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The Ethno-Botanical and Ecological Knowledge of the Tai Khamti Tribe: A Closer Look into Their Medicinal Traditions

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Abstract

An ethno-botanical survey was conducted in areas predominantly inhabited by the Khamti-Sinpho tribe, specifically in the Chongkham and Namsai circles of Lohit district, Arunachal Pradesh. The study focused on documenting the Traditional Ecological Knowledge (TEK) of the Tai Khamti tribe, particularly their ethno-medicinal practices. Renowned traditional healers were interviewed in person using relevant questionnaires during a field visit from December 26 to 29, 2024. The findings revealed that the practice of healing has been passed down through generations. The local community places great trust in these traditional healers and often seeks their treatments. Based on random interactions with residents, it was observed that the herbal remedies are highly effective, with people recovering in a timely manner. The study identified at least 22 health conditions that can be treated with various parts of medicinal plants, with some preparations incorporating animal resources. The research has documented these medicinal plants, methods of herbal preparation, and their associated cultural practices. Proper documentation of such TEKs and ethno-medicinal practices will help preserve these ancient healing methods and provide valuable insights for future research.

Keywords: Ethnobotany, Traditional Ecological Knowledge (TEK), Ethno-medicinal, Traditional healer.

INTRODUCTION

Ecosystems offer a range of services that directly contribute to human well-being. Throughout history, communities that have maintained close connections with the dynamics of their ecosystems have developed knowledge, practices, and institutions to cope with recurring disturbances, ensuring their survival (Berkes et.al., 2003). Traditional knowledge serves as a link between humans and the natural resources in their environment. This knowledge system has various definitions, but according to Hiebert and Van Rees (1998), its central theme involves the transmission of cultural beliefs and traditions from ancestors to present generations of indigenous groups, aimed at survival while maintaining harmony with the ecosystem. This knowledge system is thought to have evolved from the survival strategies indigenous people refined over generations, preserved in collective memory and community teachings (Bruchac, 2014). Simply put, Traditional Knowledge Systems (TKS) are informal, locally developed knowledge systems that are passed down orally within a specific tribe or location. Communities living close to natural ecosystems over time develop specific knowledge about the environment and its resources, which is later referred to as traditional knowledge or traditional ecological knowledge (TEK). Although TEK has been

practiced since ancient hunter-gatherer times, the term itself became widely used in the 1980s (Berkes F, et.al., 1993). Today, TEK represents an integrated relationship between humans and ecosystems, making it valuable in various fields such as agriculture, pharmacology, ethnobotany, and the sustainability of natural resources (Gadgil M and Berkes F, 1999; Berkes F, 2004). Given the current environmental crises, ecosystem degradation, and climate change, TEK is increasingly seen as an important tool for addressing the impacts of global environmental shifts, as it promotes the philosophy of coexistence and sustainability (Kala C.P., 2012). As a collection of unique, locally refined knowledge, TEK supports the development of practices for local decision-making in areas such as agriculture, pastoralism, food preparation, healthcare, and natural resource management, among others (Warren M.D., 1993; Turner N.J., et. al., 2000; Kala C.P., 2021).

The concept of ecosystem sustainability is crucial when communities are utilizing its services. The biosphere reserve model supports both humans and nature by creating sustainability sites where baseline data on social and ecological systems is gathered, and the changes and interactions between these two key systems are studied. Both theoretical and practical research on sociocultural and ecological interactions provide essential insights for setting priorities for sustainable development. However, the interaction between the sociocultural and ecological aspects of sustainable development is still not extensively researched (Lehtonen M, 2004). Given the ongoing erosion of traditional ecological knowledge (TEK) due to factors such as globalization and the homogenization of cultures, there is a need to study this valuable knowledge in a comprehensive manner, as it has been essential in conserving nature and natural resources for centuries.

Ethnobotany is the study of the relationship between humans and plants, focusing on plants used for food, medicine, and other economic purposes. One key goal of ethnobotanists is to understand the significance of plants in providing food, clothing, shelter, fodder, fuel, furniture, and medicine (Ram J, et.al., 2004). Traditional medicine encompasses health practices, knowledge, and beliefs related to plant, animal, and mineral-based treatments, spiritual therapies, manual techniques, and exercises aimed at treating, diagnosing, preventing illness, or maintaining overall well-being (WHO, Global Report on Traditional and Complementary Medicine 2019). Traditional medicine remains a primary means of treating both human and livestock diseases, particularly in developing countries, where it plays a crucial role in addressing basic health needs (Endalew A., 2007). This is partly because medicinal plants are much more affordable than modern healthcare services and are deeply tied to cultural traditions (Hunde D, et. al., 2006).

The use of traditional and complementary medicine is on the rise in both developed and developing countries. According to Hamilton A.C. (2003), traditional remedies are the primary, and often the only, source of treatment for nearly 80% of the global population. For example, approximately 85% of the world's population relies on herbal medicines for disease prevention and treatment, with demand growing in both developed and developing nations (Abera B., 2014; Tefera B.N., et al., 2019). In South Asia alone, around 500 million people are reported to turn to plants for health security (Demissie A., 2001).

