

Ugyen Wangchuck Institute for Conservation and Environment Research, Department of Forests & Park Services Ministry of Agriculture & Forests Lamaigonpa, Bumthang, Bhutan. PB-Box: 155 PABX: 975-3-631926 www.uwice.gov.bt And

> Social Forestry and Extension Division, Department of Forests & Park Services Ministry of Agriculture & Forests, Thimphu, Bhutan. Post Box No: PABX: 975-2-323138 www.dofps.gov.bt

> > ISBN: 978-99980-812-8-4

Designed & Printed: Yoebar Prints, Thimphu (yoebarprinters@gmail.com)



## MED ດ A **RADITION** PLA ດ ົວ ÊD EA ... NG IN B **HEALERS FOR**

# MEDICINAL PLANTS **USED BY LOCAL HEALERS FOR** TRADITIONAL HEALING IN BHUTAN

(TAPPING THE LOCAL KNOWLEDGE: ETHNOBOTANY SERIES)

**DENDUP TSHERING** TASHI DHENDUP SONAM PELDON **TSHETHUP TSHERING** 



TAPPING THE LOCAL KNOWLEDGE: ETHNOBOTANY SERIES

## MEDICINAL PLANTS USED BY LOCAL HEALERS FOR TRADITIONAL HEALING IN BHUTAN

DENDUP TSHERING<sup>1</sup> TASHI DHENDUP<sup>2</sup> SONAM PELDON<sup>3</sup> TSHETHUP TSHERING<sup>4</sup>

<sup>1</sup> Principal Forestry Officer, UWICER

<sup>2</sup> Senior Forestry Officer, UWICER

<sup>3</sup> Principal Forestry Officer, SFED

<sup>4</sup> Senior Forester, UWICER

#### Peer reviewed by:

K.J. Temphel, Social Forestry and Extension Division, DoFPS Ngawang Gyeltshen, Nature Conservation Division, DoFPS Mani Prasad Nirola, National Biodiversity Centre

Copyright © 2022. Ugyen Wangchuck Institute for Conservation and Environmental Research, Department of Forests and Parks Services, Lamaigonpa, Bumthang PB-Box: 155 PABX: 975-3-631926 www.uwice.gov.bt & Social Forestry and Extension Division, Department of Forestry Services, Thimphu. Post Box No: PABX: 975-2-323138 www.dofps.gov.bt

#### Suggested citation:

Tshering D, Dhendup T, Peldon S, Tshering T (2022). *Medicinal Plants used by local healers for traditional healing in Bhutan*. Tapping the local knowledge: Ethnobotany Series. Ugyen Wangchuck Institute for Conservation and Environmental Research and Social Forestry Extension Division, Department of Forests and Parks Services, Ministry of Agriculture and Forest. Yoebar Prints. Thimphu.

Printed at:	Yoebar Prints
	Phendey Lam, Thimphu-11001
	Bhutan

ISBN: 978-99980-812-8-4



This book is dedicated to His Majesty the King Jigme Khesar Namgyel Wangchuck for his untiring efforts and guidance in combating the COVIDO-19 pandemic and keeping our country and people safe and peaceful as always.



## CONTENTS

FOREWORD	v
PREFACE	vi
ACKNOWLEDGEMENT	vii
LIST OF LOCAL TERMS	viii
ABBREVIATIONS	viii
1. EXECUTIVE SUMMARY	1
2. INTRODUCTION	2
3. OBJECTIVES OF THE STUDY	4
4. METHODOLOGY	5
4.1 Study sites	6
4.1.1 Khoyar and Shekpashing	7
4.1.2 Dungkarcholing	7
4.1.3 Chongapa	- 7
4.1.4 Kheshing	8
4.1.5 Dungchilo	8
4.1.6 Upper Labsibotey	8
4.1.7 Dekiling	9
4.2 Data Collection	9
4.2.1 Field work	9
4.2.2 Timeline for study	10
4.3 Identification of plants	10
4.4 Ethical Issues	10
5. RESULTS	11
5.1 Types of local medicinal compounds/mixes	13
5.1.1 Maankhalu or Chi-rik-kyi-men	13
5.1.2 Zikpey Maan	13
5.1.3 Dhoorba Maan	14
5.1.4 Zemned	14
5.1.5 Maan sururu	14
5.1.6 Sofu malekpa maan	14

5.1.7 Dhuukmaan (Zey-dhuuk)	15
5.1.8 Shelmen	15
5.1.9 Luzey Lumen	15
5.2 Illustrations of the medicinal plants	17
6. DISCUSSION	362
6.1 Shortcomings of this study	363
6.2 Future scope of the work	363
7. CONCLUSION	364
8. BIBLIOGRAPHY	366
APPENDIX 1: Introduction to the local healers	367
APPENDIX II: The medicinal plants used by local healers	371



### FOREWORD

Bhutan is a treasure trove of traditional knowledge and practices that have been passed down from one generation to the next over the centuries. Before modern medicines made their way into Bhutan and many other developing countries, traditional medicine was a vital source of health care. Even in the present time which is marked by the emergence and re-emergence of infectious diseases, traditional medicine continues to play a significant role in catering to the needs of public health.

However, we observe that a heavy reliance on modern medicines is leading to the loss of the vast knowledge contained in indigenous culture and practices of Bhutan. What is even more concerning is that the traditional medicine practice systems are not documented properly, and there are currently very few traditional knowledge holders and practitioners. Also, as traditional medicines continue to gain recognition globally, it is important to protect knowledge through intellectual property laws and regulations. As such, documenting such practices should be a priority.

I am glad that the team from the Ugyen Wangchuck Institute for Conservation and Environmental Research and Social Forestry & Extension Division under the Department of Forest and Park Services has taken up the task of documenting traditional medicine practices in Bhutan, particularly in the identification of plants and plant products used for treating diseases. The documentation will complement the already excellent work being carried out by the Institute for Traditional Medicine Services, and also build a database of medicinal plants within the Department for future use and reference.

(Thinley Namgyel) Secretary MoAF



### PREFACE

Bhutan has a rich botanical diversity, particularly of medicinal herbs, and was aptly known as the land of medicinal herbs, "*Menjong*" for over a thousand years.

The traditional science and the practice of medicine were integral to the health and healing of the Bhutanese communities and it continues to be to the present day. Currently, there are several traditional knowledge holders scattered across the country. However, literature on the medicinal plants and plant products which the traditional healers use is very scarce and should be documented before the knowledge is lost.

Our researchers reached out to seven local healers over two years in 2020-2021 to acquire the names of the medicinal plants and plant products which they use in preparing local medicines. This book also contains a short introduction of these seven local healers who took part in this survey.

The Ministry of Agriculture and Forests published a guideline on the identification and collection of medicinal plants in 2008 in which 47 species (including that of high altitude and low altitude together) were listed. The Institute of Traditional Medicine Services has also published guidebooks in two volumes documenting 224 medicinal plants from high and low altitudes. This study documented 172 species of medicinal plants used by the seven local healers, and of which, only 32 species were listed in the guidebooks published by the ITMS. This suggests that a vast knowledge about plants used in traditional medicine remains undocumented.

This guidebook contains illustrations of the medicinal plants used by the local healers. The plants documented here are found from the foothill plains of southern Bhutan to the temperate forests up to an elevation of about 2000 meters above sea level. At the time of this study local healers of higher altitudes could not be identified and many high-altitude plants used by local healers still needs to be identified and documented.

I am happy that the UWICER and SFED under the Department of Forests & Park Services has done a tremendous work. This guidebook will serve as a valuable source of information for the Bhutanese in the future.



(Lobzang Dorji) Director, DoFPS



## ACKNOWLEDGEMENT

It would not have been possible for the Ugyen Wangchuck Institute for Conservation and Environmental Research and the Social Forestry & Extension Division under DoFPS to come out with this illustrated guide book on medicinal plants of Bhutan used by local healers without the contribution and support of many people.

The team would like to express its sincere gratitude to the seven local healers around the country for their contribution. Without their participation, this work would not have been possible. They have played a major role by being willing to share their knowledge and then helping in identifying the medicinal plants used for various local healing purposes.

The management would also like to extend our appreciation to our field colleagues and officials who have supported during the field works. Many thanks to Chief Forestry Officers -Tashigang, Samdrup Jongkhar, Tsirang, and Sarpang Forest Divisions for the support and cooperation extended. We would, in particular, like to acknowledge the support of Mr D.B Rai (Wamrong Range Office), Mr Tshering Dhendup (Thrimshing Beat Office), Mr Karma Wangdi (Gomdar Beat Office), Mr Dechen Tshering (Samdrup Jongkhar Forest Division), Mr Nima Sangay and Mr B.B. Chhetri (Sarpang Division), and Mr Kuikel (Tsirang Range) for their support during the field data collection.

The management would also like to offer our deepest gratitude to all colleagues of UWICER & SFED for providing the necessary technical guidance and fund support for the design and publication of this report through the Sustainable Community Based Enterprise for Livelihood project funded by Asian Forest Cooperation Organization (AFoCO). Without their support the publication of this work would not have materialized.

The management would like to deeply appreciate and thank the support of National Biodiversity Centre (NBC) for reviewing the report and providing the necessary clearance for the publication of this report.

The management would also like to commend Mr. Dendup Tshering, Ms. Sonam Peldon, Mr. Tashi Dhendup, and Mr. Tshethup Tshering for putting in concerted efforts in collection of pictures, identification of the plants, and compiling the report.

We hope that this book will serve as reference for local practitioners and enthusiasts of local healing medicines in the future.



(Shacha Dorji) Head, UWICER

## **List of Local Terms**

_	
Drungtsho	- Local healer
Lho-jong-men-jong	- Bhutan's olden days' name (Tibetan)
Sowa-Rigpa	- Indigenous knowledge-in-healing
Maan or Men	- Medicine
Maankhalu	- Bitter medicine
Chi-rik-kyi-men	- General (mixed) medicine
Shelmen	- Medicine used to induce a system flush
Shing-na-tong	- 1000 medicinal plants
Zikpey maan	- Medicine for bath
Dhoorba maan	- Medicine made by boiling
Dhuukman (Zeydhuuk)	- Medicine for food poisoning
Maan sururu	- Medicine for sinusitis
Sofu malekpa	- Bad wounds (cancerous wounds)
Drangwa	- Urinary tract infection
Zemned	- Post-partum cramps
Luzey-Lumen	- Medicines used to appease Nagas (kLu)
Naga or Lu/Klu	- One class of beings in the Buddhist/Hindu mythology
Zetpu	- Eczema
Moyoma	- Vaginal Prolapse
Gagned	- Blocked throat
Jari/Jashawa	- Tea leaves
Tshadim	- Cough and cold
Khusung	- Boils
Khom	- Carbuncles

### Abbreviations

ITMS	- Institute of Traditional Medicine Services
MOAF	- Ministry of Agriculture and Forests
RGoB	- Royal Government of Bhutan
RNR	- Renewable Natural Sector
UWICER	- Ugyen Institute for Conservation and Environmental Research
WHO	- World Health Organisation
FAO	- Food and Agriculture Organisation of the UN
MAP	- Medicinal and Aromatic Plants
NBC	- National Biodiversity Centre
Sh	- Sharchhokpai kha (Language spoken in eastern Bhutan)
Lh	- Lhotsham kha (Language spoken in southern Bhutan)
Dz	- Dzongkha (National Language of Bhutan)
TM	- Traditional Medicine

## 1 EXECUTIVE SUMMARY

In Bhutan, the traditional medicine had been practiced for over centuries, passed down from generation to generation. The Institute of Traditional Medicine Services (ITMS) based at Thimphu and the Department of Traditional Medicine Services under the Ministry of Health provides traditional medication services to the people through service facilities in hospitals throughout the country. The pharmaceutical unit of the traditional medicine established in 1982 was upgraded to a full corporation (Menjong Sorig Pharmaceuticals Corporation Ltd) in 2017 to boost production and supply of traditional medicines in the country.

Meanwhile, in addition to the official traditional medicine services available in the country there are still few local healers in rural areas around the country who continue the practice of traditional healing today. In the course of this study seven local healers around the country have been identified who still do local treatments. But with the advent of easy and modern scientific medication through the hospitals the traditional practice of local healing is on the decline. Most of the plants which are being used as medicines by these local healers are not documented and there is great danger of losing the information in the near future. Therefore, this study was initiated to document the medicinal plants used by local healers around the country.

With the help of these 7 local healers around the country a total of about 172 medicinal plants have been identified and recorded in this book. The two medicinal plant guidebooks published by Institute of Traditional Medicine Services contains about 224 medicinal plants (both high altitude and low altitude plants) of which only 32 plants are found overlapping. This means a significant number of plants used by local healers as medicinal plants are not recorded before.

This book provides illustrated information about the medicinal plants used by local healers. A tabular information is also provided with detailed information as to the usage of plants against each ailment. Meanwhile, this compilation doesn't contain medicinal plants of higher altitudes since the researchers could not identify practicing local healers at higher altitudes during the course of the study.

Hope this book will be helpful for all.

2 INTRODUCTION

Dependence on plant and plant products for healing is undeniably a trade practiced throughout the world. Traditional herbal medicines are rooted in indigenous knowledge systems and existed since time immemorial. Medicinal plants form the basis of traditional or indigenous health practice systems used by the majority of the population of most developing countries. The World Health Organisation (WHO) defines Traditional medicine as "the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness". FAO defines Medicinal Aromatic Plants (MAPs) "as botanicals that provide people with medicines - to prevent disease, maintain health or cure ailments".

The WHO estimated that about 80% of the population of developing countries rely on traditional medicines, mostly plant drugs, for their primary health care needs. Astutik et al (2019) conducted a review of 247 journal articles, 15 institutional reports, and 28 book chapters and came to conclusion that at least 70% of the population of the developing world directly rely on traditional medicine for primary health care. They also noted that an estimated 25% of modern pharmacopeia and 18% of 150 top prescription drugs are plant-based.

FAO (2013) also lists about 8,000 species of plants as having ethnobotanical properties, of which 2500 species are primarily used in different traditional medicinal systems.

Bhutan had been called in the olden days as *Lho-jong-men-jong* which can be literally translated as Southern-land-of -medicines<sup>1</sup>. This name was understandably given by Tibetans as Bhutan is south of Tibet. Bhutan is home to more than 7000 species of vascular plants. The traditional medicine practice in Bhutan has been termed as *Sowa Rigpa* (Wylie transliteration *gso-ba rig-pa*) or crudely "knowledge in healing"). It appears like the Bhutanese *Sowa Rigpa* is an offshoot of Tibetan traditional medicine system and appears to be widely known is the west as Tibetan medicine, and is practiced throughout the world especially in Tibetan regions of China, Himalayan regions of India (Ladakh, Sikkim, Himachal Pradesh), Nepal, Bhutan, Mongolia, Russia, and recently in European and western countries (Yeshi et al, 2019). The *Sowa Rigpa* medical practice is still one of the living traditions in Bhutan with the Institute

<sup>&</sup>lt;sup>1</sup>South from mainland Tibet. In ancient Tibet Bhutan was called as Lho-mon (southern-land)

of Traditional Medicine Services  $(ITMS)^2$  as National Institute and the local healers around the country who have been practicing from generations to generations.

Today, the ITMS records 224 medicinal plants that are available within the country of which 116 are high altitude medicinal plants and 108 are low altitude medicinal plants (Wangchuck et al, 2009). The ITMS uses about 267 medicinal raw materials to produce 98 traditional medicinal compounds. Of the many raw materials used by ITMS, the medicinal plants are the main ingredients of these essential traditional medicines and about 70 % of these plant materials are collected from within the country (Wangchuk et al. 2007).

In Bhutan, throughout the ages the private individuals had also been practicing healing in their local areas. Some of these local practices had been passed down from generations to generations while some have learnt through practices on their own. This study has tried to identify the medicinal plants in used by some local healers around the country.

<sup>&</sup>lt;sup>2</sup>Institute of Traditional Medicine Services is located at Thimphu, capital city of Bhutan. It was initially established as a Indigenous Dispensary at Dechencholing, Thimphu, in 1968. In 1979 it was shifted to current location and renamed as National Indigenous Hospital. In 1998 it had been upgraded to a full Institute ITMS. The institutes trains traditional medicine staff, and caters services to people through units in Dzongkhags tagged with the national hospitals.

# **3** OBJECTIVES OF THE STUDY

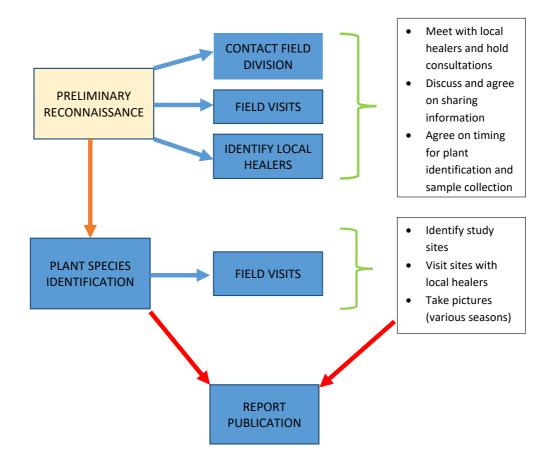
Many species of plants have been used by local healers throughout the ages to treat various ailments. There are many local healers in the country who still continue to practice local healing. However, with the advancement of scientific medical treatment these local healers are on the decline. So far documents on medicinal plants and plant products used by local healers are not available. There may come a time when such practitioners and practices will be no more seen. Therefore, it is of importance to conduct a study and document these plant and plant products.

Thus the study had the following objectives:

- i) Identify and document plants and plant products used by local healers around the country as medicines
- The documentation of traditional knowledge of medication adopted by local practitioners for information sharing and continuity of the traditional practice in the future
- iii) Inform policy makers about the need to provide regulations for sustainable use and conservation of these medicinal plants

# **4** METHODOLOGY

The following simple and non-systematic methodology was adopted for conducting the study. In the preliminary reconnaissance travels were made to the field, consulted with field Forest Divisions, in order to identify local *Drungtshos* in their areas. After identification of the local *Drungtshos*, in consultation with them repeated field visits were carried out to identify, record and take pictures of these medicinal plants. Visits during different seasons were conducted to capture different morphological characteristics of the plants wherever possible.



Since this study required only the presence and cooperation of the local healers in identification and recording of plants the use of empirical data collection tools and data analysis was not required.

#### 4.1 Study sites

The study sites were determined by the number of credible local healers that had been identified for this. During the preliminary assessment 5 local healers were identified throughout the country. Later on as the study progressed 2 more local practitioners were identified. Since the help of the local healers were undisputable in the identification of medicinal plants the sites had to be in the vicinity of these local healers.

Accordingly, the study sites were identified in congruent with the local healers. The study sites were basically spread in the four Dzongkhags namely Tashigang, Samdrup Jongkhar, Sarpang, and Tsirang. The search for medicinal plants were carried out in these areas with the help and guidance of the local healers.

The brief introduction of these local healers are also provided in Appendix I.

The details of the study sites are illustrated below:

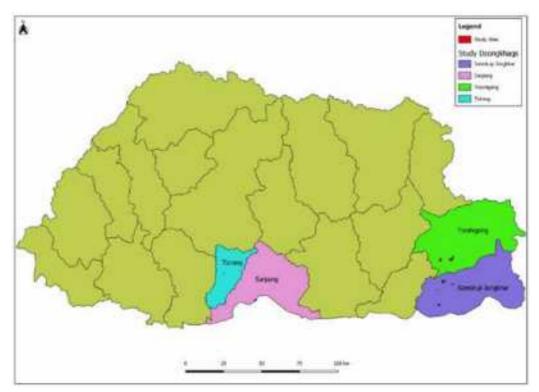


Figure 1: Map showing study sites in the country

The specific study sites are provided in the sections that follow with brief description of their locations.

#### 4.1.1 Khoyar and Shekpashing

The first study site was at Khoyar of Gomdar Geog and Shekpashing of Orong Geog under Samdrup Jongkhar Dzongkhag. This is the practice area of Drungtsho Wangda of Khoyar, Gomdar. He collects the medicines from his local areas and travels to Shekpashing areas in the adjacent Geog of Orong.



Figure 2: Study site of Drungtsho Wangda



Figure 3: Study site of Drungtsho Khotsa

#### 4.1.2 Dungkarcholing

The second study site was at Dungkarcholing of Deothang Geog under Samdrup Jongkhar Dzongkhag. This is the practice area of Drungtsho Khotsa of Dungkarcholing, Deothang. Dungkarcholing is about 26 kilometres from Deothang town towards Bangtar.

#### 4.1.3 Chongapa

The third study site was at Chongapa of Wangphu Geog, under Samdrup Jongkhar Dzongkhag. Drungtsho Singye Dorji of Chongapa collects most of his medicines from in and around this place. Chongapa is one of the remotest areas of Wangphu Geog.



Figure 4: Study site of Drungtsho Singye

#### 4.1.4 Kheshing



The fourth study site was at Kheshing of Lumang Geog, Wamrong Dungkhag under Tashigang Dzongkhag. Drungtsho Sonam of Kheshing collects most of his medicines from in and around this place. Kheshing is located in between Riserboo and Wamrong town.

Figure 5: Study site of Drungtsho Sonam

#### 4.1.5 Dungchilo

The fifth study site was at Dungchilo of Thrimshing Geog, Thrimshing Dungkhag under Tashigang Dzongkhag. Drungtsho Karchung of Dungchilo gathers his medicinal ingredients from in and around this place. The village Dungchilo is located at about 3 kilomteres from Thrimshing Phengpari, the Dungkhag headquarters.



Figure 6: Study site of Drungtsho Karchung

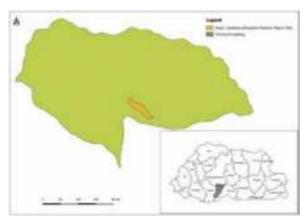


Figure 7: Study site of Drungtsho Partiman Aaley

#### 4.1.6 Upper Labsibotey

The sixth study site was at Upper Labsibotey, Gosaling Geog, Tsirang Dzongkhag. Drungtsho Partiman Aaley of Upper Labsibotey collects medicinal plants in and around this place. The area is about 2.5 kilometres from Damphu town and is near Damphu Higher Secondary School.

#### 4.1.7 Dekiling

The seventh study site was at Dekiling, Dekiling Geog, Sarpang Dzongkhag. Drungtsho Sing Bir Tamang of Dekiling collects medicinal plants in and around this place. This collection site also is along the Indo-Bhutan border.

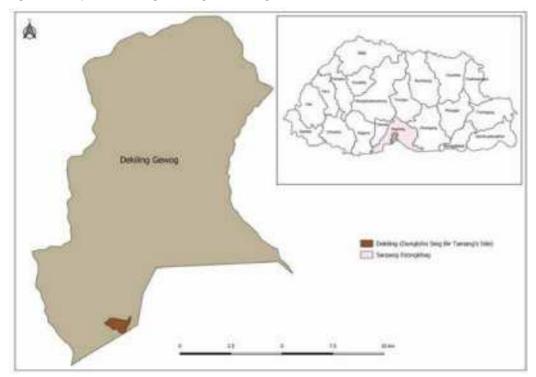


Figure 8: Study site of Drungtsho Sing Bir Tamang

#### 4.2 Data Collection

The following process were involved in data collection.

#### 4.2.1 Field work

The field work for the study began in March 2019. A preliminary assessment was carried out to identify the local healers around the country. Five practicing local healers were identified in four Dzongkhags. Two from Samdrup Jongkhar, one each from Tashigang, Tsirang, and Sarpang Dzongkhags were identified. Later at the time of collecting samples of medicinal plants two more healers (one each from Tashigang and Samdrup Jongkhar) were additionally identified.

In collaboration with the local healers, the field work consisted of scouring the study sites for medicinal plants, taking sample pictures, and collection of samples for identification. Visits to the sites at different seasons were made to capture different morphological phases of each plant. But it is very difficult to get all the phases of the plant morphology as most medicinal plants.

About 23 samples (including roots, stems, tubers) of the medicinal plants are collected from various places and are displayed at the Ethnobotany museum at Lamaigonpa.

#### 4.2.2 Timeline for study

Name of work	Work began	Work completion	Remarks
Preliminary reconnaissance of local healers throughout the country	March 2019	April 2019	Preliminary assessment report submitted
Fieldwork (venturing into study sites,)	July 2019	September 2020	Identification of medicinal plants along with local healers, taking and storing pictures
Botanical identification	October 2020	December 2020	Identification of plants with help of botanists and use of flora references
Data compiling	January 2021	February 2021	Listing, tabulation, sorting, preparing folders for design and printing, write up
Publication of the work	March 2022	April 2022	Design and printing

#### 4.3 Identification of plants

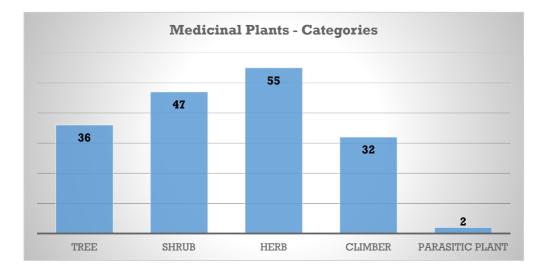
Identification of the plants were carried out with reference to books on Flora of Bhutan. Voucher specimens were cross checked with the herbarium specimens maintained at the National Biodiversity Centre, Serbhithang, Bhutan and all the species identification were properly authenticated. The Global Biodiversity Information Facility (GBIF) and Bhutan Biodiversity Portal (BBP) were also referred for identification of the species.

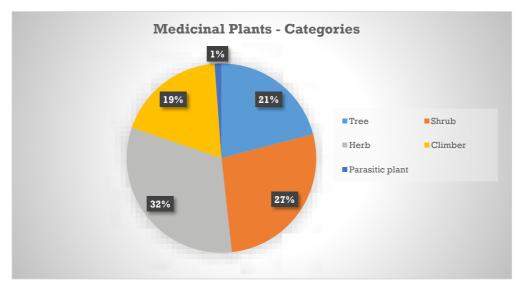
#### **4.4 Ethical Issues**

The study very well got into the domains of private practices of the local people. As such people are always skeptical about any external interventions and there are certain ethical issues that were considered. The approach adopted was open and inclusive discussions with the local healers. Their sentiments and prior consent was sought before collecting any information on the plants and their uses. Information were sought and recorded upto what they could provide with regards to identification of the plant and plant products and avoided dwelling into too much details about their private practices. Meanwhile most of the local healers identified have agreed and cooperated in providing support in identification of the medicinal plants. Some of the healers did not want to share the information of their practice in whole and the records have been limited to the information that they could share.

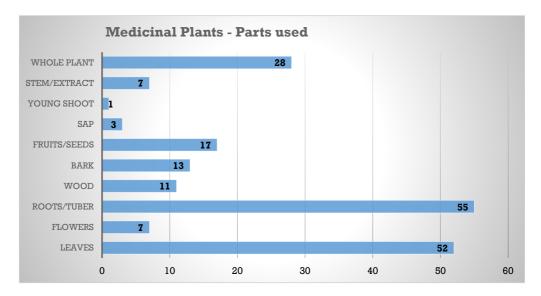
**5** RESULTS

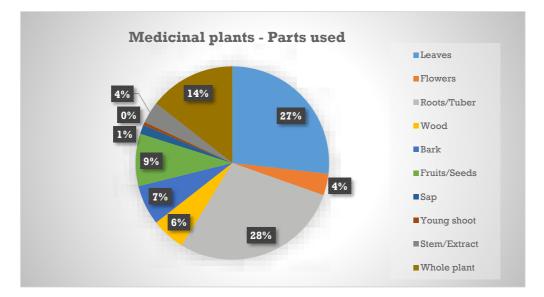
From this compilation of the medicinal plants used by local healers, majority of the plants are herbs with almost 32% followed by shrubs at 27%. Woody trees constitute 21% and climbers and vines make up to 19% of the medicinal plants. The two parasitic plants make up to 1% of the total.





If we look at the utility of the plant parts, the local healers use maximum of roots and tubers which constitute 28 % which is closely followed by use of the leaves at 27%. The use of whole plant as medicines is also significant with 14% of the plants being used whole. Most of the plants which are used whole are herbs. Fruits/seeds, bark, and wood parts are also significantly used with 9,7,6 percent respectively. Extract from stem and sap also are used as medicines.





#### 5.1 Types of local medicinal compounds/mixes

Most of the local *Drungtshos* formulate various medicinal compounds/mixtures for treatment. Some of the medicines are administered in powdered form, where as some are made into liquid drinks, and some are molded into pills. Only certain plants are used individually for specific treatments. But mostly a mix of various plants are used for treatment of various ailments. The *Drungtshos* claim that actually if possible the best powdered medicine is made out of *'shing-na-tong'*<sup>3</sup> which means a medicine made from mixture of thousand plants.

