BIODIVERSITAS
Volume 23, Number 8, August 2022
Pages: 3991-3998

ISSN: 1412-033X
E-ISSN: 2085-4722
DOI: 10.13057/biodiv/d230817

Lesser-known wild edible plants used by Thadou-Kuki tribe of Indo-Myanmar region, Manipur, India

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Manuscript received: 4 May 2022. Revision accepted: 21 July 2022.

Abstract. *Haokip LL, Panmei R. 2022. Lesser-known wild edible plants used by Thadou-Kuki tribe of Indo-Myanmar region, Manipur, India. Biodiversitas 23: 3991-3998.* Wild edible plants are overlooked groups of plants which forms an integral part of the culture and tradition of many indigenous communities by providing both nourishment and variety in the diet. The present study is an inventory on the wild edible plants consumed by Thadou-Kuki tribe of Manipur. Field survey was carried out in five villages and three local markets of the district. The survey documented 73 wild edible plants consumed by the Thadou tribe. Except for one species each of Gymnosperm and Pteridophyte, all the species (71) are Angiosperms under 64 genera and 43 families. Most of the edible plants are consumed in cooked vegetable form (45%) while processed fruits (4%) is the least mode of consumption. The use of species like *Dysoxylum excelsum, Entada rheedii, Eurya acuminata* and *Erigeron canadensis* as vegetables and *Meyna spinosa* and *Physalis alkekengi* as fruits is one of the interesting records as these species' usage is meager among other tribes of the northeastern state. It is found that most of the wild plant resources play a vital role in the nutritional fulfillment, medicine and socio-economic aspects of the Thadou tribe.

Keywords: Indo-Myanmar, Tengnoupal, Thadou tribe, underutilized plant, wild edible plants

INTRODUCTION

Wild edible plants (WEPs) are those which are not cultivated or domesticated but are accessible from various natural habitations and used as food (Beluhan and Ranogajec 2010). WEPs is an important and overlooked component of the rural diets which also forms an integral part of the culture and tradition of many indigenous communities by providing both nourishment and variety in the diet. Around 20,000 wild plants are believed to be edible and nearly 20 plant taxa have been sustaining the daily calorie need of more than 85% of the global population (Rashid et al. 2015), especially the poor, vulnerable, and agrarian section of the rural area in underdeveloped and developing countries. According to the FAO (2017), the chronically undernourished global population increased from 777 million in 2015 to 815 million in 2016 (FAO 2017). Cultivation and consumption of WEPs might alleviate this undernourished crisis to some extent. Burlingame (2000) also opined that WEPs played an important role in poverty eradication and alleviation of malnutrition.

India is a diverse country where nature has bestowed rich botanical wealth growing wild in different parts of the country. The country is one of the world's 12 mega diversity centers and harbors about 21,847 species of Angiosperms and 82 species of Gymnosperm (Mao et al. 2021). Among these plants, wild edible plants are also an important component of Indian flora. In India, most rural communities still depend on wild plants to meet their dietary requirements, especially during food scarcity. With the inclusion of WEPs as regular dietary supplement, rural folk also sell these plants in the local markets for income generation.

The state Manipur is one of the easternmost northeastern states of the Indian sub-continent which falls in the Himalaya and Indo-Burma global biodiversity hotspot with rich and diversified flora (Mittermeier et al. 2011). The major forest types of the state range from tropical to sub-tropical and temperate deciduous forests (FSI 2021). The state of Manipur is inhabited by various ethnic communities possessing varied cultures and traditions. The different ethnic groups utilize plants in their own traditional way and consume different plant parts according to their knowledge developed through ages. The Thadou-Kuki tribe is one of Manipur's Scheduled tribes, dominantly inhabiting the state's hills district (viz., Tengnoupal, Churachandpur, Chandel and Kangpokpi) with a total population of about 1,90,595, i.e., about 7.42% of the total state population (Census 2011). Owing to their year-long association with the plants, they possess profound knowledge of the available plant resources, providing an ample opportunity to conduct the present study. The consumption of wild edible plants in Manipur state has been investigated by various scholars in different communities (Rajkumari et al. 2013; Konsam et al. 2016; Devi and Salam 2016; Panmei et al. 2019).

However, reports on wild edible plants of Thadou-Kuki tribe of Manipur were meager and therefore it provides an interesting approach to study the wild edible plants used by the tribe. The present study is an inventory of the wild

edible plants and analyzes the ethnobotanical uses with a view to conserving them for the younger generation.

