evergreen, medium sized, aromatic tree with rough, dark brown, wrinkled bark.

Part(s) used: Leaves

Uses: The leaves are widely used in fried food item. It is mostly used after sun drying.

Specimen examined: KL-2447, Ngetchungching (22/07/2010)

***Cinnamomum zeylanicum* Breyn (Lauraceae)**

Vern. Name: *Longkok*

Description: A moderate sized tree of about 15 m height with reddish brown bark.

Part(s) used: Bark

Uses: The bark has a very strong flavour and is widely used in many dishes.

Specimen examined: KL-2378, Hukpang (21/05/2011)

***Coriandrum sativum* Linn. (Apiaceae)**

Vern. Name: *Dunia*

Description: An annual aromatic herb.

Part(s) used: Whole plant

Uses: The plant is highly aromatic and it can be used raw in chutney and salads or can be eaten cooked with other food item.

Specimen examined: KL-2301, Tamlu (5/10/2011)

***Curcuma angustifolia* Roxb. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: Small herb with small globose rhizome, tubers at the end of fibres.

Part(s) used: Rhizome

Uses: The rhizome is widely used spices because of its strong aroma and colour.

Specimen examined: KL-2308, Tangha (16/04/2009)

***Curcuma caesia* Roxb. (Zingiberaceae)**

Vern. Name: *Phaü hung*

Description: A rhizomatous perennial herb.

Part(s) used: Rhizome

Uses: It is often used as spices in some local dishes and not very commonly available.

Specimen examined: KL-2304, Yongshei (14/07/2010)

***Curcuma longa* Linn. (Zingiberaceae)**

Vern. Name: *Haldi*

Description: Root-stock perennial, tubers bright yellow inside.

Part(s) used: Rhizome

Uses: The powdered rhizome is used as spices.

Specimen examined: KL-407, Nian (17/05/2010)

***Elettaria cardamomum* Mat. (Zingiberaceae)**

Vern. Name: *Shushe*

Description: A herbaceous perennial with subterranean branched rootstock.

Part(s) used: Seeds

Uses: The seeds are used as spices in many dishes, especially in fried food item.

Specimen examined: KL-2380, Tamalu (09/09/2011)

***Elsholtzia blanda* Benth. (Lamiaceae)**

Vern. Name: *Nyapa*

Description: Perennial, slender, puberulous undershrub.

Part(s) used: Whole plant

Uses: The plant is very aromatic and it can be eaten raw in chutney and salads or can be eaten cooked with other vegetables.

Specimen examined: KL-140, Pongo (08/08/2009)

***Elsholtzia communis* Colt. Et. Hemsl. (Lamiaceae)**

Vern. Name: *Lomba*

Description: An annual herb with tetragonous branches.

Part(s) used: Whole plant

Uses: The plant is aromatic so the leaves are used as a condiment in fish and meat curries. It is also eaten raw or cooked with other vegetables. **Specimen examined:** KL-3211, Yangching (12/06/2010)

***Eryngium foetidum* Linn. (Apiaceae)**

Vern. Name: *Moajü*

Description: An erect, aromatic, glabrous, diffuse, perennial herb.

Part(s) used: Leaf

Uses: The leaf of the plant is a widely used spice, which is mostly available in wild and sometimes cultivated. It can be eaten raw or cooked.

Specimen examined: KL-2453, Hukpang (21/05/2011)

***Eugenia caryophyllata* Willd. (Myrtaceae)**

Vern. Name: *Long*

Description: The clove tree is an evergreen growing to 8–12 m tall, having large leaves and sanguine flowers grouped in terminal clusters.

Part(s) used: Flower

Uses: Because of its strong flavour, it is used in many dishes especially fried food item.

Specimen examined: KL-706, Longleng (20/07/2009)

***Mentha spicata* Linn. (Lamiaceae)**

Vern. Name: *Pudina*

Description: A strong aromatic perennial herb with runners.

Part(s) used: Young twig and leaves

Uses: The plant is widely used spices in many dishes.

Specimen examined: KL-2460, Longleng (20/07/2009)

***Ocimum basilicum* Linn. (Lamiaceae)**

Vern. Name: *Chionum*

Description: A slender aromatic herb, generally purple coloured.

Part(s) used: Young twig and leaves

Uses: It is very commonly used in many local dishes.

Specimen examined: KL-197, Tangha (16/04/2009)

***Perilla frutescens* (Linn.) Britt. (Lamiaceae)**

Vern. Name: *Nam*

Description: An annual/ perennial aromatic herb which grows upto 2 ft in height.

Part(s) used: Seed

Uses: The powdered seeds are widely used in chutneys and in different local dishes.

Specimen examined: KL-3210, Shetap (07/09/2009)

***Piper nigrum* Linn. (Piperaceae)**

Vern. Name: *Omdong hung*

Description: A stout glabrous shrub, climbing, rooting at the nodes.

Part(s) used: Fruit

Uses: Fruit are used in dishes and it is also used as preservatives.

Specimen examined: KL-701, Ngetchungching (22/07/2010)

***Zanthoxylum armatum* DC. (Rutaceae)**

Vern. Name: *Jalik hūk*

Description: A small aromatic tree upto 8m high and the prickles are straight.

Part(s) used: Seeds & leaves

Uses: The plant has a very strong aroma and is very widely used in many local dishes. Seeds are mostly used powdered and leaves can be stored after sun drying.

Specimen examined: KL-2325, Ponching (24/08/2010)

***Zanthoxylum rhetsa* (Roxb.) DC. (Rutaceae)**

Vern. Name: *Jalik hūk*

Description: A deciduous tree upto 35m tall, with spreading crown, branchlets with prickles and hollow

Part(s) used: Seeds & leaves

Uses: The plant has a very strong aroma and is very widely used in many local dishes. Seeds are mostly used powdered and leaves can be stored after sun drying

Specimen examined: KL-2390, Ponching (24/08/2010)

***Zingiber cassumunar* Roxb. (Zingiberaceae)**

Vern. Name: *Ching mambo*

Description: It is an aromatic rhizomatous herb.

Part(s) used: Rhizome



Plate 22: Plants used as spices and flavouring agent

A. *Eryngium foetidum* Linn.

C. *Piper nigrum* Linn.

E. *Piper nigrum* Linn.

B. *Allium hookerii* Thw.

D. *Metha spicata* Linn.

F. *Amomum subulatum* Roxb.

Uses: The rhizome is very aromatic and can be eaten raw or cooked. It can also be preserved by making it paste and drying in the sun.

Specimen examined: KL-707, Tangha (16/04/2009)

***Zingiber officinales* Roxb. (Zingiberaceae)**

Vern. Name: *Hüng lak*

Description: Rhizomatous herb with erect leafy, reddish stem.

Part(s) used: Rhizome

Uses: The rhizome is very aromatic and can be eaten raw or cooked. It can also be preserved by making it paste and drying in the sun.

Specimen examined: KL-186, Yachem (05/07/2009)

4.4.7. Seeds used as vegetable

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Vern. Name: *Polong*

Description: Large evergreen tree with stiff hairs on young shoots with dark-grey to blackish brown bark.

Uses: The seeds are dried and used in chutney and other dishes.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Brassica campestris* Linn. (Brassicaceae)**

Vern. Name: *Hao yong*

Description: A stout erect herb commonly available, often with a swollen tap-root.

Uses: The seeds are used as spices in dishes and in pickles.

Specimen examined: KL-2430, Yachem (20/07/2010)

***Cajanus cajan* (Linn.) Mill. (Fabaceae)**

Vern. Name: *Maha Jang*

Description: An erect undershrub which grows upto 1.5-2m high.

Uses: The seeds are eaten cooked or can be dried to store.

Specimen examined: KL-125, Shetap (07/09/2009)

***Canavalia ensiformis* (Linn.) DC. (Fabaceae)**

Vern. Name: *Püli hao*

Description: It is a twining runner which grows upto 1 metre in height. It has deep roots, which makes it drought resistant.

Uses: The mature seeds are eaten cooked. It can also be preserved for future use after sun drying.

Specimen examined: KL-3214, Longleng (08/08/2010)

***Coriandrum sativum* Linn. (Apiaceae)**

Vern. Name: *Dunia*

Description: An annual aromatic herb.

Uses: The powdered seeds are used as condiments in many food preparations.

Specimen examined: KL-2301, Tamalu (5/10/2011)

***Cucurbita maxima* Duch. (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: It is a large climbing annual herb.

Uses: The seeds are eaten roasted or can be eaten by making it paste in chutneys.

Specimen examined: KL-2301, Tamalu (5/10/2011)

***Curcuma pepo* Linn. . (Cucurbitaceae)**

Vern. Name: *Tong ya*

Description: It is a large climbing annual herb which has yellow blossoms that blooms from July to August.

Uses: The seeds are eaten roasted or can be eaten by making it paste in chutneys.

Specimen examined: KL-2487, Tamlu (5/10/2011)

Datura stramonium Linn. (Solanaceae)

Vern. Name: *Jayep jük*

Description: A coarse glabrous annual herb.

Uses: Ripe seeds are eaten roasted. It can also be eaten with chutney by making it a paste.

Specimen examined: KL-2379, Bura Namsang (29/05/11)

Elettaria cardamomum Mat. (Zingiberaceae)

Vern. Name: *Shushe*

Description: A herbaceous perennial with subterranean branched rootstock.

Uses: The seeds are aromatic and widely used spices in many dishes.

Specimen examined: KL-2380, Tamlu (09/07/2009)

Entada pursaetha DC. (Leguminaceae)

Vern. Name: *Shakok*

Description: A large climber, wild with compound leaves.

Uses: The seeds after being soaked in water for sometimes and it can be eaten raw or cooked in chutneys.

Specimen examined: KL-2452, Sakchi (15/09/2011)

Glycine max (Linn.) Merr. (Leguminaceae)

Vern. Name: *Holongie*

Description: It is a sub-erect, stout annual herb.

Uses: Seeds are eaten raw after soaking in the water or can be eaten cooked. Seeds are most widely used after fermenting it. Fermented soya bean are used in preparation of many local dishes.

Specimen examined: KL-803, Longleng (27/06/2011)

***Hibiscus sabdariffa* Linn. (Malvaceae)**

Vern. Name: *Pü thiaok*

Description: An annual herb, stem glabrous and unarmed.

Uses: Seeds are eaten cooked.

Specimen examined: KL-2392, Nian (17/05/2010)

***Hodgsonia macrocarpa* (Bl.) Cogn. (Cucurbitaceae)**

Vern. Name: *Bai*

Description: Woody liana with stout and bifid tendrils.

Uses: The seeds are eaten roasted or fried. It is also used by the locals in the preparation of chutneys.

Specimen examined: KL-2459, Longleng (27/06/2011)

***Mucuna prurita* Hook. (Fabaceae)**

Vern. Name: *Shitok*

Description: A slender hairy climber with alternate leaves.

Uses: Seeds are eaten mostly raw with chutney made of red chilli and dry fish.

Specimen examined: KL-320, Pongching (17/08/2010)

***Parkia timoriana* (A.DC.) Merr. (Mimosaceae)**

Vern. Name: *Yangchak*

Description: A middle sized tree with spreading branches with light grey bark.

Uses: Seeds are eaten roasted alone or with chutneys. It can be even pickled or eaten cooked.

Specimen examined: KL-2450, Yongshei (14/07/2010)

***Perilla ocimoides* Linn.** (Lamiaceae)

Vern. Name: *Nam*

Description: An annual aromatic herb.

Uses: The seeds roasted and pounded and mixed with flour of sticky rice to make biscuits. It is also eaten cooked with other food item. The pounded seed is even eaten mixed with chutneys.

Specimen examined: KL-805, Shetap (07/09/2009)

***Phaseolus acutifolius* A. Gray** (Fabaceae)

Vern. Name: *Leplang*

Description: An annual, climbing, trailing or erect plant with stem upto 4m.

Uses: Seeds are eaten cooked mixed with other vegetables. It can even be stored after drying.

Specimen examined: KL-313

***Phaseolus lunatus* Linn.** (Fabaceae)

Vern. Name: *Vehao*

Description: It is mostly an annual and have erect bush forms and twining and grows upto 1 m.

Uses: Seeds are eaten raw in red chilli chutney and it can be even eaten cooked mixed with other vegetables.

Specimen examined: KL-403, Pongching (17/08/2010)

***Phaseolus vulgaris* Linn.** (Fabaceae)

Vern. Name: *Püve hao*

Description: It is an annual climbing herb.

Uses: Seeds are eaten cooked as simple boil vegetable mixed with other vegetables.

Specimen examined: KL-818, Ponching (24/08/2010)

***Piper nigrum* Linn. (Piperaceae)**

Vern. Name: *Omdong hung*

Description: A stout glabrous shrub, climbing, rooting at the nodes.

Uses: Seeds are used as condiments in many local dishes and it is also used as preservatives.

Specimen examined: KL-701, Ngetchungching (22/07/2010)

***Pisum sativum* Linn. (Leguminosae)**

Vern. Name: *Motor*

Description: It is an annual twinning shrub.

Uses: Seeds are eaten raw in red chilli chutney, in salads and can be even eaten cooked. It is also used as an ingredient in the preparation of soup.

Specimen examined: KL-702, Ngetchungching (23/07/2010)

***Vigna unguiculata* (Linn.) Walp. (Fabaceae)**

Vern. Name: *Longpang longi*

Description: It is a vigorous climbing annual herb or occasionally subshrub.

Uses: The fruit can be cooked in varieties. It can be boiled or fried

Specimen examined: KL-406

4.4.8. Edible fruits

***Aegle marmelos* (Linn.) Corr. (Rutaceae)**

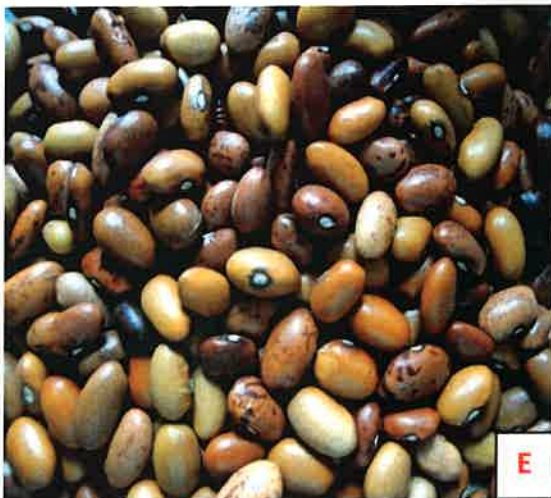


Plate 23: Seeds used as vegetables

- A.** *Hodgsonia macrocarpa* (Bl.) Cogn.
C. *Glycine max* (Linn.) Merr.
E. *Phaseolus vulgaris* Linn.

- B.** *Datura stramonium* Linn.
D. *Perilla ocimoides* Linn.
F. *Canavalia ensiformis* (Linn.) DC.

Vern. Name: *Bel*

Description: A small, spinous deciduous tree which grows upto 8-10m high.

Uses: The fruit is eaten fresh or dried. A very refreshing drink can be made from the pulp of the fresh ripe fruit by adding a little quantity of water and sugar in it. If the fruit is to be dried, it is usually sliced and sun- dried.

Specimen examined: KL-708, Tangha (17/04/2009)

***Alpinia galangal* (Linn.) Willd. (Zingiberaceae)**

Vern. Name: *Greater galangal* (E), *Shomlou* (P)

Description: The plant grows from rhizomes in clumps of stiff stalks up to 2 m in height with abundant long leaves which bears red fruits.

Uses: The red fruit is eaten fresh or even cooked.

Specimen examined: KL-2485, Kangching (22/08/2011)

***Amomum dealbatum* Roxb. (Zingiberaceae)**

Vern. Name: *Ahjök-bü*

Description: A robust ginger with stout stems.

Uses: The unopened inflorescence is harvested and used to make curries. The ripe seeds are also used in various local dishes and chutneys.

Specimen examined: KL-810, Yongshei (20/08/2011)

***Ananas comosus* (Linn.) Merr. (Bromeliaceae)**

Vern. Name: *Tongpelong*

Description: A tufted stemless perennial herb with numerous leaves which are spirally arranged.

Uses: Ripe fruits are eaten raw. It is best for eating fresh. The fruit can be eaten in various ways such as in desert, in salad and in making juices. The fruit is widely used to prepare home-made beverages.

Specimen examined: KL-131, BuraNamsang (29/05/2011)

***Atocarpus lakoocha* Roxb. (Moraceae)**

Vern. Name: *Bao-nyü jük*

Description: It is a medium to large deciduous tree with a spreading crown.

Uses: The fruit has a sweet sour pulp which is occasionally eaten raw.

Specimen examined: KL-709, Tangha (17/04/2009)

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Vern. Name: *Pelong*

Description: A large evergreen tree with elliptic, ovate and dark green leaves.

Uses: Raw fruits eaten cooked and ripe fruits eaten raw. The fruit is also eaten dried and can make it into chips.

Specimen examined: KL- 166, BuraNamsang (29/05/2011)

***Averrhoa carambola* Linn. (Averrhoaceae)**

Vern. Name: *Shen jük*

Description: A small tree which grows upto 8 m in height with drooping branches.

Uses: Ripe fruits are eaten fresh. The fruit is finely sliced and are eaten dried.

Specimen examined: KL-132, BuraNamsang (29/05/2011)

***Baccaurea ramniflora* Lour. (Euphorbiaceae)**

Vern. Name: *Asho jük*

Description: It is a small, slow growing evergreen tree, growing upto 25 m high, with spreading crown and thin bark.

Uses: Ripe fruits are mostly eaten fresh and can make it into wine.

Specimen examined: KL-409, Pongching (24/08/2010)

***Calamus leptospadix* Griff. (Arecaceae)**

Vern. Name: *Vai-ha jük*

Description: A slender cluster forming climber; stem thickened at joints, with lead-sheaths 12-20 mm in diameter, naked stem smooth, 8-10 mm in diameter at the internodes.

Uses: The fruits are eaten fresh.

Specimen examined: KL-301, Ngetchungching (23/07/2010)

***Calamus erectus* Roxb. (Arecaceae)**

Vern. Name: *Vai-nyü jük*

Description: Stems clustered, non-climbing, free standing or sometimes leaning plant.

Uses: The fruits are eaten fresh.

Specimen examined: KL-302, Ngetchungching (23/07/2010)

***Canarium bengalense* Roxb. (Burseraceae)**

Vern. Name: *Oeying*

Description: It is a medium sized tree with compound leaves, 30-40 cm long. The fruit is a drupe, size of a large olive and smooth.

Uses: The fruits are eaten fresh or can be preserved after sun dried with a little salt.

Specimen examined: KL-2310, BuraNamsang ((09/07/2011)

***Canarium resineferum* Bruce ex King (Burseraceae)**

Vern. Name: *Oeying*

Description: It is a large tree which grows about 6-8 ft in girth.

Uses: The fruits are eaten fresh or can be preserved after sun dried with a little salt.

Specimen examined: KL-2312, BuraNamsang ((09/07/2011)

Carica papaya Linn. (Caricaceae)

Vern. Name: *Ameta*

Description: A small hollow stemmed tree laticiferous tree with large, palmately lobed leaves.

Uses: Ripe fruits are eaten fresh and unripe fruits are eaten in salads or cooked as simple boiled vegetables.

Specimen examined: KL-118, BuraNamsang (29/05/2011)

Caryota urens Linn. (Arecaceae)

Vern. Name: *Phom-lok*

Description: A lofty palm with smooth, cylindrical, shiny, annulate trunk which grows to about 30 feet high.

Uses: The nuts are roasted to eat.

Specimen examined: KL-710, Tangha (17/04/2009)

Celtis australis Linn. (Ulmaceae)

Vern. Name: *Angü timong*

Description: A medium to large-sized deciduous tree with straight stem.

Uses: The fruit is sweet and it is eaten fresh or cooked.

Specimen examined: KL-410, Pongching (26/08/2010)

Citrus aurantium Linn. (Rutaceae)

Vern. Name: *Hangpao*

Description: It is a small tree with spreading branches which is commonly planted.

Uses: The fruit is juicy and sour and mostly used to make juice. It is also used to make pickles. The fruit can be eaten fresh with a little salt.

Specimen examined: KL-3218, Longleng (08/08/2010)

***Citrus jambhiri* Lush. (Rutaceae)**

Vern. Name: *Okangpao*

Description: It is a small tree with spreading branches which is commonly planted.

Uses: The fruit is juicy and sour and mostly used to make juice. It is also used to make pickles. The fruit can be eaten fresh with a little salt.

Specimen examined: KL-3219, Longleng (08/08/2010)

***Citrus grandis* Linn. (Rutaceae)**

Vern. Name: *Ngüleng hempo*

Description: A tree with thorny shoots with dark green leaves. The petiole is broadly winged.

Uses: The juicy ripe fruits are eaten raw with red chilli and salt. It is also eaten alone.

Specimen examined: KL-2408, Longleng (27/06/2011)

***Citrus limon* (Linn.) Burm. (Rutaceae)**

Vern. Name: *Ting pong*

Description: A thorny shrub or a tree with spreading branches.

Uses: The fruit is juicy and sour and mostly used to make juice. It is also used in dishes as flavouring agent. The fruit can be eaten fresh with a little salt.

Specimen examined: KL-177, BuraNamsang (30/05/2011)

***Coccinia adoensis* (A.Rich.) Cogn. (Cucurbitaceae)**

Vern. Name: *Vang hai-mükjang*

Description: Perennial with annual climbing stems, growing from a tuberiferous root stock.

Uses: Ripe fruits are eaten cooked.

Specimen examined: KL-2354, Longleng (27/06/2011)

***Cocos nucifera* Linn. (Arecaceae)**

Vern. Name: *Narigol*

Description: Tree with long, straight or curved trunk which grows upto 25 m in height.

Uses: Ripe fruit is eaten fresh.

Specimen examined: KL-711, Tangha (17/04/2009)

***Cordia dichotoma* Forster f. (Boraginaceae)**

Vern. Name: *Shamboa*

Description: A small deciduous medium sized tree with a short usually crooked trunk.

Uses: The ripe fruits are eaten fresh.

Specimen examined: KL-411, Pongching (24/08/2010)

***Cucumis sativus* Linn. (Cucurbitaceae)**

Vern. Name: *Mükoh*

Description: The cucumber is a creeping vine that roots in the ground and grows up in other supporting frames, wrapping around supports with thin, spiralling tendrils.

Uses: Fruits are eaten raw and also use in salad and desert.

Specimen examined: KL-2488, Pongching (24/08/2010)

***Cucurbita anguria* Duch.ex.Lam. (Cucurbitaceae)**

Vern. Name: *Anto*

Description: Annual or perennial herb.

Uses: Ripe fruits eaten raw.

Specimen examined: KL-712, Tangha (18/04/2009)

***Docynia indica* (Wall.) Decne. (Rosaceae)**

Vern. Name: *Yongphai chiük*

Description: It is a semi- evergreen or deciduous tree growing to 4 m tall. It flowers from Apr to May, and the seeds ripen from September to November.

Uses: Fully ripe fruit is eaten raw. Half ripe fruit is also eaten. It is mostly eaten after sun-dried by adding a little sugar in it. It is also used to make pickle and local beverage.

Specimen examined: KL-823, Yongshei (20/08/2011)

***Elaeagnus conferta* Roxb. (Elaeagnaceae)**

Vern. Name: *Tünglüh*

Description: A large woody, evergreen straggling or scandent shrub.

Uses: Juicy ripe fruits are eaten fresh. It is also preserved after sun dry adding a little salt in it.

Specimen examined: KL-303, Ngetchungching (24/07/2010)

***Elaeocarpus angustifolius* Blume (Elaeocarpaceae)**

Vern. Name: *Ao paklet*

Description: Buttresses normally conspicuous, even on small trees. Branches generally in whorls, particularly on small trees.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-412, Pongching (24/08/2010)

***Entada pursaetha* DC. (Leguminaceae)**

Vern. Name: *Shakok*

Description: A large climber, wild with compound leaves.

Uses: The cotyledon is soaked in water for some time and then roasted to eat.

Specimen examined: KL-2452, Shetap (24/09/2010)

***Ficus altissima* Bl. (Moraceae)**

Vern. Name: *Hamsu*

Description: Massive spreading evergreen tree.

Uses: Ripe fruits eaten fresh. It is also used to make beverage.

Specimen examined: KL-178, BuraNamsang (29/08/2011)

***Ficus benjamina* Linn. (Moraceae)**

Vern. Name: *Lumajang*

Description: A large spreading tree with drooping branches.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-713, Tangha (17/04/2009)

***Ficus carica* Linn. (Moraceae)**

Vern. Name: *Nang lak*

Description: A deciduous spreading small tree with large, ovate, alternate leaves.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-713, Tangha (17/04/2009)

***Ficus elastica* Roxb. (Moraceae)**

Vern. Name: *Nyü-jük*

Description: A large tree, initially an epiphyte, roots large and spreading.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-412, Pongching (24/08/2010)

***Ficus hispida* Linn. (Moraceae)**

Vern. Name: *Momo*

Description: A small tree or shrub with hollow branches and bark greenish grey and warty.

Uses: Ripe fruits eaten fresh.

Specimen examined: KL-148, BuraNamsang (29/05/2011)

***Ficus semicordata* (Buch.) Ham. ex Smith (Moraceae)**

Vern. Name: *Atha-bu*

Description: A moderate sized tree with dark grey bark.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-413, Pongching (24/08/2010)

***Fragaria nilgerrensis* Sch.ex J. Gay (Rosaceae)**

Vern. Name: *Chumen*

Description: A stout herb with long runners with 3-5 foliolate leaves.

Uses: Ripe fruit eaten fresh. It is often used in making salads and also beverage.

Specimen examined: KL-196, BuraNamsang (30/05/2011)

***Gnetum montanum* Mark. (Gnetaceae)**

Vern. Name: *Shanko-jük*

Description: A tropical evergreen tree with vines to more than 10 m tall.

Uses: Seeds are eaten roasted or cooked.

Specimen examined: KL-304, Ngetchungching (23/07/2010)

***Hodgsonia macrocarpa* (Bl.) Cogn.** (Cucurbitaceae)

Vern. Name: *Bai*

Description: Woody liana with stout and bifid tendrils.

Uses: The seeds are eaten roasted or fried. It is also used by the locals in the preparation of chutneys.

Specimen examined: KL-2459, Longleng (27/06/2011)

***Juglans regia* Linn.** (Juglandaceae)

Vern. Name: *Ngüh*

Description: A large deciduous tree with grey bark and imparipinnate leaves.

Uses: The kernels of mature dried fruit are eaten raw.

Specimen examined: KL-2364, Shetap (24/09/2010)

***Juglans nigra* Linn.** (Juglandaceae)

Vern. Name: *Yek belik*

Description: It is a large deciduous tree typically growing 75-100 feet tall with and an oval to rounded crown.

Uses: The kernels of mature dried fruit are eaten raw.

Specimen examined: KL-414, Pongching (24/08/2010)

***Litchi chinensis* Sonn.** (Sapindaceae)

Vern. Name: *Litchi*

Description: An evergreen tree with smooth, dark grey bark.

Uses: The ripe fruits are eaten raw. It is also used to make fruit beer and juice.

Specimen examined: KL-415, Pongching (24/08/2010)

***Livistona jenkinsiana* Griff. (Arecaceae)**

Vern. Name: *Yube-lik*

Description: A palm upto 10m high with large leaves, forming a thick crown.

Uses: The pulp of the juicy ripe fruit is eaten raw.

Specimen examined: KL-305, Ngetchungching (24/07/2010)

***Mangifera indica* Linn. (Anacardiaceae)**

Vern. Name: *Ashoi*

Description: A middle sized evergreen tree upto 25 m high with leaves crowded at the end of branches.

Uses: Ripe fruits are eaten fresh and unripe fruit is used to make pickles. It is usually used to make fruit juice.

Specimen examined: KL-2305, Longleng (27/06/2011)

***Mangifera andamanica* King (Anacardiaceae)**

Vern. Name: *Ashoi*

Description: A middle sized evergreen tree.

Uses: Ripe fruits are eaten fresh and unripe fruit is used to make pickles. It is usually used to make fruit juice.

Specimen examined: KL-416, Pongching (24/08/2010)

***Mangifera sylvatica* Roxb. (Anacardiaceae)**

Vern. Name: *Ashoi*

Description: A middle sized evergreen tree.

Uses: Ripe fruits are eaten fresh and unripe fruit is used to make pickles. It is usually used to make fruit juice.

Specimen examined: KL-417, Pongching (24/08/2010)

***Melastoma malabathricum* Linn. (Melastomataceae)**

Vern. Name: *Nyuksem*

Description: A bushy shrub with oblong-lanceolate leaves.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-306, Ngetchungching (24/07/2010)

***Melia composite* Willd. (Meliaceae)**

Vern. Name: *Shümük*

Description: A moderate sized tree with smooth dark grey bark.

Uses: Ripe fruits are eaten raw.

Specimen examined: KL-418, Pongching (24/08/2010)

***Morus nigra* Linn. (Moraceae)**

Vern. Name: *Ngü bai*

Description: A deciduous moderate sized tree or shrub growing to 12 m tall.

Uses: Juicy ripe fruits are eaten fresh. It is also used in fruit salads.

Specimen examined: KL-307, Ngetchungching (24/07/2010)

***Musa paradisiaca* Linn. (Musaceae)**

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and oblong leaves.

Uses: Ripe fruits are eaten fresh and unripe fruits are used to make banana chips. The ripe fruit can be preserved after slicing and then sun-dried. It is also used in making fruit beer.

Specimen examined: KL-185, BuraNamsang (29/05/2011)

***Myrica esculenta* Buch.-Ham. (Myricaceae)**

Vern. Name: *Shinik*

Description: A moderate sized evergreen tree with rough greyish brown bark.

Uses: The juicy ripe fruits are eaten fresh. It can be pickled adding some honey and powdered chilli in it. It is also used to make fruit beer.

Specimen examined: KL-2345, Longleng (27/06/2011)

***Osbeckia crinita* Benth. (Melastomataceae)**

Vern. Name: *Oking- thüng*

Description: A small branched shrub which grows upto 2 m high.

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-3206, Pongo (25/08/2010)

***Passiflora edulis* Sims. (Passifloraceae)**

Vern. Name: *Aticheük*

Description: A perennial climber with 3 lobed, toothed, glabrous and serrate leaves.

Uses: Ripe fruits are eaten fresh. It is usually used in making fruit juice which is commercially available for sale.

Specimen examined: KL-2384, Longleng (27/06/2011)

***Phyllanthus acidus* Linn. (Euphobiaceae)**

Vern. Name: *Phü pang jük*

Description: A small evergreen tree which grows upto 9 m tall.

Uses: Fruits eaten raw. It can be preserved after sun drying by adding a little sugar in it. It is also used to make candies and fruit beer which is commercially available for sale.

Specimen examined: KL-2385, Longleng (27/06/2011)

***Phyllanthus emblica* Linn. (Euphorbiaceae)**

Vern. Name: *Pang jük*

Description: A deciduous tree with smooth greenish grey, exfoliating bark.

Uses: Fruits are eaten raw. It can be preserved after sun drying by adding a little sugar in it. It is also used to make candies and fruit beer which is commercially available for sale.

Specimen examined: KL-2302, Shetap (24/09/2010)

***Prunus cerasoides* D.Don. (Rosaceae)**

Vern. Name: *Shayak бүпүжүк*

Description: A medium sized deciduous tree with smooth, brown, shining copper coloured bark.

Uses: Ripe fruits eaten raw. It can be pickled as well as make sweet candies by adding sugar or honey in it.

