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Comparative Analysis of Ethno medicinal plants among some communities of Manipur, North East India.

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ABSTRACT

The term ethnobotany means the study of the plants in a particular region and their uses based on indigenous cultural beliefs and practices by the local population. And such treatment is not related with modern physician drug. During the study it was observed that the traditional healer used many plants which are documented in local customs involving the practical uses of local flora for many aspects of life, such as, plants as medicines, food and clothing etc, by the different communities. In those regions still practiced and rely on ethno medicine at the basic level treatments. Manipur is one of the north east states having 34 major tribes and some smaller ethnic groups which belonging to various socio-cultural traditions and speak different languages. The present studies attempt to highlight the traditional knowledge of three different community related to the treatments of many ailments by different medicinal plants of Manipur. An attempt has been made to see the common medicinal plants species which are used for different purposes by different communities of Manipur. Due to over exploitation, modernization, urbanization, jhum cultivation, deforestation and construction of roads etc. are affecting medicinal plant diversity and such important traditional practices of medicinal plants is gradually losing. It is urgently required for conservation, scientific validation and recognition of traditional healing medicine and reactivation for the betterment of this neglected knowledge. There is immediate record of information for the benefit of mankind in future because the knowledge of medicine is transmitted orally and no written record was found. So, an attempt has been made to conserve and document such rich indigenous knowledge of ethno medicinal plants benefit used by different communities of Imphal East and Imphal West Districts of Manipur.

INTRODUCTION

Traditional healing is one of the oldest methods for the treatment of many diseases in the primary level and diagnosed followed by many diversities of human groups and combination of diversity of ecological region. Richard Evans Schulte, father of ethnobotany, well described ethnobotany meaning investigation of plants used by societies in various parts of the world and the field of ethnobotany has grown from simple acquiring ethnobotanical knowledge that are applying to modern society, primarily in the form of pharmaceuticals. Wild medicinal plants have been an important component of healthcare throughout the human history and they continue to make important contributions to healthcare and livelihoods (FAO,1999). India has been using medicinal plants and their products to treat or prevent disease and chronic illness since time immemorial. The medicinal tradition of India is reported to use about 8000 medicinal plant species as herbal products for many different ailments (Ved et al 2001); Asian use of herbal products is more common than allopathic pharmaceuticals. India is the second largest country after China exporting medicinal plants in the form of powders or as dried plant products. (Handique et al 2009). Since the last decade, there has also been a steady increase in the global market for the herbal products.

However, with rise in demand for medicinal plants and with deteriorating traditional health care systems, there is growing evidence that the populations of many medicinal plant species are declining in the wild and traditional knowledge of these species is deteriorating. Populations of these important plants are decreasing due to habitat degradation, urbanization and invasive species. It is important to conserve both the populations of these species and precious traditional knowledge linked to them for our younger generation as developing countries like India depend on traditional medicine to meet daily health requirements.

The Eastern Himalaya regions a global biodiversity hotspot (Myers et al 2000). Manipur, a state in North East India, is rich in plant diversity of ethnobotanical and economic importance. Manipur is nature's paradise for its wild flora and fauna, it harbors over 3000 species of higher plants within an area of 22,327 sq km and contributes an important source for germplasm (Singh.N.P 2000). About 1200 species of plants with medicinal properties have been estimated to be in the natural habitats of Manipur, out of them 430 species have been noted for their medicinal uses (Sinha.S.C. 1996).

Ethnic people of the state have been using medicinal plants from time immemorial to treat different ailments with their folklore and rituals. Tribes in Manipur specialise in traditional medicine and healing practices. Historically they treated several diseases with a high success rate, but recently their traditional knowledge is deteriorating due to modern medicines and urbanization. The younger generation among this community has very limited knowledge about their traditional medicine.

There are many plants which are used for treatment of many ailments and which are primarily cured through ethno medicine system, and each community has strictly specific to its own culture though the same plants are used for many treatments to diagnosed for many different diseases. World health organization (WHO)estimated that about 80%of the world population depends on traditional medicine for their primary health care needs (Bhuyan m etal 2015). Ethno medicine healing is the oldest form structured method of treatment and practices of indigenous people ,peasant and pre industrialist societies which are originally an integral part of of semi- nomadic and agricultural tribal societies although archaeological evidence for its existence dates back to only around 6000BC, its origins probably date back from well before the end of the last Ice age (Ramashankar etal 2015).the most important fact about the ethno medicine is the way of combination and integrated form of a whole culture. Because of the diversity of the people, different plants are used for treatment of many ailments. Many scientists and research worker have documented the ethnomedicine use of the plants of the north east India. However, assessment and documentation on the reliability of the knowledge of such regional ethno healers is yet to be carried out for such an ethno medicinally significant state. Thus, the present studies of different communities of Manipur using medicinal plants were identified and assess their way of treatment, type of folk medicinal system, sources of knowledge, diagnosing methods, healing method from the same plants used by different communities of Manipur for the treatments of many ailments in specific diseases.

In India, several ethnic communities use 7500 distinct species of medicinal plants for health and therapeutic care. The nations of Assam, Arunachal Pradesh, Manipur, and Meghalaya are in North East India. Nagaland, Sikkim, Tripura, Mizoram, and Nagaland. The variety of natural habitats in this area, from humid evergreen forests to temperate and alpine flora, has resulted in a wide variety of plant species. Manipur is one of the biodiversely rich regions of the Indian subcontinent in South Asia. Manipur is well known for its vibrant culture in addition to having a wide variety of

plants and animals and a particularly special biological environment. 34 significant indigenous groups make up the majority of the population in Manipur, along with 12 additional smaller ethnic communities such as the Meitei, Tangkhul, Kabui, Kuki, Mizo, Thangal, Kom, Chiru, Chothe, Mao, and Thadou. These traditional communities are rich in traditional knowledge and have been using traditional medicine in the north-eastern region for millennia. (1982; Sinha; 1994; Kumar; Biswas and Chopra; 2002). This region has a long history of using traditional medicines, and it also contains elements of north-eastern India's indigenous culture. A total of 2416 plants utilized for ethno-medicine in India have so far been identified, and of them, only 1963 are being used by various indigenous populations in north east India. There are several medicinal plants in the state. The majority group is known as the Meitei and is often referred to as Manipuris. Manipur's traditional healers were discovered to play significant roles in the primary healthcare systems and to successfully treat some illnesses, which caused the populace to favor folklore medicine over contemporary medicine (Ningombam et al., 2014). Several studies of Manipur's plants have been documented (Shukla and Baishya, I979), and usage of various therapeutic plants have been described (Singh et al., 2003). All of this author's descriptions of medicinal plant facts and her extensive explanations of how to cure various illnesses. In order to investigate the prospect of raising awareness to protect the medicinal flora in light of the growth of herbal based enterprises, an effort has been made to study and document the common medicinal plants utilized by the people of Manipur, notably in the Imphal region both Imphal East and Imphal West. The overuse of medical plants and plant products, notably by the pharmaceutical industry, calls for urgent replenishment and the preservation of rare and significant species. Thus, the present investigation was carried out with this in mind.