MATERIALS AND METHODS

Study Site

The study was conducted in Tengnoupal District of Manipur, Northeast India (Figure 1). The Tengnoupal is a new district in Manipur, India, created by splitting the Chandel district in 2016. It is located about 40 miles (65 km) southeast of Imphal, the state capital, at the highest point of a road between Imphal and northwestern Myanmar (Burma). The district has a total forest cover of 84.85 % of the total geographical area (FSI 2021). The major topography of the district is rugged hilly terrain with an average elevation of 1450 m. The Thadou- Kuki tribe is one of the dominant tribes of the district speaking *Thadou* language under the Kuki-Chin and Burma groups of the Tibeto Burman language (Grierson 1903).

Informants' selection and data collection

The field survey was carried in the five villages (*viz.*, Phalbung, Tengnoupal, Senam, Bongyang and Saivom) and three local markets from December 2019 to July 2020. The informants were selected based on the recommendation made by the village Headmen/Chief, whose livelihood is dependent on the availability of the forest resources and who has profound traditional knowledge of wild edible plants. Prior Informants Consent (PIC) was taken before recording the information. Data were collected through interviews, field observation and local market survey. All together, 25 informants (5 male and 20 female) were interviewed through open discussion and using modified semi-structured questionnaires. The age of the informants ranges from 21 to 68 years. Majority of the informants were women folk, who play the key role in collecting wild edible plants from the forest and selling in the makeshift markets.

Plant collection and identification

During the fieldwork and market survey, the species were recorded, photographed and collected for correct identification. Collected plants were identified with the help of relevant taxonomic literature (Sinha 1996; Singh et al. 2000; Mao and Gogoi 2016). For correct nomenclature and author citation and for family delimitation, online database like the Plant Lists (www.theplantlist.org), the world flora online (www.worldfloraonline.org/) were consulted. Herbarium specimens were prepared following standard procedure (Jain and Rao 1977) and deposited in Department of Forestry and Environmental Science, Manipur University, India.

