



# Utilization of Medicinal Plants for Diarrhea in Ukhrul District, Manipur

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**Abstract:** The *Tangkhol* Naga tribe predominantly inhabits the district of Ukhrul, located in the eastern part of the state of Manipur. The people of this hilly region use medicinal herbs to treat various diseases and ailments. A recent survey conducted from 2018 to 2019 among the *Tangkhol* community revealed use of 45 species of angiosperms, 43 genera and 35 families, for the treatment of diarrhea. This information was gathered through structured questionnaires and consultations with elders and *Tangkhol* practitioners. Some of the effective plant species used by *Tangkhol* practitioners to treat diarrhea include *Allium ascalonicum* L., *Cynodon dactylon* (L.) Pers., *Elsholtzia strobilifera* Benth., *Lantana camara* L., *Psidium guajava* L., *Rhus javanica* L., and *Tinospora cordifolia* auct. The documentation of medicinal plants for diarrhea treatment not only provides valuable insights into traditional healing practices but also has implications for the conservation and sustainable utilization of the region's floral diversity.

**Keywords:** *Tangkhol*, Sustainable, Diarrhea, Ukhrul, Manipur

Diarrhea is an endemic disease in many of developing Asian countries, considered one of the major public health concern that leads epidemic cause of high degree of morbidity and mortality in rural communities. Diarrhea can be caused by a variety of bacterial, viral and parasitic organisms and infection spreads through contaminated food or drinking water, or from person to person as a result of poor hygiene (WHO 2015). It is one of the most common diseases for all age groups and decrease the absorption of fluid and thus a loss of electrolytes particularly Na<sup>+</sup> and water (Rang et al 2003). Ukhrul, nestled in the picturesque hills of Manipur, India, serves as the ancestral homeland of the *Tangkhol* Naga tribe covering an expansive area of approximately 2,600 km<sup>2</sup>. This region boasts a rich tapestry of flora, much of it cloaked in lush forests. The livelihoods of the *Tangkhol* people predominantly revolve around agriculture, and have deep understanding of the medicinal herbs that flourish in their environment. Rooted in oral traditions passed down through generations, these traditional healing practices form an integral part of the community's healthcare system. Furthermore, Ukhrul's unique ecological and cultural context offers a distinct perspective on the challenges and solutions related to diarrhoea management within this vibrant community. There are studies on the use of traditional medicine in North-East India (Borthakur 2013, Gairola et al 2013, Panmei et al 2019, Singh et al 2019, Baidya et al 2020, Salam et al 2021, Asangla et al 2022, Das et al 2023). An effort was made to catalog the plants utilized by the

inhabitants of the *Tangkhol* community for the treatment of diarrhea.

## MATERIAL AND METHODS

The survey was conducted among the *Tangkhol* Naga tribe in 2018-2019. Key informants, included elders and traditional practitioners, which were interviewed and provided with structured questionnaires to collect information about various aspects of traditional medicine. Local names, preparation methods, and the plant parts used were also documented. The specimens were prepared following the procedures outlined in Jain and Rao (1977), and their identities were verified using various sources, including Kanjilal et al (1934-1940) and Parabia and Reddy (2002). All the plants catalogued had their names and family classifications cross-referenced with the website [www.theplantlist.org](http://www.theplantlist.org). Voucher specimens are available at the herbaria of Nagaland University in Lumami (Department of Botany) and Manipur University in Imphal (Department of Life Sciences).