Here are details of some of the medicine compounds/mixes. This section contains only medicinal compounds or mixes which are made by combining multiple plants. The names of medicines which are used by singular plants are not reflected here (they can be found in the individual tables along with the illustrations).

#### 5.1.1 Maankhalu or Chi-rik-kyi-men

This is one of the most used medicine made by mixing various parts of multiple medicinal plants. The name 'Maan' means medicine and 'khalu' means bitter. As is the name the medicine thus made taste real bitter. The various plant parts are dried, powdered, and mixed.

The powder is then mixed in water and the concoction is administered orally. The quantity administered is not any more than half tea-spoon per instance.

The name 'chi-rik' means general and this medicine is used for treatment of various general ailments. It is used for treatment of all kinds of gastro-intestinal problems (including diarrhoea, dysentry, flatulence, bloating, indigestion, blood stool, food poisoning, nausea and vomiting, and acid reflux). This combination also helps in purification of blood. This is also administered occasionally for liver and kidney ailments.

#### 5.1.2 Zikpey Maan

This medicine is also made by mixing various parts of many medicinal plants. However, this medicine is not for oral administration, it is for bathing and application purposes. The work '*zikpey*' means to take bath. The various plant parts are collected and boiled/simmered in hot water. It is not necessary that all the plants that are listed are used at one time for the bathing purposes. Various ailments require different plant materials to prepare the bath.

The bathing medication is used for treatment of Tuberculosis, body aches, joint pains, various skin diseases, and muscle cramps.

<sup>&</sup>lt;sup>3</sup>Shing means plants, na means variety, and tong means thousand

#### 5.1.3 Dhoorba Maan

The name '*Dhoorba*' means boiled. This medicine is made by boiling plant parts. There are two types of this medicine, one made by boiling the core wood and the other by boiling barks. In both the cases the wood/bark mix boiled for a long time until the water completely dries up. After the water is dried a dark brown residue remains which is then molded into pills with the help of flour or  $zangdru^4$  powder.

The pill is soaked in water and administered as drink for these ailments. The pills made from boiling wood and bark are used for different purposes.

The *Dhoorba maan* is used for treatment of blood stool, internal hemorrhage, swelling of stomach and abdomen, back ache, joint pains, *Drangwa* (UTI), abdominal pain, and Tuberculosis.

#### 5.1.4 Zemned

After delivery of children some ladies develop serious abdominal muscle pains and in certain cases continue to lose blood. This is called as *Zemned* in local name. This in modern medical term is known as postpartum cramps.

The mix of the plant parts is boiled and is administered orally for such post-delivery cramps and abdominal pains.

#### 5.1.5 Maan sururu

Many plant parts are collected, dried, and powdered. The powder is physically sniffed through the nose. One sneezes heavily after sniffing the powder. If anyone doesn't sneeze, then they definitely have sinusitis. Long term use of this powder cures sinusitis.

#### 5.1.6 Sofu malekpa maan

This medicine is also made my mixing parts of many medicinal plants. The name 'Sofu' means wounds and 'malekpa' means gone bad. In some cases, the wounds even become cancerous and the local treatment using these plants seem to help. This medicine is, however, externally applied on these bad cancerous wounds.

There are two methods of using this concoction. First, collect the plant parts, mix them green and apply on bad wounds for about few weeks. Second collect the plant parts, dry them, and grind them into powder. Often the powdered mixture can be made into a paste using oil (*Shingsii*) produced from *Parasassafras* fruits and applied on the wounds.

<sup>&</sup>lt;sup>4</sup>It is medicinal powder made from mix of six plants (locally known as *Zati (Myristica fragrans), Chugang, Gurgum (Carthamus tinctorius), Lishi (Sizygiumaromatum), Sukmel (Elettaria cardamomum), kakola (Amomum subulatum*) whch are known to have excellent medicinal properties which benefits six various organs (*heart, lungs, liver, veins, kidney, spleen*) respectively. *Zangdrupowder* is used in making traditional medicines and blessed ritual pills.

#### 5.1.7 Dhuukmaan (Zey-dhuuk)

This medicine is also made by mixing parts of many medicinal plants. The plant parts are collected, dried, and then crushed into powder. The local name 'Zey' is food and 'Dhuuk' poison. Therefore, this medicine is administered orally for treatment of ailments related to Food poisoning such as stomach muscle cramps, diarrhea, and severe vomiting.

#### 5.1.8 Shelmen

The local healers collect seeds of few plants (as of now recorded two – *Erythrina arborescens* and *Butea buteiformis*) and grind them into powder. A small quantity is administered orally to induce heavy vomiting and heavy diarrhea. The healers claim that when this is administered it instills a chain reaction within the body so that all the internal poisons and unwanted liquid build up from all the organs get drained into the bowel system and gets flushed out. The loose stool that is flushed out is dark murky in colour.

The healers use this treatment in a guided phase. This treatment is used for all kinds of diseases. The healers claim that this treatment cleanse the internal system and helps in all diseases including gastro-intestinal problems, ulcers, liver ailments, kidney diseases, blood pressure, backaches, UTIs, fatigue, and body aches.

**Note for caution:** Please don't use this treatment technique at home. This practice needs proper guidance under expert practitioner. It can be fatal if taken in wrong doses and without proper guidance.

#### 5.1.9 Luzey Lumen

This is not necessarily medicine for treatment of diseases physically. The 'Lu' or 'kLu' in local language means 'Naga' in Sanskrit which is one of the life forms who is said to inhabit the underworld. There are beliefs that Nagas and human co-exist but sometimes inflict harm to each other. Luzey Lumen is medicinal substances used during rituals performed to appease these beings.

Plants parts, stones, and many other materials are used in the preparation of *Luzey Lumen*. In here, some of the plants that are recognized by the local healers as used for preparation of such sacred pills are identified and recorded.

# 5.2 Illustrations of the medicinal plants

The illustration follows Engler & Prantel system of arrangement according to the flora of Bhutan.



Botanical Name	Justicia adhatoda
Family	Acanthaceae
Common Name	Malabar Nut
Local Name	Khatserem shing (Sh), Bashaka (Dz), Ashuru (Lh)
Category	Small evergreen bush, Flowering time: January-April, Al 200-1610m
Parts Used	Leaves and Flowers
Uses	Leaves for Sofu Malekpa (Cancerous wounds), swollen stom- ach, and swollen legs. Flowers for stomach and gastro intestinal ailments.
Remarks	Leaves: Heat, crush, and mix with other plant parts and apply externally. Flowers – boil and drink, or eaten as curry.





Botanical Name	Phlogacanthus thyrsiformis
Family	Acanthaceae
Common Name	Nongmangkha
Local Name	Sarkarshing (Sh)
Category	Shrub, Flowering time: February-March, Al 200-1100m
Parts Used	Leaves & Flowers
Uses	Scabies; Stomach and gastro intestinal disorders
Remarks	Leaves - heat, crush and apply for cure of scabies. Flowers – boil and drink, or eaten as curry for stomach and gastro intestinal disorders



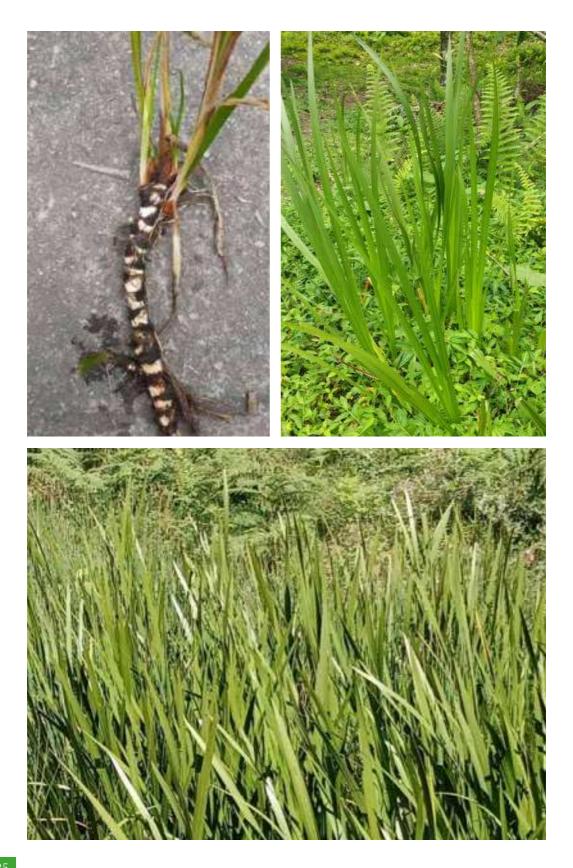


Botanical Name	Gynocordia odorata
Family	Achariaceae
Common Name	Chhal Mogra (India)
Local Name	Abhidoro Shing (Sh), Gante (Lh)
Category	Crooked, evergreen tree, Flowering time: April-May, Al 300-1219m
Parts Used	Leaves
Uses	To remove worms from infections, and remove fleas from bed/ floor
Remarks	Crush leaves and apply





Botanical Name	Acorus calamus
Family	Acoraceae
Common Name	Sweet flag/ Sweet grass
Local Name	Bartse (Sh), Chhutah rechu (Dz), Bojho (Lh), Shoodhag (TM)
Category	Tall Grass, Flowering time; April-July, Al 610-2800m
Parts Used	Roots
Uses	For bathing
Remarks	To provide a sweet scent during bath treatment





Botanical Name	Sambucus javanica
Family	Adoxaceae
Common Name	Elderberry
Local Name	Moyomshing (Sh)
Category	Shrub or small tree, Flowering time: June-October, Al 610-2134m
Parts Used	Leaves
Uses	Vaginal prolapse (locally called as Moyoma), & Piles
Remarks	Crush the leaves, heat, and apply



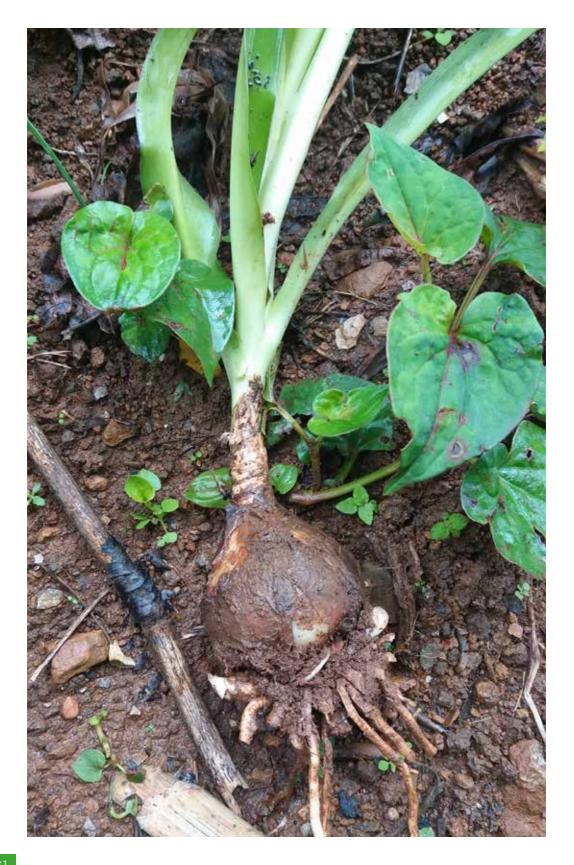


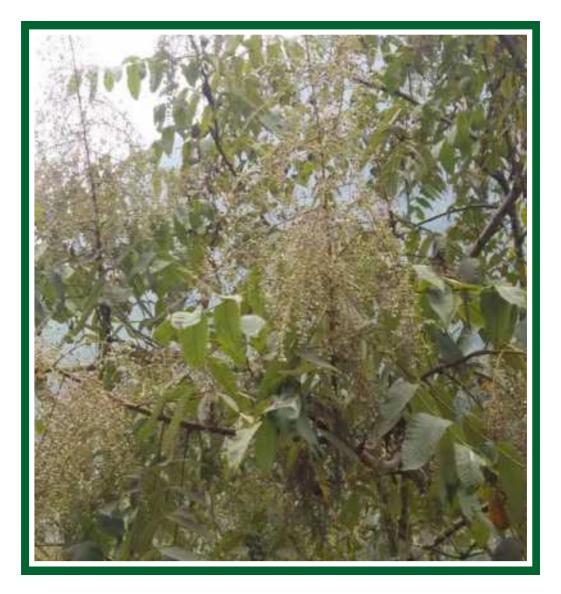
Botanical Name	Sambucus adnata
Family	Adoxaceae
Common Name	Elderberry
Local Name	Phuga Moyomshing (Sh)
Category	Shrubby herb, Flowering time: June-September, Al 305-3962
Parts Used	Leaves
Uses	Vaginal prolapse & Piles
Remarks	Crush the leaves, heat, and apply





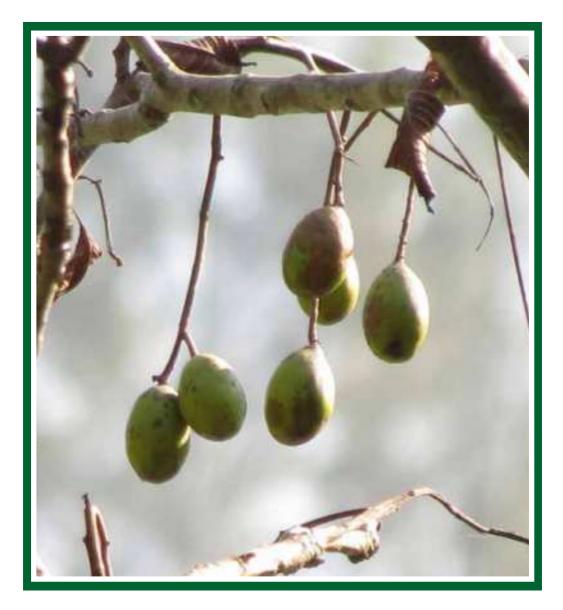
Botanical Name	Crinum amoenum
Family	Amaryllidaceae
Common Name	Himalayan Crinum Lily
Local Name	Gombalee (Sh)
Category	Perennial herb, Flowering time: June-August, Al 1400-2070m
Parts Used	Leaves/ Root bulb
Uses	Pain in arms and leg
Remarks	Crush, heat, and apply





Botanical Name	Rhus chinensis
Family	Anacardiaceae
Common Name	Nutgall tree
Local Name	Roptang shing (Sh), Choka shing (Dz), Bakimlo (Lh)
Category	Shrub or small tree, Flowering time: July- September, Al 915-2745m
Parts Used	Core wood
Uses	Dhoorba Maan
Remarks	Boil the wood trunk with others





<b>Botanical Name</b>	Spondias pinnata
Family	Anacardiaceae
Common Name	Wild Mango or Indian Hog Plum
Local Name	Phrumchungshing (Sh), Amaroo (Dz), Lapsi (Lh)
Category	Tree, Flowering time: March-May,Al 285-1150m
Parts Used	Seeds
Uses	Luzey-Lumen
Remarks	Powdered seeds mixed with others





Botanical Name	Centella asiatica
Family	Аріасеае
Common Name	Indian Pennywort
Local Name	Goratabre (Lh), Phetang Ngon/Zala Momring (Sh)
Category	Herb, Flowering time: March-April, Al 400-1500m
Parts Used	Whole plant
Uses	Tonsil/Burning urination/Gastritis
Remarks	Boil and drink, eat raw





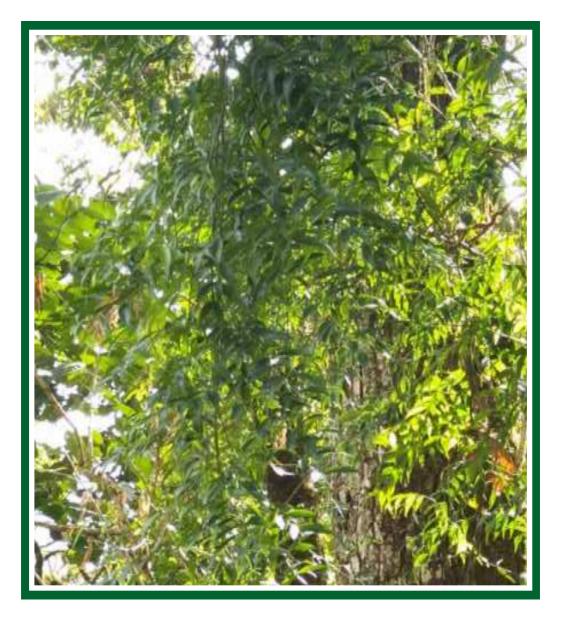
<b>Botanical Name</b>	Cynanchum auriculatum
Family	Apocynaceae
Common Name	Vine swallowworts
Local Name	Chhongru (Sh)
Category	Twining climber, Flowering time: June- September, Al 900-2750m
Parts Used	Root
Uses	Maankhalu
Remarks	Powdered and mixed with many others





<b>Botanical Name</b>	Alstonia scholaris
Family	Apocynaceae
Common Name	Devil's Tree
Local Name	Shing Balingbhi (Sh)
Category	Evergreen tree, Flowering time: November-February, Al 300-1000m
Parts Used	Sap
Uses	Swollen and bad internal growths of skin
Remarks	Apply sap





<b>Botanical Name</b>	Periploca calophylla
Family	Apocynaceae
Common Name	Pretty-leaved silk flower vine
Local Name	Menchha Bhifotpa Ruu (Sh)
Category	Twining shrub, Flowering time: November-April, Al 900-2000m
Parts Used	Whole plant
Uses	Broken bones, Joints pain
Remarks	Crush, heat, and apply



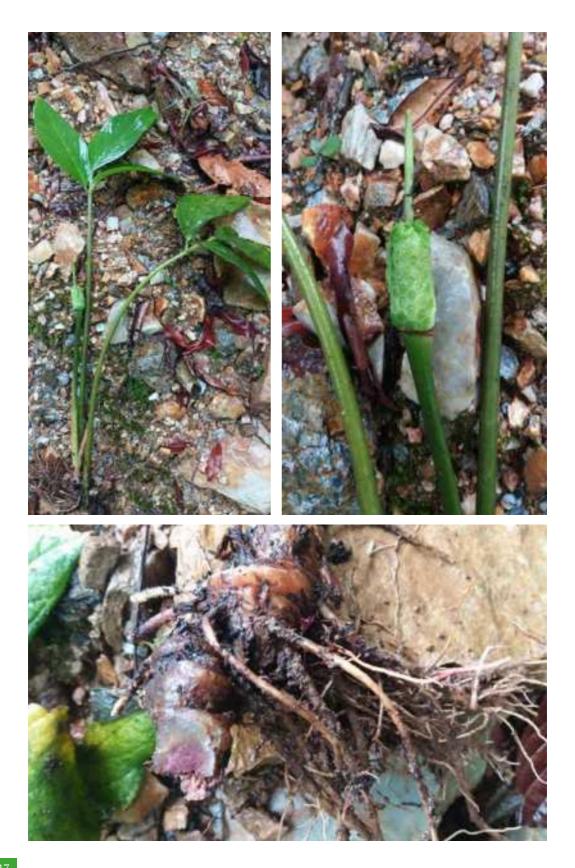


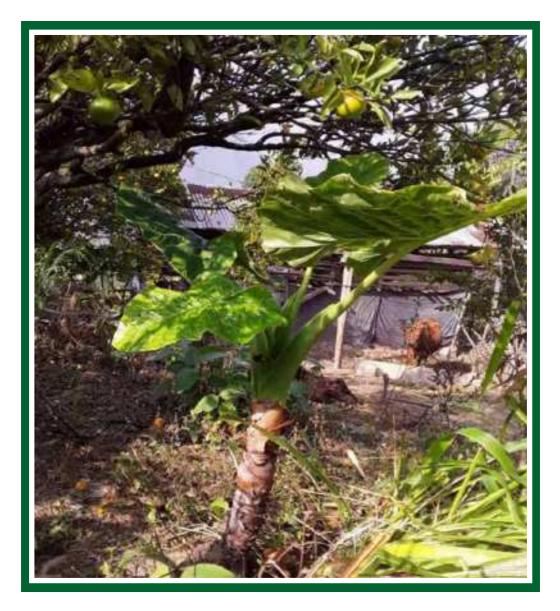
Botanical Name	Calotropis gigantea
Family	Apocynaceae
Common Name	Crown flower/ Giant milkweed
Local Name	Noo-ngon (Sh), Ank (Lh)
Category	Large shrub to small tree, Flowering time: February-November, Al 100-900m
Parts Used	Leaves
Uses	Sprains/ Swelling
Remarks	Crush, heat, and apply



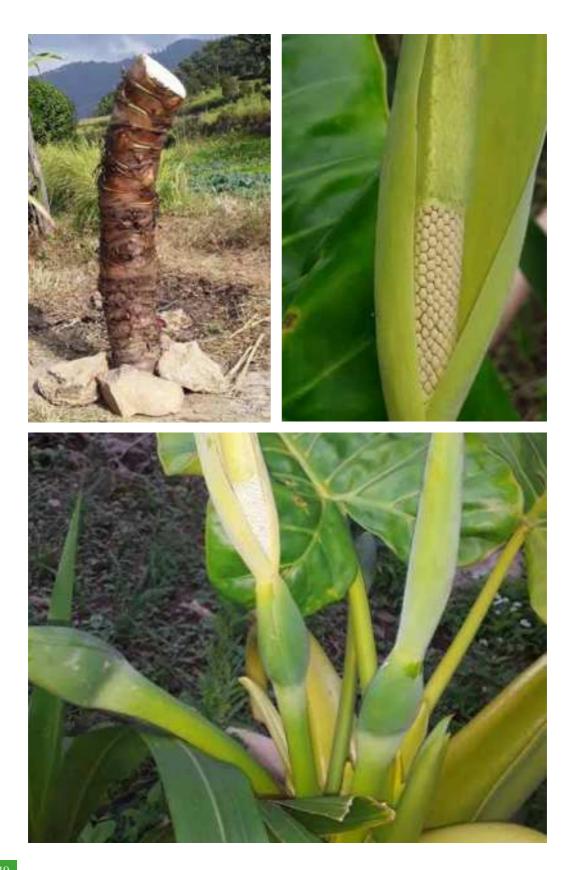


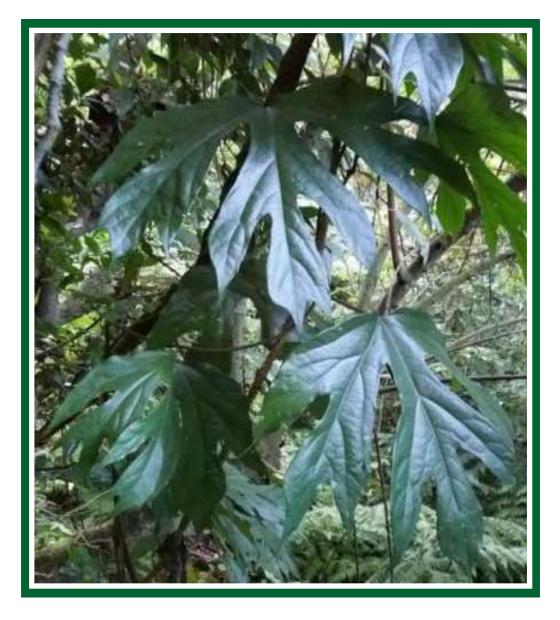
Botanical Name	Arisaema petiolulatum
Family	Araceae
Common Name	Cobra lilly
Local Name	Prakala Bozong (Sh)
Category	Perennial herb, Flowering time: June, Al 1600m
Parts Used	Rhizome
Uses	Hard boil/Carbuncle
Remarks	Apply crushed rhizome externally. Not to be used with open wounds (poisonous).



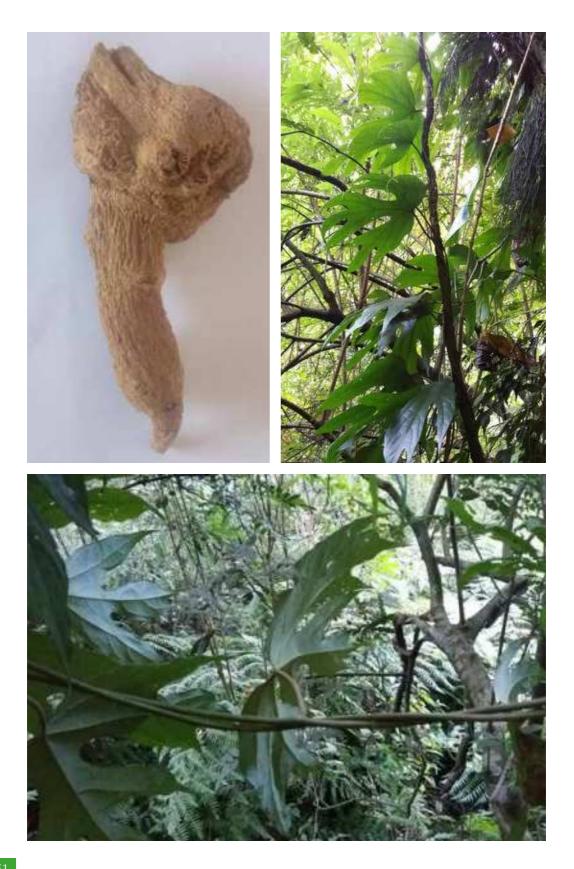


<b>Botanical Name</b>	Alocasia macrorrhizos
Family	Araceae
Common Name	Giant Taro
Local Name	Maan Bozong (Sh)
Category	Rhizomatous perennial plant, Flowering time: May, August- December, Al 305-1850m
Parts Used	Rhizome
Uses	Hard boils
Remarks	Crush rhizome, heat, and apply





<b>Botanical Name</b>	Aristolochia platanifolia
Family	Aristolochiaceae
Common Name	Not available
Local Name	Ruu Prakalashawa Mo (Sh)
Category	Climber, Flowering time: September-October, Al 1500-1600m
Parts Used	Roots
Uses	Maan Khalu
Remarks	Powdered and mixed with others





Botanical Name	Aristolochia tagala
Family	Aristolochiaceae
Common Name	Indian birthwort
Local Name	Ruu Leptang (Sh)
Category	Climber, Flowering time: May-June, Al 300-900m
Parts Used	Roots
Uses	Maan Khalu
Remarks	Powdered and mixed with others





Botanical Name	Artemesia verlotiorum
Family	Asteraceae
Common Name	Common mugwort
Local Name	Merengma Ngangchhanglu (Sh), Khempa (Dz), Khen-nag (TM)
Category	Perennial herb, Flowering time: August- December, Al 900-1800m
Parts Used	Leaves and young shoots
Uses	Cancerous wounds, Disinfectant
Remarks	Crush leaves and shoots, heat, and apply; soak in hot water to disinfect wounds before applying medicines





<b>Botanical Name</b>	Ageratum conyzoides
Family	Asteraceae
Common Name	Billygoat-weed
Local Name	Bangala Rokpu (Sh), Elamey (Lh)
Category	Herb, Flowering time: All year, Al 200-1900m
Parts Used	Whole plant
Uses	Maanbokpi & Snakebite
Remarks	Powdered and mix with others for Maanbokpi; Mix with others, Crush, heat and apply for Snakebite