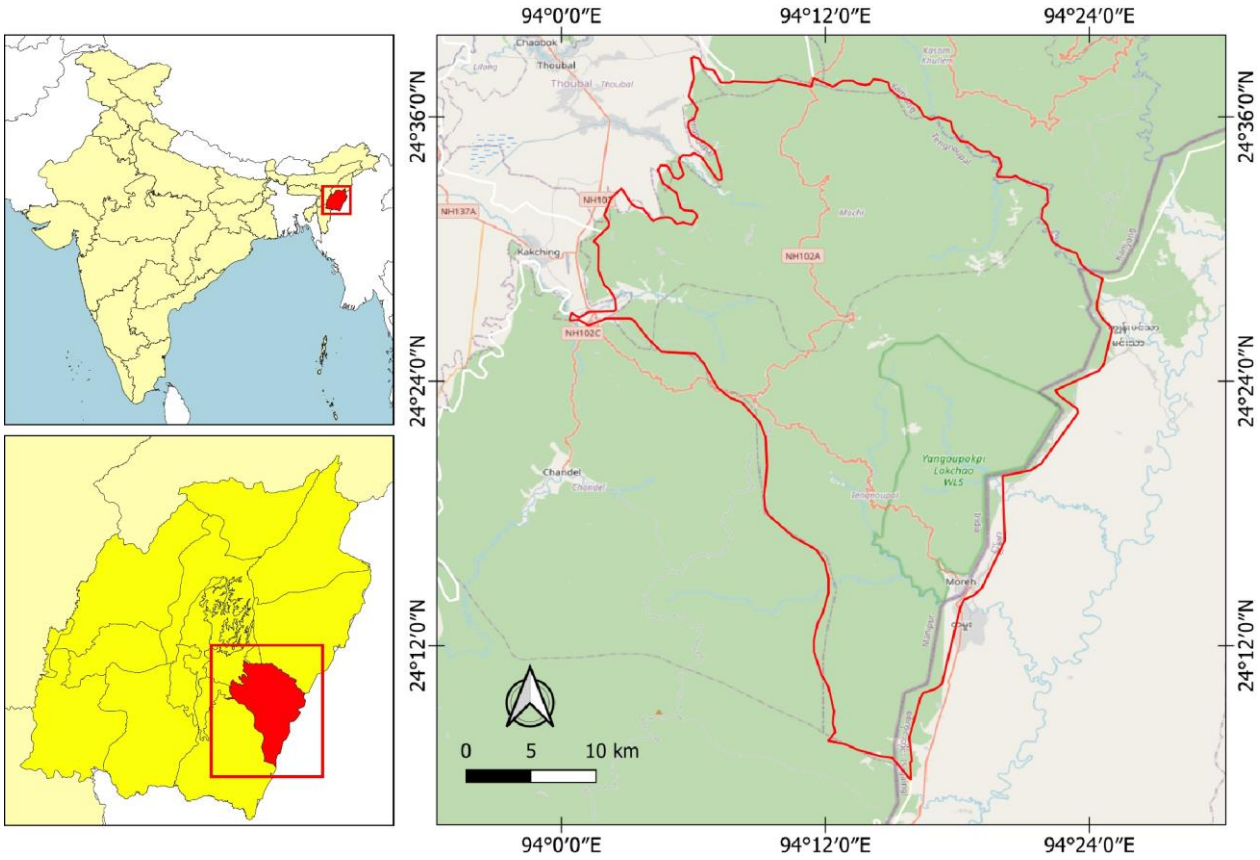

Figure 1. Map showing study site in Tengnoupal District of Manipur, Northeast India

Data analysis

To comprehend the usage pattern and mode of consumption, the wild edible plants are classified into 7 (seven) categories, viz. 1. Vegetable Raw (Veg-R), 2. Vegetable Cooked (Veg-C), 3. Vegetable Processed (Veg-P), 4. Fruits Raw (Fr-R), 5. Fruit Processed (Fr-P), 6. Spice and Condiment (SpC), 7. Medicine (Med). The plant parts like leaves, stems, flowers, etc., that are chewed directly or made into salad or chutney are placed under use category-Veg-R; the vegetables which are consumed after cooking, boiling, frying, roasting or made into soup and porridge, are categorized as Veg-C; whereas vegetable preserved in fermented form are categorized as Veg-P. Fruits that are consumed directly ripe or unripe are placed under Fr-R, and dried fruits, pickles and roasted under are placed under Fr-P.

RESULTS AND DISCUSSION

The people residing inside and near the forest consumed WEPs for a few reasons, viz., (i) hunger due to food scarcity, (ii) preservation of cultural practice, (iv) nutri-medicinal value, and (v) their delicacy. Wild edible plants play a vital role for people living near forest and remote areas. An instance is observed during *COVID-19 pandemic*, where people inhabiting near the forest exclusively depend on wild food when conventional agricultural food supplies are in scarcity. Apart from the use as food, many wild edible plants are also used as medicine, fodder, for rituals and other cultural-related functions. The present study recorded some lesser-known wild edible plants underutilized or overlooked by general public. The details of each species and the mode of consumptions are presented here.

Diversity and life form characteristics of the wild edible plants

The study documented 73 wild edible species under 64 genera and 43 families. Out of the total documented species, 71 species belong to Angiosperm group and 1 species each of Pteridophyte and Gymnosperm. Among the 71 Angiosperm, 59 species are dicotyledons, and only 12 species belong to monocots. Of the 43 families recorded, Poaceae, Leguminosae and Rubiaceae had the highest number of species, i.e., 7, 4 and 4, respectively while the remaining families were represented by 1 to 3 species. The dominance of Leguminous species among the wild edible is also reported by Bhatia et al. (2018) in Udhampur district of J&K India in which they also ascribed to the dominance of Leguminosae in the local flora or higher relevance of vegetables in the day-to-day life of the locals in the place. These wild edible plants are collected directly from inside forests, forest periphery and *jhum* (shifting cultivation) field. All the recorded species along with their botanical name, families, vernacular name (*Thadou*), part(s) used and mode of consumption, along with the availability status in the local markets, are presented in Table 1.

The study also recorded 6 different life forms of the edible plants. The largest numbers of edible plants are found to be shrubs (26 spp.), followed by trees (24 spp.), herbs (12 spp.), climbers (6 spp.), and Bamboo (5 spp.). Some other studies from different parts of the northeastern region and the world have reported 68 to 100 wild edible species (Bhatia et al. 2018; Silalahi and Nisyawati 2018; Menendez-Baceta et al. 2015; Konsam et al. 2016). The rich diversity of wild edible plant species (Table 1) in Tengnoupal district signifies that the locals possess vast information about the vegetation that provides foods. It may be due to the reason that most of the plants are more accessible or locally abundant. Various workers from different parts of the world indicate the importance of wild edible plants in fulfilling the nutritional requirements (Pfoze et al. 2012; Tuureira-Garcia et al. 2015; Konsam et al. 2016).