Specimen examined: KL-309, Ngetchungching (24/07/2010)

***Prunus domestica* Linn. (Rosaceae)**

Vern. Name: *Plum*

Description: A small deciduous tree growing to 12 m tall. It flowers in April and the seeds ripen from July to November.

Uses: The ripe fruit is soft and juicy with a delicious flavour and it is eaten raw. It is also eaten cooked with a little sugar in it. It is popularly used to make jams and fruit beer.

Specimen examined: KL-310, Ngetchungching (24/07/2010)

***Prunus persica* (Linn.) Batsch (Rosaceae)**

Vern. Name: *Pang juk*

Description: A small tree upto 8m tall with oblong to lanceolate, serrate, glabrous leaves.

Uses: Ripe fruits eaten fresh. It is also eaten cooked with a little sugar in it. It is popularly used to make jams and fruit beer.

Specimen examined: KL-419, Pongching (24/08/2010)

***Prunus salicina* Lindl. (Rosaceae)**

Vern. Name: *Plum*

Description: It is a deciduous tree commonly known as Chinese plum. It flowers in April, and the seeds ripen from July to August.

Uses: The ripe fruit is sweet and juicy and mostly eaten raw. It can be preserved after drying. The raw fruit is eaten cooked with a little sugar.

Specimen examined: KL-3216, Longleng (20/07/2009)

***Psidium guajava* Linn. (Myrtaceae)**

Vern. Name: *Kong kai*

Description: A small to large evergreen or sub-deciduous tree with pinkish brown, smooth bark.

Uses: Ripe fruits eaten fresh. It is also eaten in fruit salads and widely used in making fruit juice.

Specimen examined: KL-189, BuraNamsang (29/05/2011)

***Punica granatum* Linn. (Punicaceae)**

Vern. Name: *Jarem*

Description: A small deciduous shrub or tree with smooth brown bark.

Uses: Ripe fruits eaten fresh. It is used for medicinal purposes and also used to make fruit juice.

Specimen examined: KL-2454, Shetap (24/09/2010)

***Pyrus communis* Linn. (Rosaceae)**

Vern. Name: *Naspati*

Description: A deciduous tree growing to 13 m high.

Uses: Mature fruits eaten raw. It is also eaten cooked with a little sugar in it. It is popularly used to make jams fruit beer.

Specimen examined: KL-420, Pongching (24/08/2010)

***Pyrus pyrifolia* Linn. (Rosaceae)**

Vern. Name: *Naspati*

Description: A small deciduous tree.

Uses: Matured fruits eaten raw.

Specimen examined: KL-311, Ngetchungching (24/07/2010)

***Rhus semialata* Murr. (Anacardiaceae)**

Vern. Name: *Po*

Description: A small deciduous tree about 3 m high with ash grey, warty bark.

Uses: Matured sour fruit are eaten raw. It is mostly eaten powdered with a little in it.

Specimen examined: KL-2387, Longleng (27/06/2011)

***Spondias axillaris* Roxb. (Anacardiaceae)**

Vern. Name: *Ayit jang*

Description: A middle sized deciduous tree growing to about 15-30 feet high.

Uses: The fruits are eaten ripe and fresh. A popular fruit found locally and sold in the market.

Specimen examined: KL-3217, Longleng (20/07/2009)

***Syzygium cumini* Linn. (Myrtaceae)**

Vern. Name: *Hungü belik*

Description: A large evergreen tropical tree with light grey, rough with cracks bark.

Uses: Fruits eaten fresh. It is used in making fruit juice and can be preserved after sun drying.

Specimen examined: KL-312, Ngetchungching (24/07/2010)

***Syzygium jambos* (Linn.) Alston (Myrtaceae)**

Vern. Name: Ühümtheok

Description: A medium sized evergreen tree with grey bark and oblong-lanceolate leaves.

Uses: Fruits eaten fresh. It is used in making fruit juice and can be preserved after sun drying.

Specimen examined: KL-2486, Bhumnyu (09/09/2010)

***Tamarindus indica* Linn. (Caesalpiniaceae)**

Vern. Name: *Heshing bo*

Description: A large evergreen tree with dark grey bark.

Uses: Ripe fruits are eaten raw. It is used in making sweet candies and can be pickled as well.

Specimen examined: KL-811, Yongshei (20/08/2011)

***Terminalia bellirica* (Gaertn.) Roxb. (Combretaceae)**

Vern. Name: *Nungka*

Description: A medium sized evergreen tree with soft and grey bark.

Uses: Ripe fruit eaten raw. It is preserved by sun drying by adding a little salt in it.



Plate 24: Edible fruits

- A.** *Averrhoa carambola* Linn.
C. *Citrus limon* (Linn.) Burm.
E. *Psidium guajava* Linn.

- B.** *Cucumis sativus* Linn.
D. *Calamus erectus* Roxb.
F. *Musa paradisiaca* Linn.



A



B



C



D



E



F

Plate 25: Edible fruits

A. *Syzygium cumini* (Linn.) Skeels

C. *Canarium resineferum* Bruce ex King.

E. *Ficus semicordata* Buch.-Ham. ex J.E. Smith

B. *Livistona jenkinsiana* Griff.

D. *Coccinia adoensis* (A. Rich.) Cogn.

F. *Citrus grandis* Linn.

Specimen examined: KL-2388, Shetap (24/09/2010)

***Vitis vinifera* Linn.** (Vitaceae)

Vern. Name: *Nyalingngobai*

Description: A stout climber.

Uses: Ripe fruits are eaten raw. It is widely used to make fruit juice.

Specimen examined: KL-3220, Longleng (08/08/2010)

***Ziziphus mauritiana* Lamk.** (Rhamnaceae)

Vern. Name: *Binok*

Description: A spiny shrub or deciduous tree upto 4 m tall.

Uses: Ripe fruit eaten raw. It can be pickled as well as preserved after sun drying by adding honey and sugar in it.

Specimen examined: KL-812, Yongshei (20/08/2011)

4.4.10. Cereals and millets

Cereals are grass producing edible grain and millets are cereals which bears a large crop of small seeds. It is widely grown around the world as cereal crops or grains for both human food and fodder. Cereals and millets have been important food staples in human history, particularly in Asia and Africa, and they have been in cultivation in India almost 3000 years ago. In the villages of Longleng district, cereals and millets are cultivated widely and it is part of their daily sustenance for life.

***Coix lacryma-jobi* Linn.** (Poaceae)

Vern. Name: *Shela*

Description: It is a tall, erect, perennial grass with tufted stem.

Uses: Grains are eaten cooked. It is sometimes used as a substitute for rice. Millet porridge is a traditional food among the local people.

Specimen examined: KL- 3221, Pongching (17/08/2010)

***Oryza sativa* Linn.** (Poaceae)

Vern. Name: *Ong*

Description: It is an annual herb.

Uses: Grain husked into rice and it is used as main staple food.

Specimen examined: KL-327, Yachem (20/07/2010)

Note: Different villages grow different type of rice relevant with their type of climatic condition. They mostly practice Jhum cultivation in the hilly terrace of land. Rarely can we come across wet land paddy cultivation in some villages in the Northern Part of the District where the altitude is comparatively lower. Apart from being the staple food, they prepare different variety of food from rice like alcoholic beer, non-alcoholic beer and flour from which different types of biscuits can be made. Rice are found in variety of colour and shape and there are different names given to these varieties like *Chaünyak Ong* to black coloured rice and *Angcha Ong* to red coloured rice, *Ongshu-ong* to white rice and *Vam-ong* to bigger red rice.

***Oryza glutinosa* Lour.** (Poaceae)

Vern. Name: *Ajar (Nükchaü Ong)*

Description: It is a perennial annual grass which grows upto a height of 2m with long, flat leaf blade.

Uses: Grain husked into rice and it is used as food and it is also pounded into fine flour to bake biscuits and porridge.

Specimen examined: KL-2433, NgetChung-Ching (23/07/2010)

***Setaria italica* (Linn.) P.Beauv.** (Poaceae)

Vern. Name: *Shiong*

Description: It is an annual grass with slim, vertical, leafy stems which can reach a height of 120–200 cm.



Plate 26: Cereals and millets

A. *Zea mays* Linn.

C. *Oryza sativa* Linn.

E. *Triticum aestivum* Linn.

B. *Oryza glutinosa* Lour.

D. *Coix lacryma-jobi* Linn.

Uses: Grains are eaten cooked. It is also eaten pounded as powder.

The powdered grain is usually cooked along with sticky rice (*Nükchaü Ong*) which is a very common food item used among the local people.

Specimen examined: KL-502, Pongching (24/08/2010)

***Triticum aestivum* Linn . (Poaceae)**

Vern. Name: *Nge*

Description: It is an annual, monoecious erect grass growing up to 1.5 m tall.

Uses: It is eaten mostly cooked and can make variety of food item from its flour.

Specimen examined: KL-2382, Ngetchungching (24/07/2010)

***Zea mays* Linn. (Poaceae)**

Vern. Name: *Ang ha*

Description: It is an annual, monoecious grass with culms rooting from lower nodes.

Uses: It is eaten roasted, boiled or even stemmed. It is also eaten fried with butter and salt. It is available in the market.

Specimen examined: KL-501, Orangkong (02/08/2010)

4.4.11. Edible mushrooms

***Agaricus campestris* Linn. (Agaricaceae)**

Vern. Name: *Pho-kong ang*

Description: The cap of this mushroom is white and grows mostly in fields and grassy areas after rain.

Uses: The mushroom is commonly served on its own, in soups, in mixed

boil vegetables or in stir-fry dishes.

Specimen examined: KL-2482, Bhumnyu (09/09/2010)

***Auricularia polytricha* (Mont.) Sacc. (Auriculariaceae)**

Vern. Name: *Na- naüh*

Description: The body is yellowish brown to dark brown and occurs in clusters on rooting branches and twigs and on decaying stumps and logs.

Uses: This mushroom is commonly sought mushroom and it is eaten cooked with other vegetables, with chutneys and as soup.

Specimen examined: KL-2475, Bhumnyu (09/09/2010)

***Cantharellus cibarius* Fr. (Cantharellaceae)**

Vern. Name: *Phuha kong ang*

Description: It is a flattened with an irregular incurved margin and depressed at the centre.

Uses: The mushroom is commonly served on its own, in soups, in mixed

boil vegetables or in stir-fry dishes.

Specimen examined: KL-2477, Bhumnyu (09/09/2010)

***Pleurotus australis* Sacc. (Pleurotaceae)**

Vern. Name: *Chahkan-khong ang*

Description: It is a fleshy, shell shaped species which grows on dead, dying and living wood.

Uses: The mushroom is commonly served on its own, in soups, in mixed boil vegetables or in stir-fry dishes.

Specimen examined: KL-2480, Kangching (22/08/2011)

***Pleurotus ostreatus* (Jacq. ex Fr.) P. Kumm. (Pleurotaceae)**

Vern. Name: *Khong ang*

Description: The mushroom has a broad fan or oyster shaped.

Uses: The mushroom is commonly served on its own, in soups, in mixed

boil vegetables or in stir-fry dishes.

Specimen examined: KL-2476, Bhumnyu (09/09/2010)

***Pleurotus pulmonarius* (Fr.) Quel.** (Pleurotaceae)

Vern. Name: *Kumnyu-khong ang*

Description: It is wide spread in temperate and subtropical forests throughout the world. It is a wood loving species that acts as a primary decomposer on deciduous woods.

Uses: The mushroom is commonly served on its own, in soups, in mixed boil vegetables or in stir-fry dishes.

Specimen examined: KL-2489, Bhumnyu (09/09/2010)

***Schizophyllum commune* Fries** (Schizophyllaceae)

Vern. Name: *Angha kong-ang*

Description: It is a shell-shaped mushroom and found predominantly from autumn to spring on dead wood.

Uses: The mushroom is widely consumed by the Phom-Naga tribe because of its tenderness and it is commonly served on its own, in soups, in mixed boil vegetables or eaten in chutneys.

Specimen examined: KL-2478, Kangching (22/08/2011)

***Termitomyces clypeatus* R. Heim** (Lyophyllaceae)

Vern. Name: *Phoha Kong-ang*

Description: It is a wild mushroom growing in the symbiotic association of termite which is extensively used as human food.

Uses: The mushroom is commonly served on its own, in soups, in



A



B



C



D



E



F

Plate 27: Edible mushrooms

A & F *Schizophyllum commune* Fries

C. *Termitomyces clypeatus* R. Heim.

E. Growing of *Pleurotus ostreatus* in paddy straw

B. *Auricularia polytricha* (Mont.) Sacc.

D. *Pleurotus pulmonarius* (Fr.) Quel.

mixed boil vegetables or eaten in chutneys.

Specimen examined: KL-2479, Kangching (22/08/2011)

4.4.12. Beverages

Beverages are the drinks which have stimulating and refreshing qualities. Generally beverages can be placed under two categories, alcoholic and non-alcoholic. The non-alcoholic beverages are consumed by all the tribal people but the alcoholic beverages are consumed only by few elderly people. It was a custom for all the tribal to consume alcohol during festivals and ceremonies but the popularity has declined due to religious restriction and also availability of liquor. Due to these reasons only few people consume and prepare alcoholic beverages in the villages.

4.4.12.i. Alcoholic beverage

The use of alcoholic beverage is a custom of the *Phom-Naga* tribe during ceremonials, festivals, marriages and even death ceremonies. They also use it during harvesting. The people consume rice beer for providing some of the essential nutrients in their body. In Phom dialect it is called as '*Shet*'.

4.4.12.i.a. Methods of preparation of rice beer

Rice beer (*Shet*) is a traditional drink for the *Phom-Nagas* and they prepare in a traditional way at home and it is an integral part of their life. Everyone who attempts to prepare the beer cannot success because one has to prepare it with great secrecy and sacredly. The preparation of rice beer involves a series of steps and in it rice and also other plant parts are required. It involves two steps to prepare the rice beer. The first step involves the preparation of rice cake and the second step involves the fermentation of rice.

Step 1- Preparation of yeast cake

In the first place the rice is pounded to make it into fine flour and mix with one of the previously made cake by crushing it with the flour. It is then mix with dried pounded plant parts and mix thoroughly. The plant adds bitter as well as sweet taste to the beer. Then it is made paste with the help of a little amount of water. The paste is made into small cakes of around 200 g each. In each cake a thumb print is inscribe as a tradition as it prevents from spoilage as they are prepared in great sacred. Then these cakes are allowed to ferment by keeping it in dark shady place. It is usually kept for 4 days in summer and in winter for 6 days. Now it ready for use and they dry the remaining ones in shady and dry place for future use.

Step 2 -Fermentation of rice for brewing

In the second step rice is cooked and spread over a bamboo tray for cooling down after which the yeast cakes are crushed and mixed thoroughly with the rice. The quantity of cakes added depends on the amount of rice used. The mixture is kept covered in an earthen pot called '*Kahtoktük*' for fermentation. They usually keep it for 3-4 days depending on the weather condition. Once it is fermented, it is filtered and collected in a container ready for drink. The residue is used as nutritious recipe for pig.

In different villages people use different plants for making the rice cake. They sell the rice beer in the market and even used at home to serve the guest as well as for themselves. They usually serve the rice beer (*Shet*) in a bamboo cup called '*Shongshoh*'.

4.4.12.b. Plants involved in preparation of rice beer

***Amaranthus viridis* Linn.** (Amaranthaceae)

Vern. Name: *Apong yangba*

Description: An erect stout herb, some varieties green or bright pink.

Uses: The seeds are dried and pounded along with the wet rice to make it into fine powder which is used to make the yeast cake.

Specimen examined: KL- 721, Tangha (09/07/2011)

***Capsicum annum* Linn.** (Solanaceae)

Vern. Name: *Haül*

Description: An annual herb with ovate, acuminate leaves.

Uses: The dried pounded fruit is added as an ingredient to make the yeast cake.

Specimen examined: KL-717, Tangha (09/07/2011)

***Chenopodium album* Linn.** (Chenopodiaceae)

Vern. Name: *A-Phom*

Description: An erect herb usually coated with a mealy substance, stem and inflorescence sometimes tinged with purple or red.

Uses: The seeds are dried and pounded along with the wet rice to make it into fine powder which is used to make the yeast cake.

Specimen examined: KL-718, Tangha (09/07/2011)

***Houttuynia cordata* Thunb.** (Saururaceae)

Vern. Name: *Tensü meli*

Description: A perennial herb with creeping rootstock.

Uses: The dried plant parts are pounded along with the wet rice to make yeast cake.

Specimen examined: KL-720, YaongYimchen (25/07/2011)

***Oryza sativa* Linn.** (Poaceae)

Vern. Name: *Ong*

Description: It is annual herb.

Uses: The grain is used as the main ingredients in the preparation of the alcoholic beverages.

Specimen examined: KL-327, Yachem (20/07/2010)

***Solanum indicum* Linn.** (Solanaceae)

Vern. Name: *Kangku*

Description: A prickly undershrub, upto 1.5m high. The leaves are large, ovate, lobed and sparsely prickly.

Uses: The dried fruits are pounded into fine powder and it is mixed with the wet rice and pounded together to make yeast cake.

Specimen examined: KL-716, Tangha (09/07/2011)

4.4.12.ii. Non- alcoholic beverage

Non- alcoholic beverage is a very popular drink especially for the people living in rural areas. They used it to serve the guest and also used as a stimulating and refreshing drinks. Some beverages are considered having medicinal and nutritional values which are quite used popularly. Some commonly used non-alcoholic beverages are discussed below.

***Camellia sinensis* (Linn.) Kuntze.** (Theaceae)

Vern. Name: *Kalup hak*

Description: A large evergreen shrub with obvate, elliptic-oblong or oblanceolate leaves.

Uses: Drinking of black tea (Kalup) is very popular among the people of the Phom-Naga tribe like the rest of the Naga tribes. It is used as a refreshing, as digestive and also as stimulating drink. It is a habitual drink and used it early in the morning and also after every meal, especially people living in the rural areas.

Specimen examined: KL-3207, Yachem (20/07/2010)

Note: The tribal people mostly used self made tea for drinking. Almost every house hold in the villages has tea bushes in their kitchen gardens. They pluck the

fresh tender leaves and let it to dry in the sun or above their fire place. Usually they don't pound the leaves but use the whole leaves for drying. They prepare the tea by boiling it in the water and make it ready for serve. In all the house hold, we can notice a copper pot of tea in the fire place. The home- made tea leaves made by the Phom- Naga tribe is sometimes sold in the market.

***Cymbopogon flexuosus* (Ness ex steud.) Wats. (Poaceae)**

Vern. Name: *She-Song*

Description: An aromatic, perennial herb.

Uses: The leaves are smashed into paste and soak it in luke-warm water over night. Then it is taken as a beverage serving among themselves as well as to the guest.

Specimen examined: KL-3201, Yaongyimchen (25/07/2011)

***Glycine max* (Linn.) Merr. (Leguminosae)**

Vern. Name: *Holongie*

Description: It is a sub-erect, stout annual herb.

Uses: The seeds are first roasted then pounded into fine powder, then 1-2 tea spoon full is added a cup of tea and taken as a nutritional drink. It is a healthy drink and is popularly used among the tribal people.

Specimen examined: KL-803, Yangching (12/06/2010)

***Oryza sativa* Linn. (Poaceae)**

Vern. Name: *Ong*

Description: It is annual herb.

Uses: The rice is cooked adding water exceeding the normal quantity. Then the soupy extract which is known as *Nükyung* is taken out from the pot. It is served by adding a little sugar or salt in it. It is commonly drink by elderly people or small children as it believed to be a very

energetic beverage.

Specimen examined: KL-327, Yachem (20/07/2010)

***Phyllanthus emblica* Linn.** (Euphorbiaceae)

Vern. Name: *Sang lik*

Description: A deciduous tree with smooth greenish grey, exfoliating bark.

Uses: The seeds are boiled in water for 10-15 minutes and allowed to cool down. It is then filtered and the juice is store in bottles adding a little salt in it. It is a very refreshing drink as well as nutritious one.

Specimen examined: KL-2302, Hukpang (21/05/2011)

***Pyrus pyrifolia* Linn.** (Rosaceae)

Vern. Name: *Naspati*

Description: A small deciduous tree.

Uses: The fruit after removing its skin is kept in an earthen pot for some days without adding water in it. Then the fruit will become fermented. The pulp is then filtered out extracting only the beer. It is mixed with a little sugar and water which is ready to serve to the guests in the house. It is a very popular drink and widely used among local people.

Specimen examined: KL-311, Ngetchungching (24/07/2010)

***Rhus semialata* Murr.** (Anacardiaceae)

Vern. Name: *Po*

Description: A small deciduous tree about 3 m high with ash grey, warty bark.

Uses: Powdered fruit is kept soaked in the water for sometime, then it is filtered adding a little sugar in it. It can be served chilled or hot. It is



A



B



C



D



E



F

Plate 28: Alcoholic beverages

A. Rice cake

C. A fermented rice pot

E. *Capsicum annum* Linn.

B. Rice cake with a thumb sign

D. Bamboo cup (*Shongshoh*) for serving rice beer

F. *Solanum indicum* Linn. (E & F - Plant used in preparation of rice beer)

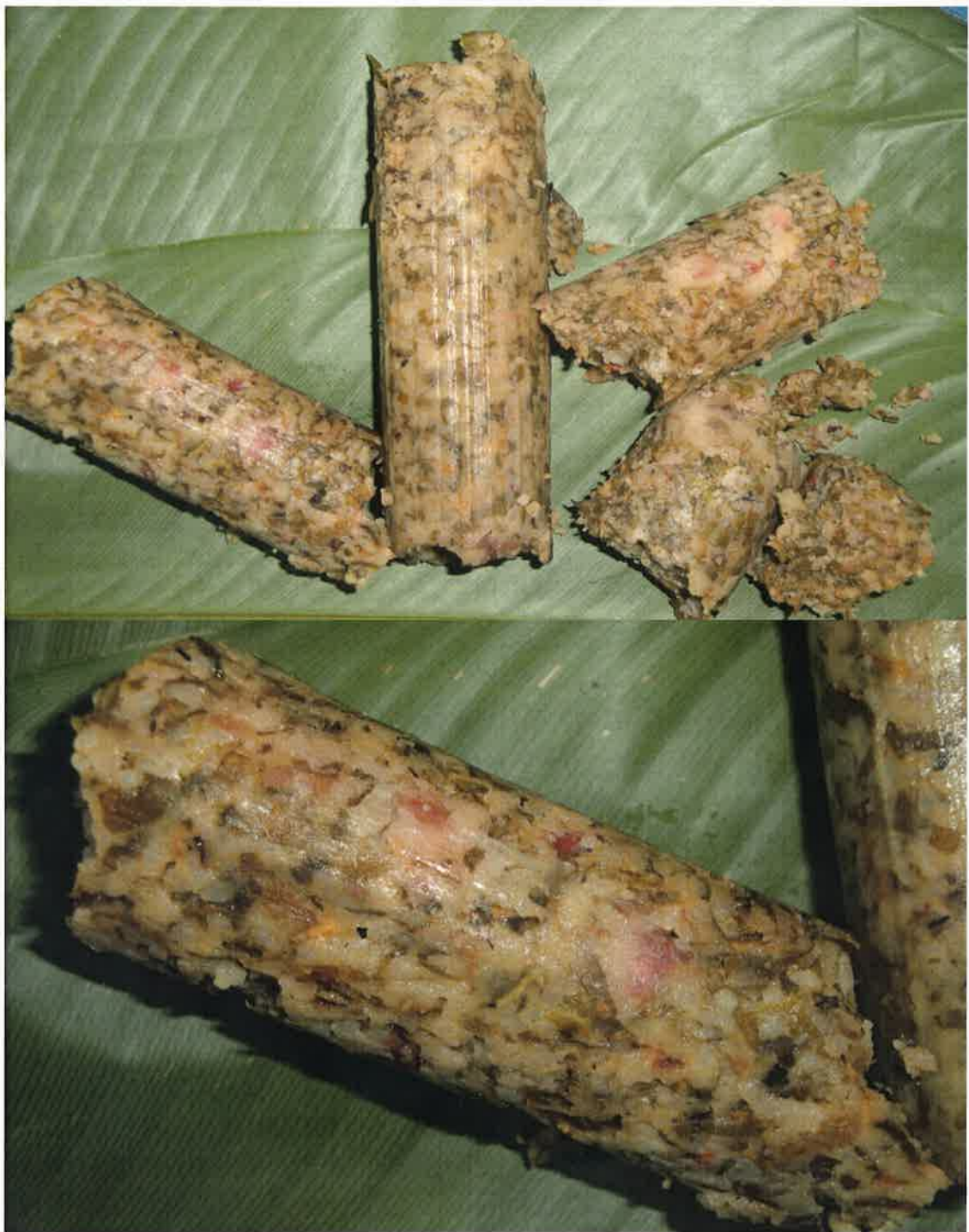


Plate 29: An indigenous food item (Amphet)

mostly used after meal as it helps in digestion. It is a very popular drink made locally and mostly used because of its medicinal property.

Specimen examined: KL-2387, Longleng (27/06/2011)

***Zea mays* Linn.** (Poaceae)

Vern. Name: *Aong jük*

Description: An annual, robust monoecious grass with tall culms and rooting from lower nodes.

Uses: The seeds are first roasted then pounded into fine powder, then 1-2 tea spoon full is added a cup of tea and taken as a nutritional drink. It is a healthy drink and is popularly used among the tribal people. The powdered maize is also sold in the market in small packets.

Specimen examined: KL-3208, Pongching (17/08/2010)

4.5. PLANT ASSOCIATED WITH FISH POISONING FOR FISH STUPEFYING PRACTICES

Catching of fishes using different aid of plant's extract or using other technique is an ancient practice among the Phom-Naga tribe of Nagaland. Even individuals can go fishing on its own but the most popular one is the community fishing known as 'Shüyahpü', when all the villagers go for fishing and they often spend the whole day for this purpose. In community fishing, the community will assign a particular age group of men to initiate the work such as threshing or beating of the roots, seeds or fruits of the plant involve in fish stupefying. They have the art of catching fish using a number of plant parts. First they select the water body and make a temporary dam of mud or stones and pebbles downstream such that water can pass through but not the fishes there, then the crushed plant parts are thrown into the water body. The poison stupefies the fish and makes them float on the water surface or jump out of intoxicated water body. The women and children can catch the fish there. This is how they capture the fishes. They use bamboo basket (Hok), nets (Shang) and bamboo sieves to collect the fishes.

Manual fishing technique is also done with the help of spear, buckets and arrow spears (*Nyahshühngo*).

***Acacia pinnata* Dalzell & A. Gibson** (Leguminosae)

Vern. Name: *Ngüh-hao*

Description: It is a stout climbing and prickly shrub.

Uses: Bark, leaves and unripe fruit are used to poison the fishes. They are pounded or crushed with stones and sprinkle in the river water prepared for fishing.

Chemical constituents: Bark contains lupeol, α -spinasterol and β -sitosterol

Specimen examined: KL- 2394, Yongshei (20/08/2011)

***Albizia lebbeck* (Linn.) Benth.** (Mimosaceae)

Vern. Name: *Nok-polang*

Description: A large deciduous tree with dark, rough, irregular cracked bark.

Uses: The bark is pounded into fine powder and it is then sprinkled into the river water prepared for fishing. The effect of the plant will allow fishes to gasp and makes it easier for fishing manually or using different fishing implements.

Chemical constituents: Saponin, echinocystic, oleanolic acids, triterpentin, flavonoids, vicienin.

Specimen examined: KL-176, Ngetchungching (22/07/2010)

***Datura stramonium* Linn.** (Solanaceae)

Vern. Name: *Jayep- Jük*

Description: A coarse glabrous annual herb.

Uses: Leaves and flowers are crushed and sprinkled into the water. This effect makes the fish to catch easily.

Chemical constituents: It contain alkaloids like scopolamine,

atropine, cuscohygrine and hyoscyne.

Specimen examined: KL-2379, Bura Namsang (09/07/2011)

***Diospyros lanceifolia* Roxb.** (Ebenaceae).

Vern. Name: *Ngü-shai*

Description: A middle sized tree with a spreading crown with blackish rough bark.

Uses: Bark, leaves and unripe fruit are used to poison the fishes. They are pounded and sprinkle in the water prepared for fishing.

Chemical constituents: The principles involved here might be their content of naphthoquinone derivatives such as biplumbagin and chitranone.

Specimen examined: KL- 2364, Yongshei (20/08/2011)

***Juglans regia* Linn.** (Juglandaceae)

Vern. Name: *Ngüh-nyü*

Description: A large deciduous tree with greyish bark.

Uses: Bark, leaves and unripe fruit are used to poison the fishes. They are pounded and sprinkle in the water prepared for fishing.

Chemical constituents: Juglansin, globulin, curcumicidin, & Juglone.

Specimen examined: KL- 2364, Yongshei (20/08/2011)

***Parkia timoriana* (A.DC.) Merr.** (Mimosaceae)

Vern. Name: *Yangchak*

Description: A middle sized tree with spreading branches with light grey bark.

Uses: The bark is pounded and is thrown into the water which is prepared for fishing. Later the fishes are caught easily manually or using different fishing equipments.

Chemical constituents: Arachidic acid is the most abundant fatty acid found and other acids present are behenic, stearic, palmitic, linoleic

acids and bicolargic acid .

Specimen examined: KL-2450, Yongshei (14/07/2010)

Polygonum hydropiper Linn. (Polygonaceae)

Vern. Name: *Yimbichülak*

Description: A glabrous, often glandular, annual or perennial herb upto 80 cm high.

Uses: The whole plant is crushed into paste and is thrown into the water which is prepared for fishing. Later the fishes are caught easily manually or using different fishing equipments.

Chemical constituents: It contains hyperin, rutin, quercetin, isorhamnetin and kaempferol.

Specimen examined: KL-2376, Bura Namsang (09/07/2011)

Schima wallichii (DC.) Korth. (Theaceae)

Vern. Name: *Chakpü*

Description: A large tree upto 30 m in height, with grey to black bark.

Uses: The powered form of dry bark is used to kill fishes. It is thrown in the water body prepared for fishing and later the fishes are caught manually or using different fishing implements.

Chemical constituents: It contains chemicals like falconoid aglycone and flavonal quercetin.

Specimen examined: KL-329, Sakchi (15/09/2011)

Thelypteris palustris Schott (Thelypteridaceae)

Vern. Name: *Atak Mükhat*

Description: A deciduous herb which are mostly found in marshy, swampy places or along the river banks.

Uses: The entire plant is crushed and then sprinkle in the water body prepared for fishing. Later they are caught with nets, baskets or manually.



Plate 30: Plants associated with fish poisoning

A. *Zanthoxylum armatum* DC.

C. *Polygonum hydropiper* Linn.

E & F. *Diospyros lanceifolia* Roxb.

B. *Thelypteris palustris* Schott.

D. *Juglans regia* Linn.



A



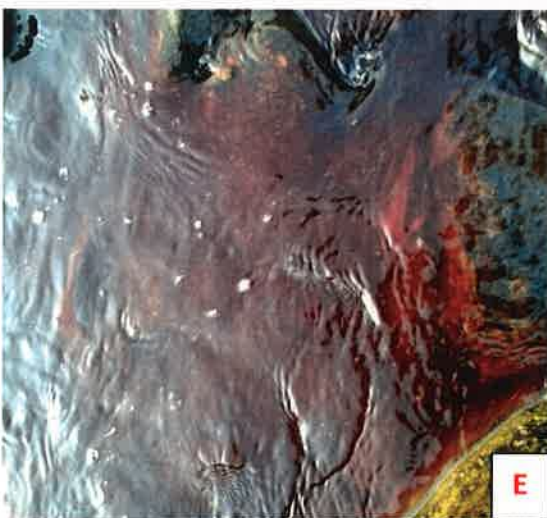
B



C



D



E



F

Plate 31: Technique involved in fish poisoning

- A.** Making of temporary dam **B.** Beating of the fruits for poisoning
C & D. Crushed plant parts are thrown into the water body
E & F. Poisoning of water body & catching of fishes manually

Specimen examined: KL-2373, BuraNamsang (09/07/2011)

***Zanthoxylum rhetsa* (Roxb.) DC. (Rutaceae)**

Vern. Name: *Hang jük*

Description: A deciduous tree upto 35m tall, with spreading crown, branchlets with prickles and hollow.