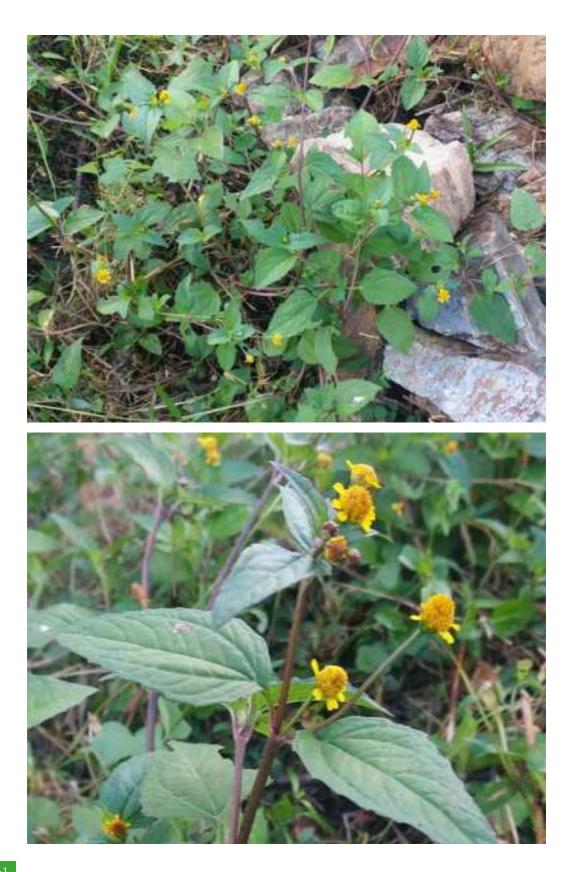


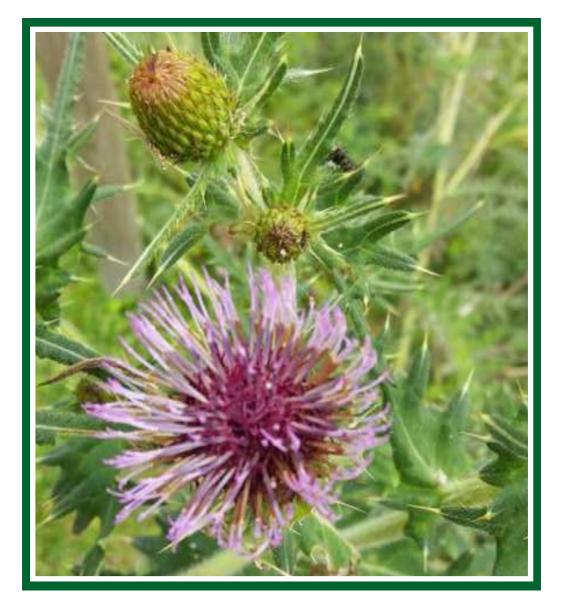
Botanical Name	Blumea aromatica
Family	Asteraceae
Common Name	Ngai camphor
Local Name	Gon-yog (Sh)
Category	Perennial herb, Flowering time: October-December, March- April, Al 900-1950m
Parts Used	Leaves
Uses	Sinusites
Remarks	Powder the dried leaves, mix with others



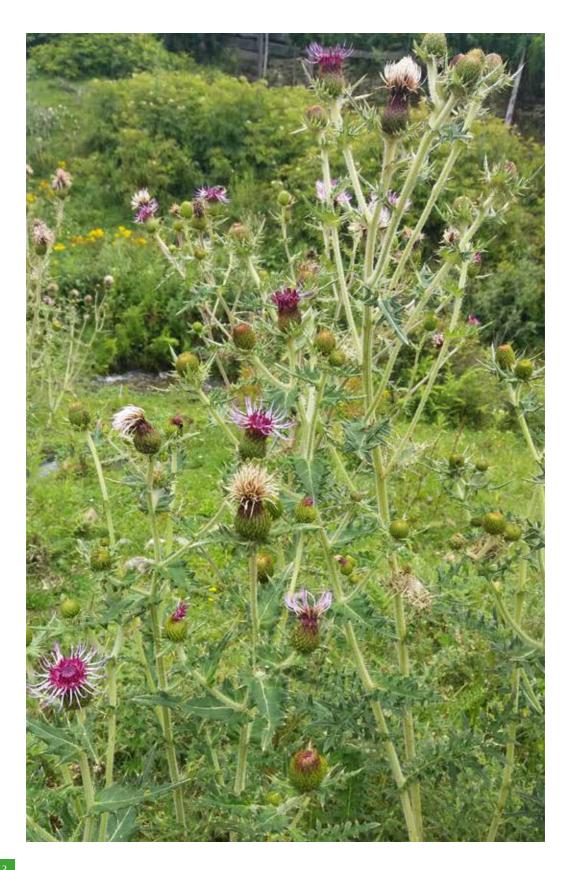


Botanical Name	Acmella uliginosa
Family	Asteraceae
Common Name	Marsh para cress
Local Name	Khalingpa Ngon (Sh), Hedonaap (Dz)
Category	Perennial herb, Flowering time: February-August, Al 200-2000m
Parts Used	Whole plant
Uses	Toothache
Remarks	Crush and apply in the cavity





Botanical Name	Cirsium arvense
Family	Asteraceae
Common Name	Creeping thistle
Local Name	Zomdogorba (Sh), Changtsher meto (Dz)
Category	Perennial small shrub, Flowering time: June-October, Al 3100-4730m
Parts Used	Tender shoots
Uses	UTI, Kidney ailments, body pain and itchiness
Remarks	Tender shoot juice extract, edible as vegetable, crush and apply





Botanical Name	Adenostemma lavenia
Family	Asteraceae
Common Name	Sticky Daisy
Local Name	Jarjar (Sh)
Category	Perennial Herb, Flowering time: August- December, Al 200-2000m
Parts Used	Whole plant
Uses	Cancerous wounds
Remarks	Crush, heat and apply; mixed with others



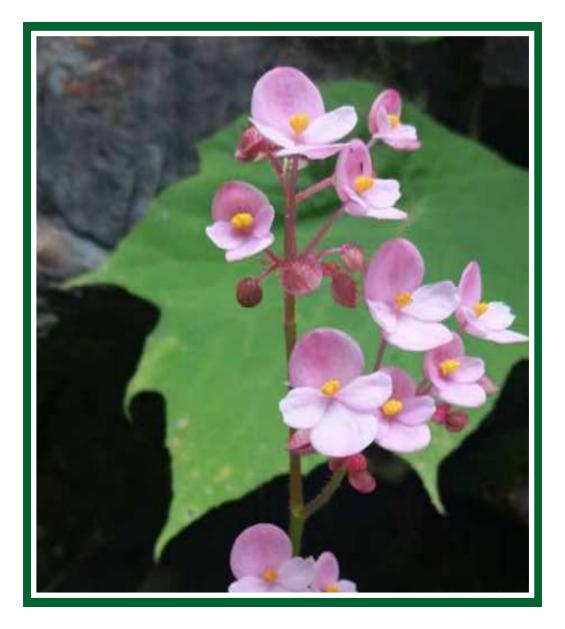


Botanical Name	Impatiens arguta
Family	Balsaminaceae
Common Name	Bizzy Lizzy
Local Name	Drangzing Ngon (Sh)
Category	Perennial herb, Flowering time: May- October, Al 2000-2590
Parts Used	Whole plant
Uses	Hard boils
Remarks	Crush, heat, and apply





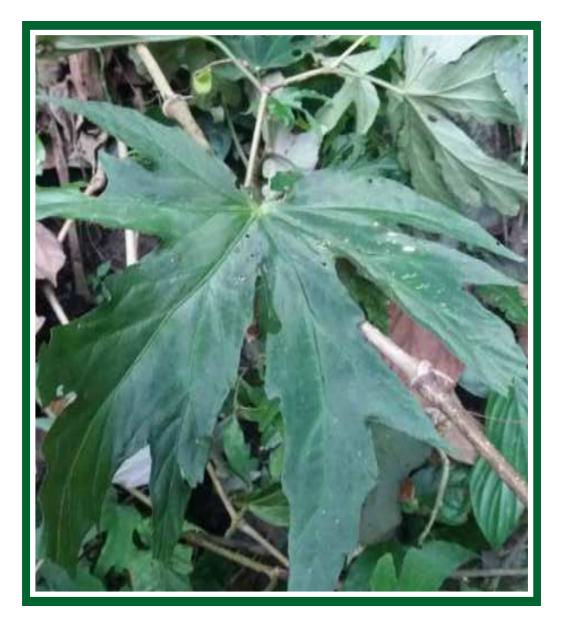




Botanical Name	Begonia rubella
Family	Begoniaceae
Common Name	Not available
Local Name	Braksey (Sh)
Category	Perennial erect herb, Flowering time: August, Al 1220m
Parts Used	Roots
Uses	Maankhalu
Remarks	Powdered and mixed with others







Botanical Name	Begonia sikkimensis
Family	Begoniaceae
Common Name	Not available
Local Name	Paatpamaan 1 (Sh)
Category	Perennial herb, Flowering time: August-October, Al 900-3650m
Parts Used	Whole plant
Uses	To ward of leeches
Remarks	Crush the whole plant and apply





Botanical Name	Begonia palmata
Family	Begoniaceae
Common Name	Not available
Local Name	Paatpamaan 2 (Sh)
Category	Perennial herb, Flowering time: August-October, Al 900-3650m
Parts Used	Whole plant
Uses	To ward of leeches
Remarks	Crush and apply





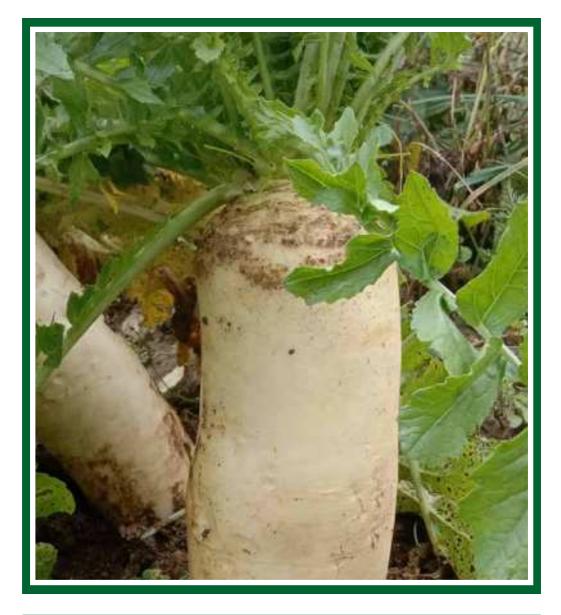
<b>Botanical Name</b>	Oroxylum Indicum
Family	Bignoniaceae
Common Name	Midnight Horror, Indian trumpet flower
Local Name	Namkaling (Sh), Tsampaka Meto (Dz), Totola (Lh)
Category	Tree, Flowering time: May-June, Al 200-1525m
Parts Used	Petiole of the flower
Uses	Food poisoning
Remarks	Powdered and drink with water and flower edible as vegetable





<b>Botanical Name</b>	Radermachera sinica
Family	Bigoniaceae
Common Name	Serpent tree/ Emerald tree
Local Name	Zumphishing (Sh)
Category	Tree, Flowering time: May, Al 750-1675m
Parts Used	Wood trunk
Uses	Dhoorba Maan
Remarks	





Botanical Name	Raphanus sativus
Family	Brassicaceae/Cruciferae – Mustard family
Common Name	Radish
Local Name	Mulai (Sh), Laphu (Dz), Mula (Lh)
Category	Annual or biennial herb, Flowering time: February- July, Al 1300-2750m
Parts Used	The tuber/leaves
Uses	It is used for immediate relief for Indigestion, bloating, gastritis
Remarks	Eaten raw





Botanical Name	Lobelia nicotianifolia
Family	Campanulaceae
Common Name	Wild tobacco
Local Name	Zalaneng (Sh)
Category	Perennial herb, Flowering time: December-February, Al 1650-2100m
Parts Used	Sap
Uses	Open wounds
Remarks	Apply the sap





Botanical Name	Lobelia nummularia
Family	Campanulaceae
Common Name	Roundleaf star creeper
Local Name	Maanshokpu (Sh)
Category	Pubescent herb, Flowering time: February, April- May, Al 610-1400m
Parts Used	Whole plant
Uses	Stomach ulcer, tonsilitis, cuts and burns
Remarks	Dry and powder; for cuts and burns – crush, heat and apply





Botanical Name	Codonopsis viridis
Family	Campanulaceae
Common Name	Codonopsis
Local Name	Zumphimula (Sh)
Category	Climber, Flowering time: August -September, Al 1200-3350m
Parts Used	Root/leaves
Uses	Ringworm
Remarks	Crash and Apply



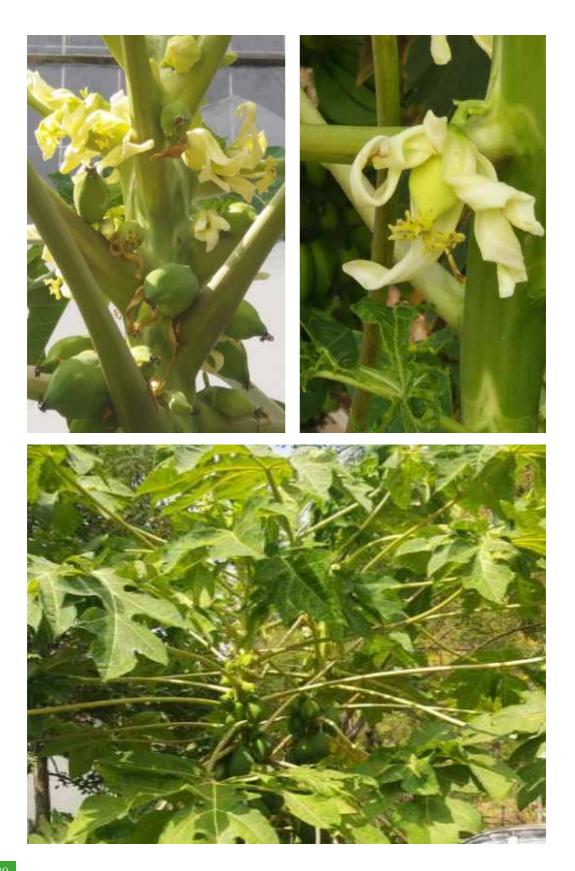


<b>Botanical Name</b>	Cannabis sativa
Family	Cannabaceae
Common Name	Hemp
Local Name	Phagpa Nam (Sh), Kena (Dz), Bhang (Lh)
Category	Herb, Flowering time: June-August, Al 300-3000m
Parts Used	Leaves
Uses	To remove worms from infections; to ward of fleas from bed/ floor
Remarks	Crush and apply





<b>Botanical Name</b>	Carica papaya
Family	Caricaceae
Common Name	Рарауа
Local Name	Maduphala (Dz)
Category	Small palm-like tree, Flowering time: March-April, Al best is below 900m but it can grow 2100m
Parts Used	Fruits/Seeds
Uses	Diabetes and weight loss
Remarks	Boil unripened fruits/seeds and consume

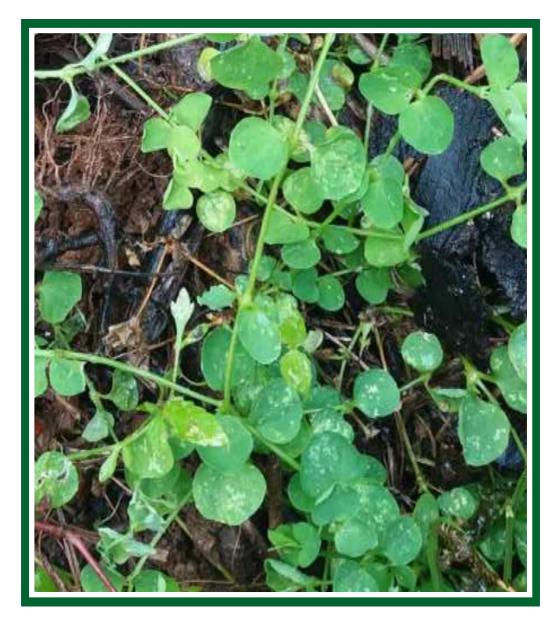




<b>Botanical Name</b>	Drymaria cordata
Family	Caryophyllaceae
Common Name	Tropical chickweed
Local Name	Pipi Rokpu (Sh)
Category	Creeper, Flowering time: May, Al 300-1050m
Parts Used	Whole plant
Uses	Snake bite
Remarks	Crush, heat and apply on swollen bite area; mix with others

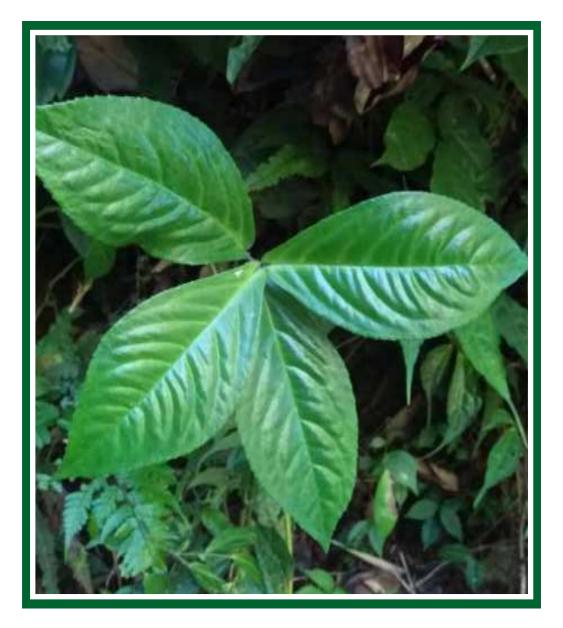






Botanical Name	Drymaria villosa
Family	Caryophyllaceae
Common Name	Tropical Chickweed
Local Name	Abhijalo (Lh)
Category	Annual herb, Flowering time: May- August, Al 200-2000m
Parts Used	Whole plant
Uses	Tonsilitis
Remarks	Crush and drink with water, consume raw





Botanical Name	Chloranthus elatior
Family	Chloranthaceae
Common Name	Not available
Local Name	Menjari (Sh)
Category	Small shrub, Flowering time: May- October, Al 270-1600m
Parts Used	Leaves & Roots
Uses	Leaves for bath; roots for toothache
Remarks	Leaves soak in hot water; roots -powder and apply in cavities







Botanical Name	Terminalia chebula
Family	Combretaceae
Common Name	Chebulic Myrobalan
Local Name	Aaroo (Sh), Aaroo (Dz), Hara (Lh)
Category	Tree, Flowering time: April-June, Al 300-1981m
Parts Used	Fruits
Uses	Maankhalu
Remarks	Dried fruits powdered and mixed with others





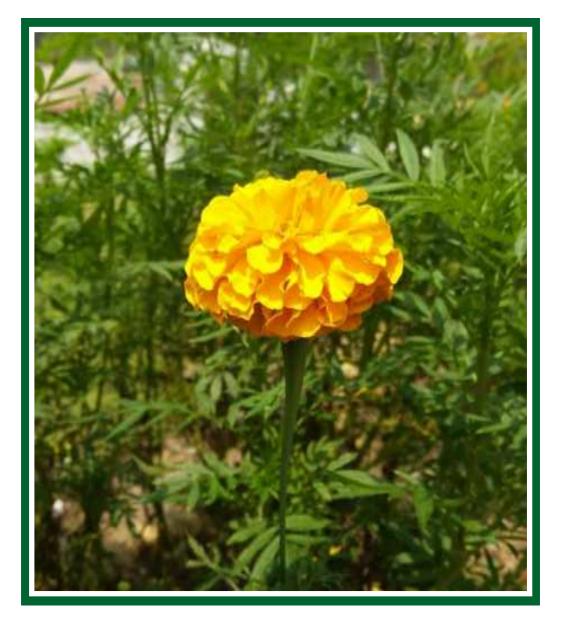
<b>Botanical Name</b>	Terminalia bellirica
Family	Combretaceae
Common Name	Beach almond, Myrobalan
Local Name	Baroo (Sh), Baroo (Dz), Bara (Lh)
Category	Tree, Flowering time: March, May-June, Al 200-1372m
Parts Used	Fruits
Uses	Maankhalu
Remarks	Dry and powdered, mixed with others





Botanical Name	Galinsoga parviflora
Family	Compositae
Common Name	Quickweed, Potato weed
Local Name	Bangru Ngon (Sh), Jaga-yuma (Dz), Udasay (Lh)
Category	Perennial herb, Flowering time: March- December, Al 900- 2450m
Parts Used	Whole plant
Uses	Hard boils
Remarks	Crush, heat and apply





<b>Botanical Name</b>	Tagetes erecta
Family	Compositae
Common Name	Marigold
Local Name	Soipatri (Lh)
Category	Shrub, Flowering time: February- October, Al 1200-2350m
Parts Used	Leaves & Flowers
Uses	Pneumonia & Gastritis
Remarks	Boil and drink

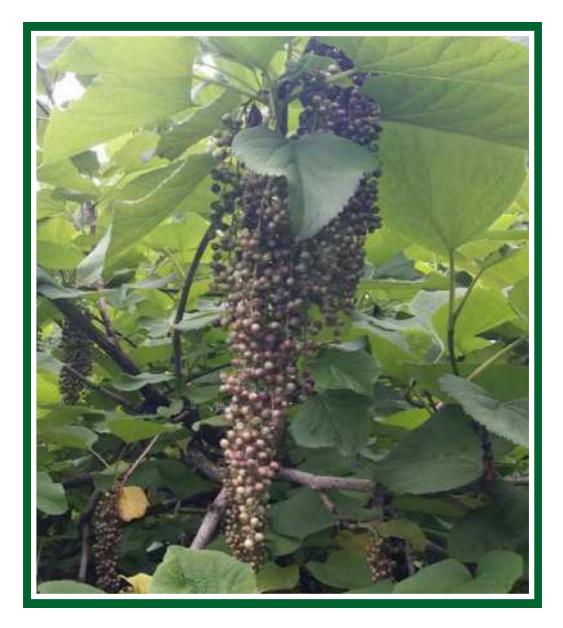




<b>Botanical Name</b>	Tupistra wattii
Family	Convallariaceae
Common Name	Not available
Local Name	Wangpaimo (Sh)
Category	Perennial herb, Flowering time: April- June fr. February, Al 1800-2780m
Parts Used	Roots
Uses	Maankhalu
Remarks	Powder and mix with others







Botanical Name	Toricellia tillifolia
Family	Cornaceae
Common Name	Not available
Local Name	Dengmala Shing (Sh)
Category	Short tree, Flowering time: April, Al 1000-2150m
Parts Used	Roots/Leaves
Uses	Cancerous wounds
Remarks	Crush, heat, and apply as paste





Botanical Name	Hellenia speciosa (Synonym Costus speciosus)
Family	Costaceae
Common Name	Crepe ginger
Local Name	Betlouri (Lh)
Category	Perennial herb, Flowering time: July-August, Al 150-610m
Parts Used	Stem
Uses	UTI/Pain during urination
Remarks	Drink juice extract from the stem





Botanical Name	Kalanchoe pinnatum (Synonym Bryophyllum pinnatum)
Family	Crassulaceae
Common Name	Kalanchoe
Local Name	Metoshawa Thetpu (Sh)
Category	Succulent perennial herb, Flowering time: March-May, Al 300-1050m
Parts Used	Leaves
Uses	Kidney stones
Remarks	Eat raw, or crush and drink with water





<b>Botanical Name</b>	Luffa aegyptiaca (Synonym Luffa cylindrica)
Family	Curcubitaceae
Common Name	Sponge cucumber
Local Name	Chhong brumsha (Sh), Jhalo (Lh)
Category	Climber, Flowering time: October- December, Al 200-600m
Parts Used	Fruits
Uses	Sinusites/Migrainne
Remarks	Powder mix with water and apply through nose





Botanical Name	Trichosanthes tricuspidata
Family	Curcurbitaceae
Common Name	Not available
Local Name	Keke Dorji Pho (Sh)
Category	Climber, Flowering time: May -April, Al 1200-2300m
Parts Used	Roots
Uses	Maankhalu
Remarks	Powder and mix with others





Botanical Name	Trichosenthes spp
Family	Curcurbitaceae
Common Name	Not available
Local Name	Keke Dorji Mo (Sh)
Category	Climber
Parts Used	Roots
Uses	Maankhalu
Remarks	Powder and mix with others





<b>Botanical Name</b>	Solena amplexicaulis
Family	Curcurbitaceae
Common Name	Creeping cucumber
Local Name	Kangkulung Ruu (Sh), Golkakri (Lh)
Category	Climber, Flowering time: April- September, Al 450-2285m
Parts Used	Root tuber
Uses	Maankhalu
Remarks	Powder and mix with others



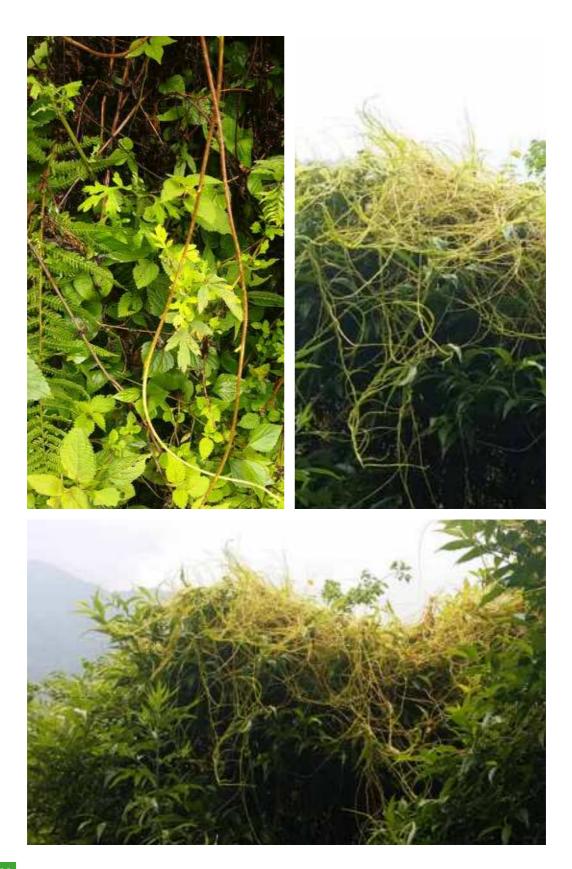


Botanical Name	Hodgsonia macrocarpa
Family	Curcurbitaceae
Common Name	Chinese lard seed
Local Name	Ruuprakala Shawa Pho (Sh)
Category	Climber, Flowering time: March- May, Al 280-1200m
Parts Used	Roots
Uses	Maankhalu
Remarks	Powder and mix with others





Botanical Name	Cuscuta reflexa
Family	Cuscutaceae
Common Name	Giant dodder
Local Name	Ruuserboo or Bedengru (Sh), Dhoofee rubji (Dz), Amarlata (Lh)
Category	Leafless parasitic twined sprawling thin vine, Flowering time: February-October, Al 600-2700m
Parts Used	The whole plant (vine)
Uses	Jaundice
Remarks	Smash and drink the juice extract





Botanical Name	Dioscorea belophylla
Family	Dioscoreaceae
Common Name	Spear-leaved yam
Local Name	Khalaktang Serboo (Sh), Tarul (Lh)
Category	Climber, Flowering time: Otober- December, Al 200-1900m
Parts Used	Fruits/Roots
Uses	Maankhalu, Aara
Remarks	Powdered and mixed with others; additive in local brew (exudes colour)





Botanical Name	Dioscorea bulbifera
Family	Dioscoreaceae
Common Name	Potato plant Yam
Local Name	Khalaktang Chhanglu (Sh), Tarul (Lh)
Category	Climber, Flowering time: June-September, Al 90-1900(-2150)m
Parts Used	Fruits and Roots
Uses	Maankhalu
Remarks	Powder and mix with others





Botanical Name	Tacca integrifolia
Family	Dioscoreaceae
Common Name	White bat flower
Local Name	Bozong Yongba or Menyongba (Sh)
Category	Rhizomatous evergreen perennial herb, Flowering time: Febru- ary-September, Al 300-500m
Parts Used	Rhizome & leaves
Uses	Cancerous growths
Remarks	Crush, heat and apply





Botanical Name	Hippophae rhamnoides
Family	Elaeagnaceae
Common Name	Sea-buckthorn
Local Name	Seyshing (Sh), Taraytshang (Dz)
Category	Short tree, Flowering time: April-July, Al 2133-2755m
Parts Used	Fruits
Uses	Blood pressure, Diabetes
Remarks	Fruits eaten or drink juice extract





<b>Botanical Name</b>	Equisetum diffusum
Family	Equisetaceae
Common Name	Himalayan horsetail
Local Name	Nyurchhu (Sh), Sallay (Lh), Chhoo-tshey (TM)
Category	Perennial herb, Flowering time: April- May, Al 1000-3700m
Parts Used	Whole plant
Uses	Muscle pain, backache, gout
Remarks	Boil and drink





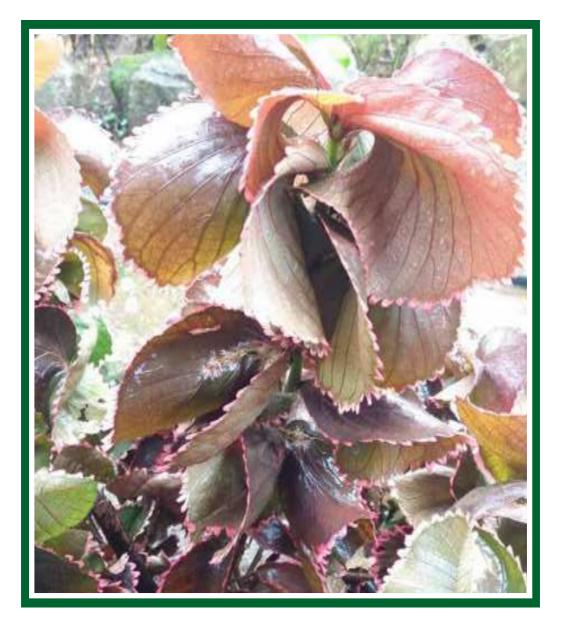
Botanical Name	Euphorbia royleana
Family	Euphorbaceae
Common Name	Sullu spurge or Royle's spurge
Local Name	Migthoma shing or Nimthomozoo (Sh), Sherikhen (TM)
Category	Succulent thorny shrub, Flowering time: April- May, Al 915-2130m
Parts Used	Sap
Uses	Ringworm
Remarks	Apply the sap



