

## Ethnobotanical investigation of wild edible and medicinal plants used by the *Chiru* Tribe of Manipur, India

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### Abstract

The *Chiru* tribe is one of the scheduled tribe groups of Manipur, distributed in Senapati district, with unique cultural and ethnobotanical practices. The study has revealed the use of 69 wild edible plant species for traditional medicine and other ethnobotanical purposes by them. These reported plant species will form the basis of bioprospecting the edible medicinal plants used by the tribe. Study reveals 69 plant species belonging to 62 genera and 36 families. Most of the plant species are used in common diseases like cough, cold, diarrhoea, dysentery, diabetes, jaundice etc. and mostly consume as decoction. Such type of ethnobotanical knowledge is needed to conserve for further research and also to help the economic upgradation of the tribe.

**Key words:** *Chiru* tribe, Ethnobotany, Senapati & Bungle

### INTRODUCTION

There are numerous medicinal plants in North- East India, which needs screening for their active compounds. Bioprospecting of these plants for their medicinal property is made easier, if we have the list of potential plants. Such list is easily provided by ethnobotanical studies on medicinal plants. Wild edible medicinal plants are selectively more reliable for preparing commercial pharmaceutical drugs. These may be because of the plants are edible and might have less side effect and is available in wild condition, hence less explore and unknown to us. *Chirus* were among the first few people who moved into the virgin habitat in search of fertile land (Ranjit & Latif 1997). The appearance of *Chiru* in Manipur chronicles dates back to sixteenth century (Shakespeare 1912). They have their own particular life style and culture which marked them distinct from other tribal communities. For the present work *Chiru* village was selected considering their high population structure. Bungle *Chiru* village lies between 24° 40' 33.1" N latitude and 93° 45' 18.7" E longitude and the villagers used a large number of wild medicinal plants. The tribal communities in North-eastern India are either unexplored or underexplored with regard to Ethnobotanical and ethnomedicinal aspects (Rethy *et al* 2010). Some such works relating to the tribes living in Manipur include Devi *et al* (2011a,b); Khatoon *et al* (2012); Salam *et al* (2012). So there is an urgent need to document all ethnic knowledge, particularly ethnomedicinal knowledge of different ethnic communities to save and utilize the traditional culture (Shivanna & Rajkumar 2010; Devi *et*

*al* 2011). Due to poor transportation and available medical facilities in the *Chiru* inhabiting area, people still depends onto the traditional faith in local medicine men and wild herbal plants for survival. Though the village is rich in wild medicinal plants diversity but no status assessment has been made to date on any ethnobotanical account, particularly on wild edible and medicinal plants. A large number of wild edible and ethnomedicinally important plants are used by the tribe. The present work has been taken up to explore and record the traditional knowledge on such plants by the *Chiru* people living this village. The Bungte *Chiru* village is in Senapati district and located in the west of Keinou Meitei village, 24 km. from Imphal along the Imphal Tidim- road.

## MATERIALS AND METHODS

Ethnobotanical field surveys were undertaken during 2010 – 2012 covering all seasons for gathering information on each and every plant species of edible and ethnomedicinal importance. Elderly persons including local medicine-men were interviewed. The primary health care system has been documented by using semi-structured questionnaire by interviewing with knowledgeable persons and by visiting community vegetable market. In collecting information on wild edible and medicinal details, standard methods suggested by Jain (1964, 1967) have been followed. Several floras and monographs were consulted including Hooker (1872 – 1897); Deb (1961 a, b); Kanjilal *et al* (1934 – 1940) and Sinha (1987) for the identification of collected plants. Methods suggested by Jain & Rao (1977) have been followed to process and document the specimens. The specimens are deposited in the Herbarium of the Department of Ecology and Environmental Science, Assam University, Silchar and Department of Life Sciences, Manipur University, Canchipur, Imphal, Manipur.

## RESULTS AND DISCUSSION

During the present survey 69 species of plants belonging to 62 genera and 36 families has been recorded those are used by the *Chiru* people against different diseases. The recorded plant species were enumerated alphabetically in Table 1 along with their botanical and vernacular names, families, parts used and ethnomedicinal as well as ethnobotanical aspects. Further analysis reveals that there are 28 species of herbs, 16 species of shrubs, 17 species of trees, 6 species of climbers and 2 species of fungi among the recorded plants. Different plant parts like leaves, roots, rhizomes, flowers, fruits, seeds and whole plant are used against different ailments.