Edible part(s) and mode of consumption

The Consumption of wild edible plants by the tribe includes both the above ground or aerial and underground plant parts. In the present study, above ground parts (96.51%) are utilized higher than the underground parts (3.49%). The above ground parts include both the vegetative and reproductive parts like inflorescences (flower, inflorescence), fruits, leaves, (young leaves, frond), stem, pseudo-stem, young shoots, whole plants, culm, etc. and the underground edible parts include root, tuber, rhizome, etc. Among the above ground plant parts used, leaves (29%) and fruits (28%) are found to be the most commonly utilized part, followed by flower and inflorescences (10%), stem (10%), young shoot and frond (8%). The parts like the whole plant and seeds, are found to be the least used parts with less than 6% of species in each**.**

The analysis on mode of consumption revealed that most of the species are being preferably consumed as cooked vegetable (form (45%), followed by freshly eaten fruit (21%) and freshly eaten vegetable (11%), while processed fruits (4%) is the least mode of consumption (Figure 2). This may be due to the lack of food processing knowledge among the people and on the other hand the people rely on abundant floral resources. Fruits are mainly consumed raw. Some of the most common fruits consumed by the locals were, *Antidesma bunius, Artocarpus lacucha, Garcinia pedunculata, Docynia indica, Phyllanthus emblica, Rubus ellipticus, Rhus chinensis,* etc. Though the fruits are seasonal, the locals especially the children group are fond of these fruits.