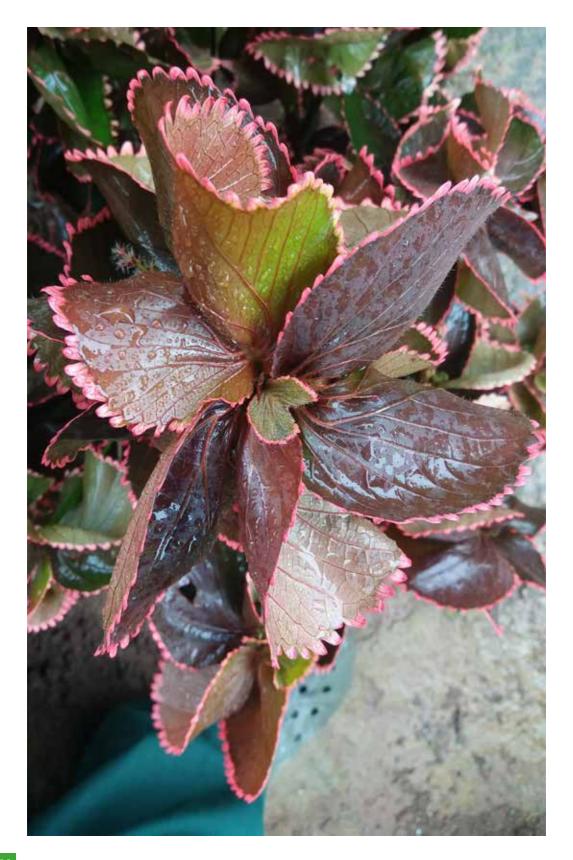


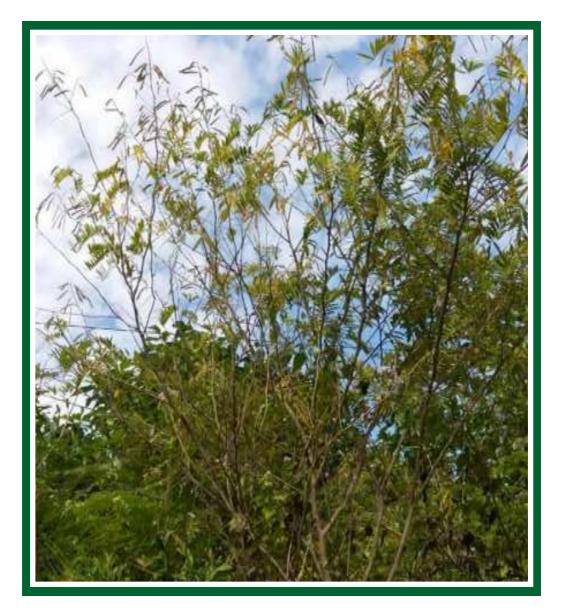
Botanical Name	Ricinus cuminus
Family	Euphorbiaceae
Common Name	Castor oil plant
Local Name	Chamleng shing (Sh), Rari (Lh)
Category	Shrub or small tree, Flowering time: January-March, Al 200-3000m
Parts Used	Leaves
Uses	Sofu malekpa (Cancerous wounds)
Remarks	Crush, heat and apply; mix with others





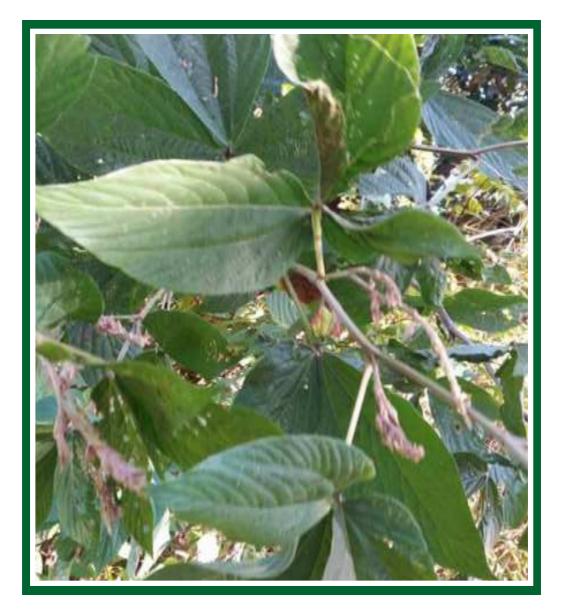
<b>Botanical Name</b>	Acalypha wilkesiana
Family	Euphorbiaceae
Common Name	Copper leaf
Local Name	Kaani Jar (Lh)
Category	Evergreen Shrub, Flowering time: May- June, Al 300m
Parts Used	Leaves
Uses	Wounds in ear, Athlete's foot, & Thigh Chafing
Remarks	Crush and apply



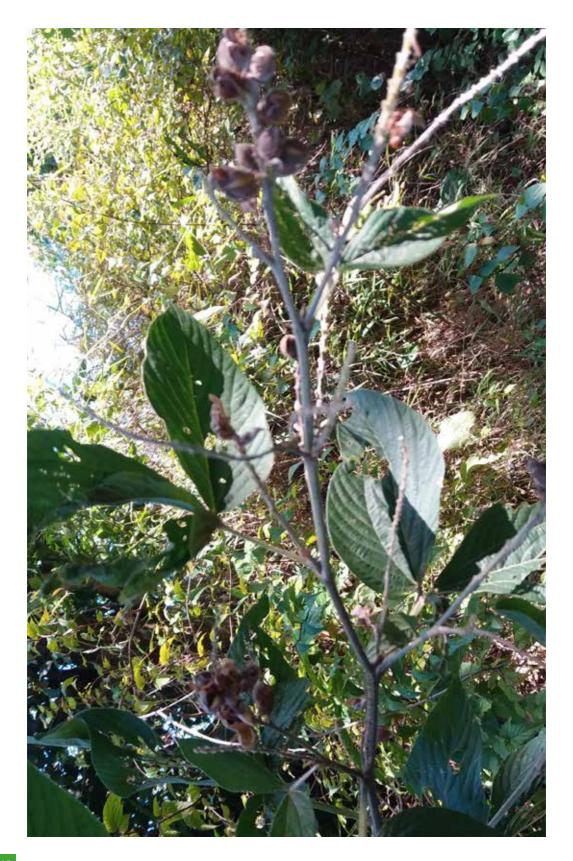


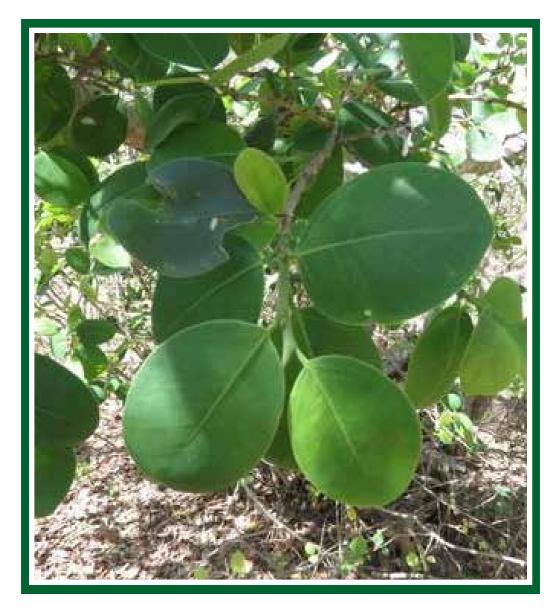
Botanical Name	Tephrosia candida
Family	Fabaceae
Common Name	White hoarypea
Local Name	Langashing or Kumchumo Shing(sh)
Category	Perennial shrub, Flowering time: June- November, Al 1050- 1200m
Parts Used	Roots/Barks/Flowers
Uses	Bath
Remarks	Soak in hot water, provides excellent scent





Botanical Name	Flemingia macrophylla
Family	Fabaceae
Common Name	Not available
Local Name	Gowaisharang shing (Sh)
Category	Woody leguminous shrub, Flowering time: April- May, Al 300-2000m
Parts Used	Bark/Stem
Uses	Zemned (Postpartum cramps)
Remarks	Soak in hot water and massage; mix with others





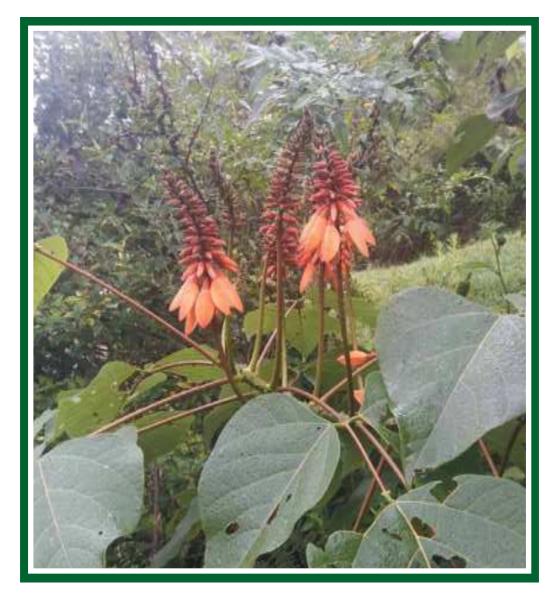
Botanical Name	Pterocarpus santalinus
Family	Fabaceae
Common Name	Red Sandalwood
Local Name	Tsendhen Marpo (Sh), Tsendhen Maro (Dz)
Category	Tree, Flowering time: February- April, Al 150-1000m
Parts Used	Wood
Uses	Zemned (Postpartum cramps), Drangwa (UTI, STDs, Scrotal swelling), Dhoorba maan
Remarks	Boil the wood; mix with others



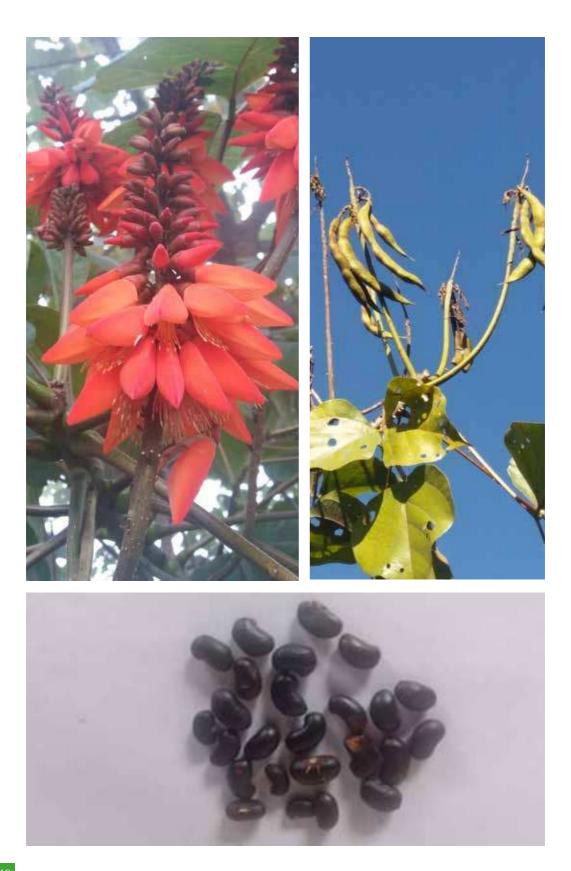


Botanical Name	Entada rheedii
Family	Fabaceae
Common Name	African dream herb
Local Name	Kolokpa (Sh), Pangro (Lh), Chinpa-shosha (TM)
Category	Woody climber, Flowering time: March-June, Al 600-1500m
Parts Used	Leaves
Uses	Hard boils
Remarks	Crush, heat and apply. Not to be used with open wounds.





Botanical Name	Erythrina arborescens
Family	Fabaceae
Common Name	Himalayan Coral Tree
Local Name	Kharshing (Sh), Chhatshey shing (Dz), Phalaydo (Lh), Khelma zhoshanakpo (TM)
Category	Small tree with prickles, July- August, 1525-2440m
Parts Used	Seeds
Uses	Shelmen
Remarks	Powdered. Excessive use is fatal – therefore not to be used without a proper guide.





<b>Botanical Name</b>	Butea buteiformis
Family	Fabaceae
Common Name	Not available
Local Name	Frokpa Laga (Sh)
Category	Erect perennial herb, Flowering time: June- September, Al 1220-1440m
Parts Used	Seeds
Uses	Shelmen
Remarks	Powder and mix with others. Not to be used without a proper guide.





<b>Botanical Name</b>	Millettia pachycarpa
Family	Fabaceae
Common Name	Not available
Local Name	Ngairu (Sh)
Category	Tall climber, Flowering time: April-May, Al 900-1350m
Parts Used	Leaves/roots
Uses	Remove lice
Remarks	Apply crushed roots and leaves





<b>Botanical Name</b>	Bauhinia variegata
Family	Fabaceae
Common Name	Butterfly tree
Local Name	Dogorom shing /Pekpekpa shing (Sh), Zibzib shing (Dz), Tanki (Lh)
Category	Small to medium-size deciduous tree; Flowering season September – November; Al 200 m – 1300 m
Parts Used	Flowers
Uses	Gastro-intestinal problems
Remarks	Eaten as vegetable

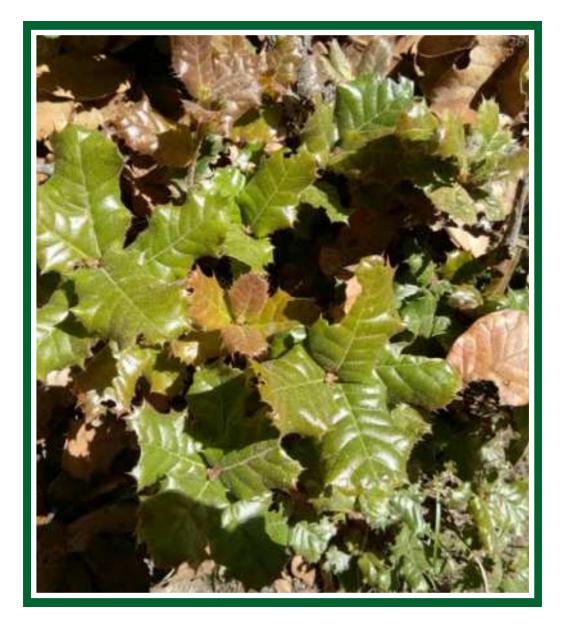




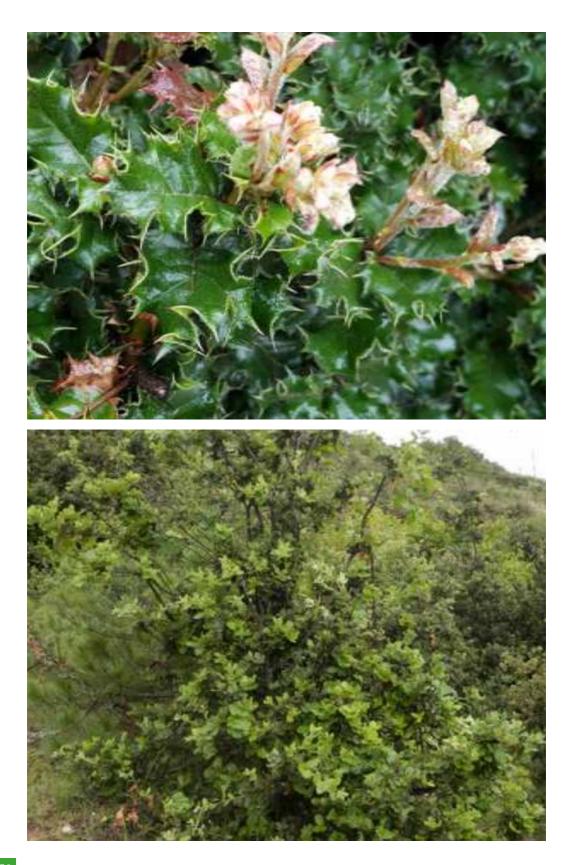


Botanical Name	Castanopsis hystrix
Family	Fagaceae
Common Name	Indian Chestnut
Local Name	Tsheshing (Sh), Sokay shing (Dz), Katus (Lh)
Category	Tree, Flowering time: April-June, Al 2000-2300m
Parts Used	Wood core
Uses	Dhoorba maan
Remarks	Boil the wood, mixed with others



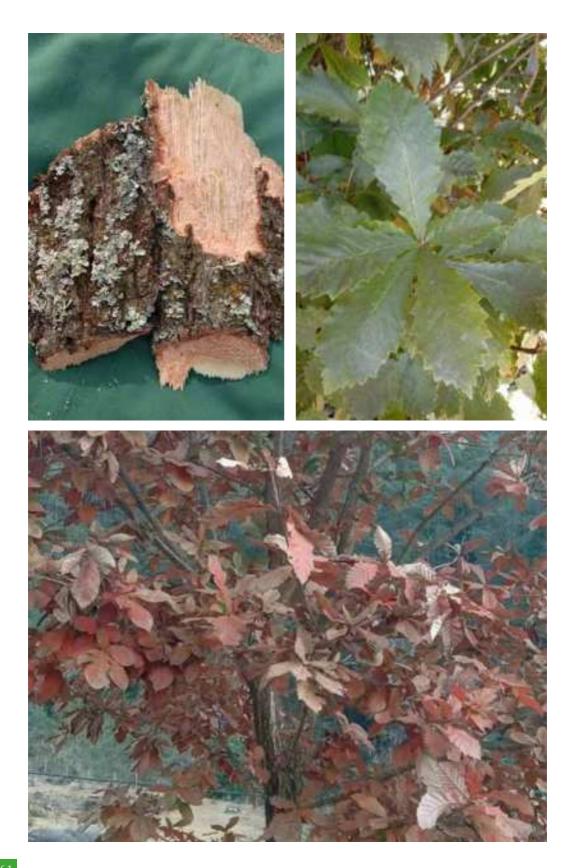


<b>Botanical Name</b>	Quercus semecarpifolia
Family	Fagaceae
Common Name	Oak
Local Name	Betsenang Shing (Sh), Bjeshing (Dz), Khosru (Lh)
Category	Tree, Flowering time: April- June, Al 1500-2200m
Parts Used	Wood core
Uses	Dhoorba maan
Remarks	Boil the wood; mix with others





Botanical Name	Quercus griffithii
Family	Fagaceae
Common Name	Oak
Local Name	Bainangshing (Sh), Sisishing (Dz), Kasru (Lh)
Category	Tree, Flowering time: April, Al 1300-2500m
Parts Used	Core wood
Uses	Dhoorba Maan
Remarks	Boil the wood; mix with others



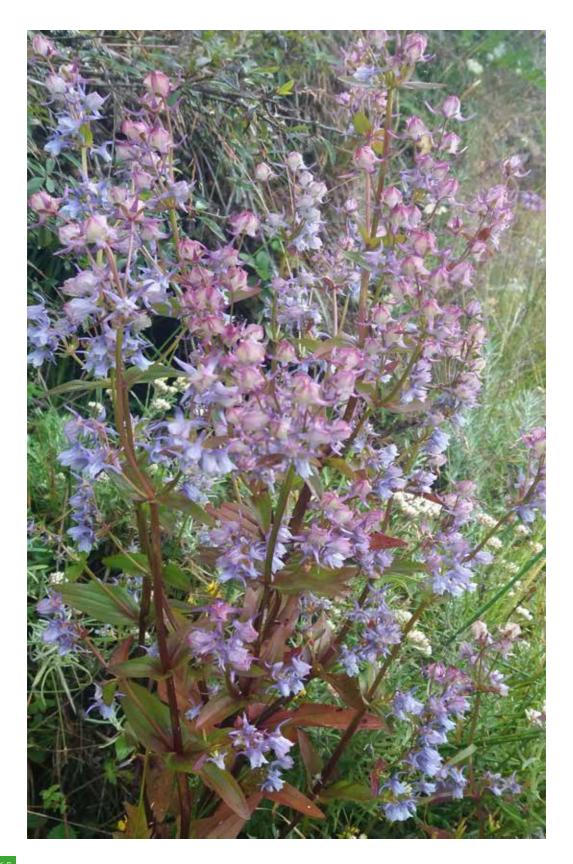


<b>Botanical Name</b>	Swertia bimaculata
Family	Gentianaceae
Common Name	Chirata
Local Name	Tiktsa/ Zingchhanglu/ Peylem Rokpa (Sh)
Category	Herb, Flowering time: February, July-October, Al 1520-3660m
Parts Used	Whole plant
Uses	Gagned (blocked throat), Sofu Malekpa (Cancerous wounds)
Remarks	Boil and drink, crush and mix with others





Botanical Name	Swertia chirayita
Family	Gentianaceae
Common Name	Chirata
Local Name	Phuga Chirata (Sh)
Category	Herb, Flowering time: September- November(March), Al 2130-2740m
Parts Used	Whole plant
Uses	Gagned, Sofu Malekpa
Remarks	Boil and drink; crush and apply (mix with others)





<b>Botanical Name</b>	Tripterospermum volubile
Family	Gentianaceae
Common Name	Not available
Local Name	Yangrem ruu (Sh)
Category	Climber, Flowering time: June-October (fr.November), Al 1525-3200m
Parts Used	Roots
Uses	Sofu Malekpa (Cancerous wounds)
Remarks	Crush, heat and apply; mix with others





Botanical Name	Crawfurdia speciosa
Family	Gentianaceae
Common Name	Showy Gentian Vine
Local Name	Gowa Tappi (Sh)
Category	Climbing vine, Flowering time: September-November, Al 2134-3810(-4572)m
Parts Used	Roots
Uses	Man Khalu
Remarks	Powdered and mixed with other





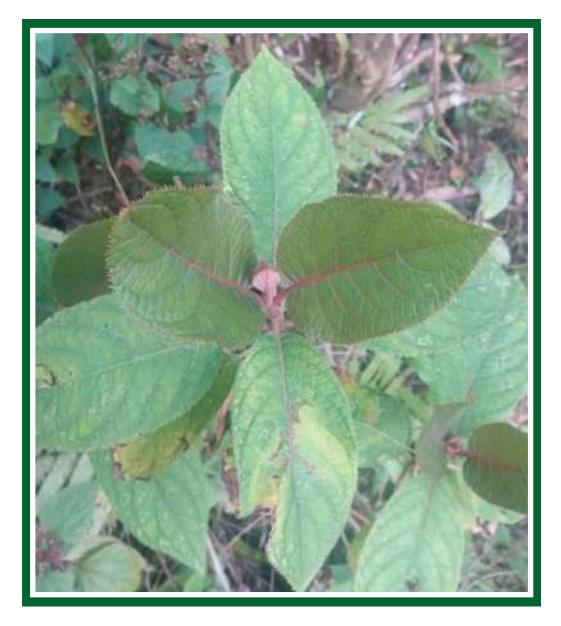
Botanical Name	Cymbopogon flexuosus
Family	Gramineae
Common Name	Lemon grass
Local Name	Solobang (Sh), Humchung tsa (Dz)
Category	Grass, Flowering time: September- November, Al 370-1520m
Parts Used	Leaves
Uses	Snake bite
Remarks	Apply lemon grass oil extract; mix with others





Botanical Name	Exbucklandia Populnea
Family	Hamamelidaceae
Common Name	Pipli Tree
Local Name	Lemshing (Sh), Chenju Shing (Dz), Pipli (Lh)
Category	Tree, Flowering time: November-March, Al 1260-2200m
Parts Used	Core wood
Uses	Dhoorba Maan
Remarks	Boil wood, mix with others





Botanical Name	Hydrangea heteromalla
Family	Hydrangeaceae
Common Name	Himalayan hydrangea
Local Name	Mizuma Laga (Sh), Halonre (Lh)
Category	Shrub, Flowering time: June-August, Al 2450-3350m
Parts Used	Leaves
Uses	Zikpey maan (Bath)
Remarks	Boil leaves, mix with others





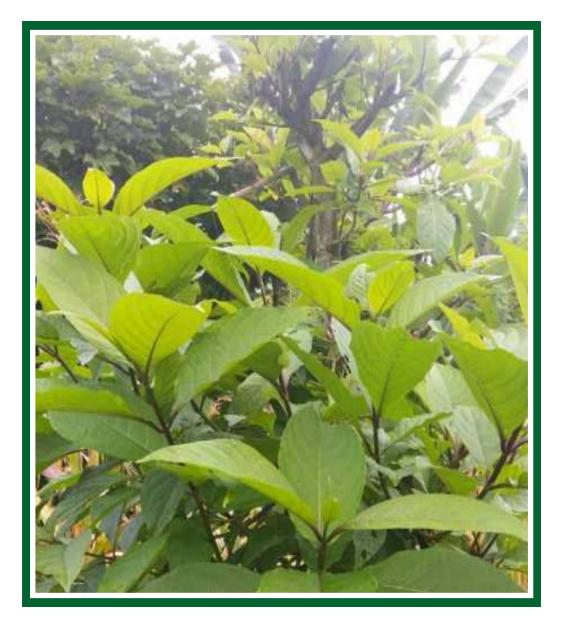
<b>Botanical Name</b>	Dichroa febrifuga
Family	Hydrangeaceae
Common Name	Evergreen hydrangea
Local Name	Ngangchhanglu shing or Ngonchhanglu Shing (Sh)
Category	Shrub, Flowering time: May-November, Al 1000-2300m
Parts Used	Leaves and shoot
Uses	Sofu Malekpa (Cancerous wounds)
Remarks	Crush, heat and apply; mix with others





Botanical Name	Molinaria capitulata
Family	Hypoxidaceae
Common Name	Palm grass
Local Name	Chimiktang or Tshamlaga (Sh), Doti Saro (Lh)
Category	Herb, Flowering time: April- June, Al 200-2400m
Parts Used	Roots
Uses	Dysentry, Sofu malekpa, & Bone fracture
Remarks	Boil and drink (for dysentery); crush, heat and apply – mix with others





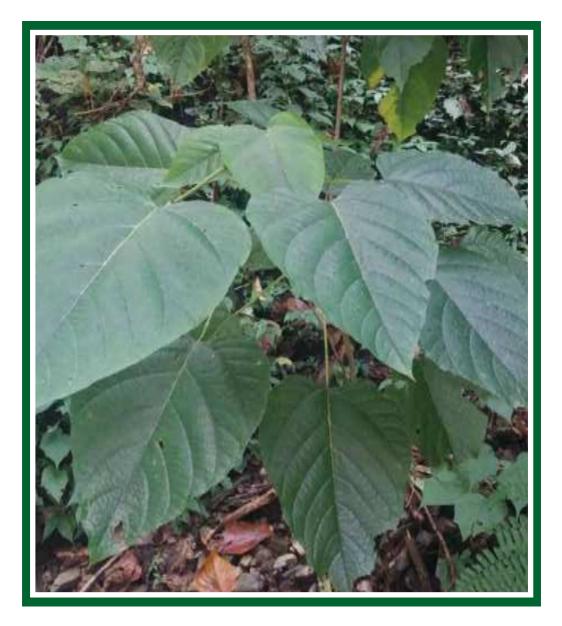
<b>Botanical Name</b>	Clerodendron serratum
Family	Lamiaceae
Common Name	Glorybower, bagflower and bleeding-heart
Local Name	Nambala Pho or Lumberem shing (Sh)
Category	Shrub, Flowering time: May-October, Al 300-1500m
Parts Used	Leaves
Uses	Bath (Zikpey Maan)
Remarks	Boil in water, mix with others



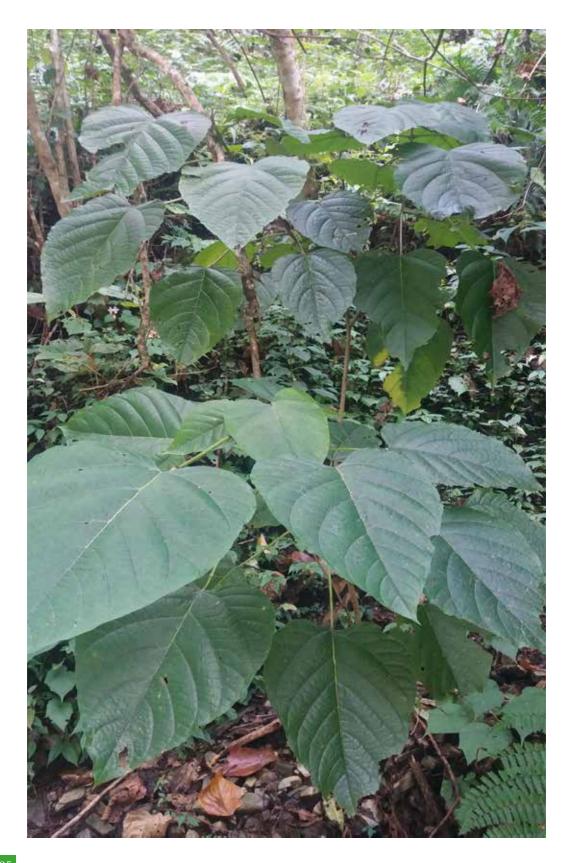


Botanical Name	Clerodendrum glandulosum (Synonym- Clerodendrum colebrookianum)
Family	Lamiaceae
Common Name	East Indian glory bower
Local Name	Nambalashing Mo (Sh)
Category	Perennial shrub, Flowering time: August-November, Al 760-1670m
Parts Used	Leaves
Uses	Zikpey maan (Bath)
Remarks	Boil in water, mix with others