Further analysis revealed that 17 species are used through leaves, 1 rhizome, 8 seeds, 2 corm, 16 fruits, 3 flowers and rest are by whole plants. On the other hand, 17 plants are used for stomach disorder, diarrhoea and dysentery, 9 plants for diabetes, 8 plants for cough, cold and headache, 5 plants for urinary disorder and kidney stone, 4 plants each for pile, jaundice and clothing of blood, 3 plants for hypertension, 2 plants each for white discharge, dandruff, throat pain, asthma and bronchitis, increase milk flow, 1 plant each for skin disease, appetiser, toothche, and bone fracture.

## CONCLUSION

The present study focused on the need of proper documentation of the medicinally used plants by the *Chiru* tribe. The traditional knowledge system is restricted to few identified persons in the community and this knowledge generally inherited through the oral transfer and that generally in family lineage as there is no written document. But, the present generation

**Table 1.** Wild edible and medicinal plants used by the *Chiru* Tribe

Scientific name [Family]; Local name; Exsiccatae	Parts used	Ethnomedicinal uses
<i>Achyranthes aspera</i> Linnaeus [Asteraceae]; <i>Khujum pere</i> ; <i>Ranjana 0008</i>	Whole plant	As vegetable against lack of appetite; increases milk yield in cattle
<i>Alpina galanga</i> Willdenow [Zingiberaceae]; <i>Roleng</i> ; <i>Ranjana 0001</i>	Rhizome, leaves & flowers	Crushed rhizome crushed applied on scabies; leaf juice used in dysentery; flowers eaten as chutney
<i>Allium sativum</i> Linnaeus [Alliaceae]; <i>Puruntal</i> ; <i>Ranjana 0020</i>	Bulb	Bulb paste with mustard oil applied over forehead reduces headache
<i>Andrographis paniculata</i> Nees [Acanthaceae]; <i>Vubati</i> ; <i>Ranjana 0003</i>	Leaves	Boiled leaf extract used against fever, cold, cough and urinary disorder
<i>Antidesma acidum</i> Retzius [Euphorbiaceae]; <i>Cheichubu</i> ; <i>Ranjana 0007</i>	Leaves	As vegetable; boiled extract taken in stomach trouble
<i>Artocarpus lakoocha</i> Roxburgh [Moraceae]; <i>Hari kokthong</i> ; <i>Ranjana 0040</i>	Barks & fruits	Bark decoction against diabetics; fruits in stomach disorder
<i>Auricularia polytricha</i> Linnaeus [Agaricaceae]; <i>Pachokuor</i> ; <i>Ranjana 0037</i>	Fruit body	Cooked plant against constipation and stomach ulcer
<i>Cajanus cajan</i> Linnaeus [Fabaceae]; <i>Berekhing</i> ; <i>Ranjana 0049</i>	Leaves	Boiled extract used in jaundice
<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; <i>Sivonpui / Ulenchom</i> ; <i>Ranjana 0006</i>	Whole plant	Extract with honey against typhoid fever and irregular menstruation; an ingredient of local hair lotion “ <i>Chenghi</i> ”; stops hair fall
<i>Clerodendrum serratum</i> Moon [Verbenaceae]; <i>Moirangkhanamba</i> ; <i>Ranjana 0039</i>	Young shoots & inflorescence	Boiled extract of both used in controlling diabetes
<i>Clerodendrum colebrookianum</i> Walpers [Verbenaceae]; <i>Anpheri</i> ; <i>Ranjana 0015</i>	Young shoots & flowers	Shoots eaten fresh/ cooked; flowers eaten against hypertension
<i>Clerodendrum indicum</i> (Linnaeus) O. Kuntze [Verbenaceae]; <i>Charoi-Utong</i> ; <i>Ranjana 0053</i>	Tender shoots	Boiled extract used against diabetics
<i>Crassocephalum crepidioides</i> (Bentham) S. Moore [Asteraceae]; <i>Anthar loihar</i> ; <i>Ranjana 0013</i>	Whole plant	Cooked plant used against stomach ulcer
<i>Curcuma angustifolia</i> Roxburgh [Zingiberaceae]; <i>Aitang</i> ; <i>Ranjana 0005</i>	Flowers	As vegetable; used in stomach pain
<i>Cucurbita maxima</i> Duchesne [Cucurbitaceae]; <i>Mai</i> ; <i>Ranjana 0012</i>	Flowers	Paste with <i>Crassocephalum crepidioides</i> applied on forehead controls fever in children