The Tai Khamtis are one of the most culturally and historically rich tribes in North-East India. They are primarily concentrated in Namsai, Arunachal Pradesh, with a small portion of the population also residing in Assam. The name "Khamti" is derived from two words: "Kham," meaning gold, and "Ti," meaning region or place, which together translates to "the region or place of gold." Another interpretation suggests that "Kham" means "to adhere to," and "Ti" means "a place or country."

The Khamti people, originally migrated from China, settled in a place called MoungKhamti Loung in the

Putao region of Myanmar. In Myanmar, they came to be known as the Shans, a term referring to people who had descended from the Shan states in the Southern Highlands of Yunnan to the plains of Upper Myanmar. In Chinese, the word "Shan" means mountain or highland, but this meaning shifted when the Khamtiarrived in Myanmar. The name Khamti itself translates to "the region of gold," with "Kham" meaning gold and "Ti" meaning region.

The Khamti people, like the Ahom, belong to the Mau branch of the Tai or Shan race. The Shan chieftain of Mogaung is referred to as the Nara Rajah by the Singphos, a term also applied to the Shans between Hookong and Mogaung in Myanmar. The Ahom kings considered the Naras their close relatives, and the Nara kings regarded the Ahom kings as "Bhai Rajas" or brother kings, as both groups were descended from the same Shan ancestry. The Khamti's original homeland, Khamtilung or Khamti-mung, was in the upper reaches of the Irrawaddy River. However, during the rule of the Burmese king Alaungpaya (1752–1760), the Mau Shan kingdom was dismantled. As a result, a colony of around one hundred Khamti was established along the Tengapanee, situated about 42 hours by boat east of Sadiya. Over time, the number of Khamti migrants in the region grew, as the Ahom rulers were generally welcoming of their settlement. In Tinsukia district, the main concentrations of the Khampti are found in villages like Munglang Ai-Tai Khamti in Margerita, as well as in Bordumsa and the Dirak region. Over time, many Khampti families from Sunpura and Lakhimpur migrated to the Lohit district of Arunachal Pradesh, making it a major hub for the Khamti community in the state. However, they are also spread across districts such as Changlang, Tirap, and Lohit. Following the creation of the Namsai district, the Khamti population became concentrated in the Namsai and Chongkam areas. In addition to these locations, several Khamtivillages can be found in Arunachal Pradesh, including Manmow, Lathao, Tengapani, Nalung, Guna Nagar, and Nigroo. The Khamti people are scattered across both the southern and northern banks of the Brahmaputra River near the Sadiya region. The Ai-Tai Khamti are distributed across the foothills and plains beyond the Kamlang River, extending to the southeast of the Lohit River (GeyiG, 2021). The objectives of the present study were to document the socio-cultural attributes of Tai Khamti tribe of Arunachal Pradesh, understand the taxonomic diversity and categorization of ethno-medicinal plant used by Tai Khamti tribe of Arunachal Pradesh and document a few herbal preparations used by Tai Khamti tribe for their primary healthcare.

Methods

Study Area:

The topography of Arunachal Pradesh contains mostly hilly terrain- has mountainous as well as sub-mountainous regions. The state is also home to many rivers such as Siang, Siyum, Kamplang, Dibang, Tirap, Lohit, Kamla, Noa-Dihing, Subansiri, Kameng, etc. The field survey was conducted in Chongkham village in Arunachal Pradesh Namsai district in the month of December 2024.Chongkham village is situated in the northeastern part of the state, near the Assam-Arunachal Pradesh border**.**Coordinates**:** Approximate coordinates of Chongkham are 27.88°N latitudeand95.63°E longitude**.** The area is also accessible via NH-52**,** which connects it to other parts of the state and neighboring Assam. The Namsai district boundaries included: a border with Tirap District of Arunachal Pradesh to the north, Myanmar (Burma)to the east, Tinsukia and Dibrugarh districts of Assam to the south and Changlang District of Arunachal Pradesh to the west.

Data Collection:

The data was collected through a survey from the primary source, by making communication with two of

the traditional healers from that area. The names of the healers are Chow Nogon and Nangchantra Lohan, had one to one communication regarding their knowledge of the traditional medicinal preparations and how it is beneficial to their society without any side effects (Figure 1). Some of the medicinal plants have been collected and they proved to have greatly significant medicinal properties. The collected specimens were dried and made as Herbarium. These specimens were authenticated by experts at ICFRE- Rain Forest Research Institute, Assam. Maximum possible information regarding the socio-economic importance of the Tribe was also collected.