## RESULTS AND DISCUSSION

*Allium ascalonicum* L., *Lantana camara* L., *Psidium guajava* L., *Rhus javanica* L., *Tinospora cordifolia* auct. Non Willd., and *Paris polyphylla* Sm. documented plant species traditionally recognized for their effectiveness in alleviating symptoms of diarrhea. The utilization of various plant parts, including leaves, roots, rhizomes, and stems. This

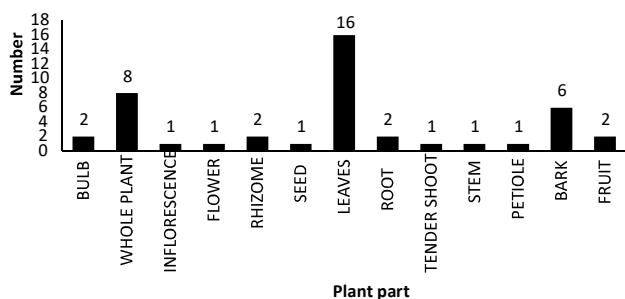
**Table: 1.** Medicinal plants used in Diarrhea by the *Tangkhu* Naga tribe of Ukhrul District of Manipur

Botanical name [Family]	Vernacular name	Parts used	Mode of use
<i>Aegle marmelos</i> (L.) Corr [Rutaceae]	Heirikhagok	Fruit	Unripe fruit is wrapped in mud and roasted to make a solution with a spoonful of sugar in water and given in diarrhea.
<i>Alangium chinensis</i> (Lour.) Harms [Cornaceae]	Kokan	Leaf	Decoction of leaves with ½ spoon sugar and little salt given in diarrhea till motion control.
<i>Allium ascalonicum</i> L. [Amaryllidaceae]	Meitei-Tarui	Bulb	Fresh bulb juice with water is taken twice until it stop.
<i>Allium cepa</i> L. [Amaryllidaceae]	Tarui	Bulb	Decoction of bulb 200ml is given in diarrhea.
<i>Artemisia nilagirica</i> (C.B. Clarke) Pamp. [Asteraceae]	Harana	Whole plant	A handful of fresh leaves juice mixed with diluted honey (1-2 teaspoonful) is taken orally once daily for a week to cure diarrhea.
<i>Artocarpus heterophyllus</i> Lam. [Moraceae]	Theibo	Root	Decoction of root 20ml is given twice a day for five days to cure diarrhea
<i>Artocarpus lakoocha</i> Roxb. [Moraceae]	Heirukothong	Bark	Decoction of bark 50ml is given twice a day for five days to cure diarrhea
<i>Bryophyllum calycinum</i> Salisb. [Crasulaceae]	Manahidak	Leaf	Juice extracted from the leaves mixed with 3g seeds powdered of <i>Piper nigrum</i> is prescribed 2 teaspoon twice daily for three days in diarrhea
<i>Callicarpa arborea</i> Roxb. [Verbenaceae]	Chicothing	Bark	Boiled extract of the bark is prescribed against diarrhea.
<i>Cannabis sativa</i> L. [Cannabinaceae]	Ganja	Leaf	The leaves and flowers are used in diarrhea
<i>Catharanthus roseus</i> (L.) G. Don [Apocynaceae]	Kundalei	Leaf	Half glass (adult) from boiled extract of 30 leaves in one litre of water is given three times daily for 1-3 days against diarrhea.
<i>Centella asiatica</i> (L) Urban [Apiaceae]	Kongrihan	Whole plant	Fresh juice of <i>Centella asiatica</i> and <i>Oxalis corniculata</i> are mixed in equal proportion with one teaspoonful of honey about 1/2 glass is given thrice daily for 3 or 4 days in frequent diarrhea
<i>Cynodon dactylon</i> (L.) Pers. [Poaceae]	Tingthou	Whole plant	Fresh extract juice with honey 10ml is given twice a day to cure diarrhea
<i>Drymaria cordata</i> (L.) Willd. ex Schult. [Caryophyllaceae]	Biviyena	Whole plant	Boiled extract of the whole plant is prescribed 1/2 glass twice daily for 2 or 3 days in diarrhea
<i>Ehretia acuminata</i> R.Br [Boraginaceae]	Magingran	Root	Decoction of 50ml is given twice a day for five days to treat diarrhea
<i>Elsholtzia strobilifera</i> Benth. [Lamiaceae]	Yongpa	Inflorescence	The inflorescence with rhizome of <i>curcuma longa</i> is boiled and the extract obtained is prescribed in diarrhea
<i>Emilia sonchifolia</i> (L