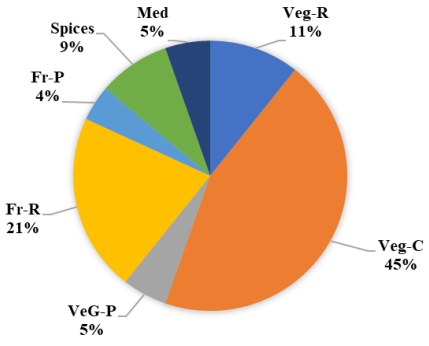

Figure 2. Proportional distribution of use categories of wild edible plants

Table 1. Wild edible plants used by Thadou-Kuki tribe, India

Botanical name [Family]; Col.no.	Vernacular name (*Thadou*)	Habit	Edible part(s)	Mode of consumption	Availability in market
Acacia pennata (L.) Willd. [Leguminosae]; *LH-06*	Khangkhu	Shrub	Leaf and stem	Cooked as vegetable	Yes
Alpinia caerulea (R.Br.) Benth. [Zingiberaceae]; *LH-56*	Aigidon	Herb	Young stem	Cooked as vegetable	Yes
Amomum dealbatum Roxb. [Zingiberaceae]; *LH-55*	Aigitil	Herb	Young stem, inflorescence	Cooked as vegetables	Yes
Antidesma bunius (L.) Spreng. [Phyllanthaceae]; *LH-27*	Chipiga	Shrub	Fruits	Raw Fruits	No
Antidesma japonicum Siebold & Zucc. [Phyllanthaceae]; *LH-68*	Toiki	Tree	Tender leaves	Cooked as vegetables	Yes
Artocarpus lacucha Buch.-Ham. [Moraceae]; *LH-74*	Taat	Tree	Fruits	Freshly eaten fruits	No
Acmella paniculata (Wall. ex DC.) R.K.Jansen [Compositae]; *LH-10*	Anshache	Herb	Young leaves and tender stems	Eaten raw or cooked as vegetable	Yes
Arundinaria sp. [Poaceae]; *LH-73*	Joumao	Bamboo	Tender shoots	Processed and cooked as vegetables	Yes
Bambusa tulda Roxb. [Poaceae]; *LH-79*	Gotang	Bamboo	Young shoots	Fermented and cooked as vegetables	Yes
Bauhinia variegata L. [Leguminosae]; *LH-17*	Vaupah	Tree	Flower	Cooked as vegetable	No
Brassaiopsis glomerulata (Blume) Regel [Araliaceae]; *LH-49*	Chonbeh	Shrubs	Fruits	Cooked as vegetable	Yes
Calamus caesius Blume [Arecaceae]; *LH-41*	Tengga	Climber	Fruit	Raw and as pickle	Yes
Carallia brachiata (Lour.) Merr. [Rhizophoraceae]; *LH-65*	Theihe	Tree	Fruits	Eaten fresh	Yes
Castanopsis tribuloides (Sm.) A.DC. [Fagaceae]; *LH-50*	Siga	Tree	Seed	Roasted seeds are edible	Yes
Centella asiatica (L.) Urb. [Apiaceae]; *LH-03*	Changkongche	Shrub	Whole part	Fresh and cooked, use as culinary vegetable and as a medicinal herb	Yes
Cinnamomum tamala (Buch.-Ham.) T.Nees & Eberm. [Lauraceae]; *LH-34*	Tezpata	Shrubs	Leaf	As spice and used in preparing tea	Yes
Cordyla africana Lour [Leguminosae]; *LH-11*	Jonghaithei	Tree	Fruit	Fruit are eaten raw	No
Curcuma angustifolia Roxb. [Zingberaceae]; *LH-57*	Aigipah	Herbs	Inflorescence	Cooked as vegetables	Yes
Citrus latipes (Swingle) Yu.Tanaka [Rutaceae]; *LH-58*	Hailipop	Tree	Fruit	As spices or aromatic in curries	Yes
Cucumis anguria L. [Cucurbitaceae]; *LH-59*	Kelchangmai	Climber	Fruit, leaves and vine	Fruits eaten raw; fresh or decoction of the vines and leaves are used are liver tonic	No
Cinnamomum verum J.Presl [Lauraceae]; *LH-39*	Thingthal	Tree	Seed	Bark as spices	Yes
Clerodendrum glandulosum Lindl. [Lamiaceae]; *LH-04*	Anphui	Shrub	Leaf	Cooked as vegetable, leaves also eaten against hypertension	Yes
Cycas pectinata Buch.-Ham. [Cycadaceae]; *LH-10*	Changlu	Shrub	Young fronds	Cooked as vegetable	Yes
Dendrocalamus latiflorus Munro [Poaceae]; *LH-76*	Gomi	Bamboo	Young shoots	Fermented or fresh cooked as vegetables	Yes
Dendrocalamus hamiltonii Nees & Arn. ex Munro [Poaceae]; *LH-75*	Gova	Bamboo	Young shoots	Fermented or raw cooked as vegetables	Yes
Dendrocalamus manipureanus H.B.Naithani & N.S.Bisht [Poaceae]; *LH-80*	Gopi	Bamboo	Young shoots	Fermented or fresh cooked as vegetables	Yes
Dioscorea bulbifera L. [Dioscoraceae]; *LH-18*	Ha	Shrub	Tuber	Cooked as vegetable	Yes
Dioscorea glabra Roxb.[Dioscoraceae]; *LH- 62*	Phin	Climber	Tuber	Cooked as vegetable	No
Diplazium esculentum (Retz.) Sw. [Athyriaceae]; *LH-53*	Chekoh	Shrub	Leaf and young stem	Cooked as vegetable	Yes
Docynia indica (Wall.) Decne. [Rosaceae]; *LH-37*	Heitup/Theiphah	Tree	Fruit	Fresh eaten as fruits	Yes
Dysoxylum excelsum Blume [Meliaceae]; *LH-23*	Thingthupi	Tree	Leaves and young shoots	Cooked as vegetable	Yes
Elaeocarpus floribundus Blume [Elaeocarpaceae]; *LH-54*	Jonmot	Tree	Fruit	Fresh eaten as fruits	Yes
Elsholtzia communis (Collett & Hemsl.) Diels [Lamiaceae]; *LH-28*	Thallou	Herb	Inflorescence	Cooked or fresh as Spices	Yes
Entada rheedii Spreng. [Leguminosae]; *LH-32*	Kang	Climber	Seeds and leaves	Leaves cooked as vegetable; seeds are used for aesthetic purposes	Yes
Elsholtzia blanda (Benth.) Benth. [Lamiaceae]; *LH-29*	Lengmusel	Herb	Leaf and inflorescence	Fresh and cooked spices	No