Materials and Methods

Study area

Manipur formed an important link culturally and otherwise between India on one side and Southeast Asia on the other. It is situated between $23^0 50^{'}$ N and $25^0 4I^{'}$ N latitude and between $93^0 2'$ E and $94^0 47'$ E longitude with a total geographical area of 22, 327 km^2 which constitutes 0.7% only to the total land surface of India (Vedaja S, I998). The studied area is situated inside the Imphal valley, The Imphal East and West has an average elevation about 790 meters above sea level. included with the latitude of

24.30'N to 25.00' N and longitude of 93.45'E to 94.15' E covering an area of 1843 sq km and account to one-tenth of the area of the Manipur. The study was conducted in Imphal East and west District of Manipur during 2014-18. Imphal East has consisting of number of villages such as Achanbigei, Ahallup, Heiganag, Mantripukhi, Kairang, Khongampat, Sangakpam, Khurai,Kongba, Porompat, Nagaram etc. whereas Imphal West consisting the villageslikeLangol, Lamsang, Lamdeng, Thangmeiband, Uripok, Sagolband, Chingmeirong, Kwakeithel etc.

Since time immemorial the Kings of Manipur had adopted the use of folk medicine. The rich diversity of plants originates from the variations in the climatic and edaphic factors, location of the state on the confluence of Himalayas and Indo-Burma region. The region lying in the Indo-Burma Biodiversity Mega Hotspots ranks in the 8th amongst the 34th biodiversity hotspots of the world (Meyers *et al.* 2000). This holds immense potential for production and marketing of value-added bio-resources in particular, spices, medicinal and aromatic plants (Ningombam etal 2014). It has tropical and temperate climate with an average rainfall about 207 cm and various types of vegetation such as Wet Temperate Forest, Pine Forest, Wet Hill Forest, Semi Evergreen Forest etc.

Some of the main ethnic groups resides in Imphal East and West are Meetei, Meetei Pangan, Tangkhul, Kabui etc.

Study Community

Comparative ethnographic studies of Meitei, Kabui, and Tangkhul communities' cultures, traditions, origins, and means of subsistence have been conducted. Meiteis may have been a member of the Tai race of the Indo Chinese subrace of Mongoloids. All three of these Manipur communities are typically of genetic mongoloid ancestry and speak a Tibeto Burman language. Meitei adhere to Shanamahism, which is the worship of Shanamahi, the creator aspect of Shida Mapu, the Triune God of the Meeteis, one of the oldest sects in Southeast Asia. It is thought to have originated in Manipur, India (Sanajaoba 2005). The Kabui tribes, one of the major scheduled tribes of Manipur, have a population of 82,386 (anonymous 2001; anonymous 2011), are spread out over two districts of Manipur, with Tamenglong district serving as their primary homeland (Vedaja1998). The Kabui tribes practice tingkhao leikhao, the worship of the Sun. A few of them have converted to Christianity. Along with their main homeland, the Ukhrul area, Tangkhul tribes, who have converted to

Christianity, have established their greatest communities there as well. Meitei, Kabui, and Tangkhul are the three communities mentioned above. They are part of the Tibeto-Burmese language family and each has its own dialect, culture, and tradition. Manipur state residents' economy is predominately agrarian. According to Vedaja (1998), 70% of the population relies on agriculture for their living. These communities are all primarily dependent on agricultural and forest goods. After the forest is burned, they gather firewood and lumber to make charcoal for chula. They treated their many ills using various sections of the many medicinal plants that grew organically in the forest. Even before the hospitals-focused system of medicine, which uses the same medicinal plants, each community has its own distinct knowledge, values, and customs regarding the promotion of good health and avoiding illness. However, each community may have its own unique interpretations of how to use these same plants and their various parts to treat and cure disease.

Study Method

Survey was conducted in the Imphal East and West Districts of Manipur during the flowering seasons of the successive years April- May 2014 to Sept- October 2018. Imphal East has a total area of 710 sq km and Imphal West has a total area of 558 sq Km. The Imphal East and West has an average elevation about 790 meters above sea level. It has tropical and temperate climate with an average rainfall about 207 cm and various types of climates such as Wet Temperate Forest, Pine Forest, Wet Hill Forest, Semi Evergreen Forest etc Plants were identified for their medicinal uses following (Sinha 1996; Singh et al 2003; Singh Rajendro 2009). Information of the use of plants and their products was was conducted in Achanbigei, Ahallup, Heiganag, Mantripukhi, Kairang, Khongampat, Sangakpam, Khurai, Kongba, Porompat, Nagaram, Langol, Lamsang, Lamdeng, Thangmeiband, Uripok, Sagolband, Chingmeirong, Kwakeithel etc. In this villages of Imphal East and West district of Manipur, proper questionnaires were devised to identify the indigenous knowledge of herbal remedies like part of the plant use, how to used, preservation etc from local people in 6 (six) focused group, 2(two) from each group i.e, Meitei, Kabui, and Tangkhul. So far 128 numbers of household surveyed was conducted. Some of the important knowledge from the focused group discussion with the gatherers is they usually go twice in a month for collecting and gathering the medicinal plants from the forest. The study's responders were knowledgeable healers who employ a variety of age-old practices and ways to treat various human afflictions and sufferings. By