<b>Botanical Name</b>	Clerodendrum japonicum
Family	Lamiaceae
Common Name	Not available
Local Name	Mantaanshing (Sh)
Category	Shrub, Flowering time: June-September, Al 600-1200m
Parts Used	Leaves
Uses	Sofu malekpa, Swollen stomach, swollen legs
Remarks	Crush, heat and apply; mix with others





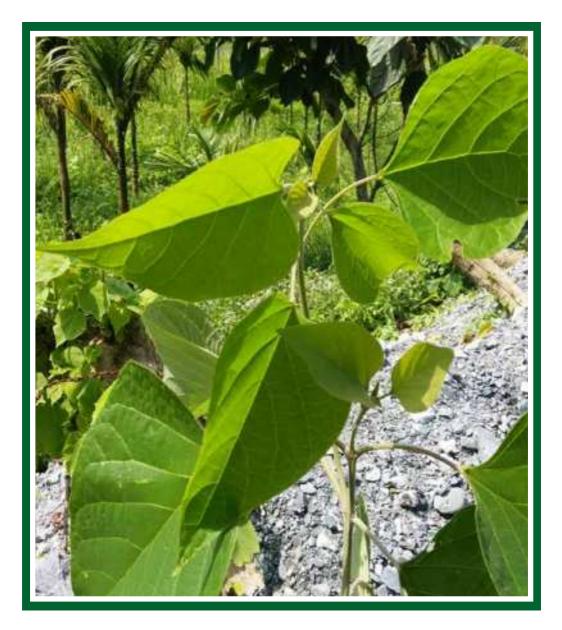
Botanical Name	Elsholtzia blanda
Family	Lamiaceae
Common Name	Pleasant Himalayan Mint
Local Name	Tempashing (Sh)
Category	Shrub, Flowering time: October-December, Al 1070-2130m
Parts Used	Leaves
Uses	Athlete's foot
Remarks	Crush and apply paste





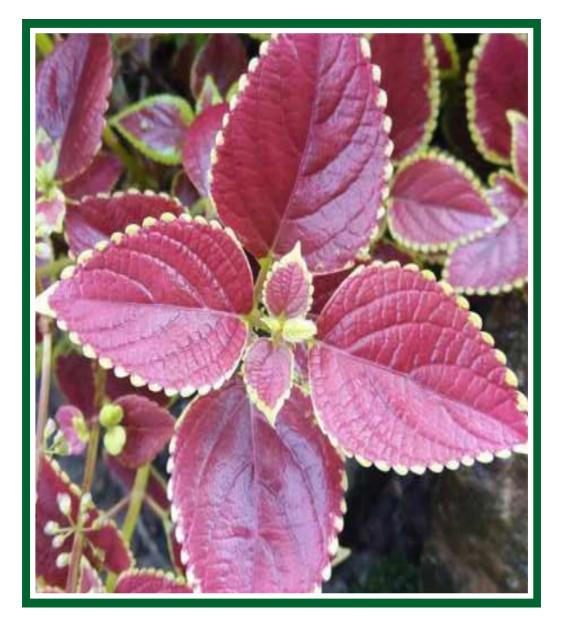
Botanical Name	Clinopodium umbrosum
Family	Lamiaceae
Common Name	Shady calamint
Local Name	Maanbokpi Ngon (Sh)
Category	Herb, Flowering time: May-September, Al 200-3660m
Parts Used	Whole plant
Uses	Stomach ulcer, tonsilitis, cuts and burns
Remarks	Dry and powder; mix with others





Botanical Name	Gmelina arborea
Family	Lamiaceae
Common Name	Gamari, Beechwood
Local Name	Kholongshing (Sh), Khamari (Lh)
Category	Tree, Flowering time: February-April, Al 250-1700m
Parts Used	Bark
Uses	Mumps, Fever, Ulcer, Sore throat
Remarks	Drink concoction





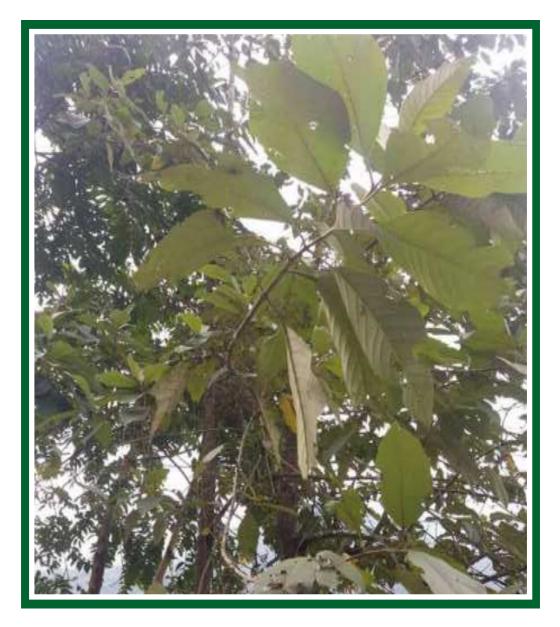
Botanical Name	Plectranthus scutellarioides
Family	Lamiaceae
Common Name	Coleus
Local Name	Bagay Pata (Lh)
Category	Perennial weed, Flowering time: May- June, Al 450- 1300m
Parts Used	Leaves
Uses	Swollen throat
Remarks	Drink the concoction





Botanical Name	Ocimum tenuiflorum
Family	Lamiaceae
Common Name	Basil
Local Name	Tulsi (Lh)
Category	Shrub, Flowering time: May-December, Al 1525m
Parts Used	Leaves
Uses	Throat pain, Typhoid, Pneumonia of Children
Remarks	Concoction; mix with others





Botanical Name	Callicarpa arborea
Family	Lamiaceae
Common Name	Beautyberry
Local Name	Thulushing (Sh), Khalema (Dz), Guenla (Lh)
Category	Tree, Flowering time: April-June, Al 250-1520m
Parts Used	Cambium
Uses	Receding gums
Remarks	Eaten with paan





Botanical Name	Parasassafras confertiflora
Family	Lauraceae
Common Name	Not available
Local Name	Singsishing (Sh), Shingmar (Dz)
Category	Tree, Flowering time: November- January, Al 900-2150m
Parts Used	Seeds
Uses	Zhetpu (Eczema)
Remarks	Apply oil extract from seeds







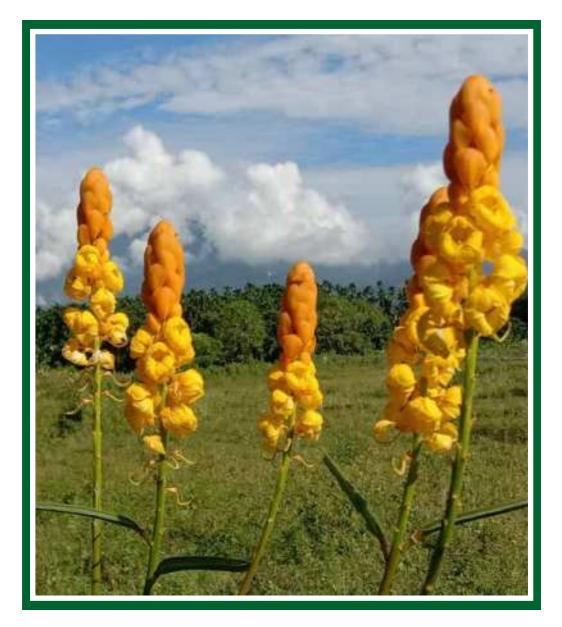
Botanical Name	Cinnamomum tamala
Family	Lauraceae
Common Name	Malabar leaf, Tezpat
Local Name	Shingtsashing (Sh), Shingtsa (Dz), Tezpata (Lh)
Category	Tree, Flowering time: April-May, Al 1400-1700m
Parts Used	Bark
Uses	Bone fracture
Remarks	Apply paste, not to be eaten





Botanical Name	Mucuna nigricans (Mucuna atropurpurea)
Family	Leguminosae
Common Name	Black Jade Vine
Local Name	Khaimayosha or Zalakolokpa (Sh)
Category	Large twining shrub: Flowering time: August, Al 600m
Parts Used	Seeds
Uses	Luzey-Lumen (Medicinal pills used during Puja offering to Nagas)
Remarks	Powdered; Mix with others





<b>Botanical Name</b>	Senna alata (Synonym Cassia alata)
Family	Leguminosae
Common Name	Candlebrush
Local Name	Ringworm plant (Eng)
Category	Shrub, Flowering time: May, Al 200-400m
Parts Used	Leaves
Uses	Effective remedy for Ringworm
Remarks	Crush and apply



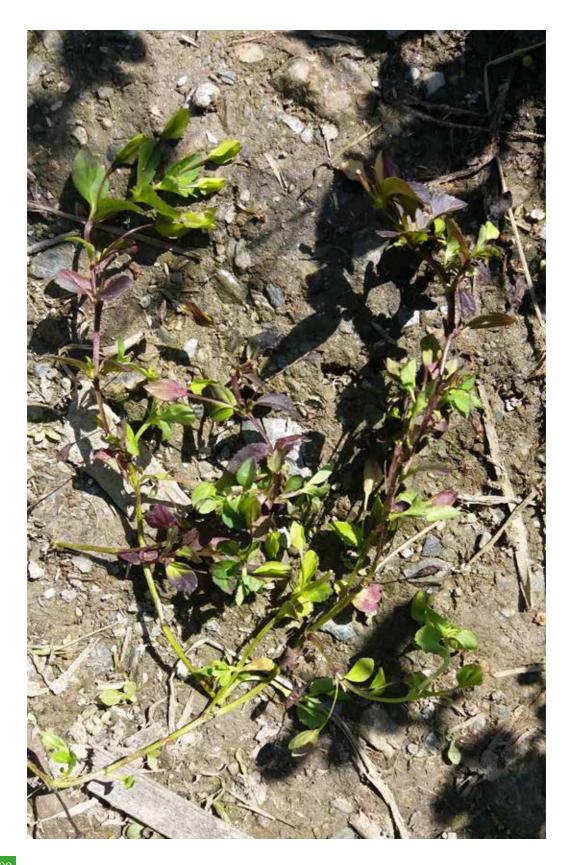


Botanical Name	Crinum amoenum
Family	Liliaceae
Common Name	Crinum lilly/Asian poison bulb
Local Name	Langpochhe Bhilam (Sh)
Category	Herb, Flowering time: June-August, Al 1400-2070m
Parts Used	Leaves
Uses	Leg Swelling and sprains
Remarks	Apply paste





Botanical Name	Torenia violacea
Family	Linderniaceae
Common Name	Violet wishbone flower
Local Name	Maanbokpi Maeju (Sh)
Category	Herb, Flowering time: April- November, Al 200-2185m
Parts Used	Whole plant
Uses	Stomach ulcer, Tonsilitis, cuts and burns
Remarks	Powder; mix with others





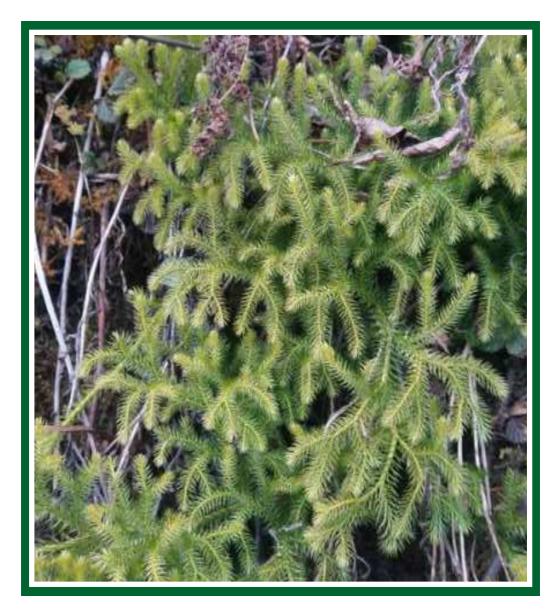
Botanical Name	Viscum napalense
Family	Loranthaceae
Common Name	Leafless Mistletoe
Local Name	Ngeshing Jormo (Sh), Ngenshithup (Dz), Harchul (Lh)
Category	Parasitic herb, Flowering time: May- August, Al 1400-2400m
Parts Used	Whole plant
Uses	Bone fracture, Joints and bones pain, Tea
Remarks	Paste and apply; concoction; drink tea





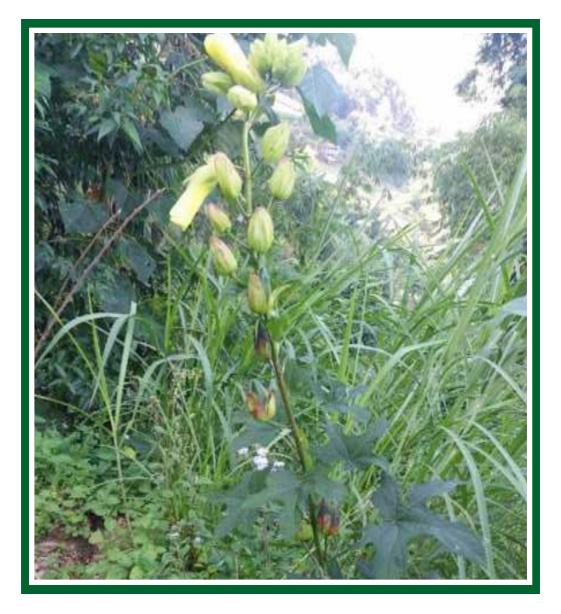
Botanical Name	Scurrula elata
Family	Loranthaceae
Common Name	Mistletoe
Local Name	Rungrungma or Khainingshing (Sh), Jashing (Dz), Aijeru (Lh)
Category	Parasitic plant, Flowering time: April-June,2100-1500m
Parts Used	Whole plant
Uses	Bones and joint pain, Tea
Remarks	Drink concoction, Tea





Botanical Name	Lycopodium japonicum
Family	Lycopodiaceae
Common Name	Clubmoss
Local Name	Chhusindermo or Zalagadang (Sh), Chailab (Dz)
Category	Slender creeper, Flowering time: October- March, Al 2500-3030m
Parts Used	Whole plant
Uses	Luzey-Lumen
Remarks	Powder, mix with others





Botanical Name	Abelmoschus manihot
Family	Malvaceae
Common Name	Sunset muskmallow/ Edible hibiscus
Local Name	Merakshing (Sh)
Category	Perennial herb, Flowering time: August-December, Al 600-1800m
Parts Used	Leaves
Uses	Sofu malekpa (Cancerous wounds), Khom-khusung (Hard boils)
Remarks	Apply paste; mix with others





Botanical Name	Paris polyphylla
Family	Melanthiaceae
Common Name	Satuwa
Local Name	Thoksampa (Sh), Dochukewa (Dz), Satuwa (Lh)
Category	Perennial herb, Flowering time: April-June, Al 1300-3960m
Parts Used	Leaves/Tuber
Uses	Maankhalu
Remarks	Powder; mix with others





Botanical Name	Oxyspora paniculata
Family	Melastomataceae
Common Name	Bristletips
Local Name	Lechhangma Pho (Sh), Tulasi (Lh)
Category	Shrub, Flowering time: August-October, Al 680- 2130m
Parts Used	Leaves
Uses	Zikpa maan (Bath)
Remarks	Soak in hot water; mix with others





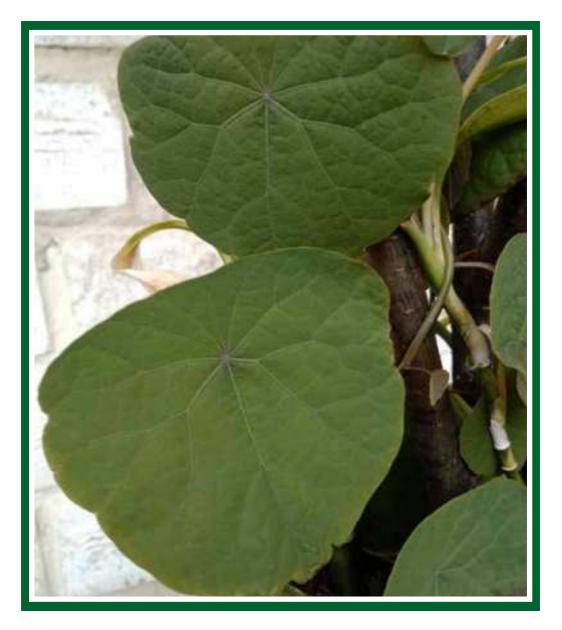
Botanical Name	Osbeckia stellata
Family	Melastomataceae
Common Name	Starry Osbeckia
Local Name	Lechhangma Mo (Sh)
Category	Shrub, Flowering time: August- October, Al 305-1650m
Parts Used	Leaves
Uses	Zikpey Maan (Bath)
Remarks	Soak leaves in hot water; mix with others





<b>Botanical Name</b>	Melia azedarach
Family	Meliaceae
Common Name	Chinaberry tree/ Indian lilac
Local Name	Trobdha shing (Sh), Jashing (Dz), Bucknai (Lh)
Category	Small deciduous tree (Exotic), Flowering time: March- May, Al 300-2320m
Parts Used	Leaves and young shoots
Uses	Diabetes
Remarks	Drink concoction



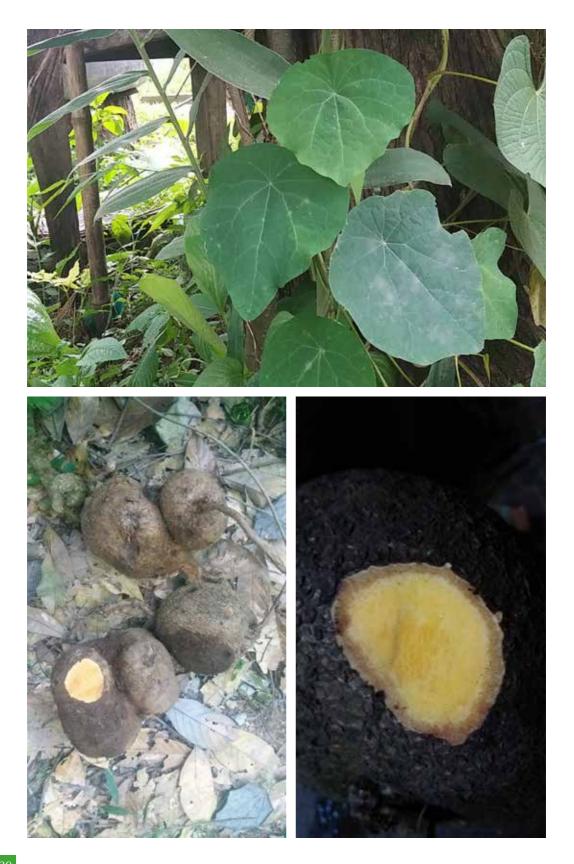


Botanical Name	Stephania spp
Family	Menispermaceae
Common Name	Not available
Local Name	Gonaras Marpo, Abhidoro Tsalo (Sh)
Category	Climber, Flowering time:
Parts Used	Tuber
Uses	Maankhalu
Remarks	Powder; mix with others



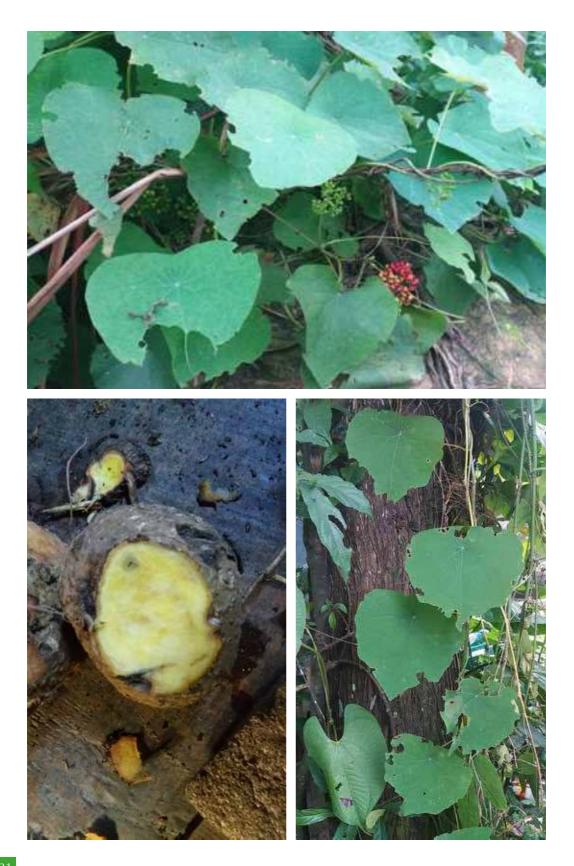


Botanical Name	Stephania japonica
Family	Menispermaceae
Common Name	Snake vine
Local Name	Gonaras Serbo/Abhidoro Serbo (Sh)
Category	Climber, Flowering time: June, Al 300-900m
Parts Used	Tuber
Uses	Maankhalu
Remarks	Powder; mix with others



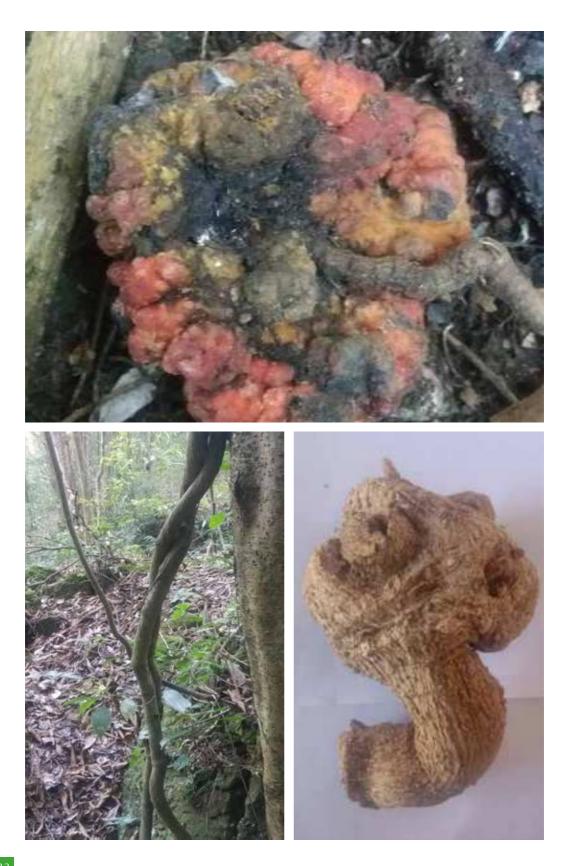


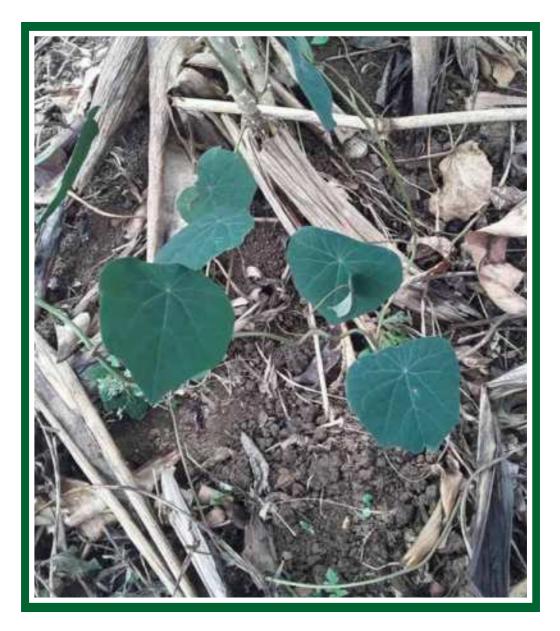
Botanical Name	Stephania glabra
Family	Menispermaceae
Common Name	Snake vine
Local Name	Gonaras Karpo/Abhidoro Balingbi (Sh)
Category	Climber, Flowering time: May-June, Al 600-1600m
Parts Used	Tuber
Uses	Maankhalu
Remarks	Powder; mix with others





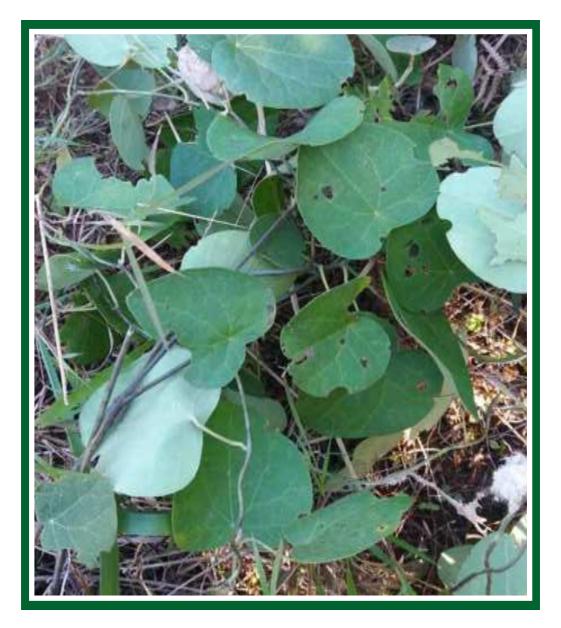
Botanical Name	Tinospora cordifolia
Family	Menispermaceae
Common Name	Guduchi
Local Name	Jingru (Sh)
Category	Woody climber, Flowering time: February, Al 150-900m
Parts Used	Roots & woody stem
Uses	Maankhalu
Remarks	Powder; mix with others





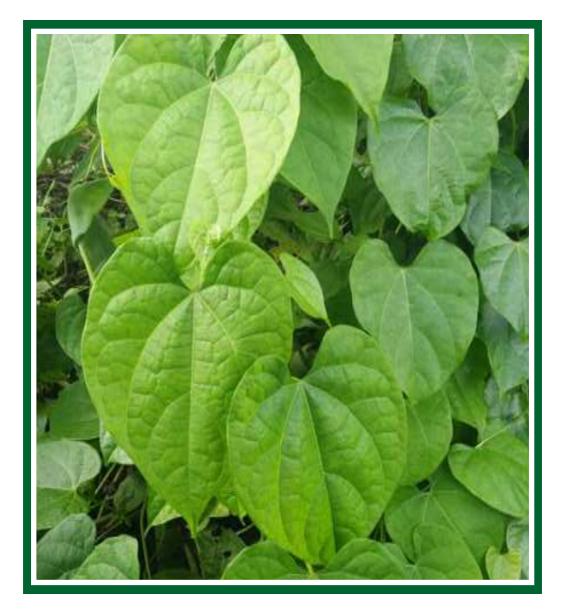
Botanical Name	Stephania glandulifera
Family	Menispermaceae
Common Name	Not available
Local Name	Zalamathang (Sh)
Category	Climbing vine
Parts Used	Root tuber
Uses	Maankhalu
Remarks	Powder; mix with others





Botanical Name	Cissampelos pareira
Family	Menispermaceae
Common Name	Not available
Local Name	Jingru daza (Sh)
Category	Climber/Creeper, Flowering time: March- May, Al 500-1700m
Parts Used	Root tuber
Uses	Maankhalu
Remarks	Powder; mix with others