Eurya acuminata DC. [Pentaphylacaceae]; *LH-05*	Sizou	Tree	Leaf	Cooked as vegetable	Yes
Eryngium foetidum L. [Apiaceae]; *LH-41*	Kol-pathikhom	Herbs	Whole part	Cooked as spices	Yes
Fagopyrum esculentum Moench [Polygonaceae]; *LH-71*	Anshache	Herb	Young leaves and tender stems	Eaten raw or cooked as vegetable	Yes
Ficus semicordata Buch.-Ham. ex Sm. [Moraceae]; *LH-19*	Thei	Tree	Fruit	Raw as fruits	Yes
Ficus carica L. [Moraceae]; *LH-7*	Theibache	Tree	Leaf	Cooked as vegetable	No
Garcinia pedunculata Roxb. ex Buch. -Ham. [Cluciaceae]; *LH-01*	Thuhpi	Tree	Fruit	Fresh as fruit	Yes
Erigeron canadensis L. [Compositae]; *LH-44*	Loudong	Shrub	Leaf and young stem	Cooked as vegetable	No
Houttuynia cordata Thunb. [Saururaceae]; *LH-31*	Aithanglou	Herb	Leaf	Cooked or raw as side dish with fermented fish and chilli	Yes
Imperata cylindrica (L.) Raeusch. [Poaceae]; *LH-33*	Bigai	Shrub	Young flowers	Cooked as vegetable	No
Juglans nigra L. [Juglandaceae]; *LH-38*	Khaga	Tree	Seed	Roasted seeds are edible	Yes
Lansium parasiticum (Osbeck) K.C.Sahni & Bennet [Meliaceae]; *LH-22*	Theipangkai	Tree	Fruits	Fresh as fruit	Yes
Litsea cubeba (Lour.) Pers. [Lauraceae]; *LH-64*	Thinglha	Tree	Fruits	Raw or cooked spices	Yes
Manihot esculenta Crantz. [Euphorbiaceae]; *LH-77*	Thingkolkai	Shrub	Leaves and tubers	Eaten either cooked or fresh	Yes
Melastoma malabathricum L. [Melastomataceae]; *LH-16*	Naolukop	Shrub	Fruits	Raw as fruit	No
Meyna spinosa Roxb. ex Link [Rubiaceae]; *LH-12*	Heiphi/Theipi	Tree	Fruit	Dried fruit are eaten	Yes
Musa sp. [Musaceae]; *LH-20*	Changlong	Shrub	Pseudo-stem and inflorescence	Cooked or fresh as vegetable	No
Myrica esculenta Buch.-Ham. ex D. Don [Myricaceae]; *LH-42*	Makei	Shrub	Fruit	Raw as fruits	No
Persicaria chinensis (L.) H. Gross [Polygonaceae]; *LH-13*	Ahmutan	Herb	Leaf and stem	Fresh or cooked as vegetable	No
Physalis alkekengi L. [Solanaceae]; *LH-14*	Pohkol	Herb	Fruits	Fresh fruit is eaten	Yes
Paederia foetida L. [Rubiaceae]; *LH-21*	Veinamgui	Climber	Whole part	Cooked as vegetable and used as medicinal herbs for bone setting	Yes
Plantago asiatica subsp. *erosa* (Wall.) Z.Yu Li [Plantaginaceae]; *LH-60*	Vohbilche	Herbs	Leaf	Cooked as vegetables	Yes
Phlogacanthus thyrsiflorus Nees [Acanthaceae]; *LH-35*	Kollhou	Shrub	Leaf and flower	Cooked as vegetable; leaves decoction taken against cold and cough.	Yes
Phyllanthus emblica L. [Phylllanthaceae]; *LH-25*	Sohlhu	Tree	Fruits	Fresh or dried as fruit	Yes
Rhus chinensis [Anacardiaceae]; *LH-26*	Khongma	Tree	Fruits	Fresh or dried as fruits	Yes
Rubus ellipticus Sm. [Rosaceae]; *LH-08*	Ling- theimi	Shrub	Fruit	Raw as fruit	No
Rhynchotechum ellipticum (Wall. ex D. Dietr.) A. DC. [Gesneriaceae]; *LH-02*	Chelep-che	Shrub	Leaf	Cooked as vegetable	Yes
Syzygium cumini (L.) Skeels [Myrtaceae]; *LH-40*	Mui	Tree	Fruit	Fresh as fruit	Yes
Solanum anguivi Lam. [Solanaceae]; *LH-44*	Anjangkha	Shrub	Fruit	Consumed as boiled or fried in curries. Fruits used in cough	Yes
Solanum torvum Sw. [Solanaceae]; *LH-45*	Sai-anjang	Shrub	Fruit	Boil or steam fruit as vegetables	Yes
Solanum nigrum L. [Solanaceae]; *LH-46*	Anjou	Shrub	Leaf	Cooked as main ingredient in porridge	Yes
Sapindus trifoliatus L. [Sapindaceae]; *LH-63*	Ponsop mu	Tree	Seeds	Seeds are eaten. Outer covering of the seeds is used as cleansing agent	Yes
Spondias pinnata (L. f.) Kurz [Anacardiaceae]; *LH-52*	Toilheng	Tree	Fruit	Raw as fruits	Yes
Trichodesma sp. [Boraginaceae]; *LH-15*	Lhanglhache	Shrub	Leaf & inflorescence	Cooked as vegetable	Yes
Wendlandia glabra DC. [Rubiaceae]; *LH-09*	Athipah	Shrub	Inflorescence	Raw and cooked as vegetable	Yes
Pilea sp. [Uritcaceae]; *LH-60*	Songche	Shrub	Young stems and leaves	Raw or cooked vegetables	Yes
Embelia sp. [Primulaceae]; *LH-61*	Khaoche	Climber	Leaves	As vegetables	Yes
Zanthoxylum acanthopodium DC. [Rutaceae]; *LH-43*	Lingnamche	Shrub	Leaf and fruit	Cooked as spices	Yes
Zanthoxylum rhetsa DC. [Rutaceae]; *LH-48*	Singjol	Shrub	Leaf	Cooked as vegetable	Yes