Scientific name [Family]; Local name; Exsiccatae	Parts used	Ethnomedicinal uses
<i>Cyphomandra betacea</i> Cavan [Solanaceae]; <i>U-Khamen Ashinba</i> ; <i>Ranjana 0010</i>	Fruits	Cooked to use against stomach trouble
<i>Dillenia indica</i> Linnaeus [Dilleniaceae]; <i>Heigri</i> ; <i>Ranjana 0063</i>	Fruits	Fruit decoction as remedy of dandruff and hair fall
<i>Dysoxylum gobarum</i> (Buchanan-Hamilton) Merrill [Meliaceae]; <i>Dangdou</i> ; <i>Ranjana 0016</i>	Leaves & young shoot	Decoction of both used against intestinal disorder
<i>Enydra fluctuans</i> Loureiro [Asteraceae]; <i>Komprek tujombi</i> ; <i>Ranjana 0061</i>	Young shoots	Boiled extract used to treat urinary tract infection
<i>Eryngium foetidum</i> Linnaeus [Apiaceae]; <i>Kor maroi</i> ; <i>Ranjana 0059</i>	Whole plant	Smelling of smashed leaf against epilepsy; as spice
<i>Erythrina variegata</i> Linnaeus [Fabaceae]; <i>Khongshu Anoi</i> ; <i>Ranjana 0009</i>	Flowers	Lightly pounded and applied on fore head to control fever
<i>Eugenia praecox</i> Roxburgh [Myrtaceae]; <i>Shileima</i> ; <i>Ranjana 0026</i>	Fruits	Edible; seeds against diabetes
<i>Fagopyrum esculentum</i> Moench [Polygonaceae]; <i>Wakha yendem</i> ; <i>Ranjana 0064</i>	Young shoots	Cooked with dry fish and eaten by diabetic patients as remedy
<i>Ficus hispida</i> Linnaeus f. [Moraceae]; <i>Meikebo</i> ; <i>Ranjana 0062</i>	Fruits	Boiled decoction given in leucorrhoea and urinary track problems
<i>Ficus palmata</i> Forsskål [Moraceae]; <i>Theiba</i> ; <i>Ranjana 0055</i>	Leaves & fruits	Eaten cooked; eaten fresh to control diabetes
<i>Ficus glomerata</i> Roxburgh [Moraceae]; <i>Theibong</i> ; <i>Ranjana 0019</i>	Young fruits & leaves	Fresh fruits and cooked/ fresh leaves used against diabetes
<i>Glochidion multicolourae</i> Voigt [Euphorbiaceae]; <i>Kamrisi</i> ; <i>Ranjana 0017</i>	Young leaves	Cooked leaves used against intestinal disorder; also as delicious curry
<i>Goniothalamus sesquipedalis</i> (Wallich) Hooker f. & Thomson [Annonaceae]; <i>Leikham</i> ; <i>Ranjana 0060</i>	Whole plant	Decoction of fresh leaf drunk as remedy for stomach pain
<i>Ipomoea batatas</i> (Linnaeus) Lamarck [Convolvulaceae]; <i>Korkai</i> ; <i>Ranjana 0025</i>	Leaves & tubers	Leaf paste applied over boils and controls clotting of blood in wounds; tubers eaten cooked / fresh
<i>Ipomoea quamoclit</i> Linnaeus [Convolvulaceae]; <i>Nungarei</i> ; <i>Ranjana 0067</i>	Whole plant	Boiled extract used in curing leucorrhoea
<i>Justicia adhatoda</i> Martius ex Nees [Acantheceae]; <i>Chikppa</i> ; <i>Ranjana 0018</i>	Leaves & flowers	Leaves and flowers used against cough, cold and fever