physically visiting the homes of the informants, i.e., neighborhood herbalists, these healers were personally contacted about ethnomedicinal usage of the plants. With a few tweaks, the procedure for gathering this data is as follows (Martin 1995). Age of the informant, gender, education, employment, status, classification of folk medicine, nomenclature of medicinal plants, preferability or reluctance to treatment, outcome, effectiveness, self-confidence, doses, source of knowledge, method of preparation, transfer of knowledge, and dosages were some of the criteria in the questionnaire for statistical analysis. Pains and swellings, muscular aches, inflammation brought on by washing and cleaning clothing and utensils, swollen joints, reduced pain and pains brought on by pointed objects, complaints during pregnancy, ease of delivery by pregnant women, menstrual complaints, anthelmintics, colic pain, constipation, diarrhea, dysentery, and digestive complaints are also classified as diseases, gastric problems, indigestion and stomach issues, stomach ulcers, piles, to get rid of intestinal worms, respiratory and breathing issues, sore mouth and tongue disorder, tonsillitis & throat trouble, urinary problems, infection and stone case, hypertension, cure obesity, boils, leprosy, pimples, leucorrhea, gonorrhea, to stop miscarriage, cough, hiccough, irritation and inflammation of throat, light discharge, antiseptic, cuts, bruises, wounds, burns, coagulation of blood, bleeding gums, toothaches, gum bleeding, skin conditions, ringworm, warts, scabies, skin illnesses, hair scalp infections, children's tiny pox, headache, vertigo, and paralysis managing diabetes, enlarged glands, dropsy, glandular swelling of the neck, ear pain, catarrh, eye inflammation, bone setting, bone healing from fractures, enlarged glands, and liver tonic, Jaundice, heart illness, kidney disease, rejuvenation of postpartum women, adult health improvement, nursing mothers, elderly people, febrifuge, antipyretics, dog, snake, insect bites, hair care, encouraging lactation, malnutrition. Data was gathered through house surveys as well as the market for the identification of medicinal plants in order to document the knowledge and medical practices of the indigenous healers. involves fieldwork from well-known traditional healers, senior headman through direct communication, as well as through actual experiences. By getting in touch with a number of people, the validity of the usage was constantly confirmed. When there was conflicting information, every effort was made to determine the proper applications. The identification of plants was based on Hooker (1875–97); Kanjilal et al. (1934–1940); Sinha, 1987a, b, 1996, etc.; and documentation was kept for future research.

The research is based on secondary data to include as many pertinent sources as possible. To find primary studies, the scientific literature on ethno-medical field investigations conducted in North East India was searched. In order to prepare for this work, extensive reading and research were done on pertinent secondary literary sources in the form of books, journals, and articles. Through the use of a qualitative research design, the study was conducted among the Meetei Maibas. The Meeteis are regarded as one of the indigenous groups of India's north-eastern state of Manipur. They have a unique understanding of conventional medical procedures, and their system of medical procedures and treatments is known locally as Maiba Laiyeng Pathap, or both when used together. The majority of the treatments are offered by Meetei male and female healers, who are known locally in Manipur as Maiba and Maibi, respectively. Every second Saturday, members of the Apunba Maiba Maibi Phurup group, which has more than 70 active members from various communities, have the chance to speak with traditional healers.

One of Manipur's gifted tribes, the Kabui are recognized for their usage of ethnobotanical medicines and for selecting and utilizing the region's natural plants for medical purposes. Manipur's Tamenglong districts are responsible for that continent.Zeme, Liangmei, and Rongmei, which are collectively referred to as Zeliangrong, are three kinds of Kabui tribes that have established in the district (Robert Panmei et al. 2016). Many native medicinal plants have vanished as a result of jhum cultivation. A lot of the wild medicinal plant population was decreased by deforestation and forest fires for the purpose of harvesting charcoal, and some even went extinct.

The Tangkhul tribes of Manipur are also well-known and intellectual people who have a wealth of expertise in the traditional uses of medicinal herbs. For a balanced diet and daily meals, they are reliant on wild edible plants and leaves. These tribes are thought to have their mainland home in the Ukhrul district. Forest fires, jhum farming, and even overuse of medicinal plants all contribute to population reduction.

The majority of the research study is based on primary and secondary data. The well-known traditional healers and senior headmen were contacted directly and also through first-hand experience to gather as much pertinent information as possible from the traditional healers utilizing questionnaires. To learn more about the specifics of the local traditional healing system, the primary-based fundamental information

about the traditional healer was noted, including their monthly income, areas of expertise, ailments they treat, methods of healing, and income from the forest. The quest for additional scientific literature on ethnomedicine field research undertaken in north-eastern India led to the primary studies. In the urban and rural areas of Imphal, Manipur, an ethnobotanical survey was carried out twice a year (Feb-April, Sep-Nov) between 2014 and 20I8.

TABLE

Sl. No	Scientific name/Family	Local name	Community/ Tribes	Part Used	Medicinal value	Distribution	Status
1.	*Adathoda vasica linn/* Acanthaceae	Nongmangkha angouba	Meitei	Leaves	Fever,cough,	India,China,Indonesia,Malaysia, Pakistan,Srilanka	Data deficient
		…khimpui… …	Kabui	Inflorescence	Bronchitis congestion		
		Sipchang	Tangkhul	Leaves	Cough,cold,skin diseases		
2.	*Ageratum conyzoides* L/. Asteraceae	Khongjai napi	Meitei	Shoots	Hair lotion for strength and sweet smell of hair	India	Least concerrn
		Khongjai napi	Kabui	Leaves	Warm leaves put on boils to absorb pus		
		Imcheibong	Tangkhul	Root,Leaves	Cuts,sores,dysentry		
3.	*Andrographis paniculata*(Burm.f.)/ Acanthaceae	Bubhapati	Meitei	Leaves	Cough,cold,intestinal worm,hypertension	India,Indonesia, China,Thailand	Least concern
		Vubati	Kabui	Whole plant	Jaundice,stomach trouble		
		Bubatti	Tangkhul	Whole plant	Chronic disease,bronchitis congestion,		
4.	*Cajanus cajan*/ Fabaceae	Mairongbi	Meitei	Leaves	Decoction is used as blood purification	Asia,North America	Least concern
		Mairongbi	Kabui	Leaves	Dysentry,measles		
		Khaithei	Tangkhul	Leaves,pod	Skin infection,ulcer		
5.	*Callicarpa arborea*, Roxburgh / Verbenaceae	Mondol	Meitei	Leaves and shoot	Decoction is used for diabetes	India,Bangladesh,Bhutan,China,Indonesia	Least concern
		Mondol	Kabui	bark	Skin diseases		
		Mondol	Tangkhul	Whole plant	Headach and diarrhea		
6.	*Centella asiatica*/Apiaceae	Peruk	Meitei	Whole plant	Cough, ulcer, and used in hair lotion strength and silky hair.	India,Japan,Bhutan,China,Indonesia,Korea,Nepal, Pakistan	Least concern
		Peruk	Kabui	Whole plant …	Blood purifier, asthma, intestine trouble, control hypertension,stomach trouble.		
		Konggriham	Tangkhul	Whole plant	Dysentery, menstrual problem		
7.	*Clerodendru*	Charoi utong	Meitei	Leaves	Diabetes	India,Malaysia,	Least concern