Uses: Seeds and fruits are pounded and sprinkle in the water body. It is mostly used in the month of September and October when the seeds are quite immature but it is recorded to be more effective in fish poisoning.

Chemical constituents: Tannic acid, gallic acid, and some other minerals have been isolated.

Specimen examined: KL-2390, Ponching (24/08/2010)

4.6. PLANTS USED FOR BIRD SNARING

Snaring of birds is also another common practice by the Phom-Naga tribe using different techniques and methods. They make traps smeared with gums indigenously made which are derived from plant parts. First they make the gums with the plant products and keep it in a bamboo container. They dip the bamboo stick in the bamboo container containing the gum. Then they place the bamboo stick in different areas in the appropriate places in the forest where the birds are likely to visit. Insects, worms and fruits are used as prey where they place them on the gum stick to trap the birds. This is the common method practised by the tribal people in the Longleng District. They also make traditional traps with bamboo and also using different fibres.

The plants used in bird snaring collected during the field survey of Longleng District are listed below in alphabetical order. The Botanical name, family they belong, vernacular name, uses and the specimen examined number are also furnished under each plant.

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Vern. Name: *Polong*

Description: Large evergreen tree with stiff hairs on young shoots with dark-grey to blackish brown bark.

Uses: The latex from the plant is boiled to make a sticky gum. Then the gum is smeared at the tip of the bamboo stick and places it in different locations. Birds are easily snared when they perch on the prey at the tip of the stick.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Caryota mitis* Lour. (Arecaceae)**

Vern. Name: *Hüh lak*

Description: It is a monocot palm and has a clustered stem which grows upto 10m high.

Uses: The fibre which grows around the trunk of the plant is used to make traps to catch the birds. It is placed on the ground where the birds are likely to visit.

Specimen examined: KL-2395, Bhumnyu (09/09/2010)

***Hevea brasiliensis* (Willd. ex A. Juss.) Müll. Arg. (Euphorbiaceae)**

Vern. Name: *Nyü-khong pü*

Description: It is a tree which can reach a height of up to 30 m high. It is a tropical tree which is generally found in low altitude moist areas.

Uses: The latex from the plant is boiled to make a sticky gum. Then it is placed in a bamboo container ready to use for snaring birds. Then the gum is smeared at the tip of the bamboo stick and places it in different locations. Birds are easily snared when they perch on the prey at the tip of the stick.

Specimen examined: KL-2473, (09/09/2010)

***Ficus elastica* Roxb. (Moraceae)**



Plate 32: Plants used for snaring of birds

A. *Caryota mitis* Lour.

B. *Ficus elastic* Roxb.

C. Traps made of threads from *C. Mitis*

D. A manual trap set for snaring of birds

Vern. Name: *Phampü*

Description: A large tree, initially an epiphyte, roots large and spreading.

Uses: The latex from the plant is boiled to make a sticky gum. Then the gum is smeared at the tip of the bamboo stick and places it in different locations. Birds are easily snared when they perch on the prey at the tip of the stick.

Specimen examined: KL-412, Pongching (24/08/2010)

4.7. DYE YIELDING PLANTS

Canarium bengalense Roxb. (Burseraceae)

Vern. Name: *Oeying*

Description: It is a medium sized tree with compound leaves, 30-40 cm long. The fruit is a drupe, size of a large olive and smooth.

Part(s) used: Resin

Uses: The resin extracted from the plant is boiled along with *Strobilanthes flexicaulis* to obtain a dark green colour mainly used to inscribe tattoo.

Specimen examined: KL-2310, BuraNamsang ((09/07/2011)

Canarium resineferum Bruce ex King (Burseraceae)

Vern. Name: *Oeying*

Description: It is a large tree which grows about 6-8 ft in girth.

Part(s) used: Resin

Uses: The resin extracted from the plant is boiled along with *Strobilanthes flexicaulis* to obtain a dark green colour which is mainly used to inscribe tattoo.

Specimen examined: KL-2312, BuraNamsang ((09/07/2011)

Curcuma longa Linn. (Zingiberaceae)

Vern. Name: *Haldi*

Description: A small herb with small globose rhizome, tubers at the end of fibres.

Part(s) used: Rhizome

Uses: Rhizome is grinded into fine powder and it is mixed with water then filtered. It is then used to dye fabrics and other required substances.

Specimen examined: KL-407, Yaongyimchem (24/07/2010)

***Dendrobium fimbriatum* Hook. (Orchidaceae)**

Vern. Name: *Lokong chü*

Description: An epiphytic orchid, with compressed stem, yellowish and furrowed.

Part(s) used: Stem

Usage: The stem is smashed and soaks in the water overnight. Then the yellow colour obtained is used in painting different materials and household articles.

Specimen examined: KL-2379, Pongching (24/08/2010)

***Hibiscus rosa-sinensis* Linn. (Malvaceae)**

Vern. Name: *Lejing*

Description: A shrub with ovate, acuminate, coarsely serrate leaves.

Part(s) used: Leaves and flower

Usage: Leaves and flowers are grind into fine paste adding a little water in it. Then it is applied in hair as it is good remedy for hair growth and hair colour. Leaves are often used as shampoo for washing hair.

Specimen examined: KL-179, Yongam (19/05/2010)

***Impatiens balsamina* Linn. (Balsaminaceae)**

Vern. Name: *Phale*

Description: An annual, erect herb, having swollen nodes with alternate, lanceolate and serrate leaves.

Part(s) used: Leaves and flowers

Usage: Leaves and flowers are made into fine paste and used as an agent of hair colouring.

Specimen examined: KL-2471, Longleng (08/08/2010)

***Melastoma malabathricum* Linn. (Melastomataceae)**

Vern. Name: *Nyuksem*

Description: A bushy shrub with oblong-lanceolate leaves.

Part(s) used: Fruits

Uses: Ripe fruits are crushed and the dark colour obtained is use as ink and also to dye fabrics.

Specimen examined: KL-306, Ngetchungching (24/07/2010)

***Strobilanthes flexicaulis* Hayata (Acanthaceae)**

Vern. Name: *Yümlak*

Description: It is a perennial sub-shrub growing upto 50-100 cm tall with flowers pale purple or white.

Part(s) used: Leaves

Uses: The leaves are made into fine paste and it is heated to boil for a while. Then the dark green colour obtained is used for painting and tattooing.

Specimen examined: KL-2434, BuraNamsang ((09/07/2011)

4.8. PLANTS USED AS BIO-FENCING

Bio- fencing are lines of trees or shrubs planted on house, farm or field boundaries that provide protection against cattle and wild life. It also acts as wind breaker, enrich the soil, provide shade and control dust. They are less expensive and more useful than fences made of wood, barbed wire or stony masonry. Like the rest of the community, the *Phom-Naga* tribe also make



Plate 33: Dye yielding plants

A. *Melastoma malabathricum* Linn.

C. *Hibiscus rosa-sinensis* Linn.

B. *Curcuma longa* Linn.

D. *Dendrobium fimbriatum* Hook.

boundaries with live plants and it's their traditional practice. The plant is planted not only as bio-fencing but also have other ethnobotanical uses such as insect repellent, ornamental plants, check soil erosion, dye yielding plant as well as medicinal uses.

The bio-fencing plants collected during the field survey of Longleng District in Nagaland are listed below in alphabetical order along with the family they belong, vernacular name, description of the plant, uses and the specimen examined.

***Adhatoda zeylanica* Medic. (Acantheceae)**

Vern. Name: *Shepe palak*

Description: An evergreen gregarious shrub 1-2 m high with foetid smell.

Uses: The plant is planted around the boundary as live fencing. It is use as an ornamental plant as well as got some medicinal properties.

Specimen examined: KL-2404, Shetap (09/07/2009)

***Agave Americana* Linn. (Agavaceae)**

Vern. Name: *Pünyang hao*

Description: A stout plant, bearing a rosette of leaves on a short trunk.

Uses: The plant is planted around the boundary as live fencing. It is a snake repellent plant and it is widely used as medicinal plants as well.

Specimen examined: KL-335, Ngetchungching (22/07/2010)

***Areca catechu* Linn. (Arecaceae)**

Vern. Name: *Koyü*

Description: Stems cylindrical, about 20m high, surrounded by the crown of leaves.

Uses: The plant is planted along the farm or field boundaries as live fencing that provide shade, protection against wind, got some medicinal property as well as a commercial plant.

Specimen examined: KL-114, Ngetchungching (22/07/2010)

***Carica papaya* Linn. (Caricaceae)**

Vern. Name: *Ameta*

Description: A small hollow stemmed laticiferous and soft wooden tree.

Usage: The plant is plant along the boundary of the house or kitchen garden as live fencing because of its slender, straight and tall stem. It is commonly planted as it has got medicinal values and its fruit is edible.

Specimen examined: KL-118, Pongo (30/06/2010)

***Clerodendrum colebrookianum* Walp. (Verbenaceae)**

Vern. Name: *Kai-nem*

Description: A perennial shrub with a globose crown.

Uses: The plant is planted along the field boundaries and houses as live fencing. It checks soil erosion as well as the leaf is used as vegetables.

Specimen examined: KL-2391, Longleng town (20/07/2009)

***Dendrocalamus giganteus* Munro (Poaceae)**

Vern. Name: *Müng*

Description: A tall with large culm bamboo.

Uses: The bamboo is cut and the splitted culms are used as dead fencing around the house, kitchen garden as well as in farms and field boundaries that provide protection against cattle and other wild animals.

Specimen examined: KL-3202, Yangching (12/06/2010)

***Euphorbia antiquorum* Linn. (Euphorbiaceae)**

Vern. Name: *Omapü*

Description: It is a succulent plant which is usually leafless and can reach a height of 8 m.

Uses: The plant is planted around the bamboo fencing surrounding the house as live fencing as it provides protection against cattle and other animals.

Specimen examined: KL-2465, Longleng town (20/07/2009)

***Euphorbia pulcherrima* Willd. ex Klotz. (Euphorbiaceae)**

Vern. Name: *Lakakcheü*

Description: A shrub upto 3 m high with coloured bracts.

Uses: The plant is planted around the houses as live fencing mostly because of its ornamental value.

Specimen examined: KL-2461, Longleng town (20/07/2009)

***Euphorbia royleana* Boiss. (Euphorbiaceae)**

Vern. Name: *Ow-ma*

Description: An erect fleshy shrub or small tree.

Uses: The plant is planted along the house boundaries as live fencing as it provides protection against cattle and other animals. It is also used as medicinal plant.

Specimen examined: KL-182, Yaongyimchen (13/04/2009)

***Hedychium spicatum* Hamilt. ex Smith (Zingiberaceae)**

Vern. Name: *Pongshu /Chentsüng*

Description: A herb upto 1.5 m high with leaves robust and broadly lanceolate. **Uses:** The plant is planted along the house boundaries as

live fencing as it provides bee forage, control soil erosion and use as ornamental plant.

Specimen examined: KL- 2462, Longleng town (20/07/2009)

***Hibiscus rosa-sinensis* Linn.** (Malvaceae)

Vern. Name: *Lejing*

Description: A shrub with ovate, acuminate, coarsely serrate leaves.

Uses: The plant is planted along the house boundaries as live fencing. It provides bee forage, use as medicinal plant, and use as ornamental plant as well as it yields dye for daily uses.

Specimen examined: KL-179, Yongam (19/05/2010)

***Jatropha curcas* Linn.** (Euphorbiaceae)

Vern. Name: *Pah meli*

Description: A soft wooden deciduous shrub with yellowish brown bark.

Uses: The plant is planted along the house and field boundaries because of its toxicity that provide protection against cattle. It has also got some medicinal property.

Specimen examined: KL-184, Yongya (09/05/2011)

***Lantana camara* Linn.** (Verbenaceae)

Vern. Name: *Paecheü*

Description: An erect shrub 1-2 m high with branches rambling.

Uses: The plant is planted along the house and field boundaries because of its toxicity that provide protection against cattle.

Specimen examined: KL-2463, Longleng town (20/07/2009)

***Musa paradisiaca* Linn.** (Musaceae)

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Uses: The plants are grown in boundaries of kitchen garden as live fencing. This plant bears the most commonly used fruit.

Specimen examined: KL-185, Yangching (12/06/2010)

***Psidium guajava* Linn. (Myrtaceae)**

Vern. Name: *Kong kai*

Description: A small to large evergreen or sub-deciduous tree with smooth bark.

Uses: The plants are planted in boundaries of home gardens as live fencing. It is also used as medicinal plants and the fruit is also edible.

Specimen examined: KL-189, Yongam (19/05/2010)

***Saccharum spontaneum* Linn. (Poaceae)**

Vern. Name: *Pok nyü*

Description: It is a perennial grass, growing up to three meters in height, with spreading rhizomatous roots.

Uses : The plants are planted on the farm boundaries that check soil erosion, control dust and also used for medicinal property.

Specimen examined: KL-2416, Bura Namsang (10/02/2011)

***Sansevieria zeylanica* Willd. (Agavaceae)**

Vern. Name: *Jakletja*

Description: A herbaceous plant, with leaves sword-like, stiff and smooth. .

Uses: The plant is planted along the house and garden boundaries because of its toxicity that provide protection against insect and commonly used for its snake repellent agent.

Specimen examined: KL-2464, Longleng town (20/07/2009)

***Solanum spiral* Roxb.** (Solanaceae)

Vern. Name: *Shamsa alok*

Description: An undershrub with elliptical, acute, membranous leaves.

Uses: The plants are planted around the house boundaries as live fencing.

Specimen examined: KL-2401, Bura Namsang (09/07/2011)

***Tithonia diversifolia* (Hemsl.) A.Gray** (Asteraceae)

Vern. Name: *Sayak jeü/ Bang klang*

Description: A large shrub with leaves 3-5 lobed, triangular, crenate-serrate on margin.

Uses: The plant is grown in farm or house boundaries as live fencing. It provides bee forage and use as an ornamental and medicinal plant.

Specimen examined: KL-2343, Pongching (24/08/2010)

4.9. PLANTS USED AS FIBRE

Fibres are greatly elongated substances produced by plants and animals that can be spun into filaments, thread or rope. They are woven, knitted, matted or bonded to form fabrics that are essential to society. People have been using plant fibres for thousands of years in order to make clothing, rope, paper etc. The *Phom-Naga* tribe of Longleng district also use natural fibre obtained from different plants for their daily uses. The plants from where the fibres are obtained are documented in the field. The plants used are listed below with their scientific name, local name, uses and the specimen examined.

***Aquilaria malaccensis* Lamk.** (Thymelaeaceae)

Vern. Name: *Püuh*

Description: A large evergreen tree with alternate, oblong-lanceolate, elliptic to ovate leaves.

Uses: The bark of the plant is used to make thread in house construction.

Specimen examined: KL-506, Pongching (24/08/2010)

***Calamus acanthospathatus* Griff. (Palmae)**

Vern. Name: *Vai*

Description: It is a small palm where it climbs up into the tree top which is used mostly for its cane.

Uses: A strong cord is obtained from the stem which is used in house construction and in different domestic purposes.

Specimen examined: KL-316, Shetap (09/07/2009)

***Caryota mitis* Lour. (Arecaceae)**

Vern. Name: *Hüh lak*

Description: It is a monocot palm and has a clustered stem which grows upto 10m high.

Uses: The fibre which grows around the trunk of the plant is used to make cords used for different domestic purposes. It is even used for stitching wounds after sterilizing in forest in case of emergency.

Specimen examined: KL-2395, Bhumnyu (09/09/2010)

***Entada pursaetha* DC. (Leguminaceae)**

Vern. Name: *Shakok*

Description: A large climber, wild with compound leaves.

Uses: The veins of the plant are used in tug of war. It is also used in house construction as strong cord which they beat it to soften so as to increase its flexibility to make a firmer binding.

Specimen examined: KL-2452 ,Sakchi (15/09/2011)

***Gossypium arboreum* Linn. (Malvaceae)**

Vern. Name: *Pemba*

Description: An annual or perennial shrub.

Uses: The soft fibre is spin into fine thread which is used in making clothes. They are also used to make pillows, cushions and mattresses.

Specimen examined: KL-199, Yaongyimchen (24/07/2009)

***Grewia serrulata* DC. (Tiliaceae)**

Vern. Name: *Paüha*

Description: A small semi-evergreen tree with greyish-white bark with alternate leaves and serrate margin.

Uses: The fibre obtained from the stem is used as cord in domestic purposes. It is also used in making baskets by the Phom-Naga tribe.

Specimen examined: KL-2359, Tangha (05/10/2011)

***Hibiscus abelmoschus* Linn. (Malvaceae)**

Vern. Name: *Pangkülang*

Description: A variable annual up to 6 feet high with polymorphic, palmately 5-7 lobed leaves.

Uses: The course fibre is obtained from the stem which is suitable for cordage for domestic purposes.

Specimen examined: KL-2474, Pangkülang (24/07/2009)

***Morus nigra* Linn. (Moraceae)**

Vern. Name: *Ngü bai*

Description: A deciduous moderate sized tree or shrub growing to 12 m tall.

Uses: The bark is peeled off from the tree and uses it as a rope for binding in domestic purposes.

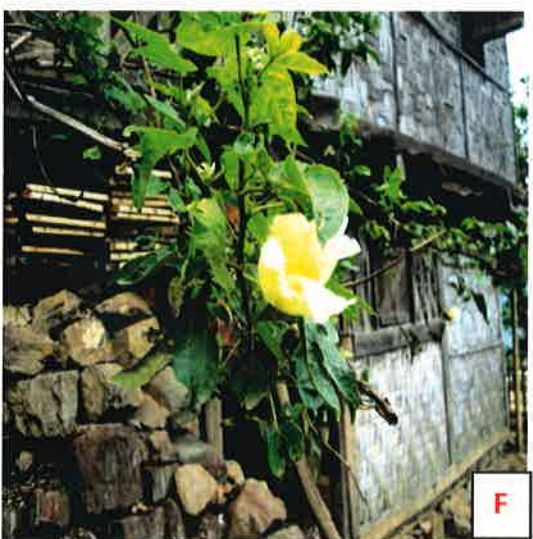
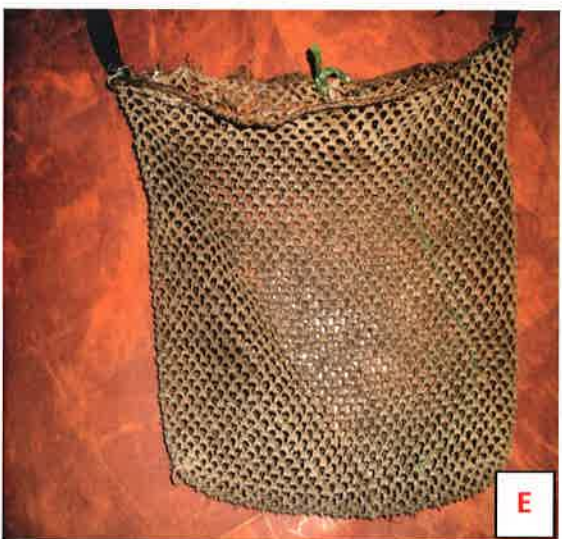
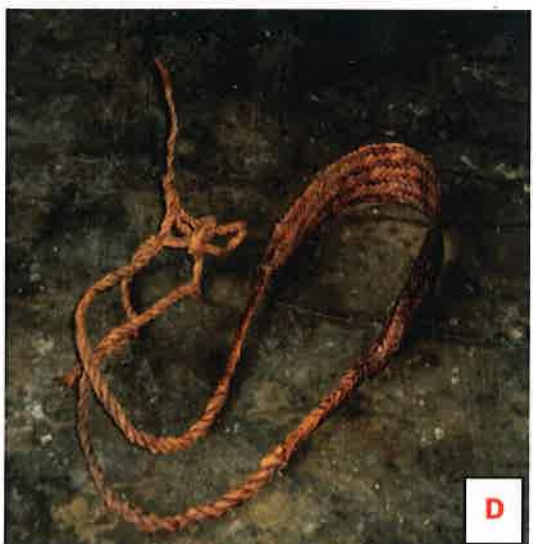


Plate 34: Plants used as fibre

A. *Entada pursaetha* DC.

C. *Caryota mitis* Lour.

E. Basket made of *Grewia serrulata*

B. *Grewia serrulata* DC.

D. Basket holder (*Pak*) made of *P. acerifolium*

F. *Gossypium arboreum* Linn.

Specimen examined: KL-307, Ngetchungching (24/07/2010)

Musa paradisiaca Linn. (Musaceae)

Vern. Name: Ngü

Description: A tall herb with aerial pseudo-stem and oblong leaves.

Uses: Fibre from the leave sheath is used as a rope for domestic purposes.

Specimen examined: KL-185, BuraNamsang (29/05/2011)

Pterospermum acerifolium (Linn.) Willd. (Sterculiaceae)

Vern. Name: Nokphu Jembü

Description: It is a shrub or small tree growing to a height of 60 feet. The bark is gray, thin and smooth..

Uses: The bark is used as thread in tightening package food, leaves, etc. It is mostly used as holder in cane and bamboo basket which they called it as 'Pak'. It is also used in house construction in making strong cords.

Specimen examined: KL-2441, BuraNamsang (10/02/2011)

4.10. PLANTS USED AS FIREWOOD

Firewood is any wooden material that is gathered and used for fuel. Generally, firewood is not highly processed and is in some sort of recognizable log or branch form. In Longleng district of Nagaland, almost all the houses have traditional kitchen and they use firewood throughout the year for cooking and to keep themselves warm.

However, demand for this fuel has led to drastic deforestation in the region. But good forestry practices and improvements in devices that use firewood can improve the local wood supplies. Some common firewood available in Longleng District is listed below with their botanical name, local

name and a brief description of the plant along with the specimen examined number.

***Alnus nepalensis* D.Don.** (Betulaceae)

Vern. Name: *Süngyang süngta*

Description: A large deciduous tree, upto 30 m tall, with compact, silvery grey bark.

Uses: Plant is commonly used as firewood.

Specimen examined: KL-111, Tamlu (09/09/2011)

***Rhus semialata* Murr.** (Anacardiaceae)

Vern. Name: *Po*

Description: A small deciduous tree about 3 m high, bark is ash-grey and warty.

Uses: Plants used as firewood.

Specimen examined: KL-2387, Orangkong (02/08/2010)

***Samanea saman* F.Muell.** (Fabaceae)

Vern. Name: *Vangkei bü*

Description: It is a wide-canopied tree with a large symmetrical crown. It usually reaches a height of 25 m and a diameter of 40 m.

Uses: The plant is used as firewood.

Specimen examined: KL-3203, Pongo (30/06/2010)

***Schima wallichii* (DC.) Korth.** (Theaceae)

Vern. Name: *Chakpü*

Description: A large tree upto 30 m in height, with grey to black bark.

Uses: Plants used as firewood.

Specimen examined: KL-329, Sakchi (15/09/2011)

4.11. PLANTS ASSOCIATED WITH SOCIO-RELIGIOUS PRACTICES AND BELIEF

Acorus calamus Linn. (Araceae)

Vern. Name: *Yongmei*

Description: An erect, robust herb upto 2 m high with aromatic rootstock.

Uses: It is used dried or fresh. The plants also have a charisma to expel evil spirit. The fresh plant parts are applied over the body externally to expel evil spirit and the dried or fresh plant is carried by a person while going to thick forest or far off field to avoid disturbance by evil spirit.

Specimen examined: KL-2346, Bura Namsang (10/02/2011)

Adhatoda zeylanica Medic. (Acantheceae)

Vern. Name: *Shepe palak*

Description: An evergreen gregarious shrub 1-2 m high with foetid smell.

Uses: The leaf paste is applied externally when a person suffers from any ailment due to disturbance by evil element or evil spirit.

Specimen examined: KL-2404, Shetap (09/07/2009)

Ageratum conyzoides Linn. (Asteraceae)

Common and Vern. Name: *Manthüng*

Description: It is an annual herb growing to 1m high, with hairy stem.

Uses: The leaf paste is used as cotton to put in the nostrils of the death body to put off bad smell.

Specimen examined: KL-103, Tamlu (05/10/2011); Tangha (16/04/2009)

***Alstonia scholaris* (Linn.) R. Br. (Apocynaceae)**

Vern. Name: *Kolisüng*

Description: A tall evergreen tree upto 25m high with milky juice.

Uses: The seeds of this plant is used to make pillows for the death person to lean in the coffin.

Specimen examined: KL-112, Ngetchungching (22/07/2010)

***Areca catechu* Linn. (Arecaceae)**

Vern. Name: *Koyü*

Description: Stems cylindrical, about 20m high, surrounded by the crown of leaves.

Uses: The nuts of *Areca catechu* and betel leaf (*Piper betel* L.) with a pinch of lime and tobacco are used as a social custom to entertain the guests by offering it mostly in social gatherings and occasions.

Specimen examined: KL-114, Ngetchungching (22/07/2010)

***Bidens pilosa* Linn. (Asteraceae)**

Vern. Name: *Ajüng hangha*

Description: Much branched annual herb which grows upto 50-60 cm in height.

Uses: It is believed that the leaves have the charisma to put away the evil spirit, sickness, etc. The leaf paste is applied externally in unconsciousness due to disturbance by evil spirit.

Specimen examined: KL-2314, Ngetchungching (22/07/2010)

***Musa paradisiaca* Linn. (Musaceae)**

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Usage: The leaf of the plant is used as a platters or wrapper, in which they wrap or offer food to the guests in wedding ceremonies and social gatherings.

Specimen examined: KL-185, Yangching (12/06/2010)

***Nicotiana tabacum* Linn. (Solanaceae)**

Vern. Name: *Mükü*

Description: An erect pubescent herb with ovate, oblong-lanceolate leaves.

Uses: The nuts of *Areca catechu* and betel leaf (*Piper betel* L.) with a pinch of lime and tobacco are used as a social custom to entertain the guests by offering it mostly in social gatherings and occasions.

Specimen examined: KL-2306, Longleng (08/08/2010)

***Ocimum basilicum* Linn. (Lamiaceae)**

Vern. Name: *Chionum*

Description: A slender aromatic herb, generally purple coloured.

Uses: The whole plant is believed to have a charisma to expel evil spirit. It is used dried in off season or can be used fresh. It is carried by a person to avoid disturbance by evil spirit or can be hanged near the door or post of the building. It is even kept under the pillow wrapped with a cloth or paper, in case a person had a bad dream.

Specimen examined: KL-197, Tangha (16/04/2009)

***Piper betle* Linn. (Piperaceae)**

Vern. Name: *Bülou*

Description: A slender climber with adventitious roots.

Uses: The nuts of *Areca catechu* and betel leaf (*Piper betel* L.) with a pinch of lime and tobacco are used as a social custom to entertain the

guests by offering it mostly in social gatherings and occasions.

Specimen examined: KL-193, Yongshei (20/08/2011)

Saccharum spontaneum Linn. (Poaceae)

Vern. Name: *Pok nyü*

Description: It is a perennial grass, growing up to three meters in height, with spreading rhizomatous roots.

Uses : Culms are eaten for any ailment due to disturbance caused by evil element or evil spirit.

Specimen examined: KL-2416, Bura Namsang (10/02/2011)

4.12. PLANTS USED FOR WRAPPING FOOD ITEM

Amomum subulatum Roxb. (Zingiberaceae)

Vern. Name: *Ahjök-bü*

Description: A robust ginger with stout stems.

Uses: The leaves are widely used for wrapping edible food item such as fermented soya bean, dry fish, meat, fishes, etc.

Specimen examined: KL-810, Yongshei (20/08/2011)

Canna indica Linn. (Cannaceae)

Vern. Name: *Ongtsü-O*

Description: A perennial, rhizomatous herb with ovate leaves.

Uses : Leaves used to fashion small plates for use in homes. Also used to wrap fish fillets for baking in hot ashes in village homes or while out fishing in the hill streams and or while cooking out-door.

Specimen examined: KL-330, Shetap (09/07/2009)

Curcuma angustifolia Roxb. (Zingiberaceae)

Vern. Name: *Haldi*

Description: Small herb with small globose rhizome, tubers at the end of fibres.

Uses: It has been in use since time immemorial for packing and wrapping edible items such as common salt, lentil, fresh and dry fish, meat, betel leaf, fruits, vegetables.

Specimen examined: KL-2308, Tangha (16/04/2009)

***Ficus carica* Linn.** (Moraceae)

Vern. Name: *Nang lak*

Description: A deciduous spreading small tree with large, ovate, alternate leaves.

Uses: The large broad leaves of the plant has been using since time immemorial for packing and wrapping edible items. It is especially used in wrapping an indigenous food item known as "Phaishong".

Specimen examined: KL-713, Tangha (17/04/2009)

***Musa paradisiaca* Linn.** (Musaceae)

Vern. Name: *Ngü*

Description: A tall herb with aerial pseudo-stem and the leaves are oblong.

Uses: The leaf of the plant is used as a platters or wrapper, in which they wrap or offer food to the guests in wedding ceremonies and social gatherings.

Specimen examined: KL-185, Yangching (12/06/2010)

***Phrynium capitatum* Willd.** (Marantaceae)

Vern. Name: *Molai*

Description: Rhizomatic evergreen plant bearing tall petioles with a broad shiny leaves.



Plate 35: Plants used for wrapping food item

- A.** *Pterospermum acerifolium* (Linn.) Willd. **B.** *Canna indica* Linn.
C. *Phrynium capitatum* Willd. **D.** *Ficus carica* Linn.
E. *Musa paradisiaca* Linn.
F. Wrapping up of *Rhus semialata* with banana leaf

Uses : Leaves used to fashion small plates for use in homes. Also used to wrap fish fillets for baking in hot ashes in village homes or while out fishing in the hill streams and or while cooking out-door.

Specimen examined: KL-331, Shetap (09/07/2009)

***Pterospermum acerifolium* (Linn.) Willd. (Sterculiaceae)**

Vern. Name: *Nokbü jembü*

Description: It is a shrub or small tree growing to a height of 60 feet. The bark is gray, thin and smooth. .

Uses: The tree is known as Dinner plate tree and it is widely used as plates in outdoor dinner and for wrapping food materials like rice, fish, fermented soya bean and dry fish, etc.

Specimen examined: KL-2441, BuraNamsang (10/02/2011)

4.13. THE USES OF BAMBOO AND CANE

The *Phom-Nagas* have a rich tradition of art and craft rooted in a lifestyle that has always been harmony with the environment they live in. Skilled tribal craftsman and artisans have always been the pillars of a tribal society that had, for many centuries, been self-sufficient. They lent their skills to creating items of utility as well those with ritualistic and aesthetic value. Like the rest of the tribes in Nagaland, the *Phom- Naga* tribe of Longleng District are also known for their fineness and delicacy of work that gives it a lace-like appearance. The local indigenous inhabitants of Longleng District master in the art of making baskets which are decorative and functional as well.. Most of the local indigenous inhabitants of Nagaland know the art of making baskets from bamboo and cane. Bamboo and cane are easily available in the neighbouring forest lands. Bamboo and cane works of the *Phom-Naga* tribe form an important part of the handicrafts of the state. The raw material is found in abundance in the district and bamboo splits are sold in bundles of thousand. The uses of cane and bamboo in the life of the *Phom-Naga* tribe are listed below giving the scientific name, vernacular name, description of the plant, its uses and the specimen examined.