Scientific name [Family]; Local name; Exsiccatae	Parts used	Ethnomedicinal uses
<i>Litsea cubeba</i> Persoon [Lauraceae]; Ngairong; Ranjana 0046	Flowers & fruits	Used in sore throat; barks used as spice
<i>Lysimachia parviflora</i> Baker [Primulaceae]; Kengoi; Ranjana 0027	Whole plant	Cooked plant as curry to use in diarrhoea and dysentery
<i>Manihot esculenta</i> Crantz [Euphorbiaceae]; Thing korkai; Ranjana 0029	Leaves & tubers	Young shoots eaten against constipations; tubers eaten either cooked /fresh
<i>Marsilea minuta</i> Linnaeus [Marseliaceae]; Eeshing yensil; Ranjana 0073	Whole plant	Cooked plant paste applied over wounds for blood clotting
<i>Mentha spicata</i> Linnaeus [Lamiaceae]; Loi hidak; Ranjana 0028	Whole plant	Fresh or cooked leaf controls indigestion
<i>Meyna spinosa</i> Roxburgh <i>ex</i> Link [Rubiaceae]; Theichut; Ranjana 0044	Leaves & fruits	Leaves used in boils to prevent clothing of blood; ripe fruits edible; used as body lotion
<i>Mukia maderaspatna</i> Linnaeus [Cucurbitaceae]; Lam thabi; Ranjana 0031	Leaves	Leaf decoction used in controlling jaundice
<i>Musa sapientum</i> Linnaeus [Musaceae]; Changlong; Ranjana 0042	Pseudostem & flowers	Pseudostems used in controlling constipation and to increase lactation during child birth; flowers in diarrhoea
<i>Nelumbo nucifera</i> Gaertner [Nelumbonaceae]; Thambal; Ranjana 0056	Leaves & flowers	Young leaves eaten fresh against diabetes; gargling of boiled flower extract to cure tonsillitis
<i>Nicotiana tabacum</i> Linnaeus [Solanaceae]; Hidak Mana; Ranjana 0041	Leaves	Chewed dried leaves applied over leech wounds in cattles
<i>Nymphoides indica</i> (Linnaeus) O. Kunze [Menyanthaceae]; Ngachak – Komol; Ranjana 0066	Whole plant	Decoction of plant used against fever and jaundice
<i>Ocimum americanum</i> Linnaeus [Lamiaceae]; Bombha; Ranjana 0035	Whole plant	Cooked or fresh leaves eaten against piles and intestinal disorder
<i>Ocimum basilicum</i> Linnaeus [Lamiaceae]; Naoseklei; Ranjana 0011	Young shoots	Young shoots eaten against piles
<i>Oryza sativa</i> Linnaeus [Poaceae]; Phou; Ranjana 0057	Seeds	Cooked rice mixed with charcoal powder applied to area with fractured bone for quick healing
<i>Oxalis corniculata</i> Linnaeus [Oxalidaceae]; Yensil; Ranjana 0058	Whole plant	Juice of steam-cooked plant mixed with common salt is used in gastric and indigestion
<i>Passiflora edulis</i> Sims [Passifloraceae]; Sitaphal; Ranjana 0036	Leaves & fruits	Fruits edible; fomentation of leaves is used against clotting of blood