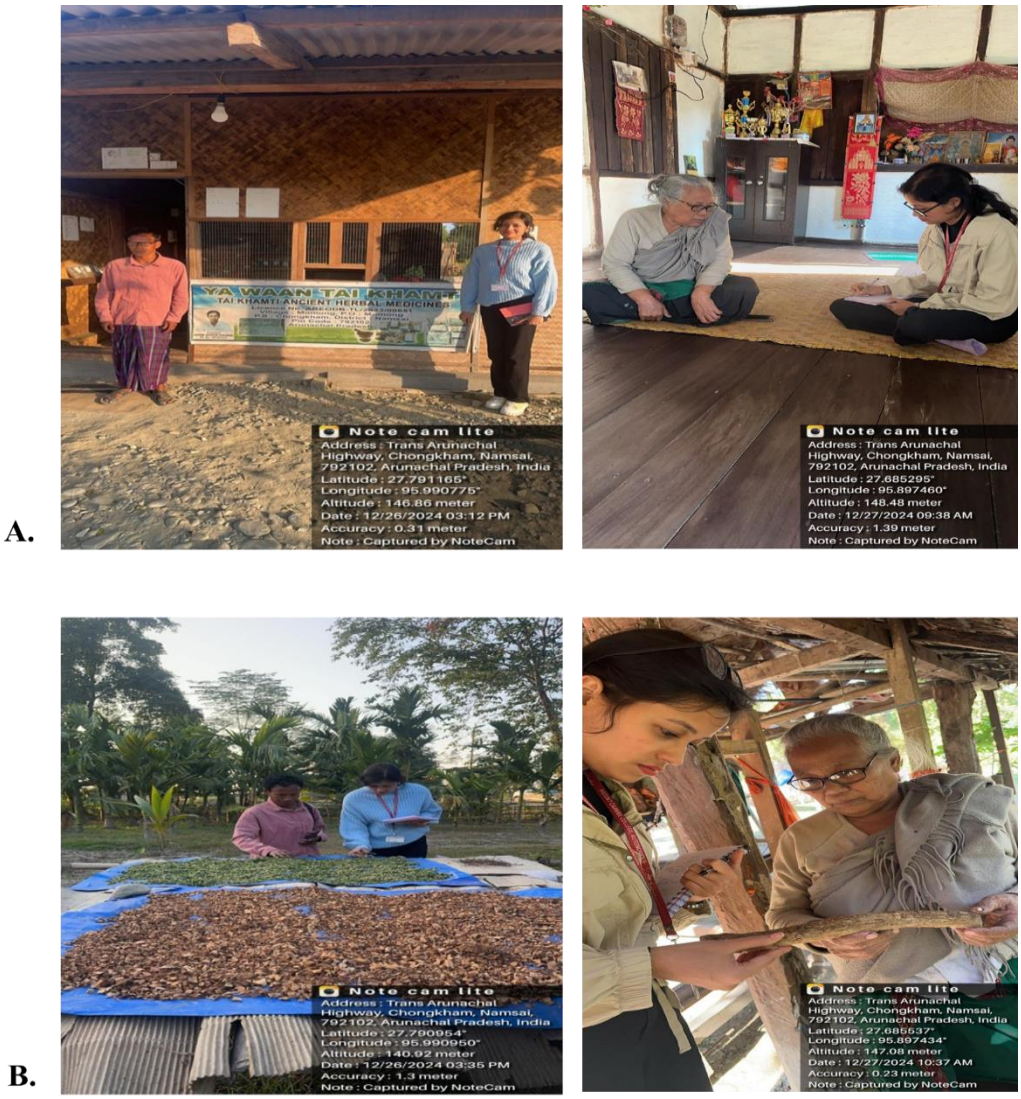

Figure 1. (A) Some pictures of interaction with the local healers (B) Methods of processing of medicinal plants.

The Ethnobotanical data including the local name of the plant, family, the part used, mode of preparation and their uses were noted down during the survey. The interview was taken in Hindi and Assamese language.

Results

Socio Economic Aspects of the Tribe

Tai Khamti language and religion:

The Tai Khamti tribe have their own script, called ‘Lik Tai’, which resembles the script used by the Mon

people present in the southern Myanmar. Khamti society is hierarchical. Theravada Buddhism is the religion which is followed by almost all Khamti person in their society (Figure 2 B).

Dresses and ornaments:

Regarding their dresses, the Khamti men wear a shirt which is known as 'Siu pachai' and a lungi known as 'Phanoi' and the women wear a blouse 'Siu pasao' a long skirt, 'Sinn' and a cloth used as a scarf called as 'Famia'. In respect to the ornaments used they adorn themselves with bright amber earrings and necklaces made of corals and beaded (Figure 2 D, E).

Pha-Huo:

It is a traditional Tai Khamti turban and a part of the traditional attire of many ethnic groups. Pha-Huo literally means "Headdress" in their local Tai language.

Singpho tea:

Singpho tea is a traditional tea prepared by them where they use Camelia sinensis. It is a form of fermented tea and has a unique smokey flavor (Figure 2 C). When processed and brewed correctly, a cup of Singpho tea, which is had without milk or sugar, is a lovely golden orange colour. It is made by sun drying the tea leaves and then pan roasting it, followed by stuffing them into cleaned bamboo tubes and smoking them over fire in order to get a smokey flavor. The leaves can be reused to brew three or four cups of tea, the flavour getting better with each further infusion.

Marriage systems of Tai Khamtis:

The marriage ceremony of the Tai Khamti tribe is called "Lap Thop Magla" in their local language. They usually support monogamy marriages rather than polygamy marriages.

Traditional beliefs:

The Khamtis believe that they live in a world which is inhabited not only by human beings but also by the spirit of Gods of various kind. They believe that there are both positive as well as negative energies present in the world and the world of spirit is thousand times larger than the human world (Nang sulinachautang).

Figure 1: (A) The temple (place of worship) of Tai Khamti tribe, (B) Lik Tai Script of Tai Khamti tribe (C) Singpho tea is the traditional drink of Tai Khamtis (D) A tribe man wearing the traditional dress 'Siu pachai' and a lungi (E) A tribe women wear a blouse 'Siu pasao' and a long skirt.