***Bambusa balcooa* Roxb. (Poaceae)**

Vern. Name: *Mungh*

Description: A densely tufted, sympodial bamboo. Culm erect with pendulous tip, 5-30 m tall, and 2.5-10 cm in diameter near the base.

Uses: Culms used as post of the house. Splitted culms are used in making wall, rafters, ceiling and rope useful in making house.

Specimen examined: KL-315,

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted, upto 20m in height, 5-10 cm in diameter, hollow, smooth and green

Uses: Culms are used to make purlin, walls and internal decoration of the house. It is also used in making planks.

Specimen examined: KL-168, Nian (17/05/2010)

***Calamus acanthospathatus* Griff. (Palmae)**

Vern. Name: *Vai*

Description: It is a small palm where it climbs up into the tree top which is used mostly for its cane.

Uses: The plant is mostly used to make ropes in house construction and also used in internal decoration.

Specimen examined: KL-316, Shetap (09/07/2009)

***Calamus erectus* Roxb. (Arecaceae)**

Vern. Name: *Vai-nyü*

Description: Stems clustered, non-climbing, free standing or sometimes leaning plant.

Uses: The cane is used to make different varieties of furniture, trays, baskets and show pieces.

Specimen examined: KL-302, Ngetchungching (23/07/2010)

***Calamus leptospadix* Griff. (Arecaceae)**

Vern. Name: *Vai-ha*

Description: A slender cluster forming climber; stem thickened at joints, with leaf-sheaths 12-20 mm in diameter, naked stem smooth, 8-10 mm in diameter at the internodes.

Uses: The cane is used to make different varieties of furniture, trays, baskets and show pieces

Specimen examined: KL-301, Ngetchungching (23/07/2010)

***Calamus guruba* (Buch.) Ham. (Arecaceae)**

Vern. Name: *Veinyü*

Description: It is a perennial shrub that clusters to form dense clumps. It is a high climbing plant.

Uses: It is used for domestic purposes like walking stick and rope for construction.

Specimen examined: KL-503, Pongching (24/08/2010)

***Calamus palustris* Griff. (Arecaceae)**

Vern. Name: *Veiyang*

Description: It is dioecious rattan palm species in the genus *calamus*.

Uses: It is used to make furniture and it is commercially available mainly for its cane.

Specimen examined: KL-504, Pongching (24/08/2010)

***Dendrocalamus gigantean* Linn. (Poaceae)**

Vern. Name: *Müng*

Description: It is a giant tropical and subtropical clumping species with gigantic large culms between 25-35 m tall and 15-30 cm in diameter.

Uses: Mostly used as purlin and post of the house. It is also used in making ropes and also planks. The culms are used to make local reservoir for wine, vegetable seeds and water.

Specimen examined: KL-3202, Yangching (12/06/2010)

***Dendrocalamus hamiltonii* Nees & Arn. (Poaceae)**

Vern. Name: *Avüng*

Description: It is a giant, evergreen, clumping, multipurpose bamboo with strong culms which are mainly used for construction which grows upto 12-20 m tall.

Uses: Culms are used to make variety of baskets of different shapes (*Hav, Hang, Ko, Saito & Mühto*) and mats (*Am*) and mainly used for construction of houses.

Specimen examined: KL-3204, Yangching (12/06/2010)

***Dendrocalamus strictus* (Roxb.) Nees (Poaceae)**

Vern. Name: *Meihangvüng*

Description: A tall shrub with a crowded clump habit and large erect culms.

Uses: The extraordinary strength and lightness of bamboo stems make them an excellent building material in the construction of houses, woven mats, and bowls, trays, baskets, etc.

Specimen examined: KL-505, Pongching (24/08/2010)

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

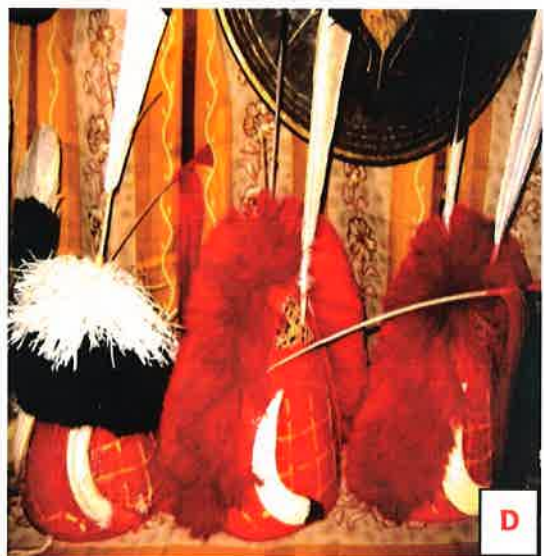
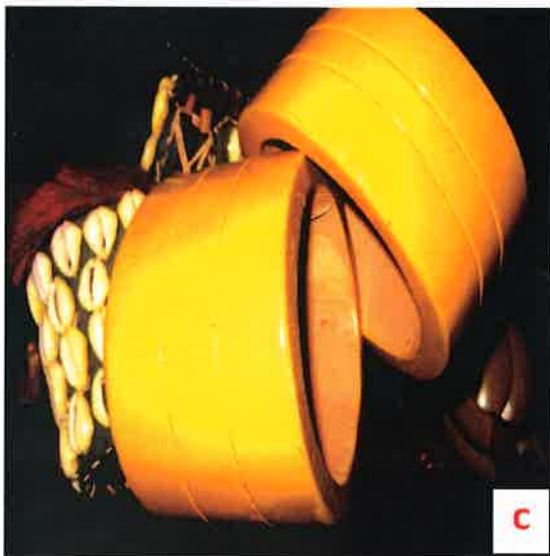


Plate 36: The uses of Bamboo and Cane

- A.** Different bamboo species
- C.** *Aglet made of bamboo species.*
- E.** Variety of domestic articles

- B.** Bamboo mugs
- D.** Head gear made of bamboo species
- F.** Manual fire blower made of bamboo



A



B



C



D



E



F

Plate 37: The uses of Bamboo and Cane

A. Baskets of different shape made of bamboo and cane

B. Traditional wrapper made of bamboo culms.

C. Different weaving implement

D. Mat (Amnyü) made of bamboo

E. Cane rope to tie wild animals

F. Bamboo basket (Mühto)

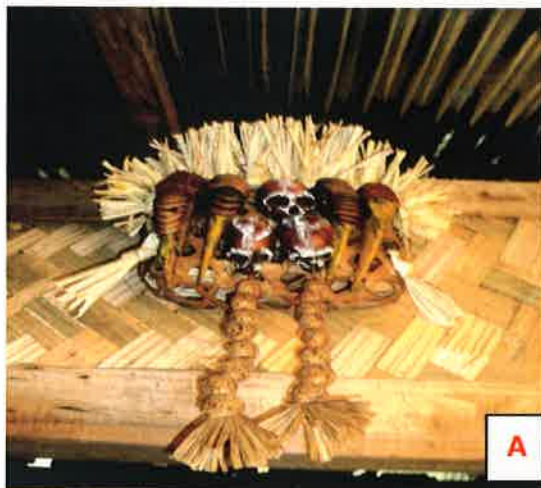


Plate 38: The uses of Bamboo and Cane

A. A show piece made of bamboo & skull
C. Cloth basket (Shaonyu) made of cane
E & F. Cane tray

B. A man making bamboo mat (Amnyü)
D. Basket made of bamboo (Gho)

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: The lightness and thinness of bamboo stems make them a good material in making variety of stuffs, woven mats, trays, baskets, etc. It is also used to make different musical instruments.

Specimen examined: KL-2467, Pongching (24/08/2010)

4.14. PLANTS USED IN CONSTRUCTION OF HOUSE

Albizia lebbbeck (Linn.) Benth. (Mimosaceae)

Vern. Name: *Nok-polang*

Description: A large deciduous tree with dark, rough, irregular cracked bark. **Uses:** The wood of this plant is used to make post of the house.

Specimen examined: KL-176, Pongo (08/08/2009)

Alnus nepalensis D.Don. (Betulaceae)

Vern. Name: *Süngyang süngta*

Description: A deciduous tree upto 30m high with compact, silvery grey bark. **Uses:** Wood is used to make post of the house.

Specimen examined: KL-111, Tamlu (09/09/2011)

Aquilaria malaccensis Lamk. (Thymelaeaceae)

Vern. Name: *Püuh*

Description: A large evergreen tree with alternate, oblong-lanceolate, elliptic to ovate leaves.

Uses: The bark of the plant is used to make thread in house construction.

Specimen examined: KL-506, Pongching (24/08/2010)

***Arundo donax* Linn. (Poaceae)**

Vern. Name: *Ownya sheb*

Description: It is a tall perennial cane growing in damp soils, either fresh or moderately saline.

Uses: The stem is used in making roofs in traditional house.

Specimen examined: KL-3223, Ngetchungching (23/07/2010)

***Bambusa balcooa* Roxb. (Poaceae)**

Vern. Name: *Mungh*

Description: A densely tufted, sympodial bamboo. Culm erect with pendulous tip, 5-30 m tall, and 2.5-10 cm in diameter near the base.

Uses: Culms used as post of the house. It is also used in making wall, rafters, ceiling and rope useful in making house.

Specimen examined: KL-315, Yongya (09/05/2011)

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: Culms are used to make purlin, walls and internal decoration of the house. It is also used in making planks.

Specimen examined: KL-168, Nian (17/05/2010)

***Calamus acanthospathatus* Griff. (Palmae)**

Vern. Name: *Vai*

Description: It is a common climbing palm found in tropical region.

Uses: The plant is mostly used to make ropes in house construction and also used in internal decoration.

Specimen examined: KL-316, Shetap (09/07/2009)

***Caryota mitis* Lour. (Arecaceae)**

Vern. Name: *Hüh lak*

Description: It is a monocot palm and has a clustered stem which grows upto 10m high.

Uses: The leaves are used to make roofs in traditional bamboo house.

Specimen examined: KL-2395, Bhumnyu (09/09/2010)

***Cryptomeri japonica* Thunb. ex Linn. (Cupressaceae)**

Vern. Name: *Vanglückpü*

Description: It is a very large evergreen tree, reaching up to 70 m tall and 4 m trunk diameter, with red-brown bark which peels in vertical strips.

Uses: The wood used in making post of the house.

Specimen examined: KL-715, Yongam, (19/05/2010)

***Dendrocalamus gigantean* Linn. (Poaceae)**

Vern. Name: *Müng*

Description: It is a giant tropical and subtropical clumping species with gigantic large culms between 25-35 m tall and 15-30 cm in diameter.

Uses: Mostly used as purlin and post of the house. It is also used in making ropes and also planks.

Specimen examined: KL-3202, Yangching (12/06/2010)

***Duabanga grandiflora* (Roxb. ex DC.) Walp. (Sonneratiaceae)**

Vern. Name: *Paupü*

Description: A tall tree with dropping branches.

Uses: Plants used as in making purlin, post and beam of the house. .

Specimen examined: KL-328, Sakchi (15/09/2011)

***Endospermum chinensis* Benth.** (Euphorbiaceae)

Vern. Name: *Haldi chapa*

Description: It is a large tree which grows upto 6-35 m tall with gray-brown bark.

Uses: The plant is mostly used in making doors and windows. It is also used to make beam and post of the house.

Specimen examined: KL-322, Yongya (09/05/2011)

***Mesua ferrea* Linn.** (Clusiaceae)

Vern. Name: *Kailangpü*

Description: A large tree up to 40 m high, bark dark grey to dark brown.

Uses: The wood is mostly used in making post and beam of the house.

Specimen examined: KL-719, Yongam, (19/05/2010)

***Michelia champaca* Linn.** (Magnoliaceae)

Vern. Name: *Tita chapa*

Description: A large tree upto 25 m high with greyish-brown bark.

Uses: The wood of the plant is used in making fine furniture of the house. It is also used in making doors and windows.

Specimen examined: KL-3209, Yangching (12/06/2010)

***Phoebe goalparensis* Hutch.** (Lauraceae)

Vern. Name: *Ching glük*

Description: It is a tall evergreen tree with a compact crown, buttresses at the base and a clear bole of 14-17 m.

Uses: The post is mostly used in making furniture, windows and doors and post of the house. It is also used as rafters.

Specimen examined: KL-317, Yongya (09/05/2011)

***Pinus patula* Sch. ex Schl. & Cham. (Pinaceae)**

Vern. Name: *Kiphie*

Description: It is an evergreen tree which grows to 40 m tall usually with a single, straight, slender trunk; in closed canopy stands.

Uses: The wood is used in making post of house, internal decorations and decorative ceilings.

Specimen examined: KL-334, Yongya (09/05/2011)

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: It is used in making cords and in making bamboo floor.

Specimen examined: KL-2467, Pongching (24/08/2010)

***Tectona grandis* Linn. (Verbenaceae)**

Vern. Name: *Tik*

Description: A large deciduous tree with brown bark.

Uses: The wood is used in making post of house, decorative ceilings and walls, and fine furniture.

Specimen examined: KL-332, Yongya (09/05/2011)

***Terminalia myriocarpa* Heurck & Muell.Arg. (Combretaceae)**

Vern. Name: *Larak bü*

Description: It is an evergreen tree growing up to 35 m tall, trunk to 2.8 m in diameter with large buttresses.

Uses: The wood is used in making post of the house. It is also used to make doors and windows,

Specimen examined: KL-723, Yongam, (19/05/2010)

***Terminalia tomentosa* Wight & Arn.** (Combretaceae)

Vern. Name: *Larak bü*

Description: It is a tree growing to 30 m tall, with a trunk diameter of 1m.

Uses: The wood is used in making post of the house. It is also used to make doors and windows.

Specimen examined: KL-724, Yongam, (19/05/2010)

4.15. PLANTS USED FOR MASTICATION

***Areca catechu* Linn.** (Arecaceae)

Vern. Name: *Koyü*

Description: Stems cylindrical, about 20m high, surrounded by the crown of leaves.

Uses: Raw nuts are extensively used as masticatory substance with betel-leaf (*Piper betle*), tobacco leaf (*Nicotina tabacum*), and a pinch of lime. It is widely cultivated.

Specimen examined: KL-114, Ngetchungching (22/07/2010)

***Callicarpa arborea* Roxb.** (Verbenaceae)

Vern. Name: *Shenpü*

Description: A small evergreen tree with corky, brown bark.

Uses: The bark is chewed along with betel nut to give a pleasant taste.

Specimen examined: KL-314, Tangha (09/07/2011)

***Cannabis sativa* Linn.** (Cannabaceae)

Vern. Name: *Ganja*

Description: A strong smelling, resinous, annual to perennial herb which grows upto 2m tall.

Uses: The Smashed dried leaves are used for smoking as well as inhaling.

Specimen examined: KL-172, Ngetchungching (23/07/2010)

***Cinnamomum zeylanicum* Breyn (Lauraceae)**

Vern. Name: *Longkok*

Description: A moderate sized tree of about 15 m height with reddish-brown bark.

Uses: The bark has a very strong flavour and is widely used in chewing or a common masticator substance.

Specimen examined: KL-2378, Hukpang (21/05/2011)

***Ficus semicordata* (Buch.) Ham. ex Smith (Moraceae)**

Vern. Name: *Atha-bu*

Description: A moderate sized tree with dark grey bark.

Uses: The bark of the fig plant is used as a masticatory substance and it is chewed along with betel leaf and nut.

Specimen examined: KL-413, Pongching (24/08/2010)

***Nicotiana tabacum* Linn. (Solanaceae)**

Vern. Name: *Mükü*

Description: An erect pubescent herb with ovate, oblong-lanceolate leaves.

Uses: Dried leaves are chewed with betel-nuts and betel leaves. Dried leaves are even used for smoking.

Specimen examined: KL-2306, Longleng (08/08/2010)

***Piper betle* Linn. (Piperaceae)**

Vern. Name: *Bülou*

Description: A slender climber with adventitious roots.

Uses: Leaves are aromatic, stimulant and are used as masticatory with betel nut (*Areca catechu*). It has been used as a tradition from the forefathers to eat betel-nut with betel-leaf. They keep it at almost all the house-hold in a bamboo-made basket and offer it to the guest or visitor. It is widely cultivated to sell in the market.

Specimen examined: KL-193, Yongshei (20/08/2011)

4.16. PLANTS USED FOR MAKING HOUSEHOLD ARTICLES, AGRICULTURAL IMPLEMENTS AND FURNITURE.

Albizia lebbeck (Linn.) Benth. (Mimosaceae)

Vern. Name: *Nok-polang*

Description: A large deciduous tree with dark, rough, irregular cracked bark.

Uses: Wood of this plant is used to make paddy husking block, handles, etc.

Specimen examined: KL-176, Pongo (08/08/2009)

Alnus nepalensis D.Don. (Betulaceae)

Vern. Name: *Süngyang süngta*

Description: A deciduous tree upto 30m high with compact, silvery grey bark.

Uses: The wood is used to make furniture at home.

Specimen examined: KL-111, Yongya (27/09/2010)

Aquilaria malaccensis Lamk. (Thymelaeaceae)

Vern. Name: *Püuh*

Description: A large evergreen tree with alternate, oblong-lanceolate, elliptic to ovate leaves.

Uses: The wood is used to make furniture. It is also used to make traditional belt.

Specimen examined: KL-506, Pongching (24/08/2010)

***Artocarpus heterophyllus* Lamk. (Moraceae)**

Vern. Name: *Polong*

Description: Large evergreen tree with stiff hairs on young shoots.

Uses: Wood of this plant is used to make handle of sickle (*Hahvet long khoi*) and spade (*Mertsüng*). It is also used to make mortar for husking paddy and also for making furniture.

Specimen examined: KL-166, Sakchi (15/09/2011)

***Atocarpus lakoocha* Roxb. (Moraceae)**

Vern. Name: *Bao-nyü jük*

Description: It is a medium to large deciduous tree with a spreading crown.

Uses: The wood is used to make furniture at homes.

Specimen examined: KL-709, Tangha (17/04/2009)

***Bambusa balcooa* Roxb. (Poaceae)**

Vern. Name: *Mungh*

Description: A densely tufted, sympodial bamboo. Culm erect with pendulous tip, 5-30 m tall, and 2.5-10 cm in diameter near the base.

Uses: Culms are used to make reservoir for local beer and paddy.

Specimen examined: KL-315, Yongya (09/05/2011)

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted, upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: The lower portion of the culms is used to make the handle of axe (*Ah*), spade (*Koha*), and Dao (*Yan*). The tip of the plant is used to make local dust gatherer (*Phak lak*). It is also used in basket making, mats, trays, etc.

Specimen examined: KL-168, Nian (17/05/2010)

***Callistemon viminalis* (Gaertn.) G.Don. (Myrtaceae)**

Vern. Name: *Ching soü*

Description: It is an evergreen shrub or small tree, has a dense, multitrunked, low-branching, pendulous growth habit and a moderate growth rate which grows upto 30 feet high.

Uses: The wood of the plant is used in making fine furniture of the house.

Specimen examined: KL-3209, Hukpang (21/05/2011)

***Chikrassia tabularis* A.Juss. (Clusiaceae)**

Vern. Name: *Lanyang*

Description: It is a tall deciduous tree with a cylindrical bole and spreading crown.

Uses: The wood is used in making furniture, doors, windows, planks, beam and even light flooring.

Specimen examined: KL-3229, Orangkong (02/08/2010)

***Cryptomeri japonica* Thunb. ex Linn. (Cupressaceae)**

Vern. Name: *Vanglückpü*

Description: It is a very large evergreen tree, reaching up to 70 m tall and 4 m trunk diameter, with red-brown bark which peels in vertical strips.

Uses: The wood used in making furniture.

Specimen examined: KL-715, Yongam, (19/05/2010)

***Dendrocalamus gigantean* Linn. (Poaceae)**

Vern. Name: *Müng*

Description: It is a giant tropical and subtropical clumping species with gigantic large culms between 25-35 m tall and 15-30 cm in diameter.

Uses: The culms are used to make local reservoir for wine, vegetable seeds and water.

Specimen examined: KL-3202, Yangching (12/06/2010)

***Dendrocalamus hamiltonii* Nees & Arn. (Poaceae)**

Vern. Name: *Avüng*

Description: It is a giant, evergreen, clumping, multipurpose bamboo with strong culms which are mainly used for construction which grows upto 12-20 m tall.

Uses: Culms are used to make variety of baskets of different shapes (*Hav, Hang, Ko, Saito & Mühto*) and mats (*Am*).

Specimen examined: KL-3204, Yangching (12/06/2010)

***Duabanga grandiflora* (Roxb. ex DC.) Walp. (Sonneratiaceae)**

Vern. Name: *Paupü*

Description: A tall tree with dropping branches.

Uses: The timber yield from the plant is used to make fine furniture.

Specimen examined: KL-328, Sakchi (15/09/2011)

***Endospermum chinensis* Benth.** (Euphorbiaceae)

Vern. Name: *Haldi chapa*

Description: It is a large trees which grows upto 6-35 m tall with gray-brown bark.

Uses: The plant is mostly used in making furniture.

Specimen examined: KL-322, Yongya (09/05/2011)

***Juglans regia* Linn.** (Juglandaceae)

Vern. Name: *Ngüh*

Description: A large deciduous tree with greyish bark.

Uses: The wood of this plant is used to make furniture.

Specimen examined: KL- 2364, Yongshei (20/08/2011)

***Lagenaria siceraria* Mol.** (Cucurbitaceae)

Vern. Name: *Üm*

Description: It is an annual climber growing to 9 m at a fast rate. It is in flower from August to September.

Uses: The dry shell of well-ripened fruits is very hard and can be used for many purposes such as bottles, bowls, spoons and baskets.

Specimen examined: KL-714, Tangha (17/04/2009)

***Mesua ferrea* Linn.** (Clusiaceae)

Vern. Name: *Kailangbü*

Description: A large tree up to 40 m high, bark dark grey to dark brown.

Uses: The wood is used in making furniture. It is also used to make Lansho (Walking stick), Spear handle and Müyong (An implement used in weaving clothes).

Specimen examined: KL-719, Yongam, (19/05/2010)

***Michelia champaca* Linn. (Magnoliaceae)**

Vern. Name: *Tita chapa*

Description: A large tree upto 25 m high with greyish-brown bark.

Uses: The wood of the plant is used in making fine furniture of the house.

Specimen examined: KL-3209, Yangching (12/06/2010)

***Phoebe goalparensis* Hutch. (Lauraceae)**

Vern. Name: *Ching glük*

Description: It is a tall evergreen tree with a compact crown, buttresses at the base and a clear bole of 14-17 m.

Uses: The post is mostly used in making furniture.

Specimen examined: KL-317, Yongya (09/05/2011)

***Pinus patula* Sch. ex Schl. & Cham. (Pinaceae)**

Vern. Name: *Kiphie*

Description: It is an evergreen tree which grows to 40 m tall usually with a single, straight, slender trunk; in closed canopy stands.

Uses: The wood is used in making furniture.

Specimen examined: KL-334, Yongya (09/05/2011)

***Samanea saman* F.Muell. (Fabaceae)**

Vern. Name: *Vangkei bü*

Description: It is a large tropical tree growing as much as 60 m tall, with rough wrinkled bark and developing a symmetrical broad umbrella shaped crown .

Uses: The wood mostly used to make furniture.

Specimen examined: KL-3203, Yangching (12/06/2010)

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: The lightness and thinness of bamboo stems make them a good material in making variety of stuffs, woven mats, trays, baskets, etc.

Specimen examined: KL-2467, Pongching (24/08/2010)

***Tectona grandis* Linn. (Verbenaceae)**

Vern. Name: *Tik*

Description: A large deciduous tree with brown bark.

Uses: The wood is used in making fine furniture.

Specimen examined: KL-332, Yongya (09/05/2011)

***Terminalia myriocarpa* Heurck & Muell.Arg. (Combretaceae)**

Vern. Name: *Larak bü*

Description: : It is an evergreen tree growing up to 35 m tall, trunk to 2.8 m in diameter with large buttresses

Uses: The wood is used in making furniture.

Specimen examined: KL-723, Yongshei, (19/05/2010)

***Terminalia tomentosa* Wight & Arn. (Combretaceae)**

Vern. Name: *Larak bü*

Description: It is a tree growing to 30 m tall, with a trunk diameter of 1m.

Uses: The wood is used in making furniture.

Specimen examined: KL-724, Yongam, (19/05/2010)

4.17. MUSICAL INSTRUMENT OF THE PHOM- NAGA TRIBE AND THE PLANTS ASSOCIATED WITH IT

Folk- tales, folk-dances and folk-songs play an important role in the life of *Phom-Naga* tribe. As the modern education of writing and reading has come to the areas very late, the people still practice these three methods in transmitting their tradition, culture and the moral values to their children. Folk-tales were passed down from generation to generation orally and it was embodied in folk-songs, and they are always accompanied by musical instruments. These musical instruments are not sophisticated one but made out of wood, bamboo or plants available which shows their close association with nature. A very brief description of some musical instrument used by the *Phom-Naga* tribe is given below.

A) UM-OH

Um-oh (Cup violin) is a typical musical instrument used by the *Phom-Naga* tribe and it is usually associated with folk-music and folk-dance. The instrument consists of two basic parts-the body and the bow. Both the body and the bow are made up of bamboo. In the bow thread is taken from several materials, bamboo thread, cotton thread or thread from some plant species. The bow can be used to play it with.

***Caryota urens* Linn. (Arecaceae)**

Vern. Name: *Phom-lok*

Description: A lofty palm with smooth, cylindrical, shiny, annulate trunk with crown of leaves.

Uses: The bark of the plant is used to make strings in Um-oh musical instrument.

Specimen examined: KL-710, Yongshei, (19/05/2010)

***Gossypium arboreum* Linn. (Malvaceae)**

Vern. Name: *Pemba*

Description: An annual or perennial shrub.

Uses: Cotton thread is used to make strings in Um-oh musical instrument.

Specimen examined: KL-199, Yongshei, (19/05/2010)

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: The thread yield from the bamboo is used to make strings in Um-oh musical instrument.

Specimen examined: KL-168, Nian (17/05/2010)

B) KONGKHI

Kongkhi (Bamboo mouth organ) is another musical instrument used by the *Phom-Nagas*. It is made of bamboo. Kongkhi is a single reed instrument consisting of a vibrating reed or tongue which is cut from a single piece of bamboo. The instrument is held horizontally with the bamboo tongue in front of the opened mouth. The left end is hit by the thumb of the right hand. This makes the bamboo tongue vibrate which causes the sound. The dimensions of the 'Kongkhi' are roughly 7-8 inches in length and 0.75- 1 inch in width.

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: The lightness and thinness of bamboo stems make them a good material in making this musical instrument which is easy to cut and handle.

Specimen examined: KL-2467, Pongching (24/08/2010)

C) SHÜM

Shüm (Log drum) is one of the amazing creations of the *Phom-Nagas*. The size of the log drum varies from place to place. They are hollowed out from a single trunk as much as 3 to 12 meters in circumference, carved at one end with huge figure head leaving a long slit on the top running down the whole length of the body of the drum. In the past, log-drums were used for war- purposes, to announce the approach of an enemy and retreat. It is also used as an alarm or warning against enemies, summoning public, in death mourning, in community fishing and hunting, celebration or festivals and also in death of an important person in the village. There is no particular tree to make the log drum but it should obtain from a tall, large single tree. There are many types of trees used in different villages but the one that is mostly used is given below. Vanglүkpү is commonly used because of its size and availability.

***Cryptomeri japonica* Thunb. ex Linn. (Cupressaceae)**

Vern. Name: *Vanglүkpү*

Description: It is a very large evergreen tree, reaching up to 70 m tall and 4 m trunk diameter, with red-brown bark which peels in vertical strips.

Uses: The large wood is used to make log drum which is kept in a particular place for the use of the community.

Specimen examined: KL-715, Yongam, (19/05/2010)

D) JEMJI

It is a kind of flute used by the *Phom-Naga* tribe made of a thin slender bamboo without any knot in it, where one end of the bamboo is cut in the shape of a nib and in it another nip shape wood is inserted to make whistle sound when blown. It has six finger holes and the instrument is about 15- 18 inches in length.

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: The thinness of the bamboo makes it easy to make this kind of flute which is widely used by the *Phom-Naga* tribe.

Specimen examined: KL-2467, Pongching (24/08/2010)

E) CHEKYONG

Chekyong (Trumpet) can be made with several materials including bamboo. In case of a bamboo trumpet, a bamboo is cut about 4-5 feet with two nodes, upper and lower nodes and the node in the lower end is to be opened with a spear blade so that the sound is passed through the hole. In the upper node a small hole is made and in it a small short bamboo, a size of a finger is fixed from where the blower will blow with the help of the tongue and lips.

***Schizostachyum dullooa* (Gamble) Majumdar (Poaceae)**

Vern. Name: *Ah-Phom*

Description: It is a perennial herb with short rhizome with culms erect, leaning or scandent which grows upto 6-9 m tall.

Uses: This indigenous trumpet is a small sized instrument which is made out of the bamboo *S.dullooa* that makes the blower easy to handle and use because of its lightness.

Specimen examined: KL-2467, Pongching (24/08/2010)

4.18. PLANTS ASSOCIATED WITH INDIGENOUS SPORTS AND GAMES

PANGSHUNG

Pangshung (Top) is a common game played by the *Phom-Naga* tribe. It is played by people of all age group in different occasions and festivals. The game is based on the fact that a wooden block craved in the shape of a cone is allowed to

spin on the ground and the winning of the game depends on the duration of the spin. It is an interesting game played all around the district. The name of the plant used to carve this particular instrument is given in detail along with the scientific name, description and specimen examined number.

***Quercus serrata* Murr. (Fagaceae)**

Vern. Name: *Longkum-bü*

Description: It is a deciduous oak which grows upto 25 m tall, with long, narrow, toothed, dark green leaves, and grey or dark reddish brown bark.

Uses: The wood is used to carve out the top (Pangshung) which is a traditional game and commonly played in many occasions and festivals. **Specimen examined:** KL-3231, Tangha ((17/04/2009)

VONGPHAK

Vongphak (Bamboo walking) is an indigenous sports not only played by the *Phom-Naga* but also by some of the tribes of Nagaland including Ao-Tribe. The game involves two straight bamboo stick of equal size and height of around 5-6 feet long with a prominent nodes at both the bamboo placed in equal height about 2 feet from the ground level. The node is used to rest the person's foot ready to race holding the two bamboo stick with one hand each. Then the race begins by walking standing on the nodes of the bamboo stick to reach the marked destination. It is a game played by all age group but played popularly among the young boys of the villages. The plant involved in this game is a bamboo plant, below the scientific name, vernacular name, description of the plant and specimen examined number is given.

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted, upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: This plant is used for this purpose because of its strong and tufted culms.

Specimen examined: KL-168, Nian (17/05/2010)

PÜLAH

Pülah (Crossbow shooting) is another indigenous sport played by the *Phom-Naga* tribe. It is a powerful weapon made up of bamboo, fibre and bone. It is made of a thick and strong bamboo beam, wider at the centre and tapers towards the end, held in a slot in the wooden cross-beam. The wooden cross-beam has a groove at the top on which the arrow rest. Towards the back of the cross-beam, a trigger assembly made of bone is used to hold the bow in tension as the bow string made of fibre rope is held by the back of the trigger.