	m indicum(L.)Kuntze/ Verbenaceae	Charoi utong	Kabui	Inflorescence, root	Cough,boil	Bhutan,ChinaThailand,Philipines, North America	
		Nareihan	Tangkhul	Root	Asthma,blood pressure problem,fever		
8.	*Elshotzia blanda* bentham/Lamiaceae	Kangkhuman	Meitei	Inflorescence and shoot	Against dyspepsia, dizzinessurinary problem and tonsil.	India(Manipur,Assam,Meghalaya, Nagaland,Sikkim Tripura),China,Nepal,Thailand,Vietnam	Data difficient
			Kabui	shoots	Cough and breath problem		
		Yongpa	Tangkhul	Inflorescence	Diarrhea, fever and menstrual problem		
9.	*Emblica officinale* gaertner / Euphorbiaceae	Heikru	Meitei	fruit	Cough, mouth congestion, hair lotion, antidandruff, diabetes.	India,Bhutan,Cambodia,China,Laos,Malaysia,Myanmar,Philipines, South America	Threatened
		Tarou nathai	Kabui	Fruit	Bleeding gum, pile, constipation		
		Shakshathei	Tangkhul	Fruits and bark	Dysentery, jaundice		
10.	*Eryngium foetidum*/Apiaceae	Awa phadigom	Meitei	Whole plant	Against paralysis, prevent epileptic problem.	India,North America	Native of Central America, tropical and sub tropical region
		Bang maroi	Kabui	Leaves	Controls hypertension, indigestion,cure fracture, sprain and muscle pain.		
		Lam sachikom	Tangkhul	Young twigs and leaves	Blood pressure and stomach troubles.		
11.	*Eupotorium adenophorum* springe /Asteraceae	Japan napi	Meitei	Leavea and twig	Pile, diabetes	India,Mexico, Indonesia,Australia	Native of Mexico
		Leanglei	Kabui	leaves	Stomach burning by chilli and skin diseases		
		Naga khawo	Tangkhul	leaves	Injury. Cut and dysentry		
12.	*Ficus hirta* vahl/ Moraceae	Ashi heibong	Meitei	Leaves	Skin infection and ringworm	North East India,Bhutan,China,Indonesia, Myanmar,Nepal, Thailand,Vietnam	Threatened
		Heibong	Kabui	Roots and leaves	Asthma, Intestinal disorder		
		Heipong	Tangkhul	Fruits and leaves	Diabetes and urinary tract stone.		
13.	*Houttunia cordata* thumb/ Sauraceae	Tuningkhok	Meitei	Whole plants	Antidiuretic against cholera	Manipur,Assam	Data deficient
		Gan paru	Kabui	Leaves	Dysentry		
		Ngayung	Tangkhul	Leaves and root	Muscle pain		
14.	*Leucas aspara* sprengel/ Lamiaceae	Mayanglembum	Meitei	Twigs	Menstrual problem,	India, China, Bangladesh,Bhutan,Indonesia,China,Myanmar,Thailand,Maritius,Africa	Least concern
		Mayanglemphum …	Kabui	Leaves	Blood purifier, stomach trouble and improve the lactation to mother		
		Mayanglembu	Tangkhul	Whole plants	Swelling cough cold and pile.		

15.	*Mentha arvensis* Linnaeus/ Lamiaceae	Nungshidak	Meitei	Leaves shoot	Intestinal disorder	India and Asia,Africa,Europe,North America	Least concern
		Nungsitpu	Kabui	Leaves	Stomach trouble		
		Suiruihan	Tangkhul	Whole plants	Diabetes dysentery cough fever		
16.	*Mimosa pudica* linn/ Mimosaceae	Kangphal ikaithabi	Meitei	Whole plants	Prevent infection of sexual parts bath after delivery.	Asia,Oceanic island,Pacific Island,Australia	Least concern
		Jathaima	Kabui	Leaves and twigs	Skin diseases		
		Kangphal ikaithabi	Tangkhul	Leaves	Pile, body pain		
17.	*Momordica charantia* linnaeus/Cucurbitaceae	Lamthabi	Meitei	Leaves and shoots	Jaundice	India,China,Malaysia	Least concern
		Khanathai	Kabui	Fruits	Diabetes		
			Tangkhul	Leaves	Stomach troubles		
18.	*Orozylum indicum* ventenat/ Bigonaceae	Samba	Meitei	Leaves and seeds	Gasstris, ulcer tonsil	Assam,Manipur, North India,South India,Bhutan,Cambodia,China,Indonesia	Endangered and vulnerable(FRLHT)
		Samba	Kabui	Fruits	Diabetes asthma hypertension muscle pain		
		Phong	Tangkhul	Barks fruits leaves	Jaundice, pile blood pressure		
19.	*Osbeckia nepalensis* hooker/Melistomataceae	Yachubi	Meitei	Whole plants	Diabetes	Assam,Manipur, Meghalaya,Arunachal Pradesh,Bhutan,china,Malaysia,Thailand,Vietnam	Least concern
		Yachubi	Kabui	Leaves	Dysentery		
		Yachubi	Tangkhul	Inflorescence fruits	Diarrhea band stomach complaints		
20.	*Oxalis corniculata* Linnaeus/ Oxalidaceae	Yensil	Meitei	Whole plants	Hair lotion, dysentery	North East Indi,Western Ghat,North India,South India	Least concern
		Yensil	Kabui	whole plants	Indigestion		
		Yensil	Tangkhul	Whole plants	Stomach troubles		
21.	*Paedilia foetida* Linnaeus/Rubiaceae	Uri oinam	Meitei	Leaves	Piles	Manipur,Assam, Andaman & Nicobar,Asian countries,North America	Data deficient
		Oinam	Kabui	Leaves	Fracture repair		
		Oinam	Tangkhul	Whole plants	Intestinal troubles		
22.	*Parkia roxburgii* G.Don/ Mimosaceae	Yongchak	Meitei	Young leaves, fruits	Piles, stomach problems	Manipur,Arunachal,Meghalaya, Mizoram,Tamil nadu,Karnataka and other Asian Countries,	Data deficient
		Kam	Kabui	Bark	Diarrhea, dysentery		
		Yongchak	Tangkhul	Fruits and pods	Sores and skin infection.		
23.	*Phlagocanthus thyrsiflorus* Roxburgh Acanthaceae /	Nongmangkha	Meitei	Leaves and inflorescence	Antipyretics and bronchial congestion.	Manipur,Assam	Least concern
		Khimpui khiangmei	Kabui	Leaves	Jaundi, hypertension, muscle pain		
		Sipchang	Tangkhul	Leaves	Cough, cold and Fever		
24.	*Plantago erosa* wallich/ Plantaginaceae	Yempat	Meitei	Whole plant	Fried leaves are applied to boils for pus formation.	North east India,Rajasthan, Tamil Nadu,Kashmir,Bhutan,China,Mya	Data deficient
		Kaipat	Kabui	Leaves	Blood purifier and intestinal disorder.		