Enumeration of medicinal plants used by Tai Khamti Tribe

1) **Botanical name: Berberis napaulensis (DC)Laferr**
Local name: Jamane mandro
Family: Berberidaceae
Parts used**:** Stem, Bark
Use: Toothache

2) **Botanical name: Blumea balsamifera(L)DC.,Prodr**
Local name: Yanang
Family: Asteraceae
Part used: Leaves
Use:Diabetes

3) **Botanical name: Cinnamomum bejolghota**
Local name: Patihonda
Family: Laureceae
Part used: Leaves
Use: Dysentry

4) **Botanical name: Curculigo orchiodes Gaertn.**
Family: Hypoxidaceae
Part used: Roots/ tuber
Use: Dysentry

5) **Botanical name: Elatostema papillosum Wedd**
Family: Urticaceae
Part used: Whole plant
Use: Hysteria

6) **Botanical name: Garcinia cowa Roxb.Ex DC**
Local name: Kau thekera
Family: Clusiaceae
Part used: Fruit
Use: Dysentry

7) **Botanical name: Hedychium spp**
Local name:Katuri
Family:Zingiberaceae
Part used: Stem
Use: White discharge

8) **Botanical name: Hedyotis scandens Roxb**
Local name: Bhedeli lota
Family: Rubiaceae
Part used: Whole plant
Use: Hysteria

9) **Botanical name: Impatiens roylei Walp**
Local name: Kopouphool
Family: Balsaminaceae
Part used: Whole plant

Use: Jaundice

10) **Botanical name: Ipomea batatus(L) Lam**
Local name: Mitha aloo
Family: Convolvulaceae
Part used: Leaf
Use: Asthma

Figure 3: List of plants collected from Chongkham village, Namsai district in Arunachal Pradesh

11) **Botanical name: Lasia spinosa L**
Local name: Pa-nammou
Family: Aracaceae
Part used: Tender plant
Use: Arthritis

12) **Botanical name: Leucas aspera**
Local name: Durun haak
Family: Lamiaceae
Part used: Tender plant
Use: Pneumonia

13) **Botanical name: Loranthus sp.**
Local name: Rhaghumala
Family: Loranthaceae
Part used: Leaf

Use: Rheumatic pain

14) **Botanical name: Momordica charantia L.**
Local name: Makkhaikhum
Family: Cucurbitaceae
Part used: Fruit
Use: Diabetes

15) **Botanical name: Myristica fragrans Houtt.**
Local name: Jaiphal
Family: Myristicaceae
Part used: Seed
Use: Jaundice

16) **Botanical name: Piper nigrum L.**
Local name: Gulmuri
Family: Piperaceae
Part used: Seed
Use: Diabetes

17) **Botanical name: Plantago erosa Wall.**
Local name: Donihana kang
Family: Plantaginaceae
Part used: Bulb/ tuber
Use: Jaundice

18) **Botanical name: Tacca integrifolia Ker Gawl.**
Local name: Babor
Family: Diosocoriaceae
Part used: Stem
Use: Hysteria

19) **Botanical name: Tinospora cordifolia Miers**
Local name: Giloy
Family: Menispermaceae
Part used: Stem
Use: Diabetes

20) **Botanical name: Tetrachera sarmentosa Vhal**
Local name: Pani lewa
Family: Dilleniaceae
Part used: Root
Use: Bronchial disease

Figure 4: List of plants collected from Chongkham village, Namsai district in Arunachal Pradesh

21) **Botanical name: Tiliacora triandra (Colebr) Diels**
Local name: Naangpaat
Family: Menispermaceae
Part used: Tendril
Use: Diabetes
22) **Botanical name: Tamarindus indica L**
Local name: Maak kaan
Family: Fabacaeae
Part used: Leaf
Use: Cough/cold
23) **Botanical name: Mikania micrantha Kunth**
Local name: Akahilota
Family: Asteraceae
Part used: Leaf
Use: Dysentry
24) **Botanical name: Caesalpinia bonduc (L) Roxb.**
Local name: Leta guti
Family: Fabaceae
Part used: Seed
Use: Cancer
25) **Botanical name: Clerodendrum glandulosum**

Local name: Nefafu
Family: Lamiaceae
Part used: Leaf
Use: Reducing Fat and High blood pressure

26) **Botanical name: Eichhornia crassipes**
Local name: Meteka
Family:Pontederiaceae
Part used: Petiole
Use: Pneumonia

27) **Botanical name: Musa paradisiacal L**
Local name: Jahaji
Family: Musaceae
Part used: Fruit
Use: Piles

28) **Botanical name: Psidium guajava**
Local name: Madhuri
Family:Myrtaceae
Part used: Leaf
Use: Dysentery

29) **Botanical name: Ampelocissus indica Planch**
Local name: Sanyasi
Family: Vitaceae
Part used: Rhizome
Use: Snake bite

30) **Botanical name: Dendrophthoe falcata**
Local name:Yaphak
Family: Loranthaceae
Part used: Leaf
Use: Rheumatoid arthritis

31) **Botanical name: Terminalia arjuna (Roxb.ex DC)**
Local name: Hellica
Family: Combretaceae
Part used: Bark
Use: Heart problem

32) **Botanical name: Cynodon dactylon**
Local name: Ya-me-che
Family: Poaceae
Part used: Leaf
Use: Heart problem

Figure 5: List of plants collected from Chongkham village, Namsai district in Arunachal Pradesh

The details of all these plants collected are enumerated in Table 1.