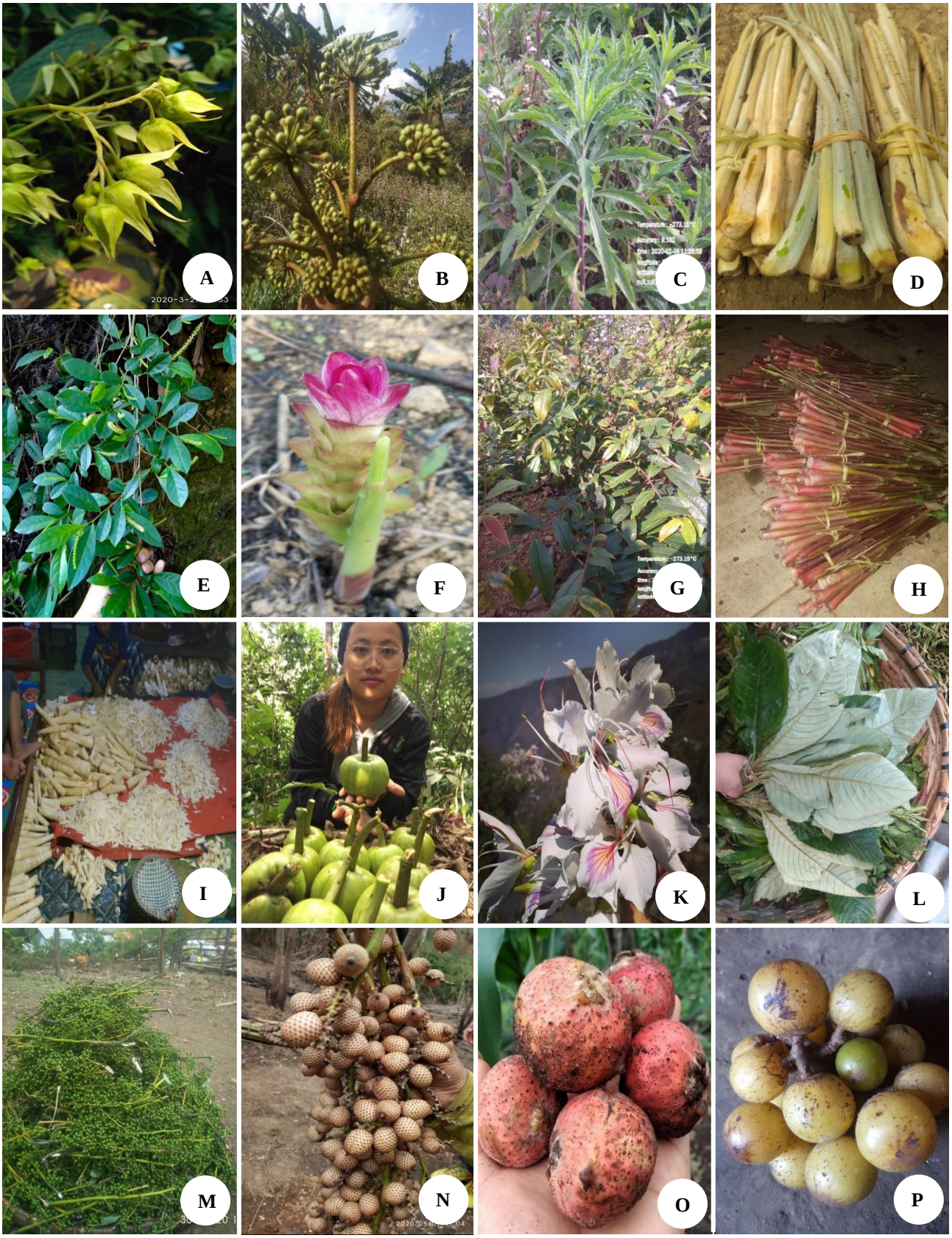

Figure 3. Wild edible plants used by Thadou tribe, India. A. *Physalis alkekengi;* B. *Brassaiopsis glomerulata;* C. *Erigeron canadensis;* D. *Cycas pectinata;* E. *Antidesma japonicum;* F. *Curcuma angustifolia;* G. *Eurya acuminata;* H. *Alpinia caerulea;* I. *Dendrocalamus hamiltoni* fresh shoot in local Market (Tengnoupal); J. *Garcinia pedunculata* in field; K. *Bauhinia variegata*; L. *Rhynchotechum elliptichum;* M. *Litsea cubeba* in local market, Phalbung (Tengnoupal); M. *Calamus caesius*; N. *Ficus semicordata*; O. *Lansium parasiticum*

Most of the wild vegetable recorded in the present study are also consumed by other communities of Northeast India (Rajkumari et al. 2013; Medhi and Borthakur 2013; Konsam et al. 2016; Devi and Salam 2016; Panmei et al. 2019; Doni and Gajurel 2020). Fresh and fermented bamboo shoot has been the important integral vegetable among the Thadou Kuki and other various communities of Northeast India. Besides self-consumption, collection of bamboo shoot is one of the potential resources to generate income through marketing in the local and street vendors.