		Yenpat	Tangkhul	Whole plants	Healing stomach complaints	nmar	
25.	*Polygonum posumbu* buch. Ham/ Polygonaceae	Phak pai	Meitei	Shoot	High Blood pressure balanced	Manipur,Arunchal Pradesh,U.P,Uttarakhand,Bangladesh,China,Bhutan,Korea	Data deficient
		Phakpai	Kabui	Whole plants	Heart beat increases.		
		Phakpai	Tangkhul	Whole plant	Skin diseases.		
26.	*Rhus hookerii* sahni and bahad/ Anacardiaceae	Heimang	Meitei	Fruits	Digestive, urinary compaints	Manipur,Himachal Pradesh,Karnataka,Kerala,M.P	Threatened
		…	Kabui	Bark and leaves	Stomach ulcer, dysentery.		
		Kapothei	Tangkhul	Leaves and fruits	Hair lotion , antiviral anticancer		
27.	*Solanum nigrum* L/ Solanaceae	Morokman	Meitei	Leaves, berries	Stomachache and fever.	Manipur,China,Bhutan,Thailand,Russia,Myanmar, Nepal,Pakistan	Least concern
		Morokman	Kabui	Berries	Pneumonia, aching teeth, tumor.		
		Morokman	Tangkhul	Whole plants	Ring worm, anti-inflammatory.		
28.	*Solanum torvum* Swartz/ Solanaceae	Sanjok	Meitei	Fruits	Diabetes,	North east India,North South India,Africa,North America	Least concern
		Khanga	Kabui	Fruits	Dysentery		
		Kapkhathei	Tangkhul	Fruits and young leaves	Cough and tonsils complaints		
29.	*Solanum aguivi* Lamarck/Solanaceae	Leibungkhang	Meitei	Fruits	Cough cold and fever	Manipur,Mizoram,Nagaland,tripura,Orissa,Rajasthan,west Bengal	Least concern
		Takhunathai	Kabui	Fruits	Stomach trouble toothache.		
		Leipung khang	Tangkhul	Fruits	Diarrhea dysentery and skin diseases.		
30.	*Tagetes erecta* linn/ Asteraceae	Sanarei	Meitei	Leaves	Kidney troubles, bleeding and cure armpit odor	North India,South India,Assam, Manipur,Meghalaya,China ,Nepal	Least concern
		Sanarei	Kabui	Flower and leaves	Boils, piles.		
		Sanarei	Tangkhul	Root	Cold and bronchitis		
31.	*Toona ciliata* M.J Roemer/ Meliaceae	Tairen	Meitei	Leaves	Vomiting, skin diseases	Manipur,Assam, Karnatak,Kerala, Tamil Nadu,maharashtra,Uttarkhand,U.P ,Asian Countries	Least concern
		Phang	Kabui	Leaves	Scabies and measles, small pox diarrhea		
		Tairen	Tangkhul	Leaves	Cuts and wounds, insect repellant		
32.	*Vitex trifolia* Linnaeus/ Verbenaceae	Uriksibi	Meitei	Leaves	Piles	Manipur,Assam, South India,Andaman Nicobar,Japan,China,Bhutan	Least concern
		Yeliksibi	Kabui	Leaves and fruits	Skin disease		
			Tangkhul	Fruits	Cuts and wounds.		
33.	*Xylosoma longifolium* clos/Rubiaceae	Nongleisang	Meitei	Leaves	Piles	Manipur,Assam, Bihar,Karnataka, China,Nepal	Data deficient
		Nongleisang	Kabui	Bark	Intestinals worms and stomach pain.		
		Nongleisang	Tangkhul	Leaves	Cough, chest congestion		
34.	*Zingiber*	Lamsing	Meitei	Rhizome	Asthma, cough	Manipu,Assam,	Least concern

	zerumbet L. smith/ Zingiberaceae		Kabui	Rhizome	Leprosy and other skin diseases	Meghalaya,South India,Bangladesh ,Myanmar	
		Ram hui	Tangkhul	Rhizome	Tonsilitis		
35.	*Zingiber cassumunar* Roxb/ Zingiberaceae	Taekhou yaikhu	Meitei	Rhizome	Leprosy,revitalization of children	South India,Assam,Manipur,Meghalaya ,Asia,North America	Least concern
		Tekhao yaikhu	Kabui	Rhizome	Cough,cold,fever		
		Tekhao yaikhu	Tangkhul	Rhizome	Tonsil,bronchitis congestion		

Medicinal plant used by Meitei Community.