Sl. No.	Botanical name	Local name	Family	Part used	Medicinal use
1	Ampelocissus indica Planch	Sanyasi	Vitaceae	Rhizome	Snake bite
2	Berberis napaulensis(DC) Laferr	Jamane mandro	Berberidaceae	Stem,bark	Toothache
3	Blumea balsamifera(L)DC.,Prodr	Yanang	Asteraceae	Leaves	Diabetes

4	Cinnamommum Bejolghota	Patihonda	Lauraceae	Leaves	Dysentry
5	Caesalpinia bonduc(L) Roxb.	Leta guti	Fabaceae	Seed	Cancer
6	Clerodendrum Glandulosum	Nefafu	Lamiaceae	Leaf	Reducing fat and High blood pressure
7	Cynodon dactylon	Ya-me-che	Poaceae	Leaf	Heart problem
8	Curculigo orchiodes Gaertn.	-	Hypoxidaceae	Roots/tuber	Dysentry
9	Dendrophtoe falcate Blume	Yaphak	Loranthaceae	Leaf	Rheumatoid arthritis
10	Elatostema papillosum Wedd	-	Urticaceae	Whole plant	Hysteria
11	Eichhornia crassipes	Meteka	Pontederiaceae	Petiole	Penumonia
12	Garcinia cowa Roxb.Ex DC	Kau thekera	Cluciaceae	Fruit	Dysentry
13	Hedychium spp	Katuri	Zingiberaceae	Stem	White discharge
14	Hedyotis scandens Roxb	Bhedeli lota	Rubiaceae	Whole plant	Hysteria
15	Impatiens roylei Walp	Kopouphool	Balsaminaceae	Whole plant	Jaundice
16	Ipomea batatus (L) Lam	Mitha aloo	Convolvulaceae	Leaf	Asthma
17	Lasia spinosa (L) Thwaites	Pa-nammou	Aracaceae	Tender plant	Arthritis

18	Leucas aspera(wild)	Durun haak	Lamiaceae	Tender plant	Pneumonia
19	Loranthus sp	Rhaghumala	Loranthaceae	Leaf	Rheumatic pain
20	Momordica charantia L	Makkhaikhum	Cucurbitaceae	Fruit	Diabetes
21	Myristica fragrans Houtt	Jaiphal	Myristicaceae	Seed	Jaundice
22	Mikania micrantha Kunth	Akahilota	Asteraceae	Leaf	Dysentry
23	Musa paradisiaca L	Jahaji	Musaceae	Fruit	Piles
24	Piper nigrumL	Gulmuri	Piperaceae	Seed	Diabetes
25	Plantago erosa Wall	Donihana kang	Plantaginaceae	Bulb/tuber	Jaundice
26	Psidium guajava	Madhuri	Myrtaceae	Leaf	Dysentry
27	Tacca integrifolia Ker Gawl	Babor	Diosocoriaceae	Stem	Hysteria
28	Tinospora cordifolia Miers	Giloy	Menispermaceae	Stem	Diabetes
29	Tetrachera sarmentosa Vhal	Pani lewa	Dilleniaceae	Root	Bronchial disease
30	Tiliacora triandra (Colebr) Diels	Naangpaat	Menispermaceae	Tendril	Diabetes
31	Tamarindus indicaL	Maak kaan	Fabaceae	Leaf	Cough/cold
32	Terminalia arjuna (Roxb.ex DC)	Hellica	Combretaceae	Bark	Heart problem

Table 1: List of plants collected with their botanical name, local name, taxonomic family, part used and uses.

Some medicinal preparations of Tai Khamti Tribe

1) Diabetes

Plant used: Tiliacora triandra(Naangpaat)
Part used: Stem
Preparation: Clean, dry, powder it and then boil and make decoction.
Dosage: For around 15days to 1month.

2) Cough, Headache

Plant used: Lophopetalum wightianum (Palagmun)
Part used: Root
Preparation: Clean, dry, powder and then the decoction is made and consumed.
Dosage: 2-3 days (not in overdose).

3) Heart Problem

Plant used: Terminalia arjuna, Cynodon dactylon (Dubori bon)
Part used: Bark and leaves
Preparation: Chop it into pieces and mix well both and then boil it in water.
Dosage: 1 week.

4) Pneumonia

Plant used: Lasia spinosa (Sengmora)
Part used: only stem is used
Preparation: Cut it into small pieces and the boil and have as decoction
Dosage: In severe cases 5days and for less severe case around 3days.

5) Snake bite

Plant used: Ampelocissus indica (Sanyasi)
Part used: Rhizome
Preparation: 3 pieces of rhizome are cleaned. Out of those 3, two pieces are orally consumed, and the remaining 1 piece is ground and applied as a paste over the wounded area.

6) Rheumatoid Arthritis (Baat bikh)

Plant used: Dendrophthoe falcata
Part used: Leaf
Preparation: Take Small sized 2-3 leaves, clean it properly and then steam cook it with black chicken, pepper, little water and consume it.
Dosage: Usually, 2 such preparations are enough to cure the illness.