***Bambusa tulda* Roxb. (Poaceae)**

Vern. Name: *Nget*

Description: Culms tufted, upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: The culms are split, then smoothen and polished to make the cross beam as well as the arrow.

Specimen examined: KL-168, Nian (17/05/2010)

VONGBU ADAK

Vongbu adak (Bamboo climbing) was originally meant for viewing or spotting enemies from a distance. A man would climb up the bamboo without the help of the feet but only with his hands. If no enemies were spotted, the climber descended the bamboo head long (climbed down upside down). If enemies were sighted, the climber simply jumped down freely. Now it is played as a game during festivals and in different occasions in a modified form.

***Bambusa tulda* Roxb. (Poaceae)**



Plate 39: Musical instruments

A. Kongkhi (Bamboo mouth organ)

B. Jemji (Bamboo Flute)

C. Um-oh (Cup violin)

D. A man playing Kongkhi (Mouth organ)

E. Shüm (Log drum)

Vern. Name: *Nget*

Description: Culms tufted upto 20m in height, 5-10 cm in diameter, hollow, smooth and green.

Uses: The entire culm is well polished with oil and is tightly held on the ground where the climbers climb to reach the top.

Specimen examined: KL-2355, Nian (17/05/2010)

4.19. PLANTS ASSOCIATED WITH INSCRIBING OF TATTOO

There are many interpretations and beliefs as far as Tattoo art is considered. The motivating ideas behind tattooing vary from tribe to tribe. Some historians believe that these tribal work hard in all the seasons of the year bare-bodied and by applying tattoo a resistance power develops in their bodies. Among the *Phom*-Nagas as rest of the Naga tribes, it has a widespread popularity as it part of their socio-cultural activity. The richness of tattooing proves the artistic awareness of the wearer.

The plants that are used in inscription of tattoo are alphabetically arranged with the botanical name, family name, local name and the plant parts that are used.

***Calamus erectus* Roxb. (Arecaceae)**

Vern. Name: *Vai-nyü*

Description: Stems clustered, non-climbing, free standing or sometimes leaning plant.

Part(s) used: Spines

Uses: The tightly bound bunch of spines of *Calamus erectus* is inserted in the stem of *Colocasia esculenta* which is then hafted to a wooden handle which looks moreover like an iron brush. To give beautiful permanent colour, the spines are dipped in the ink again and the puncturing of skin is done in the lines marked ahead till the blood begins to ooze out.

Specimen examined: KL-302, Ngetchungching (23/07/2010)

***Canarium bengalense* Roxb. (Burseraceae)**

Vern. Name: *Oeying*

Description: It is a medium sized tree with compound leaves, 30-40 cm long. The fruit is a drupe, size of a large olive and smooth.

Part(s) used: Resin

Uses: The resin extracted from the plant is boiled along with *Strobilanthes flexicaulis* to obtain a dark green colour which is use to inscribe tattoo.

Specimen examined: KL-2310, BuraNamsang ((09/07/2011))

***Canarium resineferum* Bruce ex King (Burseraceae)**

Vern. Name: *Oeying*

Description: It is a large tree which grows about 6-8 ft in girth.

Part(s) used: Resin

Uses: The resin extracted from the plant is boiled along with *Strobilanthes flexicaulis* to obtain a dark green colour which is use to inscribe tattoo.

Specimen examined: KL-2312, BuraNamsang ((09/07/2011))

***Colocasia esculenta* (Linn.) Schott. (Araceae)**

Vern. Name: *Shitsü nü*

Description: A rhizomatous herb.

Part(s) used: Stem

Uses: The tightly bound bunch of spines of *Calamus erectus* is inserted in the stem of *Colocasia esculenta* which is then hafted to a wooden handle which looks moreover like an iron brush. To give beautiful permanent colour, the spines are dipped in the ink again and the puncturing of skin is done in the lines marked ahead till the blood begins to ooze out

Specimen examined: KL-200, BuraNamsang ((09/07/2011))

***Oryza glutinosa* Lour. (Poaceae)**

Vern. Name: *Ajar*

Description: It is a perennial annual grass which grows upto a height of 2m with long, flat leaf blade.

Part(s) used: Grains

Uses: Leaf extract of *Strobilanthes flexicaulis* and local beer or rice beer made of sticky rice or *Oryza glutinosa* are added to the soot in the earthen pot prepared ahead which they called it as 'Tükmai' or 'Hamtük'. The mixture or ink gives a beautiful dark green colour ready to use for inscribing tattoo.

Specimen examined: KL-2433, NgetChung-Ching (23/07/2010)

***Strobilanthes flexicaulis* Hayata (Acanthaceae)**

Vern. Name: Yümlak

Description: It is a perennial sub-shrub growing upto 50-100 cm tall with flowers pale purple or white.

Part(s) used: Leaves

Uses: Leaf extract of *Strobilanthes flexicaulis* and local beer or rice beer made of sticky rice or *Oryza glutinosa* are added to the soot in the earthen pot prepared ahead which they called it as 'Tükmai' or 'Hamtük'. The mixture or ink gives a beautiful dark green colour ready to use for inscribing tattoo.

Specimen examined: KL-2434, BuraNamsang ((09/07/2011

4.20. PLANTS OF MISCELLANEOUS USE

***Areca catechu* Linn. (Arecaceae)**

Vern. Name: Koyü

Description: Stems cylindrical, about 20m high, surrounded by the crown of leaves.

Part(s) used: Pericarp

Uses: The pericarp is used to brush teeth to removes stain.

Specimen examined: KL-114, Ngetchungching (22/07/2010)



Plate 40: Plants associated with inscribing of tattoo

A. *Calamus erectus* Roxb. (Used for puncturing of skin)

B,C & D. Tattoo displayed on the legs of women

E & F. Pattern of tattoo displayed on the chest of men

***Arundo donax* Linn.** (Poaceae)

Vern. Name: *Ownya sheb*

Description: It is a tall perennial cane growing in damp soils, either fresh or moderately saline.

Part(s) used: Entire plant

Uses: It is held tightly in bundles and used as a traditional torch in Morung.

Specimen examined: KL-3223, Ngetchungching (23/07/2010)

***Brassica napus* Linn.** (Brassicaceae)

Vern. Name: *Mora*

Description: An annual herb about 30 cm tall or more with long, usually thin taproot.

Part(s) used: Seeds

Uses: The seed of this plant is used to yield oil for cooking. It is widely cultivated for its oil extraction purpose.

Specimen examined: KL-814, Yachem (28/07/2010)

***Citrus grandis* Linn.** (Rutaceae)

Vern. Name: *Ngüleng hempo*

Description: A medium sized evergreen tree with thorny shoots.

Part(s) used: Dried pericarp

Uses: Burning of dried pericarp expel mosquitoes and insects.

Specimen examined: KL-2408, Yangching (12/06/2010)

***Cocos nucifera* Linn.** (Arecaceae)

Vern. Name: *Narigol*

Description: Tree with long, straight or curved trunk upto 25 m in height.

Part(s) used: Pericarp

Uses: Dried pericarp of the fruit is used as brush especially to brush the wooden floor.

Specimen examined: KL-2408, Yangching (12/06/2010)

***Cymbopogon flexuosus* (Nees ex Steud.) Wats. (Poaceae)**

Vern. Name: *She song*

Description: An aromatic, perennial herb.

Part(s) used: Leaves

Uses: It is widely cultivated for yielding oil which is commonly used for many purposes.

Specimen examined: KL-3201, Pongching (24/08/2010)

***Dendrobium fimbriatum* Hook. (Orchidaceae)**

Vern. Name: *Lokong chü*

Description: An epiphytic orchid, with compressed stem, yellowish and furrowed.

Part(s) used: Stem

Usage: The stem is smashed and dried in the sun. It is then made as head band for women as part of their cultural attire.

Specimen examined: KL-2379, Pongching (24/08/2010)

***Elaeocarpus angustifolius* Blume (Elaeocarpaceae)**

Vern. Name: *Ao paklet*

Description: Buttresses normally conspicuous, even on small trees. Branches generally in whorls, particularly on small trees.

Part(s) used: Seeds

Uses: Matured seeds are used to make rosary worn by women in their traditional attire.

Specimen examined: KL-412, Pongching (24/08/2010)

***Entada pursaetha* DC. (Leguminaceae)**

Vern. Name: *Shakok*

Description: A large climber, wild with compound leaves.

Part(s) used: Cotyledons

Uses: Cotyledons are used as shampoo. It produces lather which helps the hair to clean properly giving a very soft texture to the hair.

Specimen examined: KL-2452, Sakchi (15/09/2011)

***Lagenaria siceraria* Mol. (Cucurbitaceae)**

Vern. Name: *Yao*

Description: It is a vigorous, annual, running or climbing vine with large leaves and a lush appearance.

Part(s) used: Outer hard shell of the fruit

Uses: The hard shell is used to make spoons, bottles, cups, bowls, containers, etc. It is mostly found in traditional kitchens.

Specimen examined: KL-714, Pongching (24/08/2010)

***Livistona jenkinsiana* Griff. (Arecaceae)**

Vern. Name: *Yube-lik*

Description: A palm upto 10m high with large leaves, forming a thick crown.

Part(s) used: Leaves

Uses: The leaves along with the hard mid-rib are tied in bundles to make traditional broom. It is even sold in the market at Rs.40-50 per broom.

Specimen examined: KL-305, Ngetchungching (24/07/2010)

***Luffa acutangula* (Linn.) Roxb. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is an annual herbaceous climber.

Part(s) used: Matured dry fruit

Uses: The matured dry fruit is used as scrubbers in bath as well as in cleaning the utensils as well as decorative items.

Specimen examined: KL-401, Hukpang (21/05/2010)

***Luffa cylindrical* (Linn.) M.J.Roem. (Cucurbitaceae)**

Vern. Name: *Maoh-ha*

Description: It is a tropical annual herbaceous climber with broad leaves.

Part(s) used: Matured dry fruit

Uses: The matured dry fruit is used as scrubbers in bath as well as in cleaning the utensils.

Specimen examined: KL-402, Hukpang (21/05/2010)

***Lycopodium clavatum* Linn. (Lycopodiaceae)**

Vern. Name: *Phünthüing chü*

Description: Stem elongate procumbent with rigid, linear, acute, often hair pointed leaves.

Part(s) used: Entire plant

Usage: The plant is used to make different type of decoration during weddings and festivals.

Specimen examined: KL-2408, Yangching (12/06/2010)

***Melastoma malabathricum* Linn. (Melastomataceae)**

Vern. Name: *Nyuksem*

Description: A bushy shrub with oblong-lanceolate leaves.

Part(s) used: Seeds

Uses: The seeds are crushed and the juice is use as ink.

Specimen examined: KL-306, Ngetchungching (24/07/2010)

***Osbeckia crinita* Benth. (Melastomataceae)**

Vern. Name: *Oking- thüng*

Description: A small branched shrub which grows upto 2 m high.

Part(s) used:

Uses: Ripe fruits are eaten fresh.

Specimen examined: KL-3206, Pongo (25/08/2010)

***Punica granatum* Linn. (Punicaceae)**

Vern. Name: *Jarem*

Description: A small deciduous shrub or tree with brownish bark.

Part(s) used: Dried pericarp

Uses: Burning of dried pericarp is a good repellent of mosquitoes.

Specimen examined: KL-2454, Pongching (24/08/2010)

***Ricinus communis* Linn. (Euphorbiaceae)**

Vern. Name: *Benben*

Description: A tall soft wooded shrub with leaves palmately 5-9 lobed and serrate.

Part(s) used : Fruits and seeds

Uses: The leaves are used to feed the Eri silk worm which produces eri silk. It is widely cultivated.

Specimen examined: KL-183, Pongo (08/08/2009)

***Schima wallichii* (DC.) Korth. (Theaceae)**

Vern. Name: *Chakpü*

Description: A large tree upto 30 m in height, with grey to black bark.

Part(s) used: Wood

Uses: The wood is finely chopped to make toothpick as it kills the germs.

Specimen examined: KL-329, Sakchi (15/09/2011)

***Terminalia bellirica* (Gaertn.) Roxb. (Combretaceae)**

Vern. Name: *Nüngka*

Description: A medium sized deciduous tree.

Part(s) used: Gums

Usage: The gums obtained from this plant is burnt which is used as an excellent mosquito repellent.

Specimen examined: KL-2388, Tangha (16/04/2009)

***Thysanolaena maxima* (Roxb.) O. Ktze. (Poaceae)**

Vern. Name: *Ala alehmaohan*

Description: A perennial grass with tall, round, hard, glabrous culms of about 1.5 to 3.5 m tall.

Part(s) used: Inflorescence

Uses: The inflorescence is used to make broom which is widely used. It is even sold in the market for Rs 20-30 per broom.

Specimen examined: KL-336, Yongshei (19/05/2010)

***Zea mays* Linn. (Poaceae)**

Vern. Name: *Ang ha*

Description: It is an annual, monoecious grass with culms rooting from lower nodes.

Part(s) used: Dried skin

Uses: The dried skin of the fruit is used to make baskets, hats, trays, and even decorative item like toys.

Specimen examined: KL-501, Orangkong (02/08/2010)



Plate 41: Plants of miscellaneous use

- A.** Decorative item made of *Zea mays* Linn.
- B.** Rosary made of *Elaeocarpus angustifolius* Blume
- C.** Basket made of *Luffa acutangula* (Linn.) Roxb.
- D.** Bottle made of *Lagenaria siceraria* Mol. **E.** *Arundo donax* Linn.
- F.** Head band made of *Dendrobium fimbriatum* Hook.

CHAPTER FIVE

GENERAL DISCUSSIONS AND CONCLUSIONS

CHAPTER FIVE

GENERAL DISCUSSION AND CONCLUSION

5.1. Discussion

The present study was based on the topic 'Studies on the ethnobotany of the *Phom-Naga* tribe in Longleng District, Nagaland'. A rich amount of ethnobotanically useful plants were collected in the study conducted during 2008-2013 which was undertaken during different seasons and different areas and were well consulted and recorded for the present analysis. A total of 26 villages were visited according to the diversity of geographical areas and in it a total of 314 plants species were collected belonging to 206 genera and distributed among 102 families which were emphasis mainly in their daily uses and dependency on plants.

The total of 314 plant species analysed in the present study belonging to different categories represented by the number of families, genera and species are given in **Table 5.1**.

Table 5.1: Plants of different groups which are used for various purposes.

PLANT GROUPS	FAMILIES	GENERA	SPECIES
Dicotyledons	74	158	236
Monocotyledons	16	36	63
Pteridophytes	4	4	4
Gymnosperm	1	1	2
Fungi	6	6	8
Bryophytes	1	1	1
Total	102	206	314

From the present analysis, out of 314 species surveyed, 236 species under 158 genera and 74 families belong to Dicotyledons (75.15%), 63 species

under 36 genera and 16 families belong to Monocotyledons (20.06%), 4 species under 4 genera and 4 families belong to Pteridophytes (01.27%), 2 species under 1 genera and 1 family belong to Gymnosperm (0.63%), and 8 species under 6 genera and 6 families belong to Fungi (2.54%), and 1 species under 1 genera and 1 family belong to Bryophyte (0.31%) were recorded as shown in **Fig 5.1 & 5.2**. Of these, with respect to their habit, 133 species of plants were herbs (42.35%), 88 species of plants were trees (28.02%), 65 species of plants were shrubs (20.70%), and 28 species of plants were climbers (8.91%) as shown in **Fig 5.3 & 5.4**.

Among the monocotyledons plant species, Poaceae represent the maximum number of 15 species followed by Zingiberaceae with a number of 13 species of plants, Palmae and Arecaceae with 11 species each, Liliaceae and Araceae with 6 species each, Dioscoreaceae with 3 species and the rest 10 families share 2-3 species each as shown in **Fig 5.5**. While among the Dicotyledons the maximum number of plant species is represented by the family Solanaceae with 18 species followed by Cucurbitaceae with 13 species and Euphorbiaceae with 12 species, Asteraceae with 11 species, Fabaceae with 10 species, Moraceae with 8 species, Lamiaceae and Rutaceae with 7 species each, Rosaceae with 5 species, Mimosaceae with 4 species and the rest 61 species shares less than 3 species each as shown in **Fig 5.6**. In Pteridophytes all the 4 families share 1 species of plant each. In gymnosperm the 2 species of plants belong to a single family Pinaceae. In fungi the maximum number of plant species is represented by the family Pleurotaceae with a number of 3 species and the rest 5 families represent a single species each. In bryophyte the single species of plant belong to the family Lycopodiaceae.

According to the different usages, the plants are broadly classified into 20 different categories such as, Ethnomedicines, Ethno-vetenary, Fodder, Food & beverages, Plants used for mastication, Dye yielding plant, Firewood, Fibre yielding plant, Fish poisoning, Bird snaring, Bio-fencing, Socio-religious practices, Wrapping purposes, Bamboo & cane, House construction, Agricultural

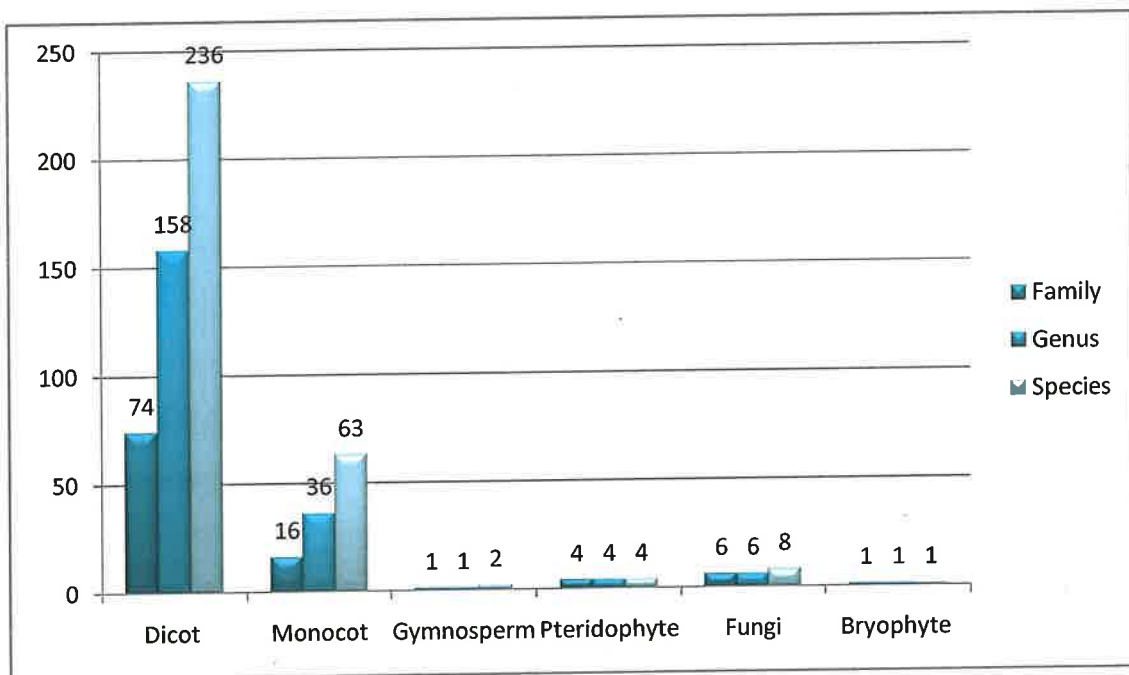


Fig 5.1: No. of family, genus and Species of different plant groups

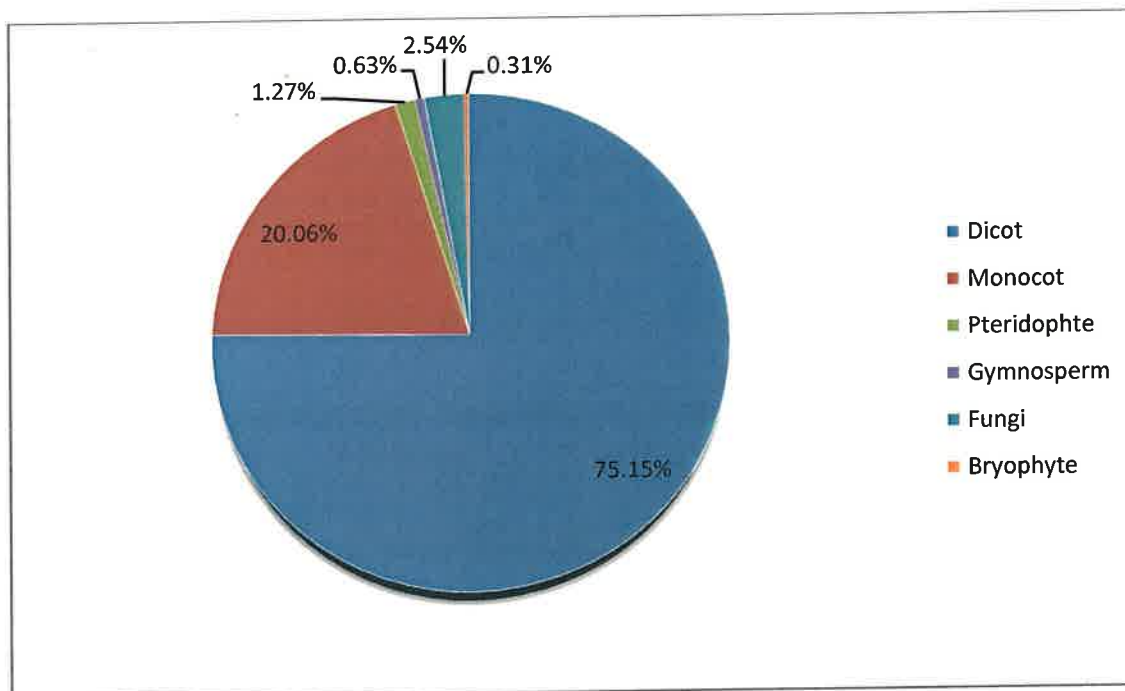


Fig 5.2: Percentage of plant species of different plant groups

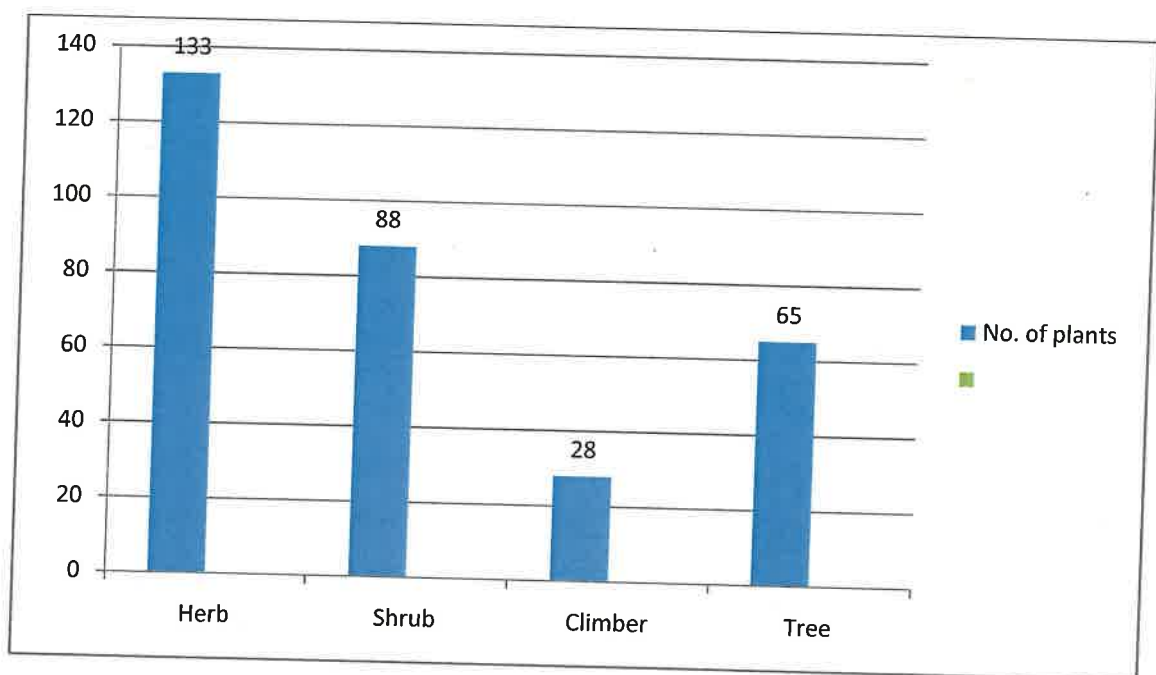


Fig 5.3: No. of ethnobotanical plant species of different habit

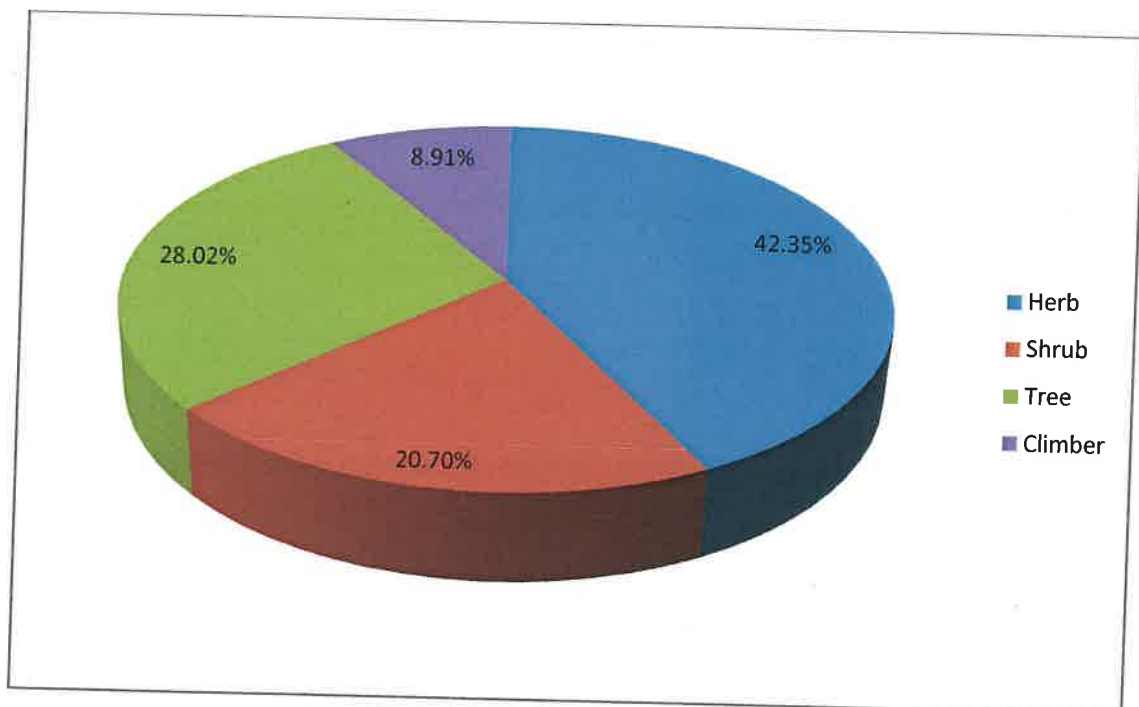


Fig 5.4: Percentage of categories of habitat of plants

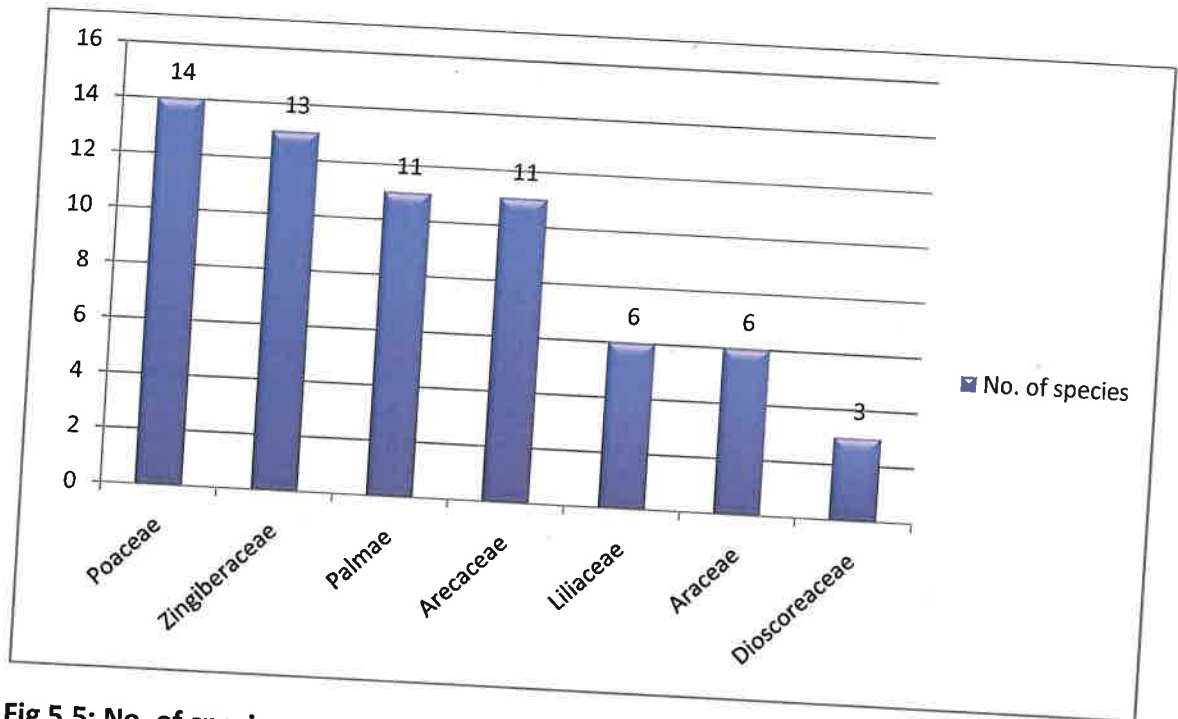


Fig 5.5: No. of species among the families of Monocotyledons having maximum number of species

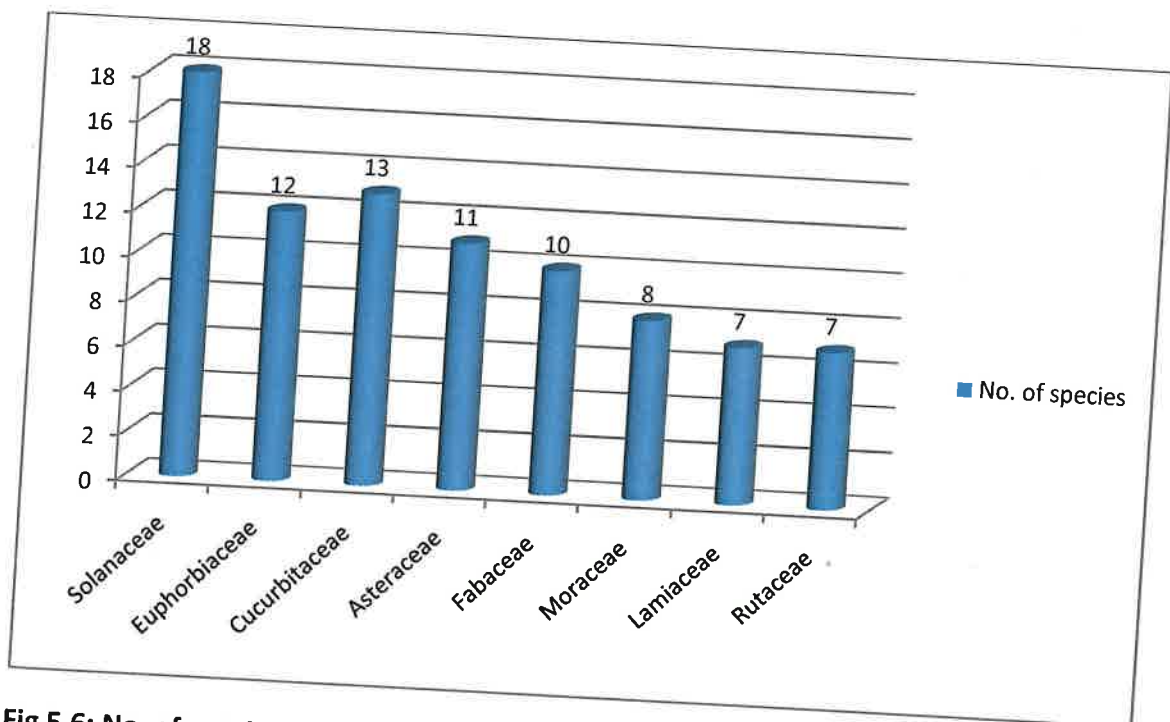


Fig 5.6: No. of species among the families of Dicotyledons with maximum number of species