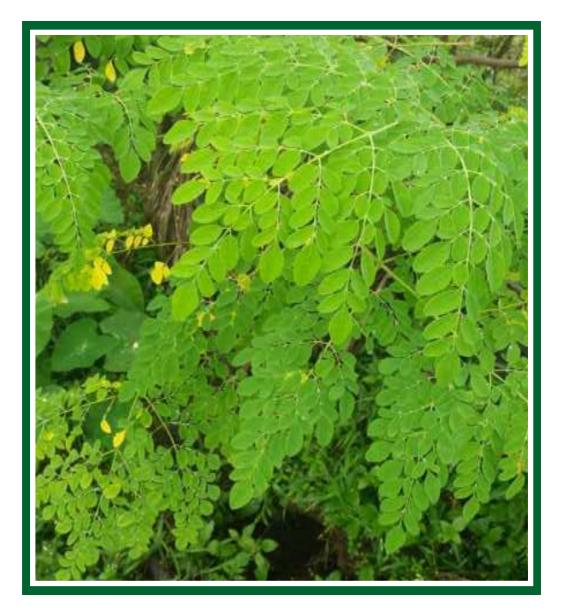




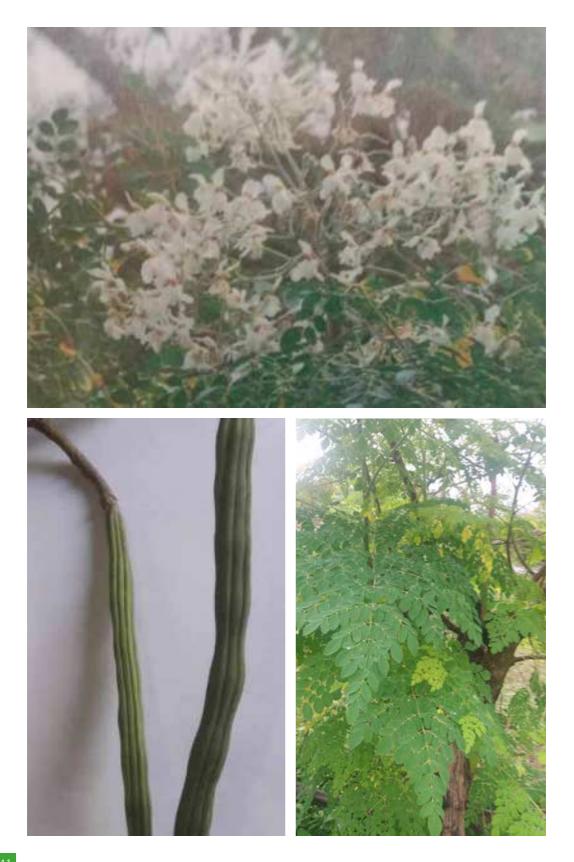
Botanical Name	Tinospora sinensis
Family	Menispermaceae
Common Name	Heart-leaved moonseed, guduchi or giloy
Local Name	Gurzoo (Lh)
Category	Climber with woody stem, Flowering time: February- May, Al 150-900m
Parts Used	Stem
Uses	Diabetes & Gout
Remarks	Powder, drink concoction







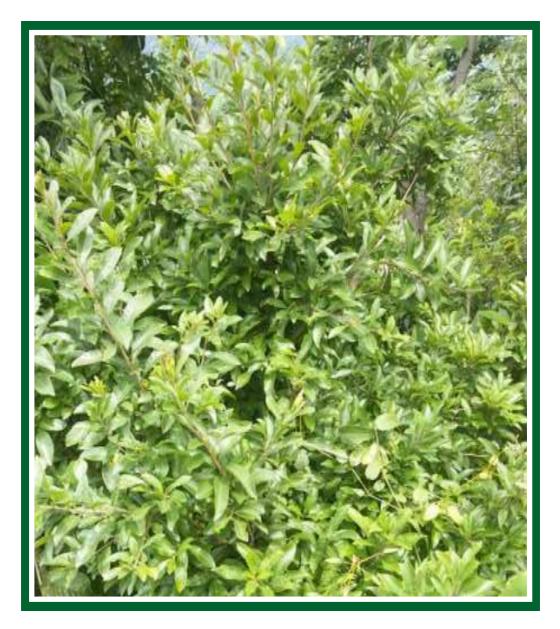
Botanical Name	Moringa oleifera
Family	Moringaceae
Common Name	Drumstick Tree
Local Name	Sajana (Lh)
Category	Small deciduous tree, Flowering time: January- February, Al 230m
Parts Used	Seeds/Leaves
Uses	Blood pressure
Remarks	Seeds eaten as dal; drink concoction of leaves





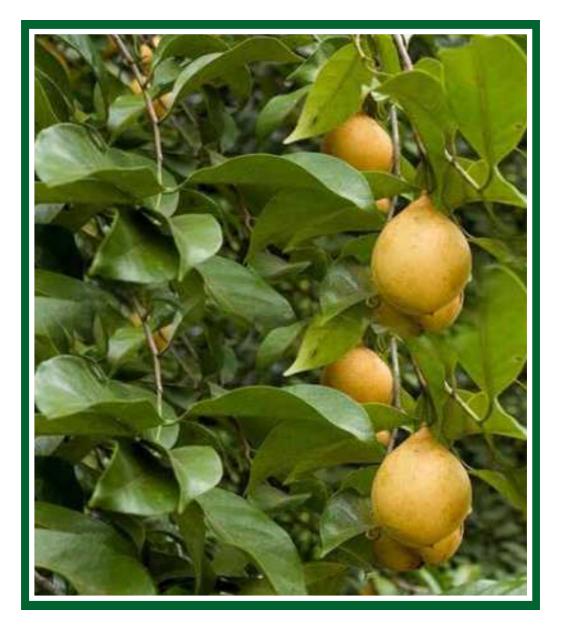
Botanical Name	Musa thomsonii
Family	Musaceae
Common Name	Indian Banana
Local Name	Neyra Laishing (Sh), Ngalashing (Dz)
Category	Large herb, Flowering time: November, Al 457m
Parts Used	Fleshy Stem
Uses	To reduce effect of poison due to Manchhen (Aconitum)
Remarks	Drink Juice extract; mix with others





Botanical Name	Myrica esculanta
Family	Myricaceae
Common Name	Box berry
Local Name	Tsutsushing (Sh), Kaphal (Lh)
Category	Tree, Flowering time: September- March, Al 1200-2100m
Parts Used	Bark
Uses	Sinusitis
Remarks	Powder; mix with others

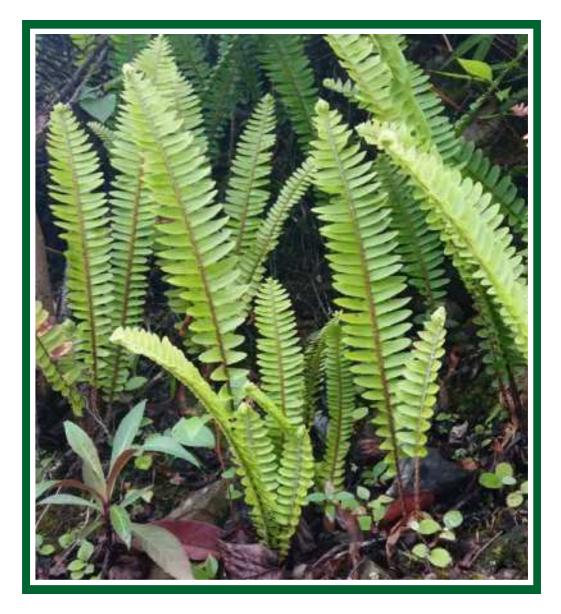




Botanical Name	Myristica fragrans
Family	Myristicaceae
Common Name	Nutmeg
Local Name	Zati (Sh, Lh)
Category	Tree, Flowering time: Late spring, Al tropical upto 1000m
Parts Used	Seeds (imported from India)
Uses	Cough and cold
Remarks	Powder; drink concoction

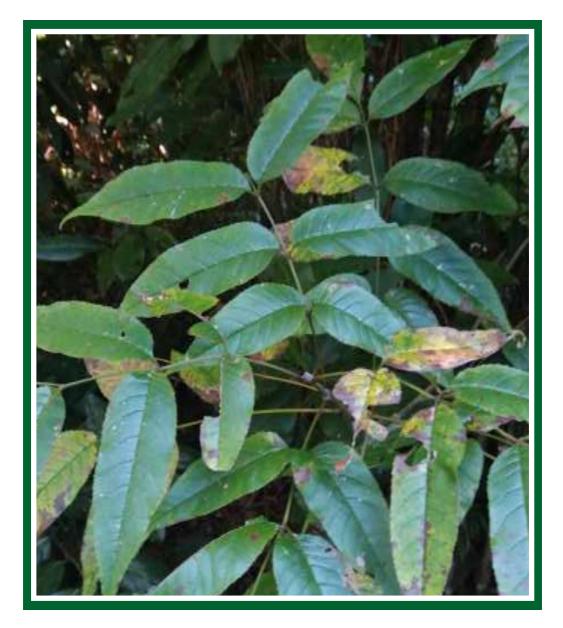






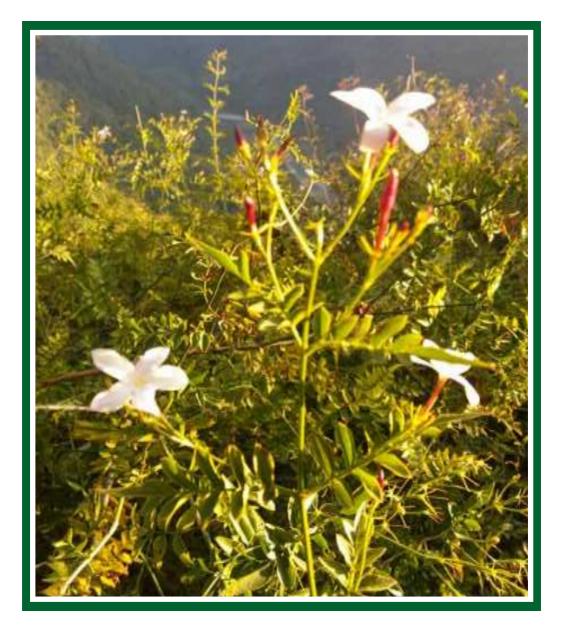
Botanical Name	Nephrolepis cordifolia
Family	Nephrolepidaceae
Common Name	Fishbone fern
Local Name	Salugonpu (Sh)
Category	Terrestrial or epiphytic fern, do not produce flowers as they reproduce by spores, Al 800-2000m
Parts Used	Root tubers
Uses	Diabetes, UTI
Remarks	Eat the tubers





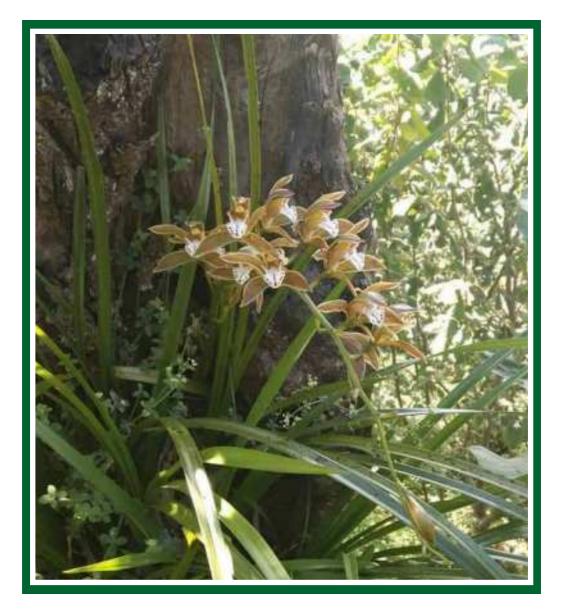
Botanical Name	Fraxinus paxiana
Family	Oleaceae
Common Name	Blomsterask
Local Name	Tsipshing (Sh), Lankuri (Lh)
Category	Tree, Flowering time: May- June, Al 2750-3500m
Parts Used	Wood trunk
Uses	Dhoorba maan
Remarks	Boil the wood core; mix with others





Botanical Name	Jasmanum grandiflorum
Family	Oleaceae
Common Name	Royal Jasmine
Local Name	Khangru Chhanglu (Sh)
Category	Shrub, Flowering time: June- October, Al 1050- 1450m
Parts Used	Stem
Uses	Zemned (Postpartum cramps)
Remarks	Boil the stem and apply; mix with others





Botanical Name	Cymbidium erythraeum
Family	Orchidaceae
Common Name	Orchid
Local Name	Olachoto (Sh, Dz)
Category	Epiphyte or lithophyte (Pseudobulb), Flowering time: September- November, Al 1200-2330m
Parts Used	Roots & flowers
Uses	Maankhalu
Remarks	Powder; mix with others



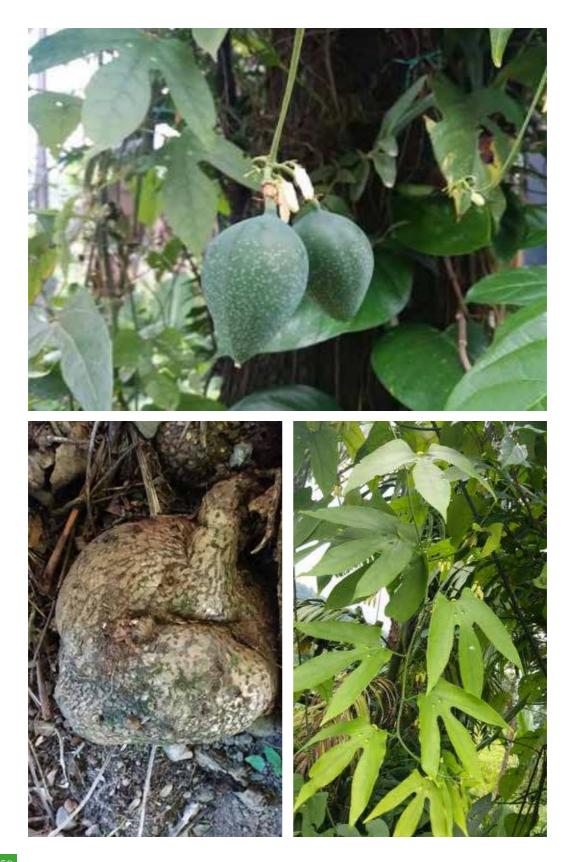


Botanical Name	Dactylorhiza hatagirea
Family	Orchidaceae
Common Name	Himalayan Marsh Orchid
Local Name	Wangpo lakpa (Sh, Dz)
Category	Annual herb, Flowering time: June-July, Al 2500-5000 msl
Parts Used	Root tubers
Uses	Physical weakness
Remarks	Eat raw, powder





Botanical Name	Adenia trilobata
Family	Passifloraceae
Common Name	Akhadaphal
Local Name	Dakhor (Sh)
Category	Climber, Flowering time: May- June, Al 600-1000m
Parts Used	Root tuber
Uses	Maankhalu
Remarks	Powder; mix with others





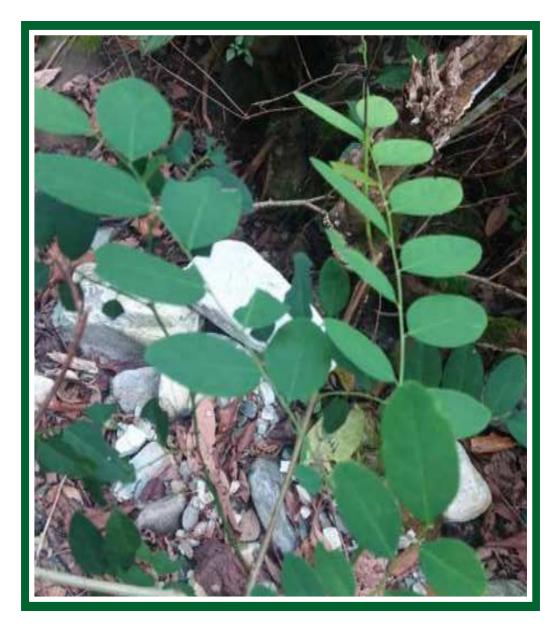
Botanical Name	Phyllanthus emblica
Family	Phyllanthaceae
Common Name	Myrobalan, Indian gooseberry
Local Name	Churoo or Churpoo sey (Sh), Omla (Dz), Amla (Lh)
Category	Deciduous shrub or tree, Flowering time: March- April, Al 460-1800m
Parts Used	Fruits
Uses	Maankhalu
Remarks	Powder; mix with others





Botanical Name	Breynia retusa
Family	Phyllanthaceae
Common Name	Cup saucer plant
Local Name	Gowa Tshaluk Shing (Sh)
Category	Shrub, Flowering time: August-September, Al 400-1950m
Parts Used	Leaves
Uses	Athlete's foot (tinea pedis)
Remarks	Crush leaves and apply





Botanical Name	Sauropus quardrangularis
Family	Phyllanthaceae
Common Name	Quadrangular leaf
Local Name	Donga Tshalu shing (Sh)
Category	Shrub, Flowering time: June-August, Al 350-1800m
Parts Used	Leaves
Uses	Sofu malekpa (Cancerous wounds)
Remarks	Apply paste; mix with others



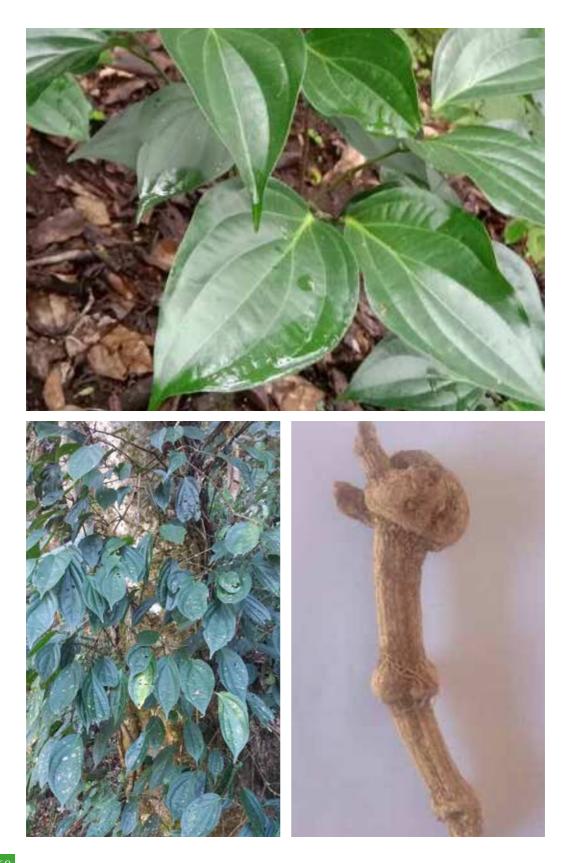


Botanical Name	Phytolacca asinosa
Family	Phytolaccaceae
Common Name	Indian Poke
Local Name	Jogom (Sh), Kashakani (Dz), Poaw Karpo (TM)
Category	Perennial Herb, Flowering time: April-September, Al: 900-2500m
Parts Used	Whole plant
Uses	Body pain, and scabies
Remarks	Apply paste and juice extract





Botanical Name	Piper longum
Family	Piperaceae
Common Name	Indian Long Pepper
Local Name	Pipla (Sh, Lh)
Category	Climbing shrub, Flowering time: April-August, Al: 150-800m,
Parts Used	Roots/ Fruits
Uses	Maankhalu
Remarks	Roots powdered; mixed with others. Fruits eaten with paan





<b>Botanical Name</b>	Persicaria chinensis
Family	Polygonaceae
Common Name	Creeping smartweed
Local Name	Gasho kochoma (Sh)
Category	Scrambling subshrub, Flowering time: May-November, Al- 270-2600m
Parts Used	Leaves
Uses	Zikpey Maan (Bath)
Remarks	Soak in leaves; mix with others





<b>Botanical Name</b>	Peperomia tetraphylla
Family	Piperaceae
Common Name	Acorn peperomia
Local Name	Soleyshawa (Sh)
Category	Succulent perennial herb with tufted creeping stolons, Flowering time: February-August, Al- 1150-2100m
Parts Used	Whole plant
Uses	Sofu malekpa (Cancerous wounds), Athlete's foot
Remarks	Powder and mix with others; apply paste for Athlete's foot





Botanical Name	Eleusine indica
Family	Poaceae
Common Name	Yard grass, Crowfoot grass
Local Name	Kongpu bang (Sh)
Category	Grass, Flowering time: May-December, Al-300-2610m.
Parts Used	Whole plant
Uses	Physical weakness of body
Remarks	Boil and drink





Botanical Name	Cynodon dactylon
Family	Poaceae
Common Name	Bermuda grass, dog's tooth grass
Local Name	Dubo (Lh)
Category	Grass, Flowering time: March-September, Al- 840-2600m.
Parts Used	Whole planty
Uses	Throat pain, Typhoid
Remarks	Boil and drink





<b>Botanical Name</b>	Polygala arillata
Family	Polygalaceae
Common Name	Not available
Local Name	Shawakatang (Sh)
Category	Scrambling shrub: Flowering time: August-October, Al- 270-2100m
Parts Used	Leaves
Uses	Sofu malekpa (Cancerous wounds)
Remarks	Apply paste; mix with others





Botanical Name	Plantago erosa
Family	Plantaginaceae
Common Name	Dwarf plantain
Local Name	Tsashokma or Tsashong Rokpu (Sh)
Category	Herb, Flowering time: March-August, Al-600-2500m
Parts Used	Whole plant
Uses	Sprains and swelling
Remarks	Apply paste





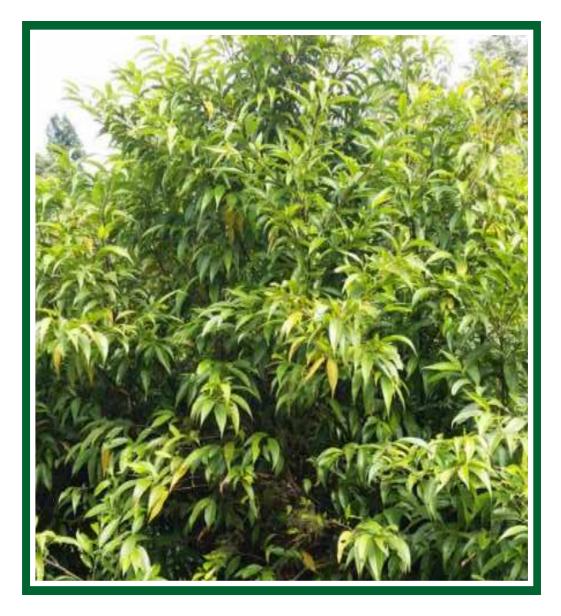
Botanical Name	Rumex napalensis
Family	Polygonaceae
Common Name	Nepal dock
Local Name	Bemlakpa or Patang Shawa (Sh), Haleley (Lh)
Category	Herb, Flowering time: May-July, Al-1500-2500m
Parts Used	Leaves and roots
Uses	Dry leg pain; Liver disorders & Jaundice; Piles
Remarks	Boil and drink





Botanical Name	Monochoria vaginalis
Family	Pontederiaceae
Common Name	Oval-leafed pondweed
Local Name	Kangchigpa Bozong (Sh)
Category	Herb, Flowering time: August October, Al- 90-2400m
Parts Used	Root tuber
Uses	Tonsil
Remarks	Heat, paste and apply





Botanical Name	Maesa chisia
Family	Myrsinaceae/Primulaceae
Common Name	Susi-poma
Local Name	Khuberboshing Pho or Lanjumenju Shing (Sh), Sechum shing (Dz)
Category	Large shrub, Flowering time: February-May, Al-1250-2100m
Parts Used	Leaves
Uses	Zikpey maan (Bath), & Sofu malekpa (Cancerous wounds)
Remarks	Soak in hot water for bath; apply paste for wounds; both mix with others





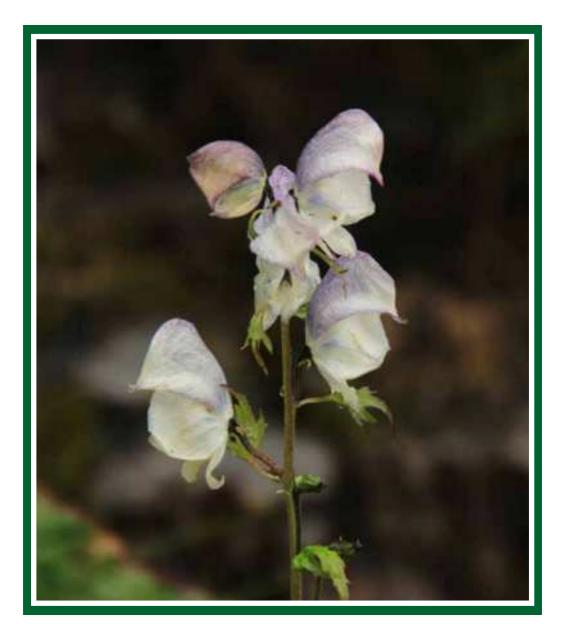
<b>Botanical Name</b>	Maesa argentea
Family	Primulaceae
Common Name	Not available
Local Name	Khuberbooshing mo (Sh), Sechum shing (Dz)
Category	Large shrub, Flowering time: April, Al- 2130-2440m
Parts Used	Leaves
Uses	Zikpey maan (Bath); Sofu malekpa (cancerous wounds)
Remarks	Soak in hot water for bath; apply paste for wounds; both mix with others





Botanical Name	Ardisia macrocarpa
Family	Primulaceae
Common Name	Himalayan coralberry
Local Name	Dudurshing (Sh), Ressim (Dz)
Category	Shrub: Flowering time: May-July, Al- 1600-2400m
Parts Used	Roots
Uses	Drangwa (UTI, STDs, Scrotal swelling),TB, Dysentry
Remarks	Boil and drink; mix with few others





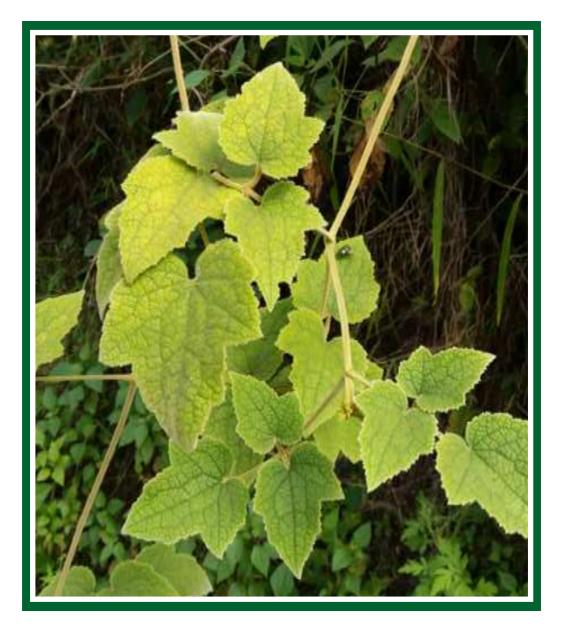
<b>Botanical Name</b>	Aconitum orochryseum
Family	Ranuculaceae
Common Name	Aconite
Local Name	Bonga Karpo (Sh) Bongkar (Dz)
Category	Herb, Flowering time: August- September, Al-3950-4720m
Parts Used	Root tuber
Uses	Tshadim (Cough and cold)
Remarks	Chew, drink concoction





<b>Botanical Name</b>	Aconitum laciniatum
Family	Ranuculaceae
Common Name	Monkshood
Local Name	Bonga Nagpo (Sh)
Category	Herb, Flowering time: July-August, Al- 3500-4570m
Parts Used	Root tuber
Uses	Tshadim (Cough and cold)
Remarks	Chew, drink concoction



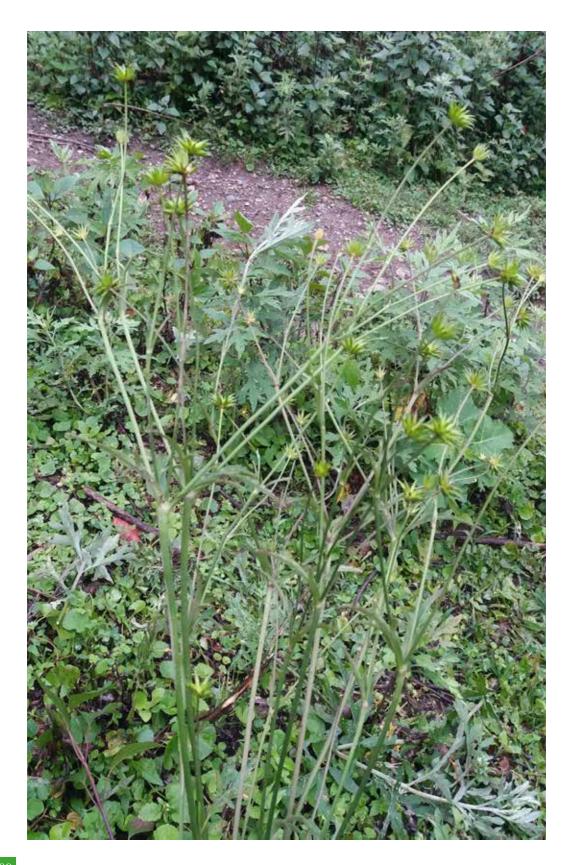


Botanical Name	Clematis buchaniana
Family	Ranunculaceae
Common Name	Lemon Clematis
Local Name	Zongzongma Ruu (Sh)
Category	Creeping vine, Flowering time: July- October, Al- 1000-3650m
Parts Used	Roots
Uses	Sinusites
Remarks	Powder; mix with others