7) Fever

Plant used: Leucas aspera (Doron bon)
Part used: Whole plant
Preparation: Take around 7 grains of rice, a handful of Leucas aspera and 1-2 small snail (Gastropoda) and mix all of them in water and keep it for around an hour and then drink the extract.
Dosage: Once a day is more than sufficient.

8) Menstrual problem

Plant used: Hibiscus rosa-sinensis
Part used: Flower, leaf
Preparation: Take 1fresh flower and 4leaves and clean it well in water. Then grind the flower and leaves and put it in a vessel and add 2 glasses of water. After that boil it until it leaves its colour and the water

becomes coloured.
Dosage: This water must be drunk early morning for around 2-3days.

Data Analysis

The parts mostly used were found to be (31%) leaves, (13%) Whole plant, (10%) Stem, (8%) Fruit, (8%) Seed, followed by other parts such as Rhizome, flower, tendril, etc. (Table 2, Figure 6).

Sl. No.	Plant Part used	No. of Plants
1.	Leaves	12
2.	Whole plant	5
3.	Stem	4
4.	Fruit	3
5.	Seed	3
6.	Root	3
7.	Flower	2
8.	Bark	2
9.	Rhizome	1
10.	Tendril	1
11.	Bulb/tuber	1
12.	Petiole	1

Table 2. Result of plant part used as a medicine by Tai Khamti tribe

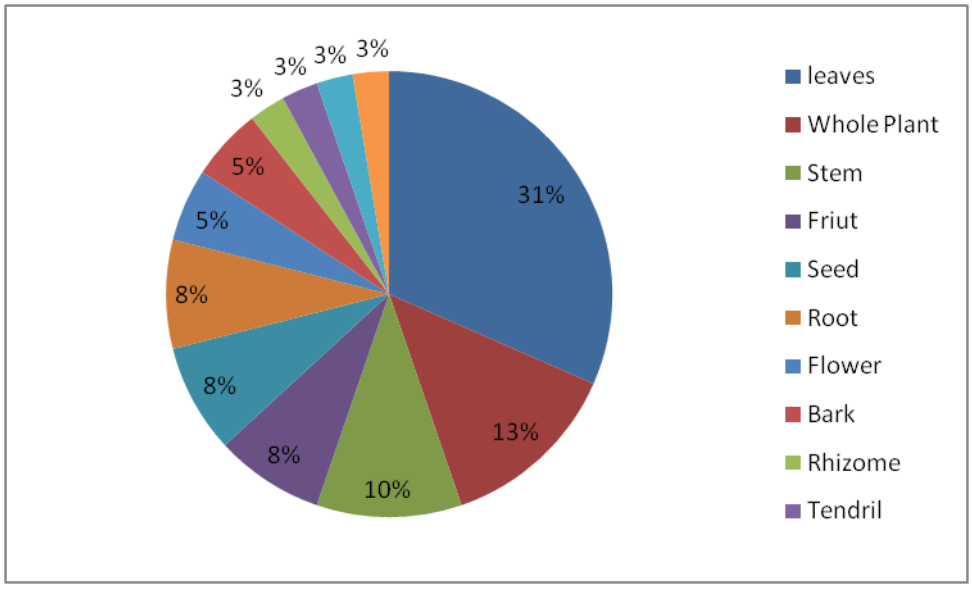

Figure 6: Representation of all the plant parts used as medicine by Tai Khamti tribes.

The highest number (6%) of families that have been reported in the present study belonged to Fabaceae, Lamiaceae, Loranthaceae and Menispermaceae. The rest of the families contributed to 3% of the total families collected and they are Vitaceae, Berberidaceae, Asteraceae, Lauraceae, Poaceae, Hypoxidaceae, Urticaceae, Pontederiaceae, Cluciaceae, Zingiberaceae, Rubiaceae, Balsaminaceae, Convolvulaceae, Araceae, Curcubitaceae, Myristaceae, Asteraceae, Musaceae, Piperaceae, Plantaginaceae, Myrtaceae, Diosocoriaceae, Dilleniaceae and Combretaceae, (Table 3, Figure 7).

Sl. No.	Families	No. of Plants
1.	Fabaceae	2
2.	Lamiaceae	2
3.	Loranthaceae	2
4.	Menispermaceae	2
5.	Asteraceae	2
6.	Berberidaceae	1
7.	Vitaceae	1
8.	Lauraceae	1
9.	Poaceae	1
10.	Hypoxidaceae	1
11.	Urticaceae	1
12.	Pontederiaceae	1
13.	Cluciaceae	1
14.	Zingiberaceae	1
15.	Rubiaceae	1
16.	Balsaminaceae	1
17.	Convolvulaceae	1
18.	Aracaeae	1
19.	Curcubitaceae	1
20.	Myristicaceae	1
21.	Musaceae	1
22.	Piperaceae	1
23.	Plantaginaceae	1
24.	Myrtaceae	1
25.	Diosocoriaceae	1
26.	Dilleniaceae	1
27.	Combretaceae	1