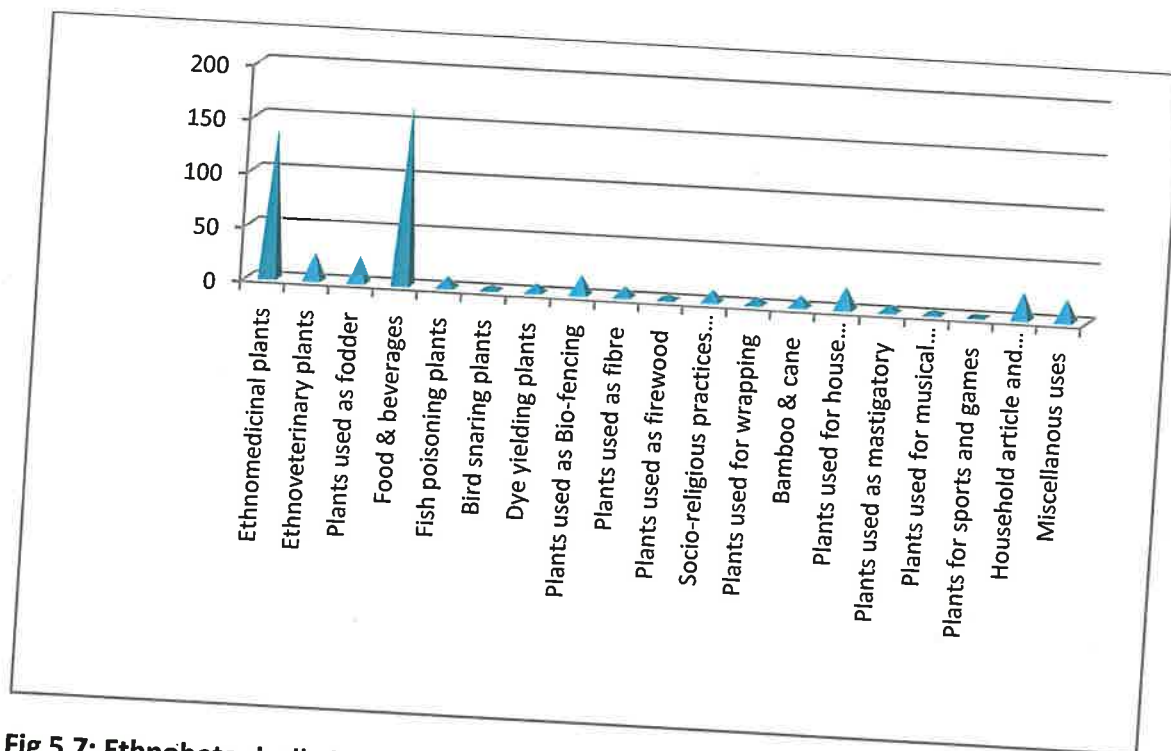


Fig 5.7: Ethnobotanically important plants arranged under different categories

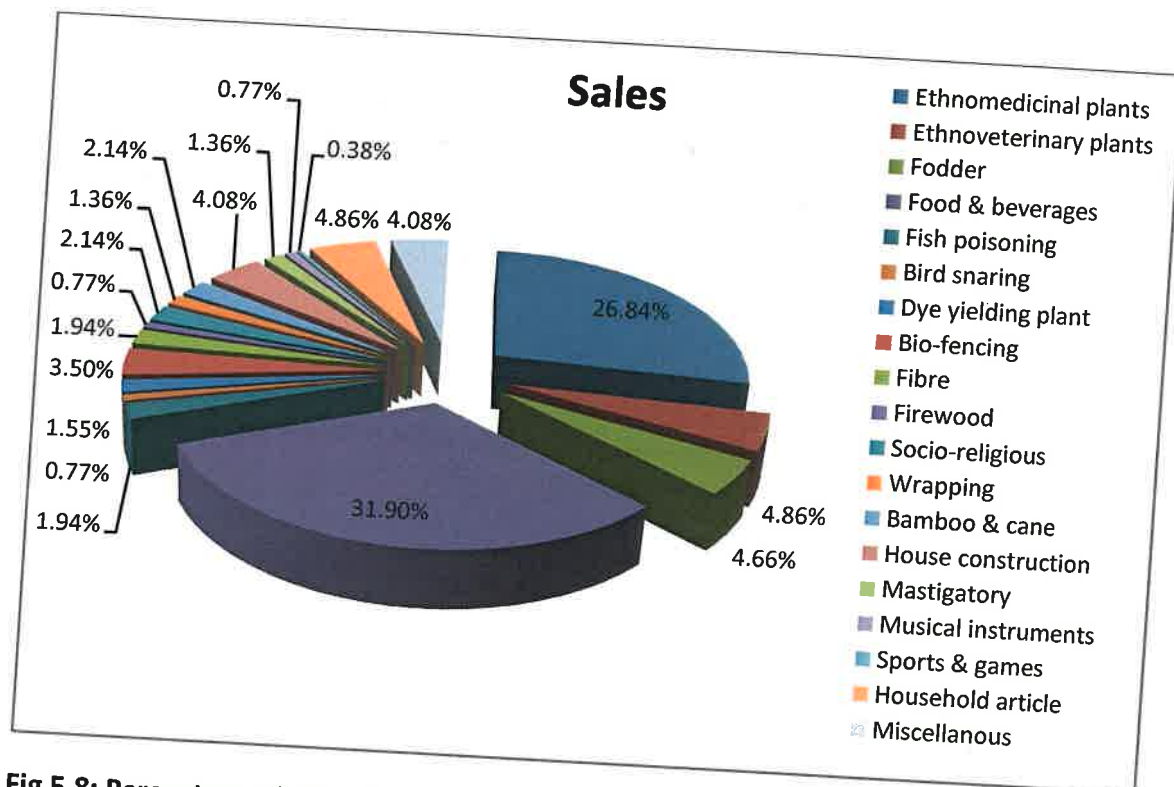


Fig 5.8: Percentage of ethnobotanical plant species used for different purposes

implement, household item & furniture, plants associated with inscribing of tattoo and lastly plants of miscellaneous uses as shown in **Fig 5.7 & 5.8.**

The distribution of plants under different categories used by the *Phom-Naga* tribe is discussed with figures and tables one after the other in the following paragraphs.

Ethno-medicinal plants

The first category of plants comes under the traditional and indigenous herbal remedies, i.e, Ethno-medicinal plants. Under this category, a total of 138 plant species were recorded under 117 genera and belonging to 69 families. From the medicinal plants recorded the maximum number of habit of the plant are herbs, followed by shrubs, trees and then climbers. Different parts of plants are used for treating the ailment such as root, stem, leaves, rhizome, seeds, fruits, bark, flower, latex, whole plant, etc which is illustrated in **Fig 5.9.** The mode of application differs from village to village, or depends on the practitioner itself such as leaf paste, juice, decoction, boiled, raw, etc.

A total number of 67 ailments are recorded to be treated using the ethnomedicinal plants by the *Phom-Naga* tribe of Nagaland. It is recorded that almost all the plants are used to treat more than one ailment and they are believed to be effective by the use of these folklore herbal remedies.

Out of the total number of 138 medicinal plants collected, the treatments of different ailment are recorded which are listed according to the alphabetical orders which are as follows:

Table 5.2: Number of ailments recorded with the number of plants used.

NAME OF THE AILMENT	NO. OF PLANTS USED FOR THE TREATMENT
1. Antipyretic	12
2. Anthelmintic	4

3. Arthritic & muscular pain	3
4. Asthma	8
5. Abdominal related disease	75
6. Bone fracture	3
7. Cancer	8
8. Cuts , bites, sores and wounds	41
9. Diabetes	12
10. Epilepsy	2
11. Fever, cough and sore throat	34
12. Febrifuge	8
13. Gastritis	8
14. High blood pressure	11
15. Jaundice	15
16. Kidney related disease	6
17. Laxative	10
18. Leprosy	2
19. Measles	1
20. Malaria	7
21. Piles	7
22. Rabies	2
23. Rheumatism	5
24. Sinusitis	3
25. Toothache	10
26. Tonsil	1
27. Typhoid	1
28. Ulcer	4
29. Urine tonic	18
30. Womb related problem	3

According to the study conducted, there are 4 major methods of treating the diseases. They are: **(Shown in Fig 5.10)**

1. Orally administered (48.55%)
2. Inhalation (2.89%)

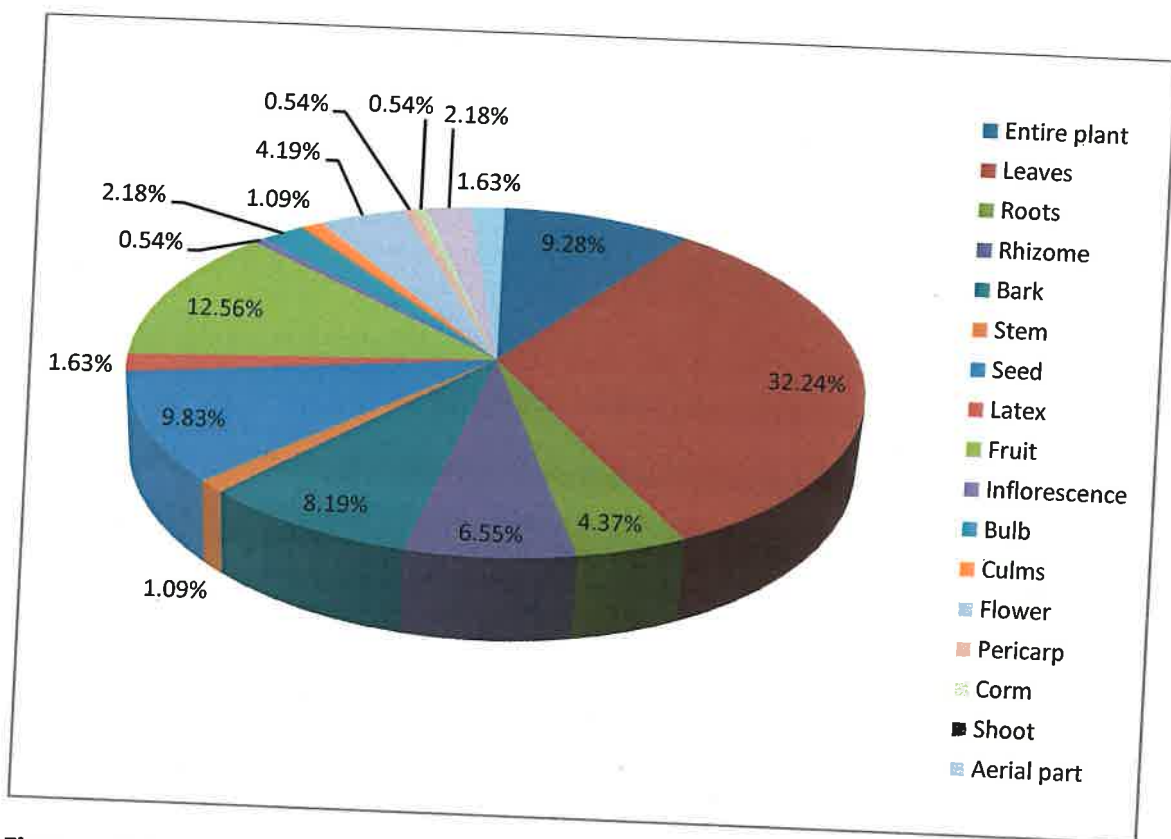


Fig 5.9: Different parts of plants used in treating the diseases

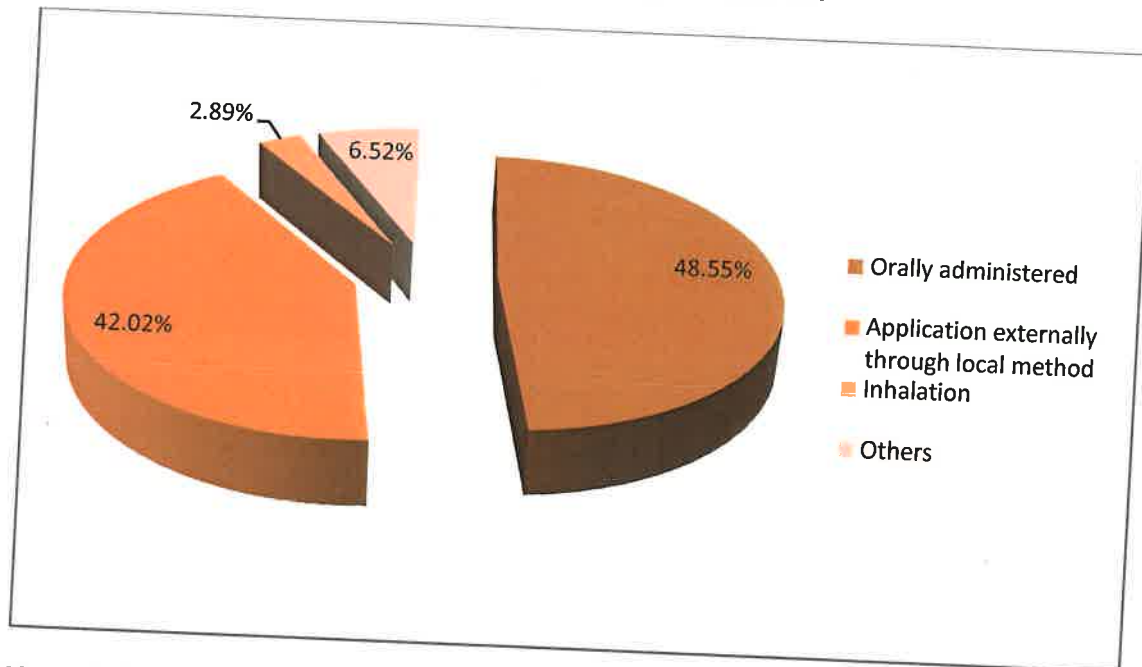


Fig 5.10: Method of application of prescriptions

3. Application externally through local method (42.02%)
4. Others (6.52%)

There are different methods of practises for treating diseases. For orally administered prescriptions, mostly the decoction of the plant part is given. Sometimes the dried powdered leaves are also given, chewing of the bark and also juice of the plants are also generally prescribed. Inhalation of hot infusion of the plant is suggested in case of tooth ache, fever and also to treat sinusitis. Medicines which are applied externally are mostly used as paste or as extracts. They are used to treat mostly skin related diseases like skin infections, sores, cuts, wounds and bites. Sometimes wrapping of leaves around the wound, brushing of teeth with the stem itself, or inhalation of the plant itself during unconsciousness is some unusual practise done by the *Phom-Naga* tribe.

Different plant parts are used to treat the diseases used by the local healers. They are mostly collected fresh or sometimes used dried preserved plant parts. Different plant parts that are used by the *Phom-Naga* tribe are Leaves with the maximum percentage used i.e. 32.24%, followed by Fruits - 12.56%, Seeds-9.83%, Entire plant-9.28%, Bark-8.19%, Rhizome-6.55%, Flowers-4.91%, Roots-4.37%, Bulb-2.18%, Shoots-2.18%, Latex-1.63%, Stem & Culms-1.09% each, Inflorescence, Pericarp & Corms- 0.54% each.

The study shows the most of the medicinal plants used are found in the wild while the cultivated ones are rarely used.

Ethno-veterinary plants

A total of 25 species of plants were recorded under 23 genera and belonging to 16 families under this category: Araceae and Asteraceae represent the maximum number of 4 species each followed by Amaranthaceae, Lamiaceae and Euphorbiaceae with 2 number of species each and the rest 11 families are represented by single species each. Among the plant parts, the leaves are predominantly used followed by whole plant part and seeds. From the present study, the ailment treated is mostly dysentery, diarrhoea, and common cold, to

kill worms, wounds and skin diseases. *Azadirachta indica* is found to be most commonly used plant for treatment of different ailments. The study shows that the use of *Costus speciosus* of treating the ailment of the pig is quite unusual from the rest of the Naga tribes. Table showing the number of families, number of genus and number of species they belong are furnished below.

Table 5.3: Family wise distribution of the Ethno-veterinary plants.

SL.NO	FAMILY	GENUS	SPECIES
1	Araceae	4	4
2	Asteraceae	3	4
3	Amaranthaceae	1	2
4	Euphobiaceae	2	2
5	Lamiaceae	2	2
6	Meliaceae	1	1
7	Costaceae	1	1
8	Asparagaceae	1	1
9	Myrtaceae	1	1
10	Cannabaceae	1	1
11	Malvaceae	1	1
12	Crassulaceae	1	1
13	Theaceae	1	1
14	Solanaceae	1	1
15	Rutaceae	1	1
16	Anacardiaceae	1	1

Fodder

A total of 24 plants species are used as fodder for cattle, pigs and fowls, under 22 genus and 17 families. The maximum number of 3 plant species is represented by the family Asteraceae, followed by 2 species each under the family Araceae, Amaranthaceae, cucurbitaceae, Euphorbiaceae and Poaceae. And the rest 10 families are represented by single species each. Alocasia

macrorrhiza, Colocasia esculenta, Dioscorea alata, Manihot esculenta and Oryza sativa are some plants which are widely used as fodder.

Food and beverages

Under the category of 'Food and beverages' a total number of 154 species of plants under 111 genera belonging to 53 families have been recorded which are used by the *Phom-Naga* tribe of Longleng district. The plants are broadly categorised as labelled in Table 5.4 (Fig.5.11 & 5.12)

Table 5.4: Uses of plants as food and beverages.

Category	Family	Genus	Species
FOOD			
Tender shoots and leaves used as vegetables	26	47	60
Fruits used as vegetables	14	25	36
Edible tubers, bulb, corms and rhizomes	10	14	20
Edible stem	6	6	7
Edible inflorescence, buds and flowers	12	18	26
Plants used as spices and flavouring agent	10	18	30
Edible seeds	12	17	22
Edible fruits	32	59	67
Cereals and millets	1	5	6
Wild edible mushroom	6	6	8
BEVERAGES			
Alcoholic beverages	5	6	6
Non-alcoholic beverages	5	7	7

Under the category of tender shoot and leaves used as vegetables, there are 60 species of plants used by the *Phom-Naga* tribe under 47 genera belonging to 26 different families. The maximum number of 5 species each is represented by the family Lamiaceae and Cucurbitaceae followed by the families Liliaceae, Amaranthaceae, Araceae, Apiaceae, Asteraceae and Rutaceae with 4 species each. The family Brassicaceae and Zingiberaceae are represented by 23 species

each and the families Polygonaceae, Verbenaceae and Fabaceae are represented by 2 species each. The rest 14 families are represented by single species each.

There are around 36 species of plants in which the fruits are used as vegetables. They belong to 25 different genera which are distributed among 14 families. The maximum number of 7 species are found among 3 different families, they are Fabaceae, Solanaceae and Cucurbitaceae followed by Fabaceae which are represented by 2 species of plants. The rest 7 families are represented by single family each.

Under the category of tubers, corms and bulb used as vegetables there are 20 different species belonging to 14 different genera and belonging to 10 different families. The maximum number of species belongs to the family Zingiberaceae which are represented by 7 species of plants. *Alocasia macrorrhiza*, *Colocasia esculenta*, *Dioscorea alata*, *Ipomoea batata* and *Zingiber officinale* are some species which are commonly used and cultivated for economic means. There are 6 species in which the stem is eaten as vegetable belonging to 5 genera in which the family Araceae have the maximum of 2 species. The uses of *Caryota urens* are found to be exceptional compared to other tribes while *Musa parasidiaca* and *Lasia spinosa* are commonly available both in the wild and also cultivated. The *Phom-Naga* tribe are very fond of fresh inflorescence, buds and flowers. They eat it mostly boiled and are mostly cultivated to serve the purpose. There are 26 species used particular for this purpose, belonging to different families. The most common species cultivated are *Crotalaria pallid*, *Luffa cylindrica*, and *Musa parasidiaca* which are available in the market for sale. In almost all the dishes they add spices and condiments which adds great taste to the dish. The most commonly used spices and condiments are *Allium sativum*, *Allium hookerii*, *Capsicum species*, *Piper nigrum*, *Zanthoxylum species* and *Zingiber officinale* which are recorded to be cultivated for economic importance as well. Under the category of seeds eaten as vegetables there are 22 species of plants recorded belonging to 20 genuses and under 14 different families. The most commonly cultivated plant mainly for seeds are *Glycine max*, *Phaseolus species* and *Piper nigrum*. The maximum

numbers of species belong to the family Fabaceae which is represented by 6 species of plants.

There are 67 species of plants which are eaten as fruits under 59 genera and belonging to 32 different families. The maximum number of 8 species is represented by the family Moraceae followed by the family Rosaceae and Arecaceae which has 6 and 5 species respectively. Out of the 63 plant species 31 plants (49.2%) are found in wild while the rest 32 (51.8%) are cultivated. The percentage of the plants available shows that the tribal people depends almost 50% on the wild for their food and activities. Some of the plant species that are cultivated for economic importance like juices are *Ananas comosus*, *Averrhoa carambola*, *Citrus limon*, *Litchi chinensis*, *Mangifera indica*, *pyrus communis* and *pyrus pyrifolia*.

Even though there are 6 species of plants belonging to only 1 family Poaceae under the category of Cereals and Millets, all the 6 species are used as a staple food in their everyday life. It was recorded that all the 6 species of plants are cultivated. Wild edible mushrooms are part of their daily cuisine used by the *Phom-Naga* tribe. They use it either fresh or dried for use in off-seasons. They use it in soup, in chutney or are added in different dishes which add a great delicacy to the dishes. The wild mushrooms are also available in the market and help in the livelihood of the people living in villages.

Beverages are part of their daily activities among the tribal people because it is used in festivals, ceremonies and in different occasions. The species *Oryza sativa* is the main ingredient used to prepare alcoholic beverage and the drink prepared from it is known as 'Shet'. There are 6 species of plants under 5 families to prepare alcoholic beverages. Fruits are used to prepare non-alcoholic beverages which are available in the market for sale and helps in the livelihood of the people economically. Among the non-alcoholic drinks *Camellia sinensis* (Kalup) is the most popular drink which they serve it at home as well as use in all the occasions.

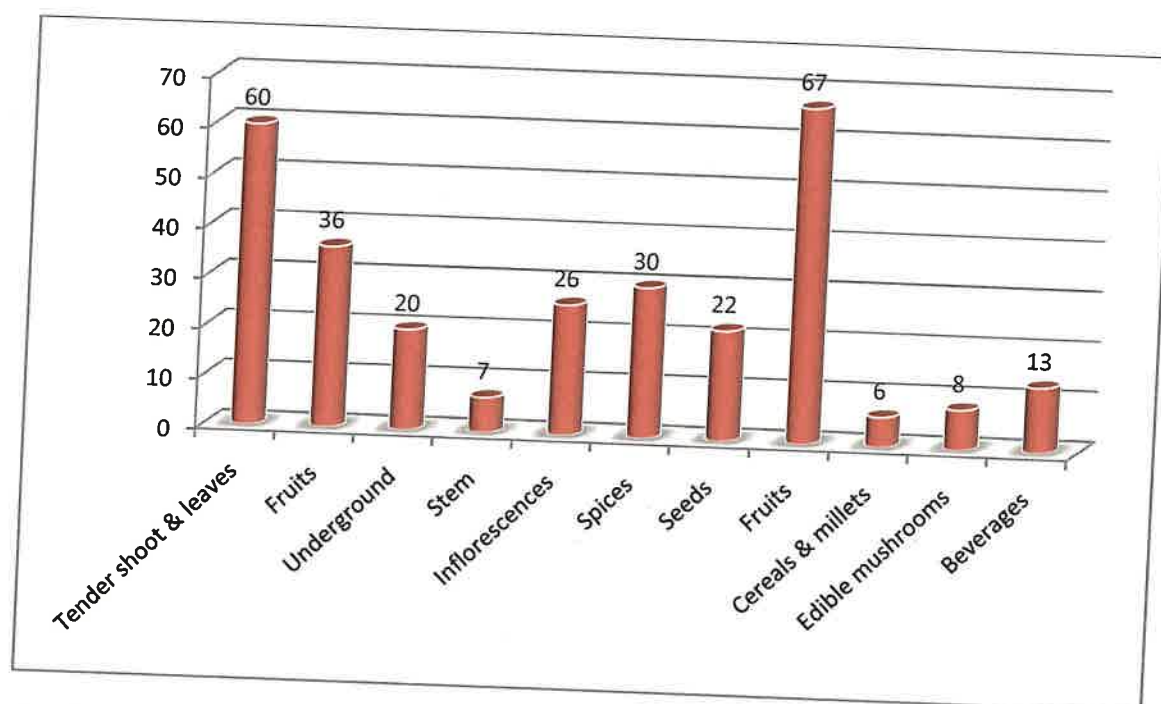


Fig 5.11: Categories of edible plants with total no. of species

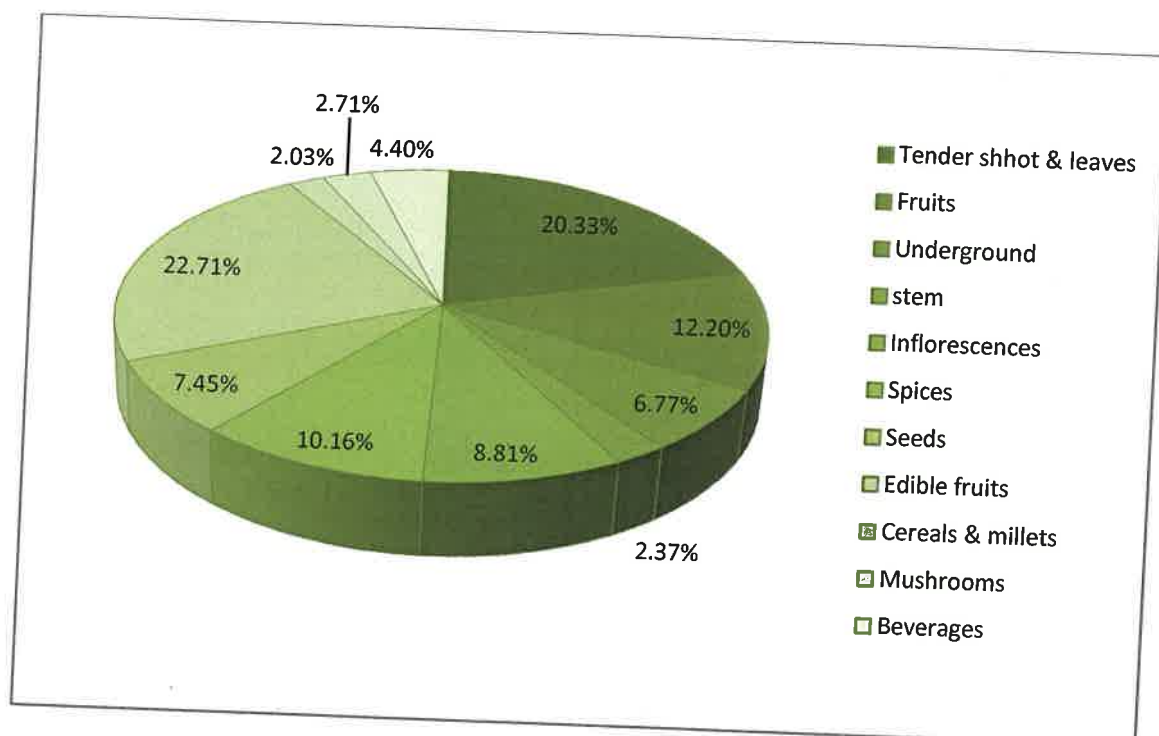


Fig 5.12: Percentage of edible plant parts of different categories

Plants used for fish poisoning

Under this category there are total of 8 plant species used under 8 genus and belonging to 7 different families. The family Mimosaceae represent the maximum of 2 species and the rest 6 families are represented by single species each. Fishing is part of their daily activities and they go also for community fishing which is known as 'Shüyahpü' and there they use the plants to serve the purpose. All the plants are equally used according to the availability and are recorded to be equally effective to stupefy the fishes.

Plants used for bird snaring

Under this category there are total of 4 plant species used to make gums and threads in making traps. The 4 plant species are under 4 different genus and belonging to 3 different families.

Table 5.5: Family wise distribution of the Bird snaring plants.

SL.NO	FAMILY	GENUS	SPECIES
1	Moraceae	2	2
2	Arecaceae	1	1
3	Euphobiaceae	1	1

Dye yielding plants

Under the category of dye yielding plants there is a total of 8 numbers of plants under 7 genus and belonging to 7 different families. The maximum of 2 species is represented by the family Burseraceae, and the rest 6 families, Zingiberaceae, Orchidaceae, Malvaceae, Balsaminaceae, Melastomataceae and Acanthaceae is represented by single species each.

Plants used as Bio-fencing

There are a total of 19 plant species which are used as bio-fencing. They are under different 11 genuses and belonging to 13 families. The maximum number of plants belongs to the family Euphorbiaceae with a total number of 4 plant species, followed by Poaceae, Verbenaceae and Agavaceae with a number of 2 plant species each. The rest 9 families are represented by single species each.

Plants used as fibres

Family wise distribution of fibre yielding plants under different genus and the number of species under each family are shown below in **Table 5.6**.

Table 5.6: Family wise distribution of fibre yielding plant

SL.NO	FAMILY	GENUS	SPECIES
1	Moraceae	1	1
2	Arecaceae	1	1
3	Malvaceae	2	2
4	Musaceae	1	1
5	Leguminaceae	1	1
6	Thymelaeaceae	1	1
7	Sterculiaceae	1	1
8	Palmae	1	1
9	Tiliaceae	1	1

Plants used as fire wood

There are no particular plants as such that can be use as firewood but almost all the plants can be used for the purpose. The most commonly used fire woods used by the *Phom-Naga* tribe are *Schima wallichii*, *Alnus nepalensis*, *Rhus semialata* and *Samanea saman*. They all belong to different families- Theaceae, Betulaceae, Anacardiaceae and Fabaceae respectively.

Plants associated with Socio-Religious practices and belief

Under this category there are 11 plant species used which are related to their social, cultural and religious practices. The uses of some of the plants are quite unusual and some are related with other society as well. All the 11 plant species are under different genus and belonging to 10 different families. The maximum of 2 species of plants are represented by the family Asteraceae and the rest 9 families are represented by a single species each. Among the practices related to the plants, *Acorus calamus* is widely used by the *Phom-Naga* tribe which according to the survey, they have a strong beliefs and practices related to this plant. Almost all the household have fresh as well as dried plant part on which they rely on.

Plants used for wrapping food item

Family wise distribution of plants used for wrapping food items under different genus and the number of species under each family are shown below in Table 5.7.