Botanical Name	Anemone revularis
Family	Ranunculaceae
Common Name	Riverside windflower
Local Name	Mamphung ngon (Sh)
Category	Herb, Flowering time: April-August, Al-1980-3960m
Parts Used	Whole plant
Uses	Cough and cold
Remarks	Crush and smell





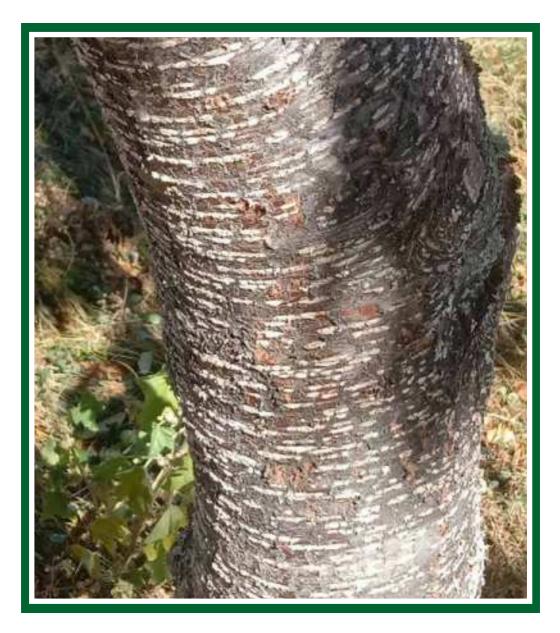
Botanical Name	Spiraea spp ( Unknown)
Family	Rosaseae
Common Name	Not available
Local Name	Khangru Tsalo (Sh)
Category	Shrub
Parts Used	Stem
Uses	Zemned (Postpartum cramps)
Remarks	Boil and apply (massage)





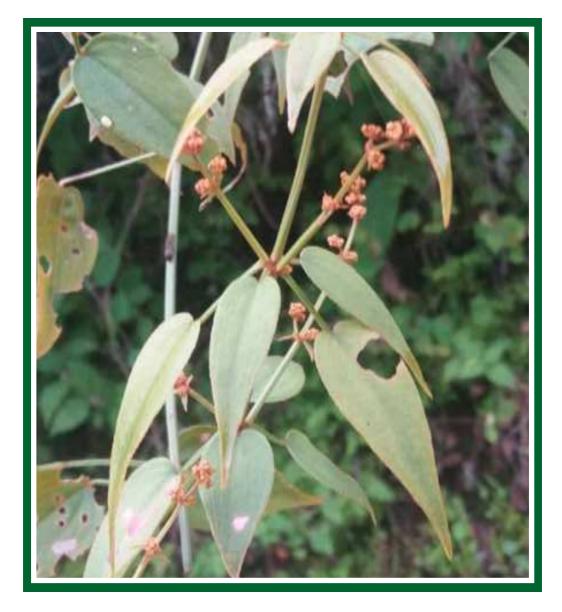
Botanical Name	Potentilla lineata
Family	Rosaceae
Common Name	Lined Cinquifoil
Local Name	Shakpura (Sh), Shimpa/ Jogosisi (Dz)
Category	Herb, Flowering time: June -August, Al- 2250-3600m
Parts Used	Root
Uses	Receding gums
Remarks	Eaten with paan





Botanical Name	Prunus persica
Family	Rosaceae
Common Name	Peach
Local Name	Lengshing (Sh), Khamshing (Dz), Arupatay (Lh)
Category	Small tree, Flowering time: February- April, Al-250-2800m
Parts Used	Cambium of bark
Uses	Receding gums
Remarks	Eaten with paan





<b>Botanical Name</b>	Rubia manjith
Family	Rubiaceae
Common Name	Indian Madder
Local Name	Lanyiruu (Sh), Tsay (Dz), Majito (Lh)
Category	Perennial climbing herb, Flowering time: June-October, Al-1150-2300m
Parts Used	Roots/leaves
Uses	Roots for Maankhalu and Sofu malekpa; Leaves for bath
Remarks	Powder and mix with others; soak in hot water and mix with other



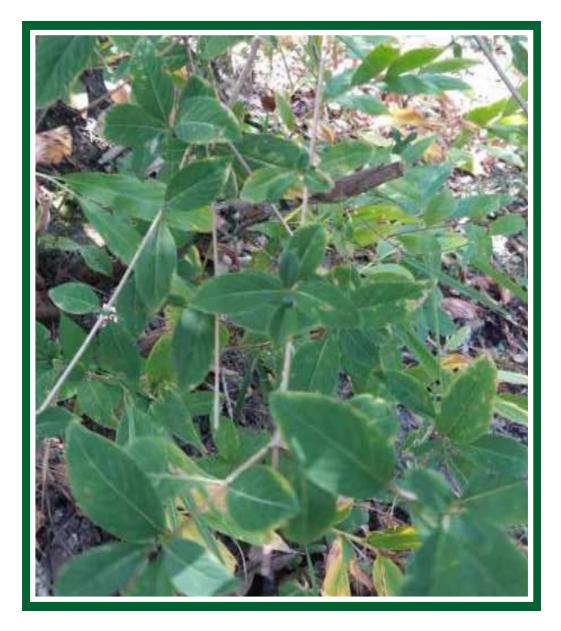


Botanical Name	Mussaenda roxburgii
Family	Rubiaceae
Common Name	East Himalayan Mussaenda
Local Name	Rimomnang shing/ Menchha patong (Sh)
Category	Shrub, Flowering time: May- August, Al- 100-1200(-1850)m
Parts Used	Bark of roots
Uses	Sinusites
Remarks	Powder; mix with others









Botanical Name	Leptodermis lanceolata
Family	Rubiaceae
Common Name	Lanceleaf
Local Name	Khirushing (Sh)
Category	Shrub, Flowering time: May- June, Al-2000- 3500m
Parts Used	Leaves
Uses	Sofu malekpa (Cancerous wounds)
Remarks	Apply paste; mix with others





Botanical Name	Paederia foetoda
Family	Rubiaceae
Common Name	Stinkvine
Local Name	Khiru (Sh)
Category	Climber, Flowering time: August-October, Al- 100-1500m
Parts Used	Leaves
Uses	Sofu Malekpa (Cancerous wounds)
Remarks	Apply paste; mix with others





Botanical Name	Toddalia asiatica
Family	Rutaceae
Common Name	Orange climber
Local Name	Kapoor zoo (Sh), Singaney kangra (Lh)
Category	Prickly climbing shrub, Flowering time: February, Al- 200-2060m
Parts Used	Root cambium
Uses	Liver disorders, bloated stomach
Remarks	Drink concoction



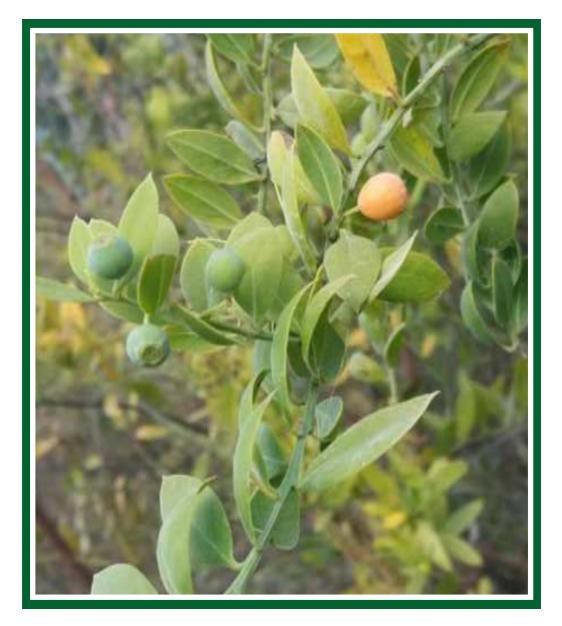






Botanical Name	Santalum album
Family	Santalaceae
Common Name	White sandalwood
Local Name	Tsenden Karpo (Sh) Tsenden Karp (Dz)
Category	Tree, Flowering time: July- September, Al-610-915m
Parts Used	Wood
Uses	Zemned, Drangwa, Doorba maan
Remarks	Boil wood; mix with others





Botanical Name	Osyris lanceolata
Family	Santalaceae
Common Name	African sandalwood
Local Name	Inchhashing (Sh), Chemom/ Chemarmo (Dz)
Category	Shrub, Flowering time: April- June, Al-900-1400m
Parts Used	Wood/Leaves
Uses	Stomach disorders
Remarks	Wood boil and drink; leaves prepared into tea leaves





<b>Botanical Name</b>	Bergenia purpurascens
Family	Saxifragaceae
Common Name	Purple bergenia
Local Name	Mencha metog (Sh)
Category	Herb, Flowering time: May-July, Al- 3800-4550m
Parts Used	Roots
Uses	Maankhalu
Remarks	Powder; mix with others





Botanical Name	Astilbe rivularis
Family	Saxifragaceae
Common Name	River Astilbe
Local Name	Buro Okhate (Lh), Tonsar Gugay (Sh)
Category	Annual herb, Flowering time: July-October, Al 1850-2900m
Parts Used	Rhizome
Uses	Treatment of ulcer, bleeding during child birth, inflammation, body ache, diarrhoea, and dysentery
Remarks	Dry and make into powder and drink in hot water





Botanical Name	Linderbergia griffithii
Family	Scrophulariaceae
Common Name	Not available
Local Name	Ruubusula (Sh)
Category	Small weak shrub or tall herb, Flowering time: February, Al- 1220-1350m
Parts Used	Leaves
Uses	Zikpey maan (Bath)
Remarks	Soak in hot water; mix with others



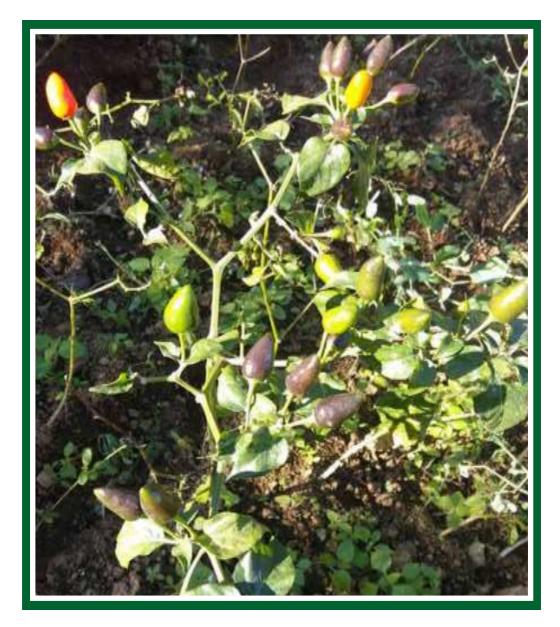


Botanical Name	Buddleja asiatica
Family	Scrophulariaceae
Common Name	Asian butterfly bush
Local Name	Mongshibespa shing or Yangrem shing (Sh), Bakam/Phoshing (Dz)
Category	Shrub, Flowering time: January-March, Al- 200-1500m
Parts Used	Leaves
Uses	To make yeast
Remarks	Make into paste, mix with dough









<b>Botanical Name</b>	Capsicum annuum
Family	Solanaceae
Common Name	Peppers
Local Name	Kaluktang solo (Sh), Dolo Khorsaney (Lh)
Category	Shrub, Flowering time: May-June, Al- 200-1425m
Parts Used	Fruits and leaves
Uses	Snake bite swollen areas
Remarks	Apply paste; mix with others





Botanical Name	Datura stramonium
Family	Solanaceae
Common Name	Thorn apple
Local Name	Zeeranakpo (Sh), Jitshi tago (Dz)
Category	Shrub, Flowering time: March- October, Al-1200-2440m
Parts Used	Seeds
Uses	Toothache
Remarks	Fill the crushed powder in the cavity and burn with small heated rod







<b>Botanical Name</b>	Solanum torvum
Family	Solanaceae
Common Name	Turkey berry
Local Name	Khalangji (Sh), Bhi (Lh)
Category	Prickly Shrub, Flowering time: Throughout the year, Al- 200-1250m
Parts Used	Fruits
Uses	Blood pressure
Remarks	Boil and eat (as vegetable)





Botanical Name	Solanum viarum
Family	Solanaceae
Common Name	Thorny nightshade/ Tropical soda apple
Local Name	Zuubalingbi (Sh)
Category	Thorny shrub, Flowering time: June – February, Al- 200-2100m
Parts Used	Fruits/ Bark
Uses	Toothache, Sofu malekpa
Remarks	Apply fruits in the tooth cavity; apply paste of bark for wounds (mix with others)





Botanical Name	Brugmansia suaveolens
Family	Solanaceae
Common Name	Trumpet flower
Local Name	Dungmomnang shing (Sh)
Category	Shrub or small tree, Flowering time: February- September, Al-500-1800m
Parts Used	Leaves
Uses	Sofu malekpa (cancerous wounds)
Remarks	Apply paste, mix with others



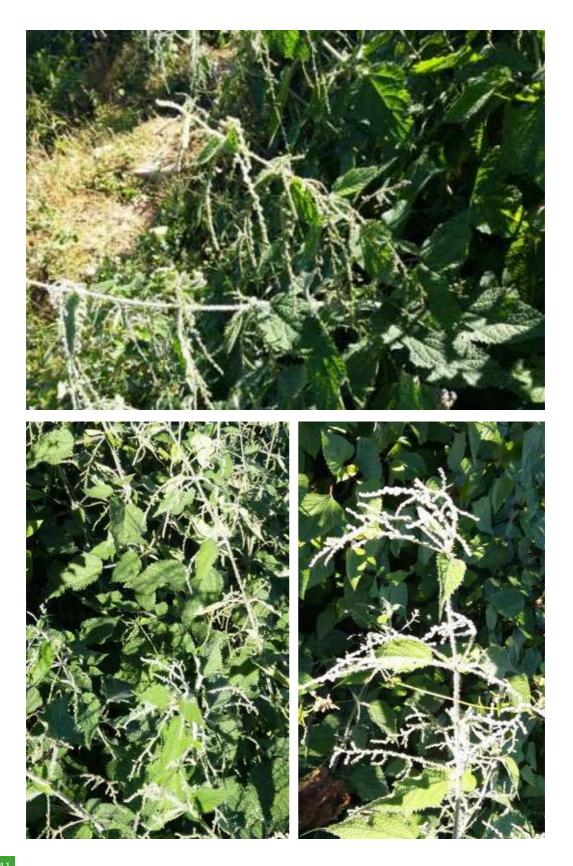


Botanical Name	Aqularia malaccensis
Family	Thymelaeceae
Common Name	Agarwood
Local Name	Augur (Sh, Lh, Dz)
Category	Tree, Flowering time: April, Al- 200-1800m
Parts Used	Wood
Uses	Maankhalu, Zikpa maan
Remarks	Powder and mix with others





Botanical Name	Urtica ardens
Family	Urticaceae
Common Name	Stinging nettle
Local Name	Khi Jazu (Sh), Sisnu (Lh), Zocha (Dz)
Category	Shrub, Flowering time: May- June, Al-900-3300m
Parts Used	Leaves
Uses	To reduce effect of Maanchhen (Aconitum)
Remarks	Drink concoction



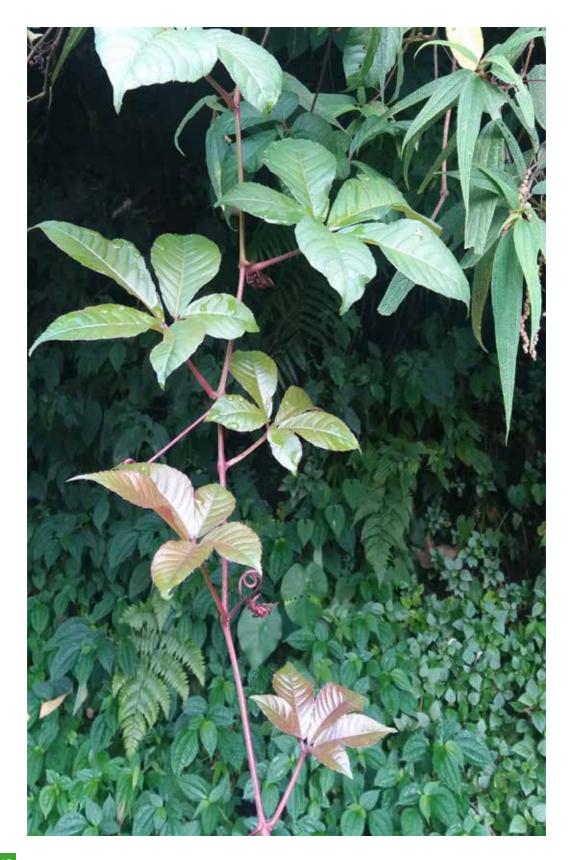


Botanical Name	Girardinia diversifolia
Family	Urticaceae
Common Name	Himalayan nettle
Local Name	Sisnu (Lh), Jazu (Sh), Ta Zocha (Dz)
Category	Herb, Flowering time: July-September, Al- 850-2750m
Parts Used	Roots
Uses	Bone fracture
Remarks	Apply paste





Botanical Name	Tetrastigma obtectum
Family	Vitaceae
Common Name	Not available
Local Name	Zhabdrung Japati (Sh)
Category	Climber, Flowering time: April, Al-2000m
Parts Used	Leaves
Uses	Stomach problems
Remarks	Make tea





<b>Botanical Name</b>	Zingiber officinale
Family	Zingiberaceae
Common Name	Ginger
Local Name	Saga (Sh, Dz), Aduwa (Lh)
Category	Annual herb, Flowering time: July, Al- 90-1900m
Parts Used	Rhizome
Uses	Stomach disorders, cough and cold
Remarks	Eat/Drink concoction





Botanical Name	Amomum subulatum
Family	Zingiberaceae
Common Name	Cardamom
Local Name	Alanchi (Sh, Dz, Lh)
Category	Annual herb, Flowering time: April-November, Al-700-2050m
Parts Used	Fruits
Uses	Stomach ailments, Cough and cold
Remarks	Eat, drink concoction





<b>Botanical Name</b>	ingiber purpureum (Zingiber montanum)			
Family	Zingiberaceae			
Common Name	Cassumunar Ginger			
Local Name	orang saga (Sh)			
Category	Annual herb, Flowering time: July, Al-90-1900m			
Parts Used	Rhizome			
Uses	Mankhalu			
Remarks	Powder, mix with others			





Botanical Name	Curcurma longa
Family	Zingiberaceae
Common Name	Turmeric
Local Name	Yongka Tsalu or Jung Tsalu (Sh), Yongka (Dz), Haldi (Lh)
Category	Perennial herb, Flowering time: July, Al-150-1830m
Parts Used	Rhizome
Uses	Maankhalu
Remarks	Powder, mix with others





Botanical Name	Curcuma aromatica	
Family	Zingiberaceae	
Common Name	Wild turmeric	
Local Name	Jung Chhanglu or Yongka Chhanglu (Sh), Yongka Nap (Dz)	
Category Perennial herb, Flowering time: March-July, Al-150-1830n		
Parts Used	Rhizome	
Uses	Maankhalu	
Remarks	Powder, mix with others	





Botanical Name	Zingiber zerumbet	
Family	Zingiberaceae	
Common Name	Pinecone or shampoo ginger	
Local Name	Sharpa boss (Sh), Phracheng (Lh)	
Category	Perennial herb, Flowering time: August – September, Al- 1200m	
Parts Used	Rhizome	
Uses	Joint pains/Gout/Jaundice	
Remarks	Apply paste, powder and drink	









Botanical Name	Kaempferia rotunda	
Family	Zingiberaceae	
Common Name	Bhumi champa	
Local Name	Bhui champ (Lh), Khangfotpa maan (Sh)	
Category Annual herb, Flowering time: April-May, Al-610m( Sal for		
Parts Used	Rhizome	
Uses	Broken bones	
Remarks	Apply paste	









<b>Botanical Name</b>	Hydechium garbenerianum			
Family	Zingiberaceae			
Common Name	Kahili ginger, Garland-lily or ginger lily			
Local Name	Sermomnang (Sh), Dhoem (Dz)			
Category	Perennial herb, 1-2 m tall, flowering August-September, Al 500-1700 m			
Parts Used	Rhizome			
Uses	Mankhalu			
Remarks	Powdered and mixed with others			



# 6 DISCUSSION

The Ministry of Agriculture and Forests published a guideline on the identification and collection of medicinal plants in 2008 in which 47 species (including that of high altitude and low altitude together) were listed. The Institute of Traditional Medicine Services has also published guidebooks in two volumes documenting 224 medicinal plants from high and low altitudes. This study documented 172 species of medicinal plants used by the seven local healers. Of the 172 medicinal plants used by local healers only 32 species were listed in the guidebooks published by the ITMS. This suggests that there is a vast knowledge about plants used in traditional medicine which remains undocumented. Majority of the medicinal plants listed here are used for preparing various medicinal mixes by local healers of eastern Bhutan. The healers of Sarpang and Tsirang have contributed much lesser as they seem to practice limited local treatment pertaining to certain specific illnesses only. The liquid medicinal mix made by Mr Aaley of Tsirang seems to fix broken bones and bone fractures: but he has not been willing to share the knowledge about the medicinal plants he collects to prepare this concoction.

This guidebook contains illustrations of these 172 medicinal plants used by the local healers around the country with whom we associated during this study. The medicinal plants documented here are found from the foothill plains of southern Bhutan to the temperate forests up to an elevation of about 2000 meters above sea level. The medicinal plant *Myristica fragrans* (locally known as *Zati*) is not found growing in Bhutan but the healers buy the parts (especially fruit/seed) from markets in India. Except for two species *Aconitum orochryseum* (known locally as *Bonga Karpo*) and *Aconitum laciniatum* (*Bonga Nagpo*) which are found in the high altitudes of Thimphu, Bumthang, and few other high altitude areas the guidebook does not contain medicinal plants of higher altitudes used by local healers which can be updated later.

#### **6.1 Shortcomings of this study**

The study tried to identify local healers throughout the country. The 7 healers had been contacted and the medicinal plants identified by them have been recorded. There may be other healers in other parts of the country and there are possibilities of many more plants which are not included in this compilation. During the time of this study we could not identify study local healers practicing at higher altitudes. Therefore, the study does not include medicinal plants of higher altitudes except the two mentioned above. There are still many high altitude plants which are being used by local healers that are not yet documented.

This study was designed only to identify the plants as of now and surveys/interviews from patients treated by the local healers to triangulate some of the success claims have not been conducted. One due to limited information about the patients and other due to constraints on time and resources. Some of the healers have managed to maintain huge records of patients treated though. But this angle of the practice needs a total new study altogether.

#### 6.2 Future scope of the work

In the future, enthusiasts of ethnobotany and local medicine can take this study to further it beyond just identification and documentation. A long-term research and scientific studies on phyto-chemical constituents of many of the medicinal plants can be conducted.

There are possibilities of furthering this study with the following:

- 1. Establish permanent research plots, nurseries, to cultivate medicinal plants
- 2. Establish a research laboratory for scientific analysis
- 3. Establish Information Centre (Ethnobotany Museum/Digital Museum) for greater information dissemination
- 4. There is also possibility of second edition of this report with updated list of plants if more local healers are identified in the future.

The researchers at the UWICER made efforts to document the medicinal plants used for local healing in Bhutan. Attempts had been made to reach out to as many practicing local healers as possible around the country. But due to lack of information many practicing healers around the country could have been missed at this point of time. The purpose of this study was to document the vast local knowledge regarding traditional healing in Bhutan which is fast getting lost amidst modern developments and facilities. It has been generous enough for the local practitioners to share their knowledge pertaining to this. Attempts will have to be made to continue the work to identify medicinal plants of higher altitudes used for traditional healing as well. There could be many more plants which are not yet documented through the publications made by ITMS, MoAF, and this guidebook.

It is hoped that this guidebook will maintain a kind of information and reference for the future generations.

## **8** BIBLIOGRAPHY

Astutik et al (2019). Asian Medicinal Plants' Production and Utilization Potentials: A Review. MDPI, Basel, Switzerland.

Bodeker et al (2003). Medicinal Plants for Forest Conservation and Health Care. Global initiative for traditional systems (GIFTS) of health. Food and Agriculture Organisation of United Nations, Rome.

Marshall, E. (2011). *Health and wealth from Medicinal Aromatic Plants.* Rural Infrastructure and Agro-Industries Division Food and Agriculture Organization of the United Nations, Rome.

Paroda et al (2013). Proceedings on Expert Consultation on Promotion of Medicinal and Aromatic Plants in the Asia-Pacific Region. Food and Agriculture Organization of the United Nations - Regional Office for Asia and the Pacific (FAO RAP). Bangkok, Thailand.

Wangchuck et al (2009). *High Altitude Medicinal Plants of Bhutan. An illustrated guide for practical use.* Institute of Traditional Medicine Services. Ministry of Health. Thimphu. Bhutan

Wangchuck et al (2009). Low altitude medicinal plants of Bhutan. An illustrated guide for practical use. Institute of Traditional Medicine Services. Ministry of Health. Thimphu. Bhutan

Wangchuck, P. (2008). Sowarigpa Medicinal Plants of Bumthang, Bhutan. Research Gate Journal.

https://www.researchgate.net/publication/303570449, accessed 3/2/2021

Yeshi et al (2019). An integrated medicine of Bhutan: Sowa Rigpa concepts, botanical identification, and the recorded phytochemical and pharmacological properties of the eastern Himalayan medicinal plants. European Journal of Integrative Medicine.

#### **References used for plant identification**

GBIF.(2020). Global Biodiversity Information Facility (online facility). http://www.gbif.org

Grierson, A.J.C. & Long, D.G. (1983). Flora of Bhutan including a record of plants from Sikkim. Vol 1, Part 1. Royal Botanic Garden. Edinburgh.

Grierson, A.J.C. & Long, D.G. (1984). Flora of Bhutan including a record of plants from Sikkim. Vol 1, Part 2. Royal Botanic Garden. Edinburgh.

Grierson, A.J.C. & Long, D.G. (1987). Flora of Bhutan including a record of plants from Sikkim. Vol 1, Part 3. Royal Botanic Garden. Edinburgh.

Grierson, A.J.C. & Long, D.G. (1991). *Flora of Bhutan. Vol 2, Part 1.* Royal Botanic Garden. Edinburgh.

Grierson, A.J.C. & Long, D.G. (1999). Flora of Bhutan. Vol 2, Part 2. Royal Botanic Garden. Edinburgh.

Grierson, A.J.C. & Long, D.G. (2001). *Flora of Bhutan. Vol 2, Part 3.* Royal Botanic Garden. Edinburgh.

NBC. (2013). A pictorial book of the ornamental plants of orchids of Royal Botanical Garden, Serbhithang, Volume I. National Biodiversity Centre. Ministry of Agriculture. Thimphu. Bhutan.

Noltie, H.J. (1994). Flora of Bhutan including a record of plants from Sikkim and Darjeeling. Volume 3, Part 1. Royal Botanical Garden, Edinburgh.

Noltie, H.J. (2000). Flora of Bhutan including a record of plants from Sikkim and Darjeeling. Volume 3, Part 2. Royal Botanical Garden, Edinburgh.

Parker, C. (1992). Weeds of Bhutan. National Plant Protection Centre. Simtokha. Royal Government of Bhutan. Thimphu. Bhutan

RGoB. (2008). Guidelines for identification and collection of medicinal plants of Bhutan.MoAF. Thimphu. Bhutan

Thinley, U. (2010). *Know the plants of Bhutan Volume II*. Laykeedh Dhendrub Enterprise. Thimphu. Bhutan

UWICER. (2019). *Index to flora of Bhutan*. Ugyen Wangchuck Institute for Conservation and Environmental Research. Lamaigonpa. Bhutan

Websites: Referenced for plan identification

https://www.gbif.org (Global Biodiversity Information Facility)

https://www.biodiversity.bt (Bhutan Biodiversity Portal)

### **Appendix 1: Introduction to the local healers**

In the beginning of this study, five local healers who practice traditional practices of healing were identified. At the time of data collection two more local healers were further identified. For this study, therefore, seven local healers around the country were engaged in the identification of the medicinal plants.

There could be more local healers in the country; but at the time of this data collection information about other credible healers were not obtained.