Sl.no	Scientific name	Family	Local name	Part used	Medicinal value
1.	*Adathoda vasica* linn	Acanthaceae	Nongmangkha angouba	Leaves	Fever,cough,
2.	*Ageratum conyzoides* L.	Asteraceae	Khongjai napi	Shoots	Hair lotion for strength and sweet smell of hair
3.	*Andrographis paniculate* (Burm.f.)	Acanthaceae	bubhapati	Leaves	Cough,cold,intestinal worm,hypertension
4.	*Cajanus cajan*	Fabaceae	Mairongbi	Leaves	Decoction is used as blood purification
5.	*Callicarpa arborea*, roxburgh	Verbenaceae	Mondol	Leaves and shoot	Decoction is used for diabetes
6.	*Centella asiatica*	Apiaceae	Peruk	Whole plant	Cough, ulcer, and used in hair lotion strength and silky hair.
7.	*Clerodendrum indicum*(L.)Kuntze	Verbenaceae	Charoi utong	Leaves	Diabetes
8.	*Elshotzia blanda* bentham	Lamiaceae	Kangkhuman	Inflorescence and shoot	Against dyspepsia, dizzinessurinary problem and tonsil.
9.	*Emblica officinalis* gaertner	Euphorbiaceae	Heikru	Fruit	Cough, mouth congestion, hair lotion, antidandruff, diabetes.
10.	*Eryngium foetidum*	Apiaceae	Awa phadigom	Whole plant	Against paralysis, prevent epileptic problem.
11.	*Eupotorium adenophorum* sprenge	Asteraceae	Japan napi	Leavea and twig	Pile, diabetes
12.	*Ficus hirta* vahl	Moraceae	Ashi heibong	Leaves	Skin infection and ringworm
13.	*Houttunia cordata* thunb	Sauraceae	Tuningkhok	Whole plants	Antidiuretic against cholera
14.	Leucas aspera sprenge	Lamiaceae	Mayanglembum	Twigs	Menstrual problem,
15.	*Mentha arvensis* Linnaeus	Lamiaceae	Nungshidak	Leaves, shoot	Intestinal disorder
16.	*Mimosa pudica* linn	Mimosaceae	Kangphal ikaithabi	Whole plants	Prevent infection of sexual parts bath after delivery.
17.	*Momordica charantia* linnaeus	Cucurbitaceae	Lamthabi	Leaves and shoots	Jaundice
18.	*Orozylum indicum* ventenat	Bigonaceae	Samba	Leaves and seeds	Gasstris, ulcer tonsil
19.	*Osbeckia nepalensis* hooker	melistomataceae	yachubi	Whole plants	Diabetes
20.	*Oxalis corniculata*	Oxalidaceae	Yensil	Whole plants	Hair lotion, dysentery

	Linnaeus				
21.	*Paedilia foetida* Linnaeus	Rubiaceae	Uri oinam	Leaves	Piles
22.	*Parkia roxburgii* G.Don	Mimosaceae	Yongchak	Young leaves, fruits	Piles, stomach problems
23.	*Phlagocanthus thyrsiflorus* Roxburgh	Acanthaceae	Nongmangkha	Leaves and inflorescence	Antipyretics and bronchial congestion.
24.	*Plantago erosa* wallich	Plantaginaceae	Yempat	Whole plant	Fried leaves are applied to boils for pus formation.
25.	*Polygonum posumbu* buch. Ham	Polygonaceae	Phak pai	Shoot	High Blood pressure balanced
26.	*Rhus hookerii* sahni and bahad.	Anacardiaceae	Heimang	Fuits	Digestive, urinary compaints
27.	*Solanum nigrum* L	Solanaceae	Morokman	Leaves, berries	Stomachache and fever.
28.	*Solanum torvum* Swartz	Solanaceae	Sanjok	Fruits	Diabetes,
29.	*Solanum aguivi* Lamarck	Solanaceae	Leibungkhang	Fruits	Cough cold and fever
30.	*Tagetes erecta* linn	Asteraceae	Sanarei	Leaves	Kidney troubles, bleeding and cure armpit odor

Medicinal plant used by Kabui Community

Sl.no	Scientific name	Family	Local name	Part used	Medicinal value
1.	*Adathoda vasica* linn	Acanthaceae	Nongmangkha angouba	Inflorescence	Bronchitis congestion
2.	*Ageratum conyzoides* L.	Asteraceae	Khongjai napi	Leaves	Warm leaves put on boils to absorb pus
3.	*Andrographis paniculate* (Burm.f.)	Acanthaceae	Vubati	Whole plant	Jaundice,stomach trouble
4.	*Cajanus cajan*	Fabaceae	Mairongbi	Leaves	Dysentry,measles
5.	*Callicarpa arborea*, roxburgh	Verbenaceae	Mondol	bark	Skin diseases
6.	*Centella asiatica*	Apiaceae	Peruk	Whole plant	Cough, ulcer, and used in hair lotion strength and silky hair
7.	*Clerodendrum indicum* (L.)Kuntze	Verbenaceae	Charoi utong	Inflorescence, root	Cough,boil
8.	*Elshotzia blanda* bentham	Lamiaceae	Kangkhuman	Shoots	Cough and breath problem
9.	*Emblica officinalis* gaertner	Euphorbiaceae	Tarou nathai	Fruit	Bleeding gum, pile, constipation
10.	*Eryngium foetidum*	Apiaceae	Bang maroi	Leaves	Controls hypertension, indigestion,cure fracture, sprain and muscle pain.
11.	*Eupotorium adenophorum* sprenge	Asteraceae	Leanglei	Leaves	Stomach burning by chilli and skin diseases
12.	*Ficus hirta* vahl	Moraceae	Ashi heibong	Roots and leaves	Asthma, Intestinal disorder
13.	*Houttunia cordata* thunb	Sauraceae	Gan paru	Leaves	Dysentry