Table 5.7: Family wise distribution of plants used for wrapping food items

SL.NO	FAMILY	GENUS	SPECIES
1	Zingiberaceae	2	2
2	Cannaceae	1	1
3	Maranthaceae	1	1
4	Musaceae	1	1
5	Moraceae	1	1
6	Sterculiaceae	1	1

Bamboo and cane

Under this category there are 11 plant species belonging to 4 genus and 3 different families. The maximum number of 6 species of plants belongs to the family Poaceae, followed by 4 species of plants under the family Arecaceae and the family Palmae is represented by a single species.

Plants used in construction of house

There are 20 plant species of plants under 18 genuses and belonging to 15 different families which are widely use in construction of houses by the *Phom-Naga* tribe. The maximum number of 5 species of plants belongs to the family Poaceae followed by Combretaceae and with 2 species and the rest 12 families are represented by a single species each.

Fumigatory and Mastigatory Substance

Under the category of Fumigatory and Mastigatory substance, there are 7 species of plants all belonging to different families. Among the 7 species *Piper betle*, *Nicotiana tobacum* and *Areca catechu* are cultivated for commercial purpose and are most commonly used among the tribal people.

Table 5.8: Family wise distribution of plants used for Mastigatory substance

SL.No	Family	Genus	Species
1	Areaceae	1	1
2	Verbenaceae	1	1
3	Cannabaceae	1	1
4	Lauraceae	1	1
5	Moraceae	1	1
6	Solanaceae	1	1
7	Piperaceae	1	1

Plants used for household articles, agricultural implements and furniture.

There are 25 plant species under 21 genus and belonging to 11 families under this category. The maximum of 3 species belongs to the family Poaceae, followed by Combretaceae and Clusiaceae with a number of 2 species each and the rest 8 families are represented by single species each.

Plants associated with musical instruments.

There are 5 musical instruments namely Um-oh, Kongkhi, Shüm, Jemji and Chekyong that are used traditionally according to the survey done in among the *Phom-Naga* tribe of Nagaland. To make these musical instruments, there are 5 different species of plants involved and among them the plant that is widely used is *Schizostachyum dullooa* which is used to make almost all the instruments.

Plants associated with indigenous sports and games

There are 3 different sports played commonly during festivals by the *Phom-Naga* tribe. Two different species of plants are associated with these games. Among the 2 species of plants *Bambusa tulda* is more widely used.

Plants associated with inscribing of tattoo

Family wise distribution of plants used for inscribing of tattoo under different genus and the number of species under each family are shown below in Table 5.9.

Table 5.9: Family wise distribution of plants used for inscribing of tattoo

SL.No	Family	Genus	Species
1	Arecaceae	1	1
2	Burseraceae	1	2
3	Araceae	1	1
4	Poaceae	1	1
5	Acanthaceae	1	1

Plants of miscellaneous use

There are 21 different plant species used for miscellaneous purposes. They belong to 20 genus and under 13 families. The maximum of 4 species of plants belong to the family Poaceae, followed by Arecaceae and Cucurbitaceae with a number of 3 species each. The rest of the families are represented by single species each.

5.2: New records on the uses of plants used by the *Phom-Naga* tribe in Longleng district, new to India

Every community has its own way of utilizing the plants according to their tradition and the environmental conditions they live in. And so *Phom-Naga* tribe has got its own unique way of the plants which are used as medicines and also for the food. Most of the plants have common usage with the rest of the community even though the knowledge was purely passed down from their fore-fathers but some plants usage are exceptionally different. Under the category of Ethnomedicinal plant (4.1.1.), the uses of inert materials along with the plant parts are quite unique and it's a standout, mostly from the rest of the Naga tribes. The significant findings which are unique in its own tribe are listed below in Table 5.10 , along with the category they belong, botanical name, vernacular name and the uses of the plants.

Table 5.10: Table showing reports on the uses of plants new to India

Botanical name	Vern. Name	Uses
<i>Acorus calamus</i> Linn. (Araceae)	Yongmei	Use of rhizome and leaves in unconsciousness and also as a charisma to expel evil spirit
<i>Albizia chinensis</i> (Osborne) Merr. (Mimosaceae)	Nok-Polang	Paste of the bark is wrapped around the wound externally as a plaster which provides support to the fractured part
<i>Allium tuberosum</i> Rottl. ex Spreng. (Liliaceae)	Lothi	The use of decoction of the roots and leaves for the treatment of epilepsy

<i>Alocasia macrorrhiza</i> (Linn.) G. Don. (Araceae)	Avilavo nü	Leaves and rhizome is used as vermifuge
<i>Alpinia galangal</i> (Linn.) Willd. (Zingiberaceae)	Shomlou	The fruits are used in dishes because of its strong flavor
<i>Amaranthus spinosus</i> Linn. (Amaranthaceae)	Ak alo	The plant is used to treat womb problem in women.
<i>Arisaema tortuosum</i> (Wall.) Schott (Araceae)	Sam hao	Young tender leaves eaten cooked as simple boiled vegetable.
<i>Artocarpus heterophyllus</i> Lamk. (Moraceae)	Polong	Decoction of bark is used to treat cancer. The seeds are dried and used to cure Asthma
<i>Bambusa tulda</i> Roxb. (Bambusoidae)	Nüet	The juice of the shoot is used in the treatment of piles
<i>Bauhinia glauca</i> (Wall. ex Benth.) (Caesalpiniaceae)	Bem phong	It is used in the treatment of womb problem
<i>Begonia bowerae</i> var. nigramarga (Begoniaceae)	Vong-nam	The broad leaves are slightly allowed to warm in the fire and then it is wrapped around the blood clotted portion of the body part after injury. It helps in subsiding the blood clot and pain.

<i>Begonia palmata</i> D. Don. (Begoniaceae)	Kochi naro	The sour leaves are dried and also used to treat malaria.
<i>Bidens pilosa</i> Linn. (Asteraceae)	Ajüng hangha	The leaf juice is mixed with water and use in bath for the treatment of skin disease, leaf paste applied in nostrils in an uncounscious person
<i>Brugmansia suaveolens</i> (Humb. & Bonpl. ex Willd.) Bercht. & Presl. (Solanaceae)	Ajan chüh	The leaf is useful in boasting memory power.
<i>Cajanus cajan</i> (Linn.) Mill. (Fabaceae)	Maha jang	Seeds and leaves are used in the treatment of womb cáncer
<i>Calamus erectus</i> Roxb. (Arecaceae)	Vai-nyü jük	The soft tender stem inside is eaten cooked as simple vegetable mostly cooked mixed with other vegetable.
<i>Canna edulis</i> Linn. (Cannaceae)	Ontsü on	Leaves are febrifuge that treats toothache along with <i>Solanum myriacanthum</i> .
<i>Cannabis sativa</i> Linn. (Cannabaceae)	Ganja	The leaves are taken orally in case of food poisoning.
<i>Capsicum annum</i> Linn. (Solanaceae)	Haul	Adding of the fruit in the rice cake
<i>Caryota urens</i> Linn. (Arecaceae)	Phom-lok	The stem after removing the outer layer is dried then grounded into fine flour to make biscuits.

<i>Celosia cristata</i> Linn. (Amaranthaceae)	Chou hak	Young tender leaves are eaten cooked as simple boiled vegetable.
<i>Centella asiatica</i> (Linn.) Urb. (Apiaceae)	Jelok alük	The plant extract is used for hair growth and also to treat cough.
<i>Costus speciosus</i> (Koenig ex Retz.) J.E.Smith. (Costaceae)	Yempi tongsa	Raw stem juice is taken orally for jaundice and even the tender stem inside is eaten for the same treatment. It is used as a vermifuge. The length of the pig is measured and the plant is cut exactly the same length as that of the sick pig. Then the bark of the stem is removed and places the stem above the fire place. This kills the worms in the pig and becomes worm free in few days.
<i>Datura stramonium</i> Linn. (Solanaceae)	Jayep jük	Ripe seeds are eaten roasted. It can also be eaten with chutney by making it a paste
<i>Dendrobium fimbriatum</i> Hook. (Orchidaceae)	Lokong chü	The leaf paste is applied in ringworms and other skin related diseases.
<i>Dichroa febrifuga</i> Lour. (Hydrangeaceae)	Tejeyoklek	It is also used for the treatment of womb related problems.
<i>Drymaria cordata</i> (Linn.) Willd. (Caryophyllaceae)	Pipi	The plant is rubbed and inhaled which is used as a good remedy for sinusitis.

<i>Equisetum ramosissimum</i> Desf. Subsp. Debile (Roxb.ex DC.) Hanke (Equisetaceae)	Tetet naro	The plant's extract is used for hair growth.
<i>Eurphobia royleana</i> Boiss. (Euphorbiaceae)	Ow-ma	Latex is applied in burns, and even used in toothache.
<i>Gossypium arboreum</i> Linn. (Malvaceae)	Pemba	Smashed seeds taken orally during measles and allergic. It is also a good refrigerant. White cotton threads along with dried bottle gourd are burnt and make paste. Then it is applied on the forehead and body joints during unconsciousness.
<i>Gynocardia odorata</i> R. Br. (Flacourtiaceae)	Ajök mangbai	The bark of the tree, small dried fish and water ia made paste and can be applied on allergies, skin rashes or skin diseases.
<i>Hibiscus sabdariffa</i> Linn. (Malvaceae)	Pü thiaok	Leaves along with rice is cooked and taken in case of dysentery.
<i>Houttuynia cordata</i> Thunb. (Saururaceae)	Tensü meli	Decoction of the rhizome is used for the treatment of malaria. The plant is name after the ailment it treats, that is tensü means malaria and meli means medicine. And adding of the plant part in the rice cake for preparation of rice beer.

<i>Jatropha curcas</i> Linn. (Euphorbiaceae)	Pah meli	Stalk used in brushing teeth in toothache
<i>Leucas aspera</i> (Willd.) Link. (Lamiaceae)	Shong pang meli	Plant boiled in water is infuse in treatment of sinusitis
<i>Luffa acutangula</i> (Linn.) Roxb. (Cucurbitaceae)	Maoh-ha	The flower is eaten cooked.
<i>Momordica charantia</i> Linn. (Cucurbitaceae)	Asha	Flowers and buds are eaten cooked as simple boil vegetable.
<i>Musa paradisiaca</i> Linn. (Musaceae)	Ngü	Latex of the plant is taken orally in case of dysentery
<i>Oroxylum indicum</i> (Linn.) Vent. (Bignoniaceae)	Meyong pü	The decoction of the bark is used in the treatment of jaundice
<i>Piper betle</i> Linn. (Piperaceae)	Bülou	The leaves along with salt are chewed for gastritis. The leaves mixed with lime are applied on cuts and wounds
<i>Rhus semialata</i> Murr. (Anacardiaceae)	Po	Powdered fruit is taken along with <i>Ocimum basilicum</i> and salt as carminative or in dysentery.

Rice beer	Shet	Inscription of thumb print in the rice cake
<i>Saccharum spontaneum</i> Linn. (Poaceae)	Pok nyü	Culms eaten for headache, stomach-ache, dizziness, unconsciousness, motion sickness and urinary infection.
<i>Solanum indicum</i> Linn. (Solanaceae)	Kangku	Adding of the fruit in the rice cake for preparation of rice beer.
<i>Tagetes erecta</i> Linn. (Asteraceae)	Lichüing chü	Leaf rubbed on forehead during headache and muscular pain.
<i>Thelypteris palustris</i> Schott (Thelypteridaceae)	Atak Mükhat	The entire leaf is fan upon the snake, scorpion or spider bitten wound. It is also used as insecticides.
<i>Tithonia diversifolia</i> (Hemsl.) A.Gray (Asteraceae)	Sayak jeü/ Bang klang	The leaves are carminative and also helpful in dysentery and blood pressure.
<i>Thalictrum foliolosum</i> DC. (Ranunculaceae)	Lamlu Chiü	Leaf extract is used in jaundice and in treating indigestion, fever and also toothache
<i>Urtica ardens</i> Link. (Urticaceae)	Shishok	Paste of the bark is used in dog bite
<i>Tagetes erecta</i> Linn. (Asteraceae)	Lichüing chü	Leaf of the plant is cooked along with other fodder and feed the cattle in case of fever or common flue.

5.3: Prevailing conservatory standpoint of the plant bio-resources

The present study on the ethnobotany of the *Phom-Naga* tribe in Longleng District is the first systematic and scientific study conducted so as to document the various aspect of plants use by them and the beautiful relationship that exist between the plants and the *Phom-Nagas*. The study helped in exploring the knowledge of 314 plants which are ethnobotanically important for them.

Even though there are number of researches and studies done by the scholars and academicians for conservation of bio-resources, there is nothing like the first hand knowledge of the indigenous people who works everyday on the field and have a profound knowledge of conservation and preservation of the available bio-resources. There exists plenty of data and information with the people in the villages but the only problem is, the information and knowledge are not in a written form but are passed down from generation to generation orally. So these forms of information are likely to vanish or disappear in a while if not preserved as scripts. Therefore the data and information has been collected as much as possible from the indigenous prospective.

Most of the people living in rural areas survive fully depending on the plant resources available to them. The family livelihood and economic status depend on the plant resources. There always exist a connection and an intense association with the nature and the people. Without any scientific knowledge they practiced farming since time immemorial with the traditional knowledge of conservation, protection, preservation and sustainable farming methods. Very surprisingly, without any artificial used, they could produce sustainable amount of grains, food substances and all the necessary products from the forest on their own.

The bio-fertilizers they use in farming are cow-dung, soil from earthworm, ashes and burnt plant products. They collect it in seasons and store

it in dry airy places to use them in the field for production. They use bio-fencing instead of barbed wire fencing and it has been effective to protect the crops from wild animals, cattle and other natural factor like wind, rain and storms. Some of the bio-fencing plants like *Agave americana*, *Sansevieria zeylanica* and *Lantana camara* have toxic substance to act as insect or snake repellent property. They also use scare crows to protect the crops from animals and birds.

Since the facility of cold storage is not available to them, they cannot preserve the juicy fresh fruits and vegetables for a long period of time but they have their own local method of preserving them. The fruits are made into juices and are commercially available and some of the vegetables are preserved after sun-dried. For propagation of the annual plants they keep the rhizomes and seeds by simple drying and keep it away from moisture and store it for the forthcoming year.

The people depend mostly on the wild forest products for their food and other necessary substances related to their livelihood. Almost 50% of the ethnobotanically important plants are from the wild so the indigenous people have a profound connection with the wild. During the studies and survey done many medicinal herbs which were used from the wild by the forefathers have been vanished due to little knowledge of conservation but the people are now mostly aware about conserving the available resources so they think about propagating the plants after been used for different purposes. The wild plant species are nowadays also cultivated at home and in farms for conservation.

The *Phom-Naga* tribe were animism before the arrival of Christianity so their forefather worshipped trees, groves and forest. They no longer worship these natures but they conserve the big trees in the villages as a legacy from the older generation. During the field work it was informed that in Tangha village, they conserve a Sacred Fig tree (*Ficus religiosa*) for hundreds of years and they believe that this tree signifies the productivity in the field of agriculture of that particular year by bearing of fruits on that tree. So this association is indirectly playing a vital role in conservation for years and there are still more unspoken

association that leads to the conservatory aspects of the plant species among the local community.

According to the **Annual Administered Forest Report (2011-12)**, in order to implement schemes under Joint Forest Management, Village level forest Committees called '**Community Forest Committee (CFC)**' have been constituted involving the Government officials concerned and representatives of the members of the land owning community whose appointment is made with the consent of the village concern. The main aim of this scheme is to focus towards regeneration and management of forest resources while strengthening the village level capacity as well. In the present context the government is also playing a great role to encourage villagers to take part in conservation and also imparting knowledge to them through different trainings and workshops.

Due to deforestation there are only few areas of virgin forest and the forest cover is depleting at a very high rate. So aforestation is encouraged and feeling of tree is made illegal in some government restricted areas. '**Tree Felling Regulation, 2002**', is implemented by the state government to facilitate felling or selling of timber by villagers, from private plantation under the supervision of the Forest Department through Transit Permits. If anybody found feeling of tree without prior permission, they were punished by imposing fine on them.

Due to the effort made by the individuals as well as the Government Bodies, the conservatory aspects for the Bio-resources that are locally available are somehow improved and bringing to a sustainable level. But regretting the fact that some of the species used by their forefathers are no longer available to them, more efforts should be made to conserve not only the forest but also should implement programs and knowledge for the herbs that are now available for its conservation. Thus, the present study in ethnobotany can help the local people to know their treasure and value of the plants that are available locally. As they follow rich traditional ways of using the plants they should preserve it with great respect by adopting some of the modern technology and methods. Highlighting of their rights and belongings by educated people and higher

authorities will help the local people to take further steps in the field of conservation. If so more concern for the local healers will develop which will ultimately bring them to a wider horizon and instead of losing the traditional knowledge with their death, it will be preserved which will be very helpful for the generations to come and ultimately will have great impact to the society as whole.

CHAPTER SIX

SUMMARY

CHAPTER SIX

SUMMARY

The study was done under the title 'Study of the Ethnobotany of the Phom-Naga tribe of Longleng District in Nagaland', and the research work was undertaken during the period from December 2008 to April 2014. The thesis contains six chapters and a brief note on each chapter is discussed below.

CHAPTER 1: The first chapter consists of the introduction regarding the general view and nature of the Ethnobotany, its relation to different branches of science, the purpose of the study undertaken and lastly the aims and objectives of the work undertaken.

CHAPTER 2: Second chapter deals with the location and area of the Longleng District and also about the people living in that area. It comprises of the general information, topography, drainage, geology and mining done in the district, industries, climate and its flora and fauna. The chapter also consists of the history of the Phom-Naga tribe, their religion, the language and script used their social life, cultural life as well as their economic life. The chapter also deals with the marriages, dresses, feast and ceremonies and also the food and drinks they use.

CHAPTER 3: The third chapter consists of the general literature of Ethnobotany, methods of the study which include the procedure, approaches done during the field work, building up of rapport, the methods of collecting information, methods of recording information, evaluation of data and the way in which the data are presented.

Chapter 4: This chapter is the heart of the thesis as it deals with the study of the ethnobotanical plants which include 309 plant species known to be used by the Phom-Naga tribe of Nagaland. The plants were broadly classified into 20 different categories such as, Ethnomedicines, Ethno-veterinary, Fodder, Food & beverages, Mastigatories & fumigatories, Dye yielding plant, Firewood, Fiber

yielding plant, Fish poisoning, Bird snaring, Bio-fencing, Socio-religious practices, Wrapping purposes, Bamboo & cane, House construction, Agricultural implement, Musical instruments, plants used for inscribing tattoo, plant associated with indigenous sports, household item & furniture, and lastly plants of miscellaneous uses.

Under all the sub titles the plants are alphabetically arranged according to their scientific names. Along with the scientific names, the names valid in current literature for the plants are given. The description of each plant is given along with the uses of the plant and the specimen number. The local name of the plant is also given.

Chapter 5: This chapter deals with the distribution of plants under each category. It consists of the distribution of family, genus and species of the plants under all the 19 categories. It also consists of a brief discussion on conservatory aspect of the plants which are traditionally practiced as well as the efforts made by the government to update the conservatory status.

Chapter 6: This chapter consists of the summary of the entire thesis.

CHAPTER SEVEN

REFERENCES

REFERENCES

- Ahmed, A.A.& Borthakur S.K. 2005 *Ethnobotanical Wisdom of Khasi (Khynew Treps) of Meghalaya*. Dehra Dun: Bishen Singh Mahendra Pal Singh
- Alcorn, J.B 1984. *Huastec Mayan Ethnobotany*. University of Texas Press, Austin, Texas.
- Alexiades, M.N. and Sheldon, J.W. 1996. Selected guidelines for *Ethnobotanical Research: A field manual*. The New York Botanical Garden, Bronx U.S.A.
- Ambasta, S.P. (Ed.) 1986. *The useful Plants of India*. NISCOM (CSIR), New Delhi (Reprinted 1992).
- Anonymous. 1948-1976. *The wealth of India : Raw Materials*. 11 vols. CSIR, New Delhi. (Reserved and enlarged Vols. 1A, 1985; 2B, 1988, 2000, 2001, 2002, 2003, 2005).
- Anonymous. 2002. *Hand Book of N.C.Hills-2002*. Deputy Director of Economics and Statistic, N.C.Hills.
- Arora, R.K 1987. Ethnobotany and its role in domestication and conservation of native Plant genetic resources. In S.K Jain (Ed.) *Methods and Approaches. Ethnobotany*. Soc.Ethnotanists, Lucknow :49-58.
- Arora, R.K. 1991. Native food Plants of the tribals of northeastern India. In S.K Jain (Ed.) *Contribution to India Ethnobotany*. Sci. Publ. Jidhpur : 137-152.
- Arora, R.K 1993. Adlay (Coix) crop in Meghalaya. *J.indian Bot. Soc* 52:95-98.
- Arora, R.K & E.R. Nayar 1984. *Wild relatives of crop plants in India*. New Delhi: ICAR, NBPGR Publication
- ASolkar, L.V, Kakkar, K.K.& Chakre, O.J 1992. *Second supplement to Glossary Indian Medical plants with active principal*. Part-1 (A.K0 (1965-84). CSIR, New Delhi.
- Barrau, J. 1959. The Sago palms and other food plants of marsh dwellers in South Pacific Island. *Econ.Bot.* 13:151-162.
- Baurua, K.N. Barua, I.C. & Das. M. 1999. Ethnobotany of Rajbanisis of Assam *Econ.Tax. Bot.* 23(2): 609-614.

- Baruah, P.& Sharma, G.C 1987. Studied on medicinal uses of plant by the North East tribe-III. *J. Econ tax. Bot.* 11 (1):71-76.
- Barooah, C.& Borthakur, S.K.2003. *Diversity and distribution of Bamboos in Assam*. Bishen Singh mahendra Pal Singh, Dehra Dun.
- Bates, D.M.2001. Ethnobotany: Mindsets, Externalities, and Challenges. *Phytomorphology* (Golden Jubilee Issue) : 31-38.
- Bellany, B.1993. *Ethnobiology, Expedition Field Techniques*, Expedition Advisory Centre, Royal Geographic Soc., London.
- Bennet, S.S.R. 1987. *Name change in flowering plants of India and Adjacent Regions*. Triseas Publishers, Dehara Dun.
- Bhandari, M.M 1974. Famine foods in the Rajasthan desert. *Econ. Bot.*28:73-81.
- Bharagava, K.S.1959. Unusual and supplementary food and palnt of Kumaon. *J.Bombay nat. Hist. Soc.* 56:26-31.
- Bhatnagar, H.P.1963. Floristic composition of some Hollong (*Dipterocarpus macrocarpus*) Nahor (*Mesua ferrea*) forest. *J. India Bot. Soc.* 42:367-375.
- Bhattacharjee, S. & Nair, A.R. 1978. Some folklore medicines from Assam and Meghalayas. *J. Crud Drug Res* 16:185-189.
- Bhattacharjee, S., Tiwari, K.C Majumdar, R. & Mishra, A.K 1980. Folklore Medicine from district Kampur (Assam). *Bull Medico-Ethnobot.Res.*1:1447-460.
- Bhatta, D.C. Mitaliya,. K.D. & Mehta S.S.K 2001. Some Sacred Plants of Gujarat & their Medicinal Use. *Ethonobotany*. 13.146-149.
- Bhuyan, D.K. 1994. Herbal drugs used by tribal people of Lohit district of Arunachal Pradesh for abortion and easy delivery : A Repot. *Advance Pl.Sci* 7(2):197-202.
- Bhuyan T.C.199. *Studies on Ethnobotany of Dimasa Kacharies of North Cachar Hills District of Assam with special reference to medical plants*. Gauhati University (Unpublished)
- Biswa, S. & Ahmed, A. 1987. Ethnobotanical studies in some plants of Bornihat

- Biswa, S. & Ahmed, A. 1987. Ethnobotanical studies in some plants of Bornihat valley, Assam/Meghalaya. *Indian For.* 113(9) : 634-639.
- Boissya, C.L. & Majumdar, R. 1980. Some folklore claims from the Bramaputra valley (Assam). *Ethnomedicine* 6:139-144.
- Boissya, C.L., Majumdar, R. & Majumdar, A.K. 1981. Some medicinal plants of Darrang district of Assam, India. *Anthrops.* 17:220-222.
- Boissya, S. Boissya C.L. & Majumdar, R. 1983. Economic aspects of some medicinal Plants available in Nowgong district of Assam, India. *Anthrops.* 78:241-245.
- Bora A. 2003. A Hand Book of Scientific and Assamese Names of plants. Aaranyak, Gauhati.
- Bora, Hr. Borthakur, S.K. & Hazarika, L.K. 2003. Use of Plants in control of pests in Assam-An ethnobotanical approach. *J. Econ Taxon Bot.* 27 (4) : 956-963.
- Bora, P.J. 1999. A study on Ethnobotanical uses of Plants among the Bodo tribe of Sonitpur district, Assam, India. *J. Econ. Tax Bot.* 23 (2) : 604-608.
- Bordoloi, B. & Borthakur, S.K. 1997. Botanical identity of "Phuinum" a folk remedy for hypertension. *Bull Medico ethobot. Res.* 18:29.
- Borthakur, S.K. 1976a. Less known medical uses of plants among the tribes of Karbi Anglong (Mikir Hills), Assam. *Bull. Bot. Surv. Indian* 18 (1-4) : 166-171.
- Borthakur, S.K. 1981a. Plants in folklore and folklife of the Karbi (Mikiris) of Assam. In S.K. Jain (Ed). *Glimpses of Indian Ethnobotany* Oxford & IBH Publ. Co. New Delhi: 170-181.
- Borthakur, S.K. 1981b. Studies in ethnobotany of the karbis (Mikiris) of Assam : Plant masticatories and dyestuffs. In S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH. Publ. Co., New Delhi.
- Borthakur S.K. 1996b. Wild edible plants in market of Assam, India-an ethnobotanical investigation. In S.K Jain (Ed.) *Ethnobiology in Human welfare*. Deep publ., New Delhi. 31-34.
- Borthakur S.K. 2003. Ethnobotany Wisdom behind the traditional Muga silk

- industry in Assam. *Indian J. Trad. Knowledge* 2 (3) : 230-235.
- Borthakur S.K. & Sharma D.K. 1986. Ethnobotany unfolds new vistas of medicinal plant research. *Proc. Reg. Sec. Med. Plant, Gauwathi, Assam* : 157-164.
- Borthakur S.K. & Gogoi P. 1994. Indigenous technology of making writing materials among the Tai Khamtis. *Ethnobotany* 6: 5-8
- Borthakur S.K. & Goswami, N. 1995. Herbal medicines from dimoria in Kamrup district of Assam in North Eastern India. *Fitoterapia* 66(4): 333-339.
- Borthakur S.K., Nath & Gogoi P. 1996. Herbal remedies of the Nepalese of Assam. *Fitoterapia* 64 : 231-237.
- Borthakur S.K., Sharma, T.R., Nath, K.K. & Deka, P. 1998b. The house gardens of Assam: A traditional Indian experience of management and conservation of Bio-diversity-II. *Ethnobotany* 11: 65-80.
- Rahma, B.K. & Boissya, C.I. 1996. Ethnobotanical notes on certain medicinal plants used by the Bodos of Assam with particular reference to Kokrajhar district. *Vasundhara* 1 : 82-87.
- Carter, H.G. & Carter, D. 1921. Useful plants of the district of Lakhimpur in Assam. *Rec. Bot. Surv. India* 6 : 355-420.
- Castetter, E.F. 1935. Uncultivated native plants used as source of food. Enthological studies in the American South West-I. Univ. New Mexico Bull. 266.
- Chadwick, Derek J. & Marsh, J. (Ed) 1994. *Ethnobotany and the search for new drugs*. John Wiley & sons, Chichester, U.K.
- Chandra, V. 1989. Medicinal plants used by tribals of Arunachal Pradesh – A Preliminary study. *J. Econ. Tax. Bot.* 15 : 391-394.
- Chandra, V. 1993. Some unreported uses of plants from North Eastern India. *Annals of Forestry* 1 (1) : 102-104.
- Chakija, S. & Kumar, Y. 1996. Ethnobotanical folk practices and beliefs of the Ao-Nagas in Nagaland, India. *Ethnobotany* 1(1&2): 33-36.

- Chhetri, R.B., kataki. S & Boissya, C.I., 1992. Ethnobotany of some ichthyotoxic plants in Meghalaya, North-Eastern India. *J. Econ. Tax Bot. Addled. Ser.* 10:285-288.
- Chhetri, R.B. 1994. Futher observation on Ethnobotany of Khasi Hills in Meghalaya, India. *Ethnobotany* 6:33-36.
- Chhetri, R.B. 2005. Ethnobotany of Bio fencing in Dhulikhel region in Nepal. *Ethnobotany* 17. 176-78.
- Chaudhuri , Rai H.N. Dan, S.N. Pal, D.C. Tarafder, C.R. & Banerjee, K.K. 1977. Edible Jungle leaves. *Folk-lore* 19(5) : 161-163.
- Choudhury, D. & Neogi, B. 1999. Ethnobotany of Khasi and Chakma tribes of North East India. *J. Econ. Tax. Bot.* 23 (2) : 538-589.
- Chopra, R.N., Nayar, S.L. & Chapra, I.C., 1956. *Glossary of Indian Medicinan Plants*. CSIR, New Delhi.
- Chopra, R.N., Nayar, S.L. & Chopra, I.C., 1969. *Supplement of the of Indian Medicinan Plants*. CSIR, New Delhi.
- Cotton, C.M. 1996. *Ethnobotany : principles and application*. John Iniley & Sons, New York.
- Crane, J.C. 1949. Roselle-a potentially important plant fibre. *Eco.Bot.* 3:89-103.
- Croom, E.M. Jr. 1983. Documenting ane evaluating herbal remedies. *Econ Bot.* 37: 13-27.
- Cunningham, A.B. 2001. *Applied Ethnobotany : People, wild plants use and conservation*. Earthscan Publ., London & Sterling, U.S.A.
- Dam, D.P. & Hajra, P.K.. 1981. Observation on Ethnobotany of the Mompas of Kameng district, Arunachal Pradesh, in S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & Ibm Publ. Co., New Delhi: 107-117.
- Das, A 1942. Floristics of Assam – a preliminary sketch, 150th Ann. Vol. Roy. Bot. Gdns. Calcutta : 137-156.
- Das, A.K. 1997. Less known are uses of plants among the Adis of Arunachal Pradesh. *Ethnobotany* 9: 90-93.