Table 3: List of all the families of plants that were obtained from the survey

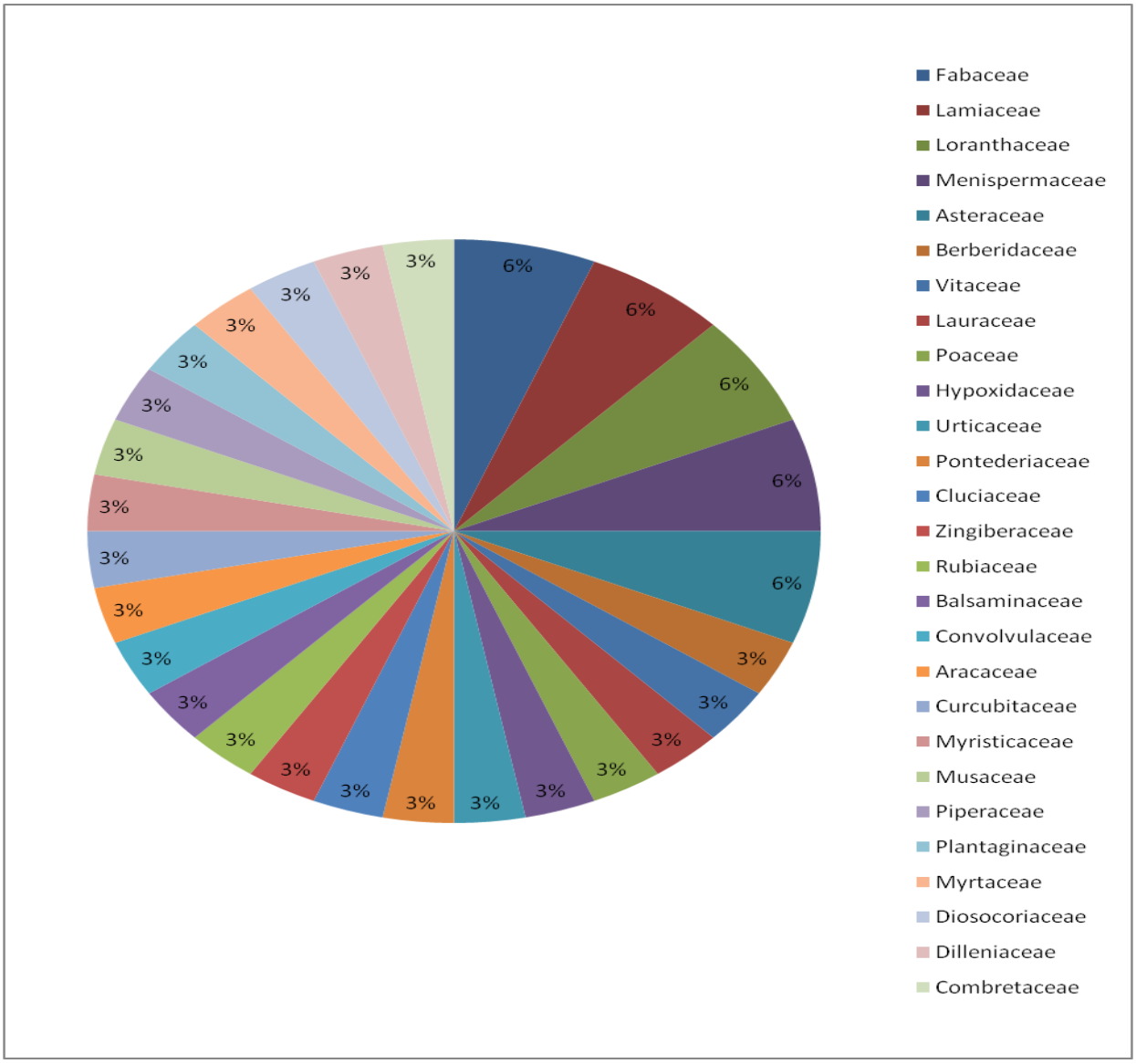

Figure 7: Graphical representation of the families of the plants collected as a part of this study

The study also points out that most of the plant species are being used to treat a lot of common ailments such as Diabetes, dysentery, heart problems, rheumatoid arthritis, pneumonia, jaundice, hysteria, asthma, piles, toothache, cancer, high pressure, white discharge, cough/cold, bronchial disease, etc. as shown in Table 4 and Figure 8.

Sl. No.	Diseases cured	No. of plants
1.	Diabetes	5
2.	Dysentry	5
3.	Rheumatoid arthritis	3
4.	Hysteria	3
5.	Jaundice	2
6.	Heart problem	2
7.	Pneumonia	1
8.	Toothache	1

9.	Cancer	1
10.	High pressure	1
11.	White discharge	1
12.	Asthma	1
13.	Piles	1
14.	Menstrual Problem	1
15.	Bronchial disease	1
16.	Cough/cold	1
17.	Snake bite	1

Table 4: List of all the diseases that can be treated by the collected medicinal plants