14.	*Leucas aspera* sprenge	Lamiaceae	Mayanglembum	Leaves	Blood purifier, stomach trouble and improve the lactation to mother
15.	*Mentha arvensis* Linnaeus	Lamiaceae	Nungsitpu	Leaves	Stomach trouble
16.	Mimosa pudica linn	Mimosaceae	Jathaima	Whole plant	Skin diseases
17.	*Momordica charantia* linnaeus	Cucurbitaceae	Khanathai	Fruits	Diabetes
18.	*Orozylum indicum* ventenat	Bigonaceae	Samba	Fruits	Diabetes asthma hypertension muscle pain
19.	*Osbeckia nepalensis* hooker	melistomataceae	yachubi	Leaves	Dysentery
20.	*Oxalis corniculata* Linnaeus	Oxalidaceae	Yensil	Whole plants	Indigestion
21.	*Paedilia foetida* Linnaeus	Rubiaceae	Oinam	Leaves	Fracture repair
22.	*Parkia roxburgii* G.Don	Mimosaceae	Kam	Bark	Diarrhea, dysentery
23.	*Phlagocanthus thyrsiflorus* roxburgh	Acanthaceae	Khimpui khiangmei	Leaves	Jaundi, hypertension, muscle pain
24.	*Plantago erosa* wallich	Plantaginaceae	Kaipat	Leaves	Blood purifier and intestinal disorder.
25.	*Polygonum posumbu* buch. Ham	Polygonaceae	Phak pai	Whole plants	Heart beat increases.
26.	*Rhus hookerii* sahni and bahad.	Anacardiaceae	Heimang	Bark and leaves	Stomach ulcer, dysentery.
27.	*Solanum nigrum* L	Solanaceae	Morokman	Berries	Pneumonia, aching teeth, tumor.
28.	*Solanum torvum* Swartz	Solanaceae	Khanga	Fruits	Dysentery
29.	*Solanum aguivi* Lamarck	Solanaceae	Takhunathai	Fruits	Stomach trouble toothache.
30.	*Tagetes erecta* linn	Asteraceae	Sanarei	Leaves	Boils, piles.

Medicinal plant used by Tangkhul Community

Sl.no	**Scientific name**	**Family**	**Local name**	**Part used**	**Medicinal value**
1.	*Adathoda vasica* linn	Acanthaceae	Sipchang	Leaves	Cough,cold,skin diseases
2.	*Ageratum conyzoides* L.	Asteraceae	Imcheibong	Root,Leaves	Cuts,sores,dysentry
3.	*Andrographis paniculata*(Burm.f.)	Acanthaceae	Vubati	Whole plant	Chronic disease,bronchitis congestion,
4.	*Cajanus cajan*	Fabaceae	Khaithei	Leaves,pod	Skin infection,ulcer
5.	*Callicarpa arborea*, roxburgh	Verbenaceae	Mondol	Whole plant	Headach and diarrhea
6.	*Centella asiatica*	Apiaceae	Konggriham	Whole plant	Dysentery, menstrual problem
7.	*Clerodendrum indicum* (L.)Kuntze	Verbenaceae	Nareihan	Root	Asthma,blood pressure problem,fever
8.	*Elshotzia blanda* bentham	Lamiaceae	Yongpa	Inflorescence	Diarrhea, fever and menstrual problem
9.	*Emblica officinalis* gaertner	Euphorbiaceae	shakshathei	Fruits and bark	Dysentery, jaundice

10.	*Eryngium foetidum*	Apiaceae	Lam sachikom	Young twigs and leaves	Blood pressure and stomach troubles.
11.	*Eupotorium adenophorum* sprenge	Asteraceae	Naga khawo	Leaves	Injury. Cut and dysentry
12.	*Ficus hirta* vahl	Moraceae	Ashi heibong	Fruits and leaves	Diabetes and urinary tract stone.
13.	Houttunia cordata thunb	Sauraceae	Ngayung	Leaves and root	Muscle pain
14.	*Leucas aspera* sprenge	Lamiaceae	Mayanglembum	Whole plants	Swelling cough cold and pile.
15.	*Mentha arvensis* Linnaeus	Lamiaceae	Suiruihan	Whole plants	Diabetes dysentery cough fever
16.	*Mimosa pudica* linn	Mimosaceae	Kangphal ikaithabi	Whole plants	Pile, body pain
17.	*Momordica charantia* linnaeus	Cucurbitaceae		Leaves	Stomach troubles
18.	*Orozylum indicum* ventenat	Bigonaceae	Phong	Barks fruits leaves	Jaundice, pile blood pressure
19.	*Osbeckia nepalensis* hooker	melistomataceae	yachubi	Inflorescence fruits	Diarrhea band stomach complaints
20.	*Oxalis corniculata* Linnaeus	Oxalidaceae	Yensil	Whole plants	Stomach troubles
21.	*Paedilia foetida* Linnaeus	Rubiaceae	Oinam	Leaves	Intestinal troubles
22.	*Parkia roxburgii* G.Don	Mimosaceae	Yongchak	Fruit and Pod	Sores and skin infection
23.	*Phlagocanthus thyrsiflorus* roxburgh	Acanthaceae	Sipchang	Leaves	Cough, cold and Fever
24.	Plantago erosa wallich	Plantaginaceae	Yenpat	Whole plants	Healing stomach complaints
25.	*Polygonum posumbu* buch. Ham	Polygonaceae	Phak pai	Whole plants	Skin diseases.
26.	*Rhus hookerii* sahni and bahadur.	Anacardiaceae	Heimang	Leaves and fruits	Hair lotion , antiviral anticancer
27.	*Solanum nigrum* L	Solanaceae	Hantehan	Whole plants	Ring worm, anti-inflammatory.
28.	*Solanum torvum* Swartz	Solanaceae	Kapkhathei	Fruits	Cough and tonsils complaints
29.	*Solanum aguivi* Lamarck	Solanaceae	Leipung khang	Fruits	Diarrhea dysentery and skin diseases.
30.	*Tagetes erecta* linn	Asteraceae	Sanarei	Root	Cold and bronchitis

Name of the medicinal plants species of Manipur exploited for trade along with RED List

Sl.No	Name of medicinals plants	Local name	Trade name	Plants part traded	Rate Rs / Kg	RET (rare, endangered, threatened)
1.	*Adhatoda vasica*	Nongmangkha angouba	Vasaka	Whole plants	15-20	Forest
2.	*Andrographis paniculta*	Bubati	King of bitter	Whole plants	100-200	Domestic
3.	*Centella asiatica*	Peruk	Gotu kola	Whole plants	30-50	Domestic and wild

4.	*Clerodendrum indicum*	Charoi utong	Bhargi	Leaves, stem, bark and inflorescence	40-50	Wild
5.	*Emblica officinale*	Haiku	Amla	fruits	20-30	Plantation and forest
6.	*Mimosa pudica*	Kangphal ekaithabi	Lajjalu	Whole plants	15	Wild
7.	*Orozylum indicum*	Samba	Sonapata	Fruits and barks	20-30	Rare and threatened
8.	*Paedilia foetida*	Uri oinam	Prasarani	Leaves	20	Wild
9.	*Parkia roxburgii*	Yongchak	Yongchak	Inflorescence and leaves fruits and bark	100—150	Cultivated and forest
10.	*Phlagocanthus thyrsiflorus*	Nongmangkha	Nongmangkha	Inflorescence and leaves	150-200	Domestic and wild

Results and Discussion

35 medicinal plants were identified as being used by the local population in the current investigation to treat a range of illnesses. The Indian System of Medicine's Ayurvedic practice has long recognized several of the botanicals used in the current investigation. The table below lists the plant species in alphabetical order by scientific name, family, regional/common name, portion used, medicinal purpose, and economic importance. People and villages near forests and farms have better knowledge and are more adept at treating a variety of diseases with conventional medicinal herbs. Elders are better knowledgeable about medicinal plants and their benefits than younger generations. According to the current survey, women are more knowledgeable than men about medicinal herbs.