- Das, A.K. 2001. A note on wild edible mushrooms of East Siang District of Arunachal Pradesh. *Ethnobotany*. 13: 126-128.
- Gogoi P. & Borthakur, S. K. 1991. Plants in religio-cultural beliefs of the Tai Khamtis of Assam (India). *Ethnobotany* 31(1&2): 89-97.
- Gogoi P. & Borthakur, S. K. 1996. Ethnic Plants classification and nomenclature of the Tai Khamtis of North-Eastern India. In S.K. Jain (Ed.) *Ethnobiology in Human Welfare*. Deep Publ. New Delhi: 482-484.
- Griffith, W. 1974. *Journals of Travels in Assam, Burma, Bootan, Afghanistan and the Neighbouring countries*, Calcutta.
- Griffith, P. 1967. The History of Indian Tea Industry. Weidenfeld & Nicolson, London.
- Guha, B. S. 1939. Simphak the bark cloth of the GAROS of Assam. *J. Asiat. Soc.* 6: 174.
- Guha, A. 1977. *Planter Raj to Swaraj*. ICHR, New Delhi.
- Gupta, R. K. 1962. Some unusual and interesting food plants of Garhwal Himalayas. *J. Agric, trop. Bot. Appl.* 9 : 533-535.
- Hajra, P. K. 1975. *Law Lyngdoh or Sacred grove at Shillong*. Forest Department. Govt. of Meghalaya, Shillong.
- Hajra, P. K. 1977. Some important medicinal plants of Kameng district, Arunachal Pradesh. *Bull. Meghalaya Sci Soc* 2: 16-20.
- Hajra, P. K. 1991 Nature Conservation of Khasi folk belief and taboos. In S. K. Jain (Ed.) *Contribution to Indian Ethnobotany*. Sci. Publ. Jodhpur: 311-320.
- Hajra, P.K. & Boishya, A. K. 1981 Ethnobotanical notes on the Miris (Mishing) of assam plains. In S. K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co., New Delhi: 161-169.
- Haridarsan, K. Bhuyan, L.R. & Deori, M.L. 1990. Wild edible plants of Arunachal Pradesh. *Arunachal Forest News* 8 (1&2): 1-9.
- Harshberger, J.w. 1895 some new ideas: The plants cultivated by aboriginal people and how used in primitive commerce. *The (daily) Evening Telegraph. Philadelphia* 64: (134):2.

- Hooker, J. D. 1872-1897. *Flora of British India*. 7 vols. Secretary of state for India, London.
- Hooker, J. D. 1904. A Sketch of the Flora of British India. Reeve Publ., London (Reprint 1973, Bishen Mahendra Pal Singh, Dehradun).
- Hooker, J.D. & Thomson, T. 1855. *Flora Indica*. Secretary of State for India, London.
- Hutton, J. H. 1923. Some economic plants of the Naga Hills. *Agric. J. India* 9: 80-88.
- Irvine, F. R. 1952. Supplementary and emergency food plants of West Africa. *Ecion, Bot.* 6 : 23-40.
- Islam, M., 1984. A study on some wild plants used as vegetables in N. E Region. *Proc. Natl. Acad. Sci* 54 B: 245-251.
- Islam, M. 1995. Certain less known wild edible plants of North East India. *J. Biol.Sci. Soc.* 2 : 42-48.
- Jamir, N. S. 1987. Some interesting medico-botany used by Ao – A Naga Tribe. In P. C. Dandiya & S.B. Vohra (Eds.) *Research and Development of Indigenous Drugs*. IHMMR, New Delhi: 159-265.
- Jamir, N. S. 1990. Some interesting medicinal plants used by the Nagas. *J. Res. Educ. Indian Medicine* 9(2): 81-87.
- Jamir, N. S. 1997. Ethnobiology of Naga Tribe in Nagaland – In medicinal herb. *Ethnobotany* 9: 101-104.
- Jamir, N. S. & Rao, R. R. 1990. Fifty new or interesting medicinal plants used by the Zelangs of Nagaland, India. *Ethnobotany* 2(1&2): 11-18.
- Jain, S. K. 1963. Studies in Indian Ethnobotany: less known uses of fifty common plants from the tribsl areas of Madhya Pradesh. *Bull.Bot. Sury. India* 5: 223-226
- Jain, S. K. 1964a. The role of Botanist in folk-lore research, *Folklore* 5 : 145-150

- Jain, S. K. 1964b. Wild plant foods of tribals of Bastar (Madhya Pradesh). *Proc. Nat. Inst. Sci. India* 306: 56-80
- Jain, S. K. 1965. Medicinal plant lore of the tribals of Bastar. *Econ. Bot.* 19: 236-250.
- Jain, S. K. 1967. Ethnobotany: its scope and study. *Bull Indian Mus.* 2(1): 39-43.
- Jain, S. K. 1971. Some magico-religious beliefs about plants among Adibasis of Orissa. *Adibasi* 12: 38-43.
- Jain, S. K. 1981. Ethnobotanical research unfolds new vistas of traditional medicine. In Jain, S. K. (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co., New Delhi: 1-16.
- Jain, S. K. 1987a. *A Manual of Ethnobotany*. Sci. Publ., Jodhpur.
- Jain, S. K. (Ed.) 1987b. Ethnobotany- its concepts and relevance. *Pres. Add. Xth Bot. Conf.* 1-12.
- Jain, S. K. (Ed.) 1989a. *Methods and Approaches in Ethnobotany*. Soc. Ethnobotanists, Lucknow.
- Jain, S. K. 1989b. Ethnobotany. *Ethnobotany* 1: 1-5.
- Jain, S. K. 1989c. Ethnobotany: an interdisciplinary science for holistic approach to man plant relationship. In Jain, S. K. (Ed.) *Methods and Approaches in Ethnobotany*. Soc. Ethnobotanists, Lucknow : 9-12.
- Jain, S. K. 1991. *Dictionary of Indian Folk-medicine and Ethnobotany*. Deep Publ. New Delhi.
- Jain, S. K. & Mudgal V. 1999. *A Handbook of Ethnobotany*. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Jain, S. K. 2000. Human Aspects of Plant Diversity. *Econ. Bot.* 54: 459-470.
- Jain, S. K. 2001. Ethnobotany in Modern India. *Phytomorphology* (Golden Jubilee Issue): 39-54.
- Jain, S. K. 2004. Objective ethnobotany-knowledge traditional, approaches modern. *Ethnobotany* 16: 1-9.

- Jain, S. K. & De, J.N. 1964. Less Known plant foods among the tribals of Purulia (West Bengal). *Sci. Cult.* 30: 285-286.
- Jain, S. K. & Rao, R. R. 1977. *A Hand book of field and Herbarium Merhods*. Today & Tomorrow's Publ., New Delhi.
- Jain, S. K., Hajra P. K. & Shanpur, R. 1977. Survey of wild edible plants in bazaar of Meghalaya. *Bull. Meghalaya Sci. Soc.* 2: 29-34.
- Jain, S. K. & Dam, N. 1979. Some ethnobotanical notes from northeastern India. *Econ. Bot.* 33: 52-66.
- Jain, S. K. & Borthakur, S. K. 1980. Ethnobotany of the Mikris of India. *Econ. Bot.* 34: 264-272.
- Jain, S. K. & Mitra, 1991. Ethnobotany in India: Retrospect and Prospect. In S. K. Jain (Ed.) *Contribution to Indian Ethnobotany*. Sci. Publ. Jodhpur: 1-18.
- Jain, S. K., Saha, B. K. & Gupta, R.C. 1991. *Notable plants in Ethnomedicine of India*. Deep Publ., New Delhi.
- Jain, S. K. & De Fillipps, R. A. 1991. *Medicinal Plants of India*. 2 vols. Reference Publ., Algonac, U.S.A.
- Jain, S. K. & V. Mudgal 1999. *A Handbook of Ethnobotany*. Bishen Singh Mahendra Pal Singh, Dehradun.
- Jidung, P. C. 2002. N.C. Hills Forest Division. Sovenier, N. C. Hills Autonomous Council, 2002. 46-49.
- Jones, V. H. 1941. The nature and status of ethnobotany. *Chronica Botanica* 6 (14): 219-221.
- Joseph, J. & Kharkonger, P. 1981. A preliminary ethnobotanical survey of the Khasi and Jayantia Hills, Meghalaya. In S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co., New Delhi: 115-123.
- Kanodia, K. C. & Gupta, R.K. 1968. Some useful and interesting supplementary food plants of arid region. *J. Agric. Trop. Bot. Appl.* 15: 71-75.
- Kanjilal, U. C., Das, A., Kanjilal P. C. & De, R.N. 1934-1941. *Flora of Assam*. Vol 1-5. Govt. Of Assam, Shillong (Vol.5 by N. I. Bcr). (Reprinted 1982).

- Kar, S. K. & Panigrahi, G. 1963. Rubiacene in Assam and North East Frontier Agency. *Bull Bot. Surv. India* 5: 227-237.
- Kanick, C. R., Tiwari, C. K., Majumdar, R. & Bhattacharjee, s. 1981. Newer ethnobotanical and folklore studies of some medicinal plants of Gauhati and surrounding areas. *Nagarjun* 24: 204-245.
- Kharkonger, P. & Joseph, J. 1981. Folk-love medico-botany of rural Khasi and Jaintia tribes in Meghalaya. In S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co., New Delhi: 124 - 136.
- Khiewtan, R. S. & Ramakrishnan, P. S. 1989. Socio-cultural studies of the sacred groves of Cherrapunji and adjoining areas in northeastern India. *Man in India* 69: 64-71.
- Kholi, Y. P. 1992. Indigenous medicine system of arunachal Pradesh. *Recent Advances Med. Aromat & Spice Crops*. Today & Tomorrow's Printers & Publ., New Delhi 2: 351-354.
- Kholi, Y. P. 1993. Indigenous medicine system of Arunachal Pradesh. *Deerghayu Int.* 9 (33): 18-20.
- Kingdom ward, F. 1960. *Pilgrimage of Plants*. London.
- Kiritkar, K. R. & Basu BD. 1935. *Indian medicinal plants*, \$ Vols. Ed. 2. Lalit Mohan Basu, Allahabad.
- Kumar, S. 2002. *The medicinal plants of Northeast India*. Jodhpur: Scientific Publishers
- Kurup, P.V.N. and Ramda, V.N.K. 1979. Handbook of medicinal plants. New Delhi : CCRAS
- Lalramnghinglova, H. 1996. Ethnobotany of Mizoram- A preliminary survey. *J. Econ. Taxon. Bot.* 12: 439-459
- Lalramnghinglova, H. 2003. *Ethno-medicinal plants of Mizoram*. Dehra Dun: Bishen Singh Mahendra Pal Singh
- Lalramnghinglova, H. and Jha, L.K. 1999. Ethnobotany: A review. *J. Econ. Taxon. Bot.* 23 (1): 1-27

- Lanusunep and Jamir, N.S. 2010. Folk-medicinal herbs used by the *Sumi Naga* tribe of Zunheboto district, Nagaland. *Pleione* 4(2): 215-220
- Lipp, F.J. 1989. Methods of ethnopharmacological field work. *J. Ethnophar.* 25(2): 139-150
- Magoneitso and Rao, R.R. 1983. Ethnobotanical studies in Nagaland- Sixty two medicinal plants used by Angami-Nagas. *J.Econ. Tax. Bot.* 4: 167-172
- Maheshwari, J.K. 1970. New vistas in ethnobotany. *J.Econ. Tax. Bot. (Addl. Ser.)*: 1-11
- Maheshwari, J.K. 1983. Developments in ethnobotany. *J.Econ. Tax. Bot.* 4: I-V
- Maheshwari, J.K. (Ed.) 1996a. *Ethnobotany in South Asia*. Jodhpur: Scientific Publishers.
- Maheshwari, J.K. 1996b. Ethnobotanical documentation of primitive tribes of Madhya Pradesh, India. *J.Econ. Tax. Bot. (Addl. Ser.)*: 206-213
- Maheshwari, J.K. (Ed.) 2000. *Ethnobotany and medicinal plants in Indian Sub Continent*. Jodhpur: Scientific Publishers.
- Manilal, K.S. 1980. *Botany and history of Hortus Malabaricus*. Rotterdam: A.A. Balkema.
- Manilal, K.S. 1989. Linkages of Ethnobotany with other sciences and disciplines. *Ethnobotany* 1: 15-24
- Manilal, K.S. 2007. The Hortus Malabaricus: An account of heritage plants of Malabar. *Ethnobotany* 19: 17-31
- Mao, A.A. and Odyuo, N. 2007. Traditional fermented foods of Nagas of North East India. *I.J.T.K.* 6(1): 37-41
- Mao, A.A., Hynniewta, T. M. and Sanjappa, M. 2009. Plant wealth of Northeast India with reference to ethnobotany. *I.J.T.K.* 8 (1): 96-103
- Martin, G. 1995. *Ethnobotany: A methods manual*. New York: Chapman Hall.
- Mozhui, R., Rongsensashi, Limasenla and Changkija, S. 2011. Wild edible fruits used by the tribals of Dimapur District of Nagaland, India. *Pleione* 5(1): 56-64

- Mudgal, V. 1987. Recent ethnobotanical works on different States/Tribes of India-A Synoptic treatment. In: S.K.Jain (Ed.) *A Manual of Ethnobotany*. New Delhi. Deep Publications. Pp. 58-68
- Mukesh, D.J. 1980. Indian system of medicine. *Nagarjuna* 24(3) : 61-62
- Mukherjee, B. 1955: Indian Indigenous Drugs: Need for research. *Bull. Nat. Inst. Sci. Ind.* 4: 1-14
- Nagaland state Human Development Report 2011. Kohima: Department of Planning and Coordination, Government of Nagaland.
- Nair, C. K. N. and Mohanan, N. 1998. Medicinal plants of India: With special reference to Ayurveda. Delhi: Nag Publishers
- Naithani, H.B. 2011. *Bamboos of Nagaland*. Nagaland: NEPED & NBDA
- Nath, S.C. and Begum, D. 1998. Information on ethnobotany of North-Eastern India. *Ethnobotany* 10: 122-126
- Neogi, B Prasad, M.N.V. & Rao R.R. 1989 Ethnobotany of some weeds of Khasi and Garo Hills, Meghalaya, India. *Econ Bot.* 43 (4): 471-479.
- Pakhuongte, D. 2002. A brief account of the Hmars. *Souvenir*. 2002 N.C. Hills Autonomous Council. 82-83.
- Pal. D.C & Banerjee D.K. 1971. Some less known plant food form among the Tribals of Arunachal Pradesh and Orissa state. *Bull. Bot. Surv. India* 13 : 221-223.
- Pal. G.D. 1984. Observations on Ethnobotany of the tribals of Subansari District of Arunachal Pradesh. *Bull. Bot. Surv. India* 26 (1&2) : 26-37
- Pal. G.D 1992. Observations on less known tribals uses of plants in Lower Subansari District, Arunachal Pradesh. *J.Econ Tax. Addl. Ser* 10 : 109-203.
- Pandey, H.C. Rawat M.S. & Singh, A.K 1990 . Some healing herbs of the Mons amongst the minor forest products. *Arunachal For. News* 8 (1&2) : 34-37.
- Panigraha, G.1965. Studies in the monocot flora of Assam and North East Frontier Agency, *Proc. Nat. Acad. Sci. India B* 35 : 357-366.
- Panigraha, G.1965. Studies in the monocot flora of Assam and North East

- Frontier Agency, (Family Burmaniaceae and dioscoreaceae). Proc. Nat. Acad. Sci. India B36 : 353-368.
- Panigraha, G. & Kar, S.K. 1966 (1967). The Composite in Assam and North East Frontier Agency. *Bull Bot. Surv. India* 8 : 228-236.
- Payee, G. De Bear. 2000. Cultural uses of Plants: *A guide to learning about ethnobotany*. The New York Botanic Garden, New York. Kingdom Ward, F.1960, Pilgrimage of Plants. London.
- Plotkin, M.J. 1991. Traditional knowledge of Medicinal Plants - The search for new jungle medicines. In O. Akerele, V. Heywood & H. Sngé (Eds.) *The Conservation of Medicinal Plants*. Cambridge Univ. Press, Cambridge : 53-63.
- Porteres, R. 1961. L'ethnobotanique : Place, Object, methode, philosophie. *J. Agric. Trop. Bot. Appl.* 8 : 101-190.
- Powers, S. 1875. Aboriginal botany. *Proc. Calif Acad. Sci.* 5 : 373-379.
- Prakash, V. & Mehrotra, B.N. 1991. Ethnomedicinal uses of plants among the Garos of Meghalaya. *Ethnobotany* 3 (1&2) : 41-45.
- Rajkhowa, S. 1961. Forest types of Assam with special reference to the evergreen and semi-evergreen forests. *Indian For.* 81 : 520-541.
- Rao, A.S. & Verma, D.M. 1969a (1972a). Contribution to the botany of North Lakhimpur sub-division, Assam. *Bull. Bot. Surv. India* 11: 403-413.
- Rao, A.S. & Verma, D.M. 1969b (1972b). Notes on Zingiberaceae from. *Bull. Bot. Surv. India* 11 : 245-248.
- Rao, A.S. & Verma, D.M. 1970 (1972). Materials towards a monocot flora of Assam-I. Hydrocharitaceae and Burmaniaceae. *Bull. Bot. Surv. India* 12 : 139-143.
- Rao, A.S. 1970. A sketch of flora and fauna of Northeastern India, particularly Assam and Meghalaya, In *Sourv. 40th Sess. Centr. Board. Irr. & power* 85-90, Shillong.
- Rao, A.S. & Verma, D.M. 1972 (1975) Materials towards a monocot flora of Assam-II. Zingiberaceae and Marantaceae. *Bull. Bot. Surv. India* 14: 114-143.

- Rao, A.S. & Verma, D.M. 1973 (1976). Materials towards a monocot flora of Assam-III. Taccaceae, Dioscoreaceae and Stemonaceae. *Bull.Bot. Surv. India* 15: 189-203.
- Rao, A.S. 1977 (1979.) Floristic studies in Northeastern India (Old Assam Region). *Bull.Bot. Surv. India* 19: 56-60.
- Rao, A.S. & Verma, D.M. 1982. *Cyperaceae of North East India*. Bot. Surv. India, Howrah.
- Rao, M.K.V. & shanpu, R. 1981. Some plants in the life of Garos Of Meghalaya. In S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co. New Delhi :153-160.
- Rao, R.R. 1981a. Ethnobotany of Meghalaya – medicinal plants used by Khasi and Garo tribes. *Eco. Bot.* 35:4-9.
- Rao, R.R. 1981b. Ethnobotanical studies on the flora of Meghalaya : Some interesting reports of herbal medicines. In S.K. Jain (Ed.) *Glimpses of Indian Ethnobotany*. Oxford & IBH Publ. Co. New Delhi : 13-24.
- Rao, R.R. 1989a. Methods and techniques in ethnobotanical study and reseach : Some basic consideration. In S.K. Jain (Ed.) *Methods and Approaches in Ethnobotany*. Soc. Ethnobotanists, Lucknow :13-24.
- Rao, R.R. 1989b. The mute message of ethnobotany for the 21st century. In S.K. Jain (Ed.) *Methods and Approaches in Ethnobotany*. Soc. Ethnobotanists, Lucknow :215-222.
- Rao, R.R. 1991. Ethnobotanical studies on some Adivasi Tribes of Northeast India with special reference to the Naga people. In S.K. Jain (Ed.) *Contribution to Indian Ethnobotany*. Sci. Publ. Jodhpur :215-230.
- Rao, R.R. 1996 Indegenous people and forests : Perpective of an ethnobotanical study from Nagaland, NorthEast India. In S.K. Jain (Ed.) *Ethnobiology in Human Welfare*. Deep Publ. New Delhi :367-371.
- Rao, R.R. & Neogi, B. 1980. Observation on the ethnobotany of the Khasi and Garo tribes in Meghalaya. *J. Econ. Tax. Bot.* 1:157-162.
- Rao, R.R. & Jamir, N.S. 1982a. Ethnobotanical studies in Nagaland – I, Medicinal Plants. *Econ. Bot.* 36:176-181.

- Rao, R.R. & Jamir, N.S. 1982b. Ethnobotanical studies in Nagland – II, 54 Medicinal Plants used by Nagas. *J.Econ. Tax. Bot.* 3 :11-17.
- Rao, R.R. & P.K. Hajra 1987. Method of research in Ethnobotany. In S.K. Jain (Ed.). *A manual of Ethnobotany*. Sci. Publ., Jodhpur :33-42.
- Rao, R.R. & Jamir, N.S. 1990. Ethnobotany of the Ao and Angami Nagas of the Nagaland. *J.Econ. Tax. Bot.* 14(3) : 593-604.
- Rao, R.R. & Panigrahi, G. 1961. Distribution of vegetations types and their dominant species in Eastern India. *J.Indian. Bot. Soc.* 40 :274-285.
- Rastogi, R.P & Mehrotra, B.N. 1990, 1991, 1993, 1995, 1998, 1999. *Compendium of Indian Medicinal Plants*. 6 vols. CDRI, Lucknow & PID, New Delhi.
- Rawat, M.S. Shanker, R & Singh, V.K. 1997. Notes on ethnobotany of the Monpa tribe of Tawand District (Arunachal Pradesh). *Bull. Medico. Ethno. Bot. Res.* 18 : 1-11.
- Rawat, M.S. & Chowdhury, S. 1998. *Ethno Medoci Botany of Arunachal Pradesh* (Nishi & Apatani tribes). Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Rowntree, J.E 1953. An introduction to the vegetation of the Assam Valley. *Indian for. Rec. (n.s)* 9(1) :1-97.
- Sahni, K.C. 1971. Protection of rare and endangered plants in Indian. Flora. *Proc Xith IUCN Technical Meeting*. New Delhi 2:95-102.
- Saklani, A & Jain, S.K. 1989. Ethnobotanical observation on plants used in North Eastern India. *Int.J. Crude Drug Res.* 27(2) : 65-74.
- Saklani, A. & Jain, S.K. 1994. *Cross-cultural ethnobotany of North- East India*. Deep publ., New Delhi.
- Saklani, A. & Jain, S.K. 1992. Cross- cultural ethnobotany of North- East India *Ethnobotany* 4: 47-57.
- Saklani, A. & Jain, S.K. 1994 *Cross- cultural ethnobotany of North- East India*. Deep publ., New Delhi.

- Samapudhi, K. 1962. Some food plants in the forests of Thailand. *Proc. 9th Pacific Sci. Cong. Pacific Sci. Ass.* 4: 250-253.
- Sangtam, T.L., Jamir, N.S., Deb, C.R. and Jamir, N.S. 2012 A study on Medicinal plants used by the sangtam Naga tribe in Kiphire District, Nagaland, India. *I.J. Ayur. Herb. Med.* 2(2): 267-275
- Santapau, H. 1971. Endangered plant species and their habitats. *Proc. Xith IUCN Technical Meeting*, New Delhi 2 : 83-88.
- Sapu, Changkija. 1996. Ethnobotanical folk practices and beliefs of the Ao Naga, India. *Ethnobotany* 8; 14-24*
- Schultes, R.E. 1960. Tapping our heritage of ethnobotanical lore. *Econ. Bot.* 14 : 257-263.
- Schultes, R.E. 1962. The role of the ethnobotanist in the search for new medicinal plants. *Lyoydia* 25 : 257-266.
- Schultes, R.E. 1963. The widening panorama in medical botany . *Rhodora* 65 (762): 97-120.
- Sengupta, J.N. 1937. The forests of Upper Assam. *Indian For.* 63: 734-745.
- Sharma, U.K. 1999. Folk and herbal medicine among Nepalese of Assam . *J. Econ. Tax. Bot.* 23(2): 599-603.
- Sangal, P.M. 1963. Forest food of the tribal population of Andaman and Nicobar Island. *Indian For.* 97: 646-650.
- Singh, H.B. & Arora, R.K. 1972. Raissan *Digitaria* sp. Minor millet of the Khasi Hills, India. *Econ. Bot.* 26: 376-380.
- Singh, H.B. & Arora, R.K. 1978. *Wild edible plants of India* ICAR, New Delhi.
- Singh, H.B., Hynniewata, T.M. & Bora P.J. 1997. Ethnomedia botanical studies in Tripura , India *Ethnobotany*. 9: 56-58.
- Singh, H.B., Hynniewata, T.M. & Bora P.J. 1999. An ethnobotanical note on wild edible plants of Tripura, India. *Ethnobotany* 11(1 & 2) : 26-28
- Singh, J. Kumar, S., Devi, T.P. & Kumar, S. 1992. Medicinal Plants of Manipur-I . *J. Econ. Tax. Bot. Addl. Ser.* 10 : 233-239

- Singh, J. Bhuyan, T.C. & Ahmed, A. 1996. Ethnobotanical studies on the Mishing Tribe of Assam with special reference to food and medicinal plants. *J. Econ. Tax. Bot. Addl. Ser.* 12 : 350-356.
- Singh, P.K., Singh, N.L. & Singh L.J. 1988. Ethnobotanical studies on wild edible plants in the markets of Manipur-I. *J. Econ. Tax. Bot.* 12(1) : 133-119.
- Singh, R.S. & Singh, S.S. 1985. A Preliminary ethnobotanical study on wild edible plants in the markets of Manipur-I. *J. Econ. Tax. Bot.* 6(3) : 689-783.
- Singh, K., Elangbam, V.D. & Singh, H.B.K. 1999. Ethnomedicinal studies of some plants used to enhance vocalism by the traditional Meitei singers in Manipur. *J. Econ. Taxo. Bot.* 23 (2): 629-634.
- Sinha, S.C. 1987. Ethnobotany of Manipur – Medicinal plants. *Frontier Bot* 1: 133-152.
- Sinha, S.C. 1990. Notes on ethnomedicinal plants of Manipur. *Cur. Pam. Letters* 1 (1): 3-6.
- Sinha, S.C. 1996. *Medicinal plants of Manipur*. MASS & Sinha, Imphal.
- Sinha, S.C. 1996 b Wild edible plants of Manipur, India. In S.K. Jain (Ed.) *Ethnobiology and Human Welfare*. Deep Publ., New Delhi: 42-47.
- Singha, V.K. & Anand, K. 1983. Some Folklore medicine from district of Subansiri of Arunachal Pradesh. *Bull Medico-Ethnobot. Res.* 4(3 & 4) : 133-152.
- Siva, R. 2007. Status of natural dyes and dy-yielding plants in India. *Curr. Sci.* 92 (7): 916-925
- Smith, W.C. 1926. Ao Naga Folk-tales. *Folklore* 37
- Subramanyam, K. & Sreemadhavan, C. 1969. Nature conservation- a losing battle. *Indian For.* 96: 719-723.
- Takatemjen, Jamir, N.S. and Deb, M.S. 2009. Wild edible fruits of Wokha district of Nagaland, India. *Pleione* 3 (1): 59-62
- Tarafder, C. R. 1986. Ethnobotany of Chhotanagpur. (Bihar). *Folklore* 27: 119-124

- Tapadar, Z.A. 2006 . *Multi Lingual Word Book*. DIPR (Janasanyog) N.C.Hills, Assam .
- Tetso, T. 2008. *Ethnomedicine of the Ao Nagas*. Dimapur: Heritage Publishing House
- Thomas,S.Yaridasan, K. & Borthakur, S.K. 1998. Ethnobotanical observations on Rattan Palms among the Adi and Nishing tribes in Arunachal Pradesh. *Ethnobotany* 10:22-26.
- Thothathri, K. & Pal, G.D. 1987. Further information on ethnobotany of tribes of Subansiri, Arunachal Pradesh. *J. Econ. Tax. Bot.* 10(1) : 149-157.
- Tiwari, K.C., Majumdar, R. and Bhattacharjee, S. 1979. *Folklore medicine from Assam and Arunachal Pradesh (district Tirap)*. J. Crude Drug Res. 17: 61-67
- Tiwari, K.C., Majumdar, R. and Bhattacharjee, S. 1980. Folklore claims on medicines and treatments from Assam. *Bull. Medico-ethnobot. Res.*1:166-178
- Trivedi, P.C.. (Ed.) 2002. *Ethnobotany*. Jaipur: Aavishkar Publishers
- Trivedi, P.C.. (Ed.) 2010 . *Ethnic Tribes & Medicinal plants*. Jaipur: Pointers Publishers
- Uniyal, S.K., Bahuguna, S. and Sati, O.P. 1990. Biological screening of extracts of some medicinal plants from Garhwal. *Herbal Hungarica* 29(1-2): 37-41
- Upadhaya, K.D. 1964. Indian botanical folklore. *Folklore* 5(3): 81-97
- Upadhaya, R. and Chauhan. S.V.S. 2000. Ethnobotanical observations on Koya tribe of Gundaala mandal of Khammam district, Andhra Pradesh. *Ethnobotany* 12: 93-99
- Varma, S.K., Srivastava, D.K. and Pandey, A.K. 1999. *Ethnobotany of Santhal Parganas*. New Delhi: Narendra Publishing House
- Varma,S.K. and Pandey, A.K. 1990. Ethnobotanical notes on certain medicinal plants uses by tribals of Bihar. *J. Econ. Tax. Bot.* 14(2): 329-333
- Vartak, V.D., and Gadgil, M. 1980. *Studies in Ethnobotany*. A new vistas in botanical science. *Biovigyanam* 6:151-156

- Verma, D.M. 1985. *Carex asraoi*- A new species of Cyperaceae from Nagaland, India. *J. Econ. Taxon. Bot.* 7(3): 605-608
- Verma, G.S., 1955. *Miracles of Indian herbs*. Delhi: G.S Ayurvedic Research Production
- Vohora S.B. 1992. Research on Indian medicinal plants: A review on reviews. *Indian Drugs* 26(10): 526-532
- Wahal 2005. Selected references on Ethnobotany. 2004-2005. *Ethnobotany* 17: 2006-2009
- Watt, G. 1896. *A dictionary of Economic Products of India*. Vol. 1-6. Shahadara, Delhi: Periodical Expert
- Weiss, M.G. 1987. Karma and Ayurveda. *Anc. Sci. Lif.* 6(3): 129-134
- Wickens, G.E. 1990. What is economic botany? *Econ. Bot.* 44: 12-28

PAPERS PUBLISHED

Kilangnaro Imchen & N.S.Jamir, (2011). **Ethnomedicinal plants used by the *Phom-Naga* tribe in Longleng district of Nagaland, India.** *Pleione* 5(1): 77-82

Kilangnaro Imchen & N.S.Jamir, (2012). **Ethno-botanical folk practices of tattooing operation of the *Phom-Naga* tribes in Nagaland, India.** *Ethnobotany* 24: 138-141

Kilangnaro Imchen & N.S.Jamir, (2012). **Indigenous knowledge of musical instruments used by the *Phom-Naga* Tribe of Nagaland.** *Ethnobotany* 24: 83-85

SEMINARS ATTENDED

Kilangnaro Imchen & N.S.Jamir, (2012). **"Preliminary Survey Of Ethnomedicinal Plants Used By The *Phom-Naga* Tribe Of Nagaland".** (Oral presentation during the National seminar on Impact Of Developmental Activities On Traditional Ethnomedicines, Biodiversity And Its Conservation, Lucknow (U.P.), March 17-19, 2012, Institute of Ethnobiology, Jiwaji University, Gwalior & CSIR- National Botanical Research Institute, Lucknow.)

Kilangnaro Imchen & N.S.Jamir, (2012). **"Ethnomedicinal plants used by the *Phom-Naga* tribe, Nagaland".** (Poster presentation during State level workshop on Present Trends and Future Scope of Research in Nagaland, Kohoma (Nagaland), July 5-6, 2012, The Nagaland University Research Scholars' Forum, Kohima)

Kilangnaro Imchen & N.S.Jamir, (2012). **"Herbal remedy of traditional knowledge of Phom-Naga tribe, Nagaland"**. (Participation during the State Level Training of Field Investigators on Documentation, Assessment and Promotion of Local Health Traditions and Survey of Flora Used in Local Health Traditions of Nagaland, April 10-17, 2012, Institute of Ayurveda and Integrative Medicine, Bangalore).

Kilangnaro Imchen & N.S.Jamir, (2009). **"Ethnobotanical study of the Phom-Naga tribe IN LONGLENG DISTRICT, Nagaland"**. (Oral presentation during the Research Methodology course for Ph.D. scholars, Guwahati, October 12- November 1, 2009, University Grants Commission).

Kilangnaro Imchen & N.S.Jamir, (2009). **"Ethnomedicinal plants used by the Phom-Naga tribe, Nagaland"**. (Poster presentation during the Nagaland University Research Scholar Poster Competition, Lumami, 6th September, 2009, Lumami, Nagaland University).