Name of the local healer	Village and Geog	Dzongkhag	Study site
Mr Wangda	Khoyar, Gomdar	Samdrup Jongkhar	Khoyar, Shekpashing
Mr Khotsa	Dungkarcholing, Deothang	Samdrup Jongkhar	Dungkarcholing
Mr SingyeDorji	Chongapa, Wangphu	SamdrupJongkhar	Chongapa
Mr Sonam	Kheshing, Lumang Geog	Tashigang	Wamrong
Mr Karchung	Dungchilo, Thrimshing	Tashigang	Dungchilo
Mr Partiman Aaley	Upper Labsibotey, Gosaling	Tsirang	Upper Labsibotey
Mr Sing Bir Tamang	Dekiling, Dekiling	Sarpang	Dekiling (near border)

A brief introduction to these seven local healers from whom the information on medicinal plants have been collected are provided below.

#### Dungtsho Wangda



Mr Wangda, 64 years old, is a local healer based at Khoyar, Gomdar Geog, Samdrup Jongkhar Dzongkhag. He has been practicing this trade for the last four decades. He has not kept records of patients he has treated so far. He has been treating patients in local areas and often travel outside to other Dzongkhags too for providing treatment.

He had learnt this trade from Meme Drungtsho Lungtaan who expired about 20 years ago. Meme Drungtsho Lungtaan is said to have acquired this trade from Meme Tshongpa (who came from Pema Kod). Mr Wangda specializes in making types of group medicines namely *Maankhalu*, *DhoorbaMaan*, *ZikpeyMaan*, and *Maan-sururu* which are made by combination of many plant and plant products. These grouped medicinal medicines are used to cure a lots of ailments. He also treats many other diseases with use of many other single plants as well.

Mr Wangda collects medicines from local areas of Khoyar, Denchi, Sawang, Amshing areas under Gomdar Geog, and Shekpashing areas under Orong Geog. He also collects few plant materials from high altitude areas under Thimphu and Bumthang. Few plant materials which are required for the medicinal mix like Aaru, Baru, Tsendhen Karpo, Tsendhen Marpo, and Zati are bought from Indian market.



#### Dungtsho Khotsa

Mr Khotsa, 63 years old, is a local healer who resides at Dungkarcholing, which is 16.5 kilometres from Deothang town, Deothang Geog, Samdrup Jongkhar Dzongkhag. He claims that his trade had been practiced over 6 generations. He is famed to have even treated a lot of cancer patients too. He uses local medicines to treat all kinds of diseases

(cervical cancer, cancerous wounds, jaundice, blood pressure, etc).

He also specializes in making group medicines like *Maankhalu* or *Chi-rik-kyi-men*, and *Shelmen*. He has maintained records of patients being treated. As per records patients from whole of Bhutan and even from neighbouring Arunachal Pradesh have come to him for treatment.

He treats patients who come to him and also travel to other Dzongkhags for the treatment. He collects his medicinal plants from vicinity of his areas and also travel to other parts of country. He has maintained a small medicinal plant garden around his home as well.



#### Dungtsho Singye Dorji

Mr Singye Dorji, 67 years old, is resident of a remote village Chongapa under Wangphu Geog, Samdrup Jongkhar Dzongkhag.

He also specializes in making group medicines like *Maankhalu* or *Chi-rik-kyi-men*, and *Shelmen*. Mr Singye

claims that he had been into this trade for the last 45 years and that this tradition had been practiced since five generations ago. He claims to have treated more than 10000 patients so far. Records maintained in the last four years alone show a treatment list of 2000 patients.

He collects his samples from areas nearby his hometown. Like others he also travels to other areas for collection of medicinal plants.



#### Dungtsho Sonam

Mr Sonam, 51 years old, is a resident of Kheshing village under Lumang Geog, Tashigang Dzongkhag. He has been into this local healing for more than 20 years. He has not learnt this practice from any particular *Dungtsho*. But over the years he has practiced based on trails and errors. Through his practice he has specialized in treatment of

Cancerous wounds and so far he has treated about 363 patients. He has travelled to other Dzongkhags for treatment as well.

Since he cannot read and write he has not maintained any records about patients but his patients are mostly local people. He claims to have cured many patients with cancerous wounds. He said he normally administers his medicines to patients with diabetes, constipation, piles, jaundice, and wounds.

Mr Sonam says he collects more than 100 species of plants/herbs for making various medicines for different diseases. He collects the plants in and round Wamrong, Kheshing, Tshozor, and sometimes travel to other areas for collection of the plants.



#### Dungtsho Karchung

Mr Karchung, is a resident of Dungchilo village of Thrimshing Geog under Tashigang Dzongkhag. He is 76 years old. He has started practicing this local trade for about 60 years now. As a child he learnt the trade from his mother Pema Wangzom. His mother learnt the local healing from one Abhi Jomo of Benporong, under Wangphu Geog. Mr Karchung also learnt this practice from one Meme Halong, who hailed from

Drametse under Mongar Dzongkhag. In addition to that he also learnt this practice from Dungtsho Tenzin of Denchi, Gomdar Geog.

Mr Karchung also specializes in making compound mix of *Maan-khalu, maan-shokpu, and sofu-malekpa maan* and other treatments involving individual medicinal plants.

As of now he claims to have treated about 5000 patients. He claims that many patients who have not been able to be treated by modern hospitals like Thimphu, Bangalore, etc have also been cured by his treatment.

He collects the medicinal plants from around Dungchilo, Thrimshing, and other areas. He also travels to highlands to collect the relevant plant parts.



#### **Dungtsho Partiman Aaley**

Mr Partiman Aaley, 63 years old, is a resident of Upper Labsibotey, Gosiling Geog, Tsirang Dzongkhag. He worked in Bhutan Telecom and resigned in 1998. He learnt this trade from his late father. His specialty is treatment of broken/ fractured bones. He collects and mixes his medicines and make them into a solution. His medicines are available at Nu 450/- a bottle. His medicines have been proven to be

effective in treatment of bone ailments including joining of broken bones. However, he is not willing to share the information about the medicinal plants used for bone treatments. The research team respects his privacy.

Meanwhile, he also collects plants for treatment of other diseases. He has shared information about these medicinal plants. In 1992, Prince Namgyel Wangchuk,

representative to His Majesty the King, granted a Royal Kasho allowing him to collect 5 tonnes of medicinal plants for local uses. He collects his medicines from around his settlement and often travel to other parts to collect the plants.



Statistics of Micros Suffrages

Awr. ne

I have properly be the second marked they at hearth. Change the second marked prove the large terms of the second second marked the second second marked the second second

Figure 14: Order allowing plant collection



#### Dungtsho Sing Bir Tamang

Mr Sing Bir Tamang, who is 76 years old, is a resident of Dekiling village, Dekiling Geog, Sarpang Dzongkhag. He has been practicing this trade for the past 40 years. He has learnt the trade form his father. He served as Chiwog Tshokpa of the village from 1991 till 2011. He claims that roughly he might have treated about 400-500 patients so far.

He treats patients with Pneumonia, Gastric ulcers, Jaundice, Migraine, Appendicitis, wounds, and food poisoning. He collects plants/herbs in and around and some across the border in India. He does not use mixture of plants to treat ailments. He uses single plant for various singular purposes.

## Appendix II: The medicinal plants used by local healers

Sl No	Botanical Name	Family	Local Name	Parts Used	Purpose
1	Justicia adhatoda	Acanthaceae	Khatserem shing (Sh)	Leaves/ Flowers	Leaves for cancerous wounds, flowers for stomach disorders
2	Phlogacanthus thyrsiformis	Acanthaceae	Sarkarshing (Sh)	Leaves/ flowers	Leaves for scabies, Flowers for stomach problems
3	Gynocordia odorata	Achariaceae	Abhidoro shing (Sh)	Leaves	Neptang/ Loongboo maan
4	Acorus calamus	Acoraceae	Bartse (Sh)	Roots	For bathing
5	Sambucus javanica	Adoxaceae	Moyomshing (Sh)	Leaves	Moyoma (Sh)
6	Sambucus adnata	Adoxaceae	Phuga Moyomshing (Sh)	-do-	-do-
7	Crinum amoenum	Amaryllidaceae	Gombalee	Leaves/ Root bulb	Pain in arms and leg
8	Rhus chinensis	Anacardiaceae	Roptang shing (Sh), Choka shing (Dz)	Core wood	Dhoorba Maan
9	Spondias pinnata	Anacardiaceae	Phrumchungshing (Sh), Amaroo (Dz)	Seeds	Luzey-Lumen
10	Centella asiatica	Apiaceae	Goratabre (Lh), Phetang Ngon/Zala Momring (Sh)	Whole plant	Tonsil/Burning urination/ Gastritis
11	Cynanchum auriculatum	Apocynaceae	Chhongru (Sh)	Root	Maankhalu
12	Alstonia scholaris	Apocynaceae	Shing Balingbhi (Sh)	Sap	Swollen and bad internal growths of skin
13	Periploca callophylla	Apocynaceae	Mencha bhiphotpa ruu (Sh)	Whole plant	Broken bones, Joint pains
14	Calotropis gigantea	Apocynaceae	Ank (Lh)	Leaves	Sprain/swells
15	Arisaema petiolulatum	Araceae	Prakala Bozong (Sh)	Rhizome	Hard boils
16	Alocasia macrorrhizos	Araceae	Maan Bozong (Sh)	Rhizome	Hard boils
17	Aristolochia platanifolia	Aristolochiaceae	Ruu Prakala Shawa Mo (Sh)	Roots	Maankhalu
18	Aristolochia tagala	Aristolochiaceae	Ruu leptang (Sh)	Roots	Maankhalu
19	Artemesia vulgaris	Asteraceae	Merengma Ngangchhanglu (Sh)	Leaves	Cancerous wounds, Disinfectant
20	Ageratum conyzoides	Asteraceae	Bangala Rokpu (Sh)	Whole plant	Snake bite/ Maanbokpi
21	Blumea aromatica	Asteraceae	Gonyog (Sh)	Leaves	Sinusites

22	Acmella uliginosa	Asteraceae	Khalingpa Ngon (Sh)	Whole plant	Shabhumaan
23	Cirsium arvense	Asteraceae	Zomdogorba (Sh)	Young shoot	UTI, Kidney ailments, body pain and itchiness
24	Adenostemma lavenia	Asteraceae	Jarjar (Sh)	Whole plant	Cancerous wounds
25	Impatiens arguta	Balsaminaceae	Drangzin Ngon (Sh)	Leaves	Khom/Khusung (Hard boils)
26	Begonia rubella	Begoniaceae	Braksey (Sh)	Roots	Maankhalu
27	Begonia sikkimesis	Begoniaceae	Paatpamaan (Sh)	whole plant	To ward off leeches
28	Begonia palmata	Begoniaceae	Paatpamaan 2 (Sh)	Whole plant	-do-
29	Oroxylum Indicum	Bignoniaceae	Tsampaka meto (Dz), Namkaling meto (Sh)	Petiole of the flower	Food poisoning
30	Radermachera sinica	Bigoniaceae	Zumphishing	Bark/Wood	Dhoorba maan
31	Raphanus sativus	Brassicacease/ Cruciferae	Mulai (Sh), Laphu (Dz)	Tuber/ leaves	Bloating/ Gastritis/ Indigestion
32	Lobelia nicotianifolia	Campanulaceae	Zalaneng (Sh)	White sap	Wounds
33	Lobelia nummularia	Campanulaceae	Manshokpu (Sh)	Whole plant	Stomach ulcer, tonsilitis, cuts and burns
34	Codonopsis viridis	Campanulaceae	Zumphi mulai (Sh)	Root/leaves	Ringworm
35	Cannabis sativa	Cannabaceae	Phagpanaam (Sh)	Leaves	Neptang maan/ Loongbu
36	Carica papaya	Caricaceae	Papaya (common)	Fruit	Diabetes
37	Drymaria cordata	Caryophyllaceae	Pipi Rokpu (Sh)	Whole plant	Snake bite
38	Drymaria villosa	Caryophyllaceae	Abhijalo (Lh)	Whole plant	Tonsilitis
39	Chloranthus elatior	Chloranthaceae	Menjari (Sh)	Leaves	For Bath, Roots can be used for toothache
40	Terminalia chebula	Combretaceae	Aaroo (Sh, Dz)	Fruits	Maankhalu
41	Terminalia bellirica	Combretaceae	Baroo (Sh, Dz)	Fuits	-do-
42	Galinsoga parviflora	Compositae	Bangru Ngon (Sh)	whole plant	Hard boils
43	Tagetes erecta	Compositae	Soipatri (Lh)	Leaves/ Flowers	Pneumonia/ Gastritis
44	Tupistra wattii	Convallariaceae	Wangpaimo (Sh)	Roots	Maankhalu
45	Toricellia tillifolia	Cornaceae	Dengmalaga Shing (Sh)	Roots/ leaves	Cancerous wounds
46	Hellenia speciosa/ Costus speciosus (Synonym)	Costaceae	Betlouri (Lh)	Stem (Juice extract)	UTI/Pain during urination

47	Kalanchoe pinnatum (Synonym Bryophyllum pinnatum)	Crassulaceae	Metoshawa Thetpu (Sh)	Leaves	Kidney stones
48	Luffa aegyptiaca	Curcubitaceae	Jhalo (Lh)	Fruits	Sinusites/ Migrainne
49	Trichosanthes tricuspidata	Curcurbitaceae	Keke Dorji Pho (Sh)	Tuber	Maankhalu
50	Trichosynthes spp	Curcurbitaceae	Keke Dorji Mo (Sh)	Root tuber	-do-
51	Solena amplexicaulis	Curcurbitaceae	Kangkulung ruu (Sh)	Roots	-do-
52	Hodgsonia macrocarpa	Curcurbitaceae	Ruu prakala shawa pho (Sh)	Roots	-do-
53	Cuscuta reflexa	Cuscutaceae	Ruu Serboo/ Bedengru (Sh)	Parasitic vine	Jaundice +
54	Dioscorea belophylla	Dioscoreaceae	Khalaktang Serboo (Sh)	Roots	Maankhalu
55	Dioscorea bulbifera	Dioscoreaceae	Khalaktang Chhanglu (Sh)	Root	Maankhalu
56	Tacca integrifolia	Taccaceae	Bozong yongba /Men yongba (Sh)	Whole plant	Cancer
57	Hippophae rhamnoides	Elaeagnaceae	Seyshing (Sh)	Fruits	Diabetes, Blood pressure
58	Equisetum diffusum	Equisetaceae	Nyurchhu (Sh)	whole plant	Muscle pain, backache, Gout
59	Euphorbia royleana	Euphorbaceae	Migthoma shing (Sh)	Sap	Ringworm
60	Ricinus cuminus	Euphorbiaceae	Chamleng shing (Sh)	Leaves	Sofu Malekpa (Cancerous wounds)
61	Acalypha wilkesiana	Euphorbiaceae	Kaani jar (Lh)	leaves	Wouds in ear/ between toes/ saaspa
62	Tephrosia candida	Fabaceae	Langashing (Sh)	Root/Bark/ Flowers	For bathing
63	Flemingia macrophylla	Fabaceae	Gowaisharangshing (Sh)	Bark/stem	Zemned (Postpartum cramps)
64	Pterocarpus santalinus	Fabaceae	Tsenden Marpo (Sh, Dz)	Wood	Zemned, Drangwa, Doorba maan
65	Entada rheedii	Fabaceae	Kolokpa (Sh)	Leaves	Hard boils (not to be used with open wounds)
66	Erythrina arborescens	Fabaceae	Kharshing (Sh)	Seeds	Shelmen
67	Butea buteiformis	Fabaceae	Frokpa Laga (Sh)	Seeds	-do-
68	Millettia pachycarpa	Fabaceae	Ngairu (Sh)	Leaves	Wadaza shing (Lice)
69	Bauhinia variegata	Fabaceae	Dogoromshing (Sh)	Flowers	Gastro-intestinal problems

70	Castanopsis hystrix	Fagaceae	Tsheshing (Sh), Katus (Lh), Sokeyshing (Dz)	Wood	Dhoorba maan
71	Quercus semecarpifolia	Fagaceae	Betsinangshing (Sh)	Wood	-do-
72	Quercus griffithii	Fagaceae	Bainangshing (Sh)	Wood	-do-
73	Swertia bimaculata	Gentianaceae	Tiktsa/ Zingchhanglu/ Peylem Rokpa (Sh)	Whole plant	Gagney (Blocked throat)
74	Swertia chirayita	Gentianaceae	Phuga Chirata (Sh)	Whole plant	-do-
75	Tripterospermum volubile	Gentianaceae	Yangrem ruu (Sh)	Roots	Sofu Malekpa
76	Crawfurdia speciosa	Gentianaceae	Gowa tappi (Sh)	Roots	Ringworm
77	Cymbopogon flexuosus	Gramineae	Solobang (Sh)	Lemon grass oil	Snake bite
78	Exbucklandia Populnea	Hamamelidaceae	Lemshing (Sh), Pipli (Lh)	Bark/Wood	Dhoorba maan
79	Hydrangea heteromalla	Hydrangeaceae	Mizuma Laga (Sh)	Leaves	Zikpey maan
80	Dichroa febrifuga	Hydrangeaceae	Ngonchhanglu/ Ngangchhanglu shing (Sh)	Leaves and shoots	Sofu Malekpa
81	Molinaria capitulata	Hypoxidaceae	Doti Saro (Lh), Chimiktang/ Tshamlaga (Sh)	Roots	Dysentry, Sofu malekpa, Bone fracture
82	Clerodendron serratum	Lamiaceae	Nambalashing Pho/ Lumbeyrem shing (Sh)	Leaves	Zikpey maan
83	Clerodendrum glandulosum	Lamiaceae	Nambalashing Mo (Sh)	Leaves	-do-
84	Clerodendrum japonicum	Lamiaceae	Mantaanshing (Sh)	Leaves	Cancerous wounds, swollen stomach, swollen legs
85	Elsholtzia blanda	Lamiaceae	Tempashing (Sh)	Leaves	Athlete's foot
86	Clinopodium umbrosum	Lamiaceae	Maanbokpi Ngon (Sh)	Whole plant	Stomach ulcer, Tonsilitis, cuts and burns
87	Gmelina arborea	Lamiaceae	Khamari (Lh)	Bark	Mumps/Fever/ Ulcer/Sore throat
88	Plectranthus scutellarioides	Lamiaceae	Bagay pata (Lh)	Leaves	Swollen throat
89	Ocimum tenuiflorum	Lamiaceae	Tulsi (Lh)	Leaves	Throat pain, Typhoid, Pneumonia of Children
90	Callicarpa arborea	Lamiaceae	Thulushing (Sh)	Cambium of bark	Receding gums
91	Parasassafras confertiflora	Lauraceae	Singsishing (Sh)	Oil extract from fruits	Zetpu
92	Cinnamomum tamala	Lauraceae	Kawla (Sh)	Bark	Broken bones

93	Mucuna nigricans (Mucuna atropurpurea)	Leguminosae	Khaimayosha or Zalakolokpa (Sh)	Seeds	Luzey-Lumen (Medicinal pills used during Puja offering to Nagas)
94	Senna alata (Sny - Cassia alata)	Leguminosae		Leaves	Ringworm
95	Crinum anoenum	Liliaceae	Langpochhe Bhilam (Sh)	Leaves	Sprains and swelling
96	Torenia violacea	Linderniaceae	Maanbokpi Maeju (Sh)	Whole plant	Stomach ulcer, Tonsilitis, cuts and burns
97	Viscum napalense	Loranthaceae	Ngeshing jormo (Sh), Harchul (Lh)	Whole plant	Joints and Bones/ Jashawa/Jari
98	Scurrula elata	Loranthaceae	Rungrungma (Sh)		-do-
99	Lycopodium japonicum	Lycopodiaceae	Chusindermo / Zalagadang (Sh)	Whole plant	Luzey-Lumen
100	Abelmoschus manihot	Malvaceae	Merakshing (Sh)	Leaves	Khusung/Khom/ Sofu Malekpa
101	Paris polyphylla	Melanthiaceae	Thoksampa (Sh)	Leavse/ Tuber	Maankhalu
102	Oxyspora paniculata	Melastomataceae	Lechhangmashing Pho (Sh)	Leaves	Zikpey Maan
103	Osbeckia stellata	Melastomataceae	Lechhangmashing Mo (Sh)	Leaves	-do
104	Melia azedarach	Meliaceae	Trobdha shing (Sh)	Leaves & shoots	Diabetes
105	Stephania spp	Menispermaceae	Gonaras Marpo (Sh)	Roots	Maankhalu
106	Stephania japonica	Menispermaceae	Gonaras Serbo (Sh)	Roots	-do-
107	Stephania glabra	Menispermaceae	Gonaras Karpo (Sh)	Roots	-do-
108	Tinospora cordifolia	Menispermaceae	Jingru (Sh)	Roots	-do-
109	Stephania glandulifera	Menispermaceae	Zalamathang (Sh)	Roots	-do-
110	Cissampelos pareira	Menispermaceae	Jingru daza (Sh)	Roots	-do-
111	Tinospora sinensis	Menispermaceae	Gurzoo (Sh)	Stem	Diabetes/ Gout
112	Moringa Oliefera	Moringaceae	Sajana (Sh)	Seeds/ Leaves	BP
113	Musa thomsonii	Musaceae	Neyra Laishing (Sh)	Juice extract	To reduce effect of poison due to Manchhen (Aconitum
114	Myrica esculanta	Myricaceae	Tsutsushing (Sh)	Bark	Sinusites
115	Myristica fragrans	Myristicaceae	Zati (Sh, Lh)	Fruit	Cough and cold
116	Nephrolepis cordifolia	Nephrolepidaceae	Salugonpu (Sh)	Root balls	Diabetes
117	Fraxinus paxiana	Oleaceae	Tsipshing (Sh)	Bark/Wood	Dhoorba maan
118	Jasmanium grandiflorum	Oleaceae	Khangru Chhanglu (Sh)	Stem	Zemned (Postpartum cramps)

119	Cymbidium	Orchidaceae	Ola choto (Sh,),	Roots/	Maankhalu
110	erythraeum	Olcindaceae	Olatshe (Dz)	Flowers	
120	Dactylorhiza hatagirea	Orchidaceae	Wangpo lakpa (Sh, Dz)	Root tubers	Physical weakness
121	Adenia trilobata	Passifloraceae	Dakhor (Sh)	Root tuber	-do-
122	Emblica officinalis	Phyllanthaceae	Churoo (Dz), Amla (Lh), Chorgen seyshing (Sh)	Fruits	-do-
123	Breynia retusa	Phyllanthaceae	Gowatshaluk shing (Sh)	Leaves	Athlete's foot (tinea pedis)
124	Sauropus quardrangularis	Phyllanthaceae	Dongatsalu shing (Sh)	Leaves	Sofu Malekpa (Cancerous wounds)
125	Phytolacca asinosa	Phytolaccaceae	Jogom (Sh)	Whole plant	Body pain, Scabies
126	Piper mullesua	Piperaceae	Pipla (Lh), Pipiling (Sh)	Root/fruits	Maankhalu
127	Persicaria chinensis	Polygonaceae	Gasho kochoma (Sh)	Leaves	Zikpey Maan (Bath)
128	Peperomia tetraphylla	Piperaceae	Soleyshawa (Sh)	Whole plant	Sofu Malekpa (Cancerous wounds), Athlete's foot
129	Eleusine indica	Poaceae	Kongpu bang (Sh)	Whole plant	Physical Weakness
130	Cynodon dactylon	Poaceae	Duboo (Sh)	Whole plant	Throat pain, Typhoid
131	Polygala arillata	Polygalaceae	Shawakatang (Sh)	Leaves	Sofu Malekpa (Cancerous wounds)
132	Plantago erosa	Plantaginaceae	Tsashokma/ Tsashong Rokpu (Sh)	whole plant	Sprains and swellinig
133	Rumex napalensis	Polygonaceae	Bemlakpa / Patangshawa (Sh)	Leaves & roots	Leg muscle pain + Jaundice & piles
134	Monochoria vaginalis	Pontederiaceae	Kangchigpa bozong (Sh)	Root tuber	Tonsil
135	Maesa chisia	Myrsinaceae	Khuberbooshing Pho/ Lanju Maenju shing (Sh)	Leaves	Zikpey maan; & Sofu malekpa
136	Maesa argentea	Myrsinaceae	Khuberbooshing Mo (Sh)	Leaves	-do-
137	Ardisia macrocarpa	Myrsinaceae	Dhudhurshing (Sh)	Roots	Drangwa, TB, Dysentry
138	Aconitum orochryseum	Ranuculaceae	Bonga Karpo (Dz, Sh)	Root	Tshadim
139	Aconitum laciniatum	Ranunculaceae	Bonga Nagpo (Dz, Sh)	Root	-do-
140	Clematis buchaniana	Ranunculaceae	Zongzongma Ruu (Sh)	Roots	Sinusites
141	Anemone revularis	Ranunculaceae	Mamphung Ngon (Sh)	Whole plant	Tshadim (Cough and cold)

142	Spiraea spp	Rosaseae	Khangru Tsalo (Sh)	Stem	Zemned (Postpartum cramps)
143	Potentilla lineata	Rosaseae	Shakpura (Sh)	Root	Receding gums
144	Prunus persica	Rosaseae	Lengshing (Sh), Khamshing (Dz)	Cambium of bark	Receding gums
145	Rubia manjith	Rubiaceae	Lanyi Ruu (Sh), Tsoe (Dz)	Roots/ Leaves	Maankhalu, Zikpey maan
146	Mussaenda roxburgii	Rubiaceae	Rimomnang shing/ Menchha patong (Sh)	Bark of roots	Sinusites
147	Leptodermis lanceolata	Rubiaceae	Khirushing (Sh)	Leaves	Sofu Malekpa (Cancerous wounds)
148	Paederia foetoda	Rubiaceae	Khiru (Sh)	Leaves	-do-
149	Toddalia asiatica	Rutaceae	Kapoor zoo (Sh), Singaney kangra (Lh)	Root cambium	Liver disorders/ Bloated stomach
150	Santalum album	Santalaceae	Tsenden Karpo (Dz, Sh)	Wood	Zemned, Drangwa, Doorba maan
151	Osyris lanceolata	Santalaceae	Inchhashing (Sh)	Wood/ Leaves	Stomach disorders
152	Bergenia purpurascens	Saxifragaceae	Mencha Meto (Sh)	Roots	Maankhalu
153	Astilbe rivularis	Saxifragaceae	Tonsar Gugay (Sh)	Roots	Ulcer, bleeding during child birth, inflammation, body ache, diarrhoea, and dysentery
154	Linderbergia griffithii	Scrophulariaceae	Ruu busula (Sh)	Leaves	Zikpey maan
155	Buddleja asiatica	Scrophulariaceae	Mongshibespashing/ Yangremshing (Sh)	Leaves	Making Yeast/ Phaam
156	Capsicum annum	Solanaceae	Kaluktang solo (Sh), Dolo Khorsaney (Lh)	Fruits and leaves	Snake bite
157	Datura stramonium	Solanaceae	Zeeranakpo (Sh)	Seeds	Tooth ache
158	Solanum torvum	Solanaceae	Bhi (Lh), Khalangji katang (Sh)	Fruits	For containing BP
159	Solanum viarum	Solanaceae	Zuubalingmin (Sh)	Fruits/Bark	Tooth ache; Sofu Malekpa (cancerous wounds)
160	Brugmansia suaveolens	Solanaceae	Dungmomnangshing (Sh)	Leaves	Sofu Malekpa (Cancerous wounds)
161	Aqularia malaccensis	Thymelaeceae	Augur (Dz, Sh)	Wood	Maankhalu, Zikpey maan
162	Urtica ardens	Urticaceae	Khi Jazu (Sh)	Root	Reduce effect of poision due to eating Manchhen

163	Girardinia diversifolia	Urticaceae	Sisnu (Lh), Jazu (Sh), Zocha (Dz)	Roots	Bone fracture
164	Tetrastigma obtectum	Vitaceae	Zhabdrung Japati (Sh)	Leaves	Stomach disorders
165	Zingiber officinale	Zingiberaceae	Saga (Dz,Sh), Aduwa (Lh)	Rhizome	Stomach disorders, Cough and cold
166	Amomum subulatum	Zingiberaceae	Alanchi (Sh, Dz, Lh)	bulbs	-do-
167	Zingeber montanum	Zingiberaceae	Borang Saga (Sh)	Rhizome	Maankhalu
168	Curcurma longa	Zingiberaceae	Yongka/Jung Tsalo (Sh)	Root tuber	-do-
169	Curcuma aromatica	Zingiberaceae	Yongka/Jung Chhanglu (Sh)	Root tuber	-do-
170	Zingeber zerumbet	Zingiberaceae	Sharpa boss (Sh), Phracheng (Lh)	Root	Joint pains/Gout/ Jaundice
171	Kaempferia rotunda	Zingiberaceae	Khangfotpa maan (Sh), Bhui champ (Lh)	Root tuber	Broken bones
172	Hydechium garbenrianum	Zingiberaceae	Sermomnang (Sh)	Rhizome	Mankhalu