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<i>Pavetta indica</i> Linnaeus [Rubiaceae]; <i>Chikpa-thur</i> ; <i>Ranjana 0068</i>	Leaves	Cooked leaves to get relief of jaundice
<i>Persicaria odorata</i> (Loureiro) Soják [Polygonaceae]; <i>Phakphai</i> ; <i>Ranjana 0048</i>	Young shoots	Shoots used in controlling hypertension; fresh shoots eaten with chutney
<i>Phlogacanthus thyrsiflorus</i> (Roxburgh) Nees [Acanthaceae]; <i>Chikkpa</i> ; <i>Ranjana 0045</i>	Leaves & flowers	Fresh or decoction of both used against cough and cold
<i>Phoenix sylvestris</i> (Linnaeus) Roxburgh [Aracaceae]; <i>Thanhtup</i> ; <i>Ranjana 0034</i>	Fruits	Young fresh fruits eaten against diarrhoea and dysentery
<i>Phyllanthus amarus</i> Schumann & Thonning [Euphorbiaceae]; <i>Sanjen Heigru</i> ; <i>Ranjana 0071</i>	Whole plant	Boiled extract used in controlling diabetes
<i>Pimpinella hastata</i> C.B. Clarke [Apiaceae]; <i>Uikeh</i> ; <i>Ranjana 0054</i>	Whole plant	Boiled extract of plant used against hypertension and stomach pain
<i>Plantago erosa</i> Wallich [Plantaginaceae]; <i>Anpat</i> ; <i>Ranjana 0004</i>	Whole plant	Slightly warmed leaf applied on boils; boiled plants used against urinary disorder
<i>Pratia nummularia</i> A. Brown & Ascherson [Companulaceae]; <i>Nungai peruk</i> ; <i>Ranjana 0050</i>	Whole plant	Boiled extract of whole plant administered in kidney stone
<i>Portulaca oleracea</i> Linnaeus [Protulacaceae]; <i>Leibak Kundo</i> ; <i>Ranjana 0052</i>	Whole plant	Boiled extract used in stomach disorder
<i>Psidium guajava</i> Linnaeus [Myrtaceae]; <i>Khaminton</i> ; <i>Ranjana 0032</i>	Young shoots & fruits	Fresh shoots and fruits eaten to control dysentery
<i>Rotala rotundifolia</i> Buchanan - Hamilton ex Roxburgh [Lythraceae]; <i>Labuk leiri</i> ; <i>Ranjana 0033</i>	Whole plant	Boiled extract used against urinary diseases
<i>Spondius pinnata</i> (Linnaeus f.) Kurz [Anacardiaceae]; <i>Heining</i> ; <i>Ranjana 0065</i>	Fruits	Boiled extract applied to piles to reduce swelling
<i>Schyzophyllum communie</i> Linnaeus [Schyzophyllaceae]; <i>Pachichet</i> ; <i>Ranjana 0043</i>	Fruit body	Decoction of fruit body used against asthma & bronchitis; eaten as curry with dry meat or fish
<i>Solanum anguivi</i> Lamarck [Solanaceae]; <i>Leibung khanga</i> ; <i>Ranjana 0024</i>	Fruits	Fresh fruits with honey used against cough, cold and fever
<i>Solanum myriacanthum</i> Dunal [Solanaceae]; <i>Lam khamen</i> ; <i>Ranjana 0023</i>	Fruits	Fresh or cooked fruits applied to toothche

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<i>Solanum nigrum</i> Linnaeus [Solanaceae]; <i>Uchi-thi</i> ; <i>Ranjana 0021</i>	Young shoots & fruits	Boiled extract used against stomach disorder; paste of ripe fruits applied to piles to reduce swelling
<i>Solanum torvum</i> Swartz [Solanaceae]; <i>Marumkonbi</i> ; <i>Ranjana 0022</i>	Fruits	Cooked fruits given to diabetics
<i>Stellaria media</i> (Linnaeus) Villars [Caryophyllaceae]; <i>Yerum –Keirum</i> ; <i>Ranjana 0047</i>	Whole plant	Cooked plants against bronchitis and skin inflammation
<i>Tamarindus indica</i> Linnaeus [Caesalpinaceae]; <i>Mangke</i> ; <i>Ranjana 0038</i>	Seeds	Extract from one year old seeds given against dog bite
<i>Tetragium bracteolatum</i> (Wallich) Planchon [Vitaceae]; <i>Monja-mahei</i> ; <i>Ranjana 0070</i>	Leaves & fruits	Boiled extract of both used against indigestion and stomach disorder
<i>Urtica parviflora</i> Roxburgh [Urticaceae]; <i>Thaktha</i> ; <i>Ranjana 0014</i>	Roots	Root juice used against stomach disorder
<i>Wendlandia paniculata</i> DC. [Rubiaceae]; <i>Pheija</i> ; <i>Ranjana 0069</i>	Inflorescence	Eaten cooked / fresh against dysentery

people are least interested to practice the traditional medicines. Due to over exploitation and deforestation many plant species are threatened. Hence, documentation and conservation of such plant species should be done by the concern authorities, if essential, in collaboration with different NGOs. It should be realised that conservation and management of potential species are of utmost importance.

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