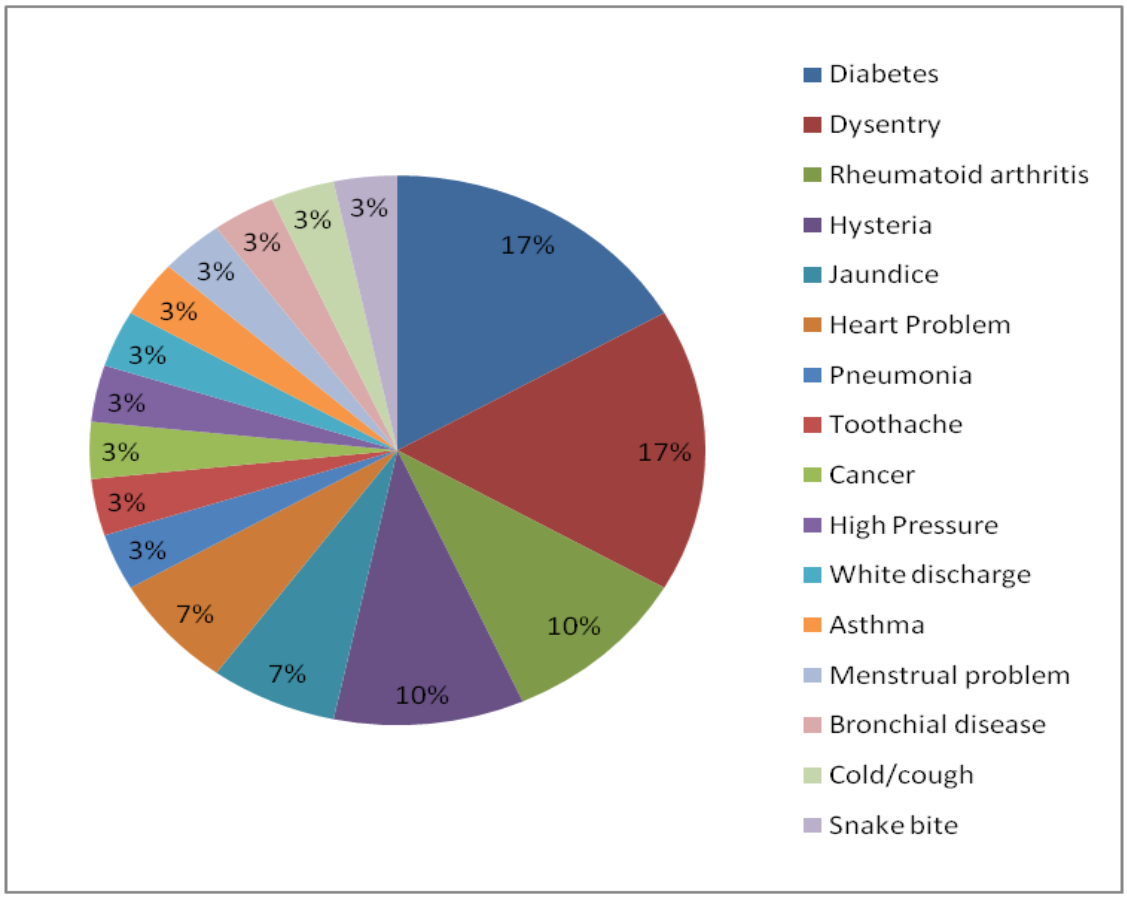

Figure 8: Graphical representation of the diseases cured by the enumerated plants

Discussion

Through the survey and field visit, 32 plants were collected and around 29 different families of these collected plants were studied. All these medicinal plants are being used by the Tai Khamti tribe to treat various types of diseases and ailments that are faced by them daily. They seem to be very essential in maintaining the villagers' primary healthcare system.

From the survey, it was observed that the Tai Khamti tribe follows a traditional medicinal system, and the people of the tribe are dependent on the traditional healers in their village for the treatment of diseases. They rely on the indigenous medicinal treatment. The method of preparation of the medicine is very simple and mostly in dry form made as decoction and consumed. There is no use of any kind of additives or

preservatives, rather just the fresh plant material has been used. The Tai khamti tribe is a strong believer of Theravada Buddhism and they have a diverse socio-economic practice as well.

The present study concludes that the inhabitants of Chongkham village and this tribe have a thorough understanding about the ethno-medicinal plants and their uses in treatment of different kinds of diseases.

Conclusion

In conclusion, the findings show that Arunachal Pradesh has a diversity of plants and many medicinal are found there. In Chongkham village of Namsai district, the Khamti tribe uses most of the medicinal plants for treating a wide range of human ailments. The plants that they use are mostly collected from nature, with leaves being the most used plant part. The plants used belonged to different families, but Fabaceae members are mostly used for medicinal purposes. Traditional knowledge plays a crucial role in the tribe's healthcare system, providing effective and natural remedies for their everyday health needs. Their documentation can also assist in the preservation of the traditional knowledge and the development of the local people in these areas.

Further phytochemical analysis of the plants can help us understand the importance of these plants and their possible pharmaceutical applications. This could help build awareness among the common people and conserve these plants.

However, this traditional knowledge is at risk of being lost due to the rapidly changing lifestyles. Therefore, future research should focus on preserving and documenting this indigenous knowledge, usually through collaboration with the community and local healers. Preserving and proper utilization of the available resources could not only help safeguard the health of the Tai Khamti tribe but also offer broader benefits for the global community.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author Contribution:

PM and PB designed the study. PB conducted the data collection and analysed the data. PB and PM wrote and edited the manuscript. All authors have read and approved the final manuscript.

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