To comprehend the nutritional composition of the recorded wild vegetable, cross-validation was made with some published literature. Some wild edible vegetable has diverse, potentially well comparable or has more nutrients than the commercially cultivated species (Zeghichi 2003; Panmei et al. 2016; Seal et al. 2017). The leaves of *Diplazium esculentum* which is widely consumed by the *Thadou* tribe, is also found to have good crude protein content (143.8 g kg^{-1}) (Tapan 2012). These values of protein content are even higher than many commercial fruits and leafy vegetables like apple, litchi, cabbage, and cauliflower (Tapan 2012; Gopalan et al. 2004). The crude fiber content of *Rhynchotechum ellipticum* (39.84%) (Panmei et al. 2016) is higher than those in some commercial vegetables like broad beans (8.9%), cabbage (2.8%), and spinach (2.5%) as reported by Gopalan et al. (2004). Furthermore, nutritional analysis of WEPs will help in understanding the nutraceutical properties.

Among the various edible plants recorded, species like *Dysoxylum excelsum, Entada rheedii, Eurya acuminata,* and *Erigeron canadensis* (as vegetables) and *Meyna spinosa* and *Physalis alkekengi* (as fruits) is one the of the interesting record of the present study. The edible usage record of these species is meager among other tribes of the northeastern state. This also indicates the rich traditional knowledge of the Thadou-Kuki in selecting wild edible plants.

Food medicine

Besides providing the nutritional requirement, many wild edible plants are also used in treatment of various health ailments or as nutraceuticals. *Centella asiatica* is used as a blood purifier, leaf paste in cut and wound by the community. The species is well known in various Indian systems of medicine because of its various medicinal properties. *Paederia foetida* is used against gastritis and bone setting besides as food. *Clerodendrum glandulosum* is well known to the community against hypertension. *Phlogocanthus thyrsiflorus* leaves are used as decoction for cold and cough. It is a well-known fact that wild edibles are also used as medicines worldwide. Uses of a large number of wild edible plants as medicine have also been reported by Etkin (2002), Teklehaymanot and Giday (2010), Rajkumari et al. (2013), Menendez-Baceta et al. (2015), Bhatia et al. (2018), Silalahi and Nisyawati (2018), Phatlamphu et al. 2021 from different part of the world among different communities.

Economic importance of the wild edible plants

Out of the total 73 edible species recorded, 79.45 % are available in local markets and street vendors. This may be due to the preference of locals upon wild edible plants. Among the leafy vegetables, species like *R. ellipticum, Eurya acuminata, Zanthoxylum rhetsa, D. esculentum, Dysoxylum gobara, Wendlandia tentoria, Pilea* sp. *etc*., are highly preferred by the local people and have a high demand among the Thadou tribe which in return could pave the way for commercialization of these species. Some of the households earned good revenue through the marketing of the wild plant collection. The short duration market survey in the Tengnoupal district revealed that these species are not only used by the Thadou tribe but also preferred by the other tribal communities of the state. Other ethnobotanical workers from Manipur have also reported the preference and consumption of these species (Pfoze et al. 2012; Ranjan et al. 2013; Konsam et al. 2016). Besides the leafy vegetable, a few wild edible macrofungi (mushrooms) are also recorded in the present study. Species like *Lactarius rubidus, Auricularia delicata, Auricularia polytricha,* and *Lactarius rubidus*, which are available seasonally are highly preferred by the locals and also have high market value. Among the edible fruits, fruits of *Calamus caesius, Garcinia pedunculata*, *Myrica esculenta,* and *Docynia indica* are some of the highly marketed fruits in the district. Besides fresh consumption, *Calamus caesius* fruits are also used in making pickle.

This study concluded that the Thadou tribe in Tengnoupal district of Indo-Myanmar region consumed many wild edible plants as food and medicines and sold them to get money. We recommend that nutritional analysis and mass propagation of these wild edible plants be done to preserve the cultural heritage of this tribe.

ACKNOWLEDGEMENT

We express our sincere gratitude and appreciation to the villagers especially the women folk of the surveyed villages for sharing their valuable knowledge and for their kind co-operation during the fieldwork. We also thank anonymous reviewers for their valuable inputs.

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