In the study among the 35 medicinal plant, Adathoda vasica, Andrographis paniculata, Centella asiatica, Emblica officinalis, Eupotorium adenophorum spreng,Oroxylum indicum,Osbeckia nepalensis, Parkia roxburgii, Phlagocanthus thysiflorus,Zanthoxylum armatum are the top medicinal plant used by traditional people due to commonly available, less expensive and more effective as compare to physician drugs. Ten of the 35 therapeutic plants are protected under RET. Some therapeutic plants, such as Polygonum orientale, Eryngium foetidum, Allium hookeri, Ocimum basilicum, and Solanum species, among others, are also utilized in domestic settingsWhen it comes to distribution Tropical climates are better suited for cucurma caesia. Emblica officinale, Parkia roxburgii, Cymbopogon

citrates, and Phlagocanthus thyrsiflorus are plants that are confined primarily for commerce and utilized commercially. Also targeted for trade demand are plants like Orozylum indicum, Parkia rozburgii, Elshotzia blanda, and Callicarpa arborea. Ageratum conyzoids, Ficus hirta, Oxalis corniculta, Solanu nigrum, Solanum torvum, Plantago erosa, and Paedilia foetida are examples of plants that are essentially not marketed and are traded among the community or harvested directly from the forest for use as food and medicine. Parka roxburgii, a plant native to Manipur, is used as food and medicine in north-eastern India for conditions like piles, stomach problems, and skin infections. Following this plant are Orozylun indicum and Isholtzia blanda.This allows for the distribution of a variety of medicinal plants in the Imphal East and West of Manipur's various climate zones.

The Imphal valley, which is the primary original homeland of the Meitei community, was the focus of the current study's exploration of the three major indigenous community groups, namely Meitei, Kabui, and Tangkhul. According to Ningombam and Devi et al. (2014), complementary and alternative medicine techniques are complementary to conventional medicine in India, but they differ in their historical roots, theoretical underpinnings, diagnostic methodology, therapeutic practices, and means of healing. Meanwhile, the hilly region's two distinct community districts of the Kabui and Tangkhul ethnic groups, which are both mostly dependent on the forest, are Tamenglong and Ukhrul respectively. According to their demands, people have created a variety of processing techniques as they gather forest plants for food, medicine, spices, and fuel (Dweba and Mearns et al. 2011). Make the cultural and socioeconomic life. Terrace farming, also known as jhum cultivation, is the primary occupation in both communities. In addition, ethnomedicine therapies provided by various indigenous healers are discovered to play a significant role in both hills and valley populations, complementing contemporary pharmaceuticals in the primary healthcare system and effectively treating a wide range of illnesses. Despite being from the same highland region, some of them have moved to the Imphal valley and adopted its ethnic culture and customs.

Conservation:

A variety of medicinal plants naturally grow in Manipur's tropical, subtropical, temperate, and alpine climates; nevertheless, some of these plants are not sufficient from their native habitat alone. It is therefore necessary for cultivation and protection.

Some plants mature and drop their fruits to the ground; these seeds only sprout when the climate is favorable and a new seedling grows. These seedlings require safeguarding against wild animals, fire, soil degradation, and the necessity for translocation. In places like Clerodendrum indicum and Orozylum indicum, such methods are challenging. In both the valley and the hill, Andrographis paniculata are cultivated and preserved through seeds. *Eryngium foetidum is a plant that is commonly farmed in both hills and valleys, as well as in markets and tamed in kitchen gardens. Through rhizome cutting, Hedychium coronarium are grown and preserved in marshy areas. In the foothills on a slope, Orozylum indicum are grown and preserved by seed. Other plants that are not sold in the market include Ageratum conyzoides, Clerodendrum indicum, Mimosa pudica, Momordica charantia, Paedilia foetida, Kaemferia galangal, and Smilax ovifolia. As a result, people collect these plants from forests or sometimes even trade them from one household to another or even from one community to another.*

In the local market, plants including Eryngium foetidum, Polygonum posumbu, Rhus hookeri, and others are marketed for both medicinal and culinary uses. Last but not least, the plants that are in demand for trade as well as those that are being sold in the international market alongside trade names, such as Adhathoda basica as Vasaka/Bahek, Clerodendrum indicum as Bhargi/Akalbih, Cymbopogon citrates as lemon grass, Emblica Officinali as Amla, Mimosa pudica as Lajjalu, Orozylum indicum as tetu chal.

Conclusion

For the healthcare and welfare of the community in the two districts of Manipur, the ethnotraditional medical practices of all three of these cultures have been adapted and combined to create integrated contemporary traditional ethnomedicine. Therefore, it is urgent to adopt appropriate measures and trustworthy techniques to preserve and conserve the modern integrated indigenous traditional knowledge for the uses of 35 ethnomedicinal plants. However, in order to increase the demand of the people living in the Imperium, application for the treatment of various diseases requires conservation, cultivation, domestication, preservation, promotion, and the sustainable utilization of the above mention plants in the table.

In order to aid other, still-existing civilizations and other groups worldwide with their healthcare and awareness, the three main indigenous tribes conducted cross-cultural

study on ethnomedicinal plants. So, continual cross-cultural study has been done in medical anthropology. The 35 medicinal plants have been listed along with their therapeutic benefits and value. In the two distinct districts of Manipur, which are home to many indigenous communities with valuable medicinal plants and which are made up of 37 indigenous communities with various dialects, cultures, and traditions, the common medicinal plants used to treat various diseases and afflictions are investigated and documented. These indigenous people have a deep religious belief in and rely heavily on ethnomedicine for their medical care. After using various parts of the plants identified as having diseases, these indigenous peoples used medicinal herbs to treat a variety of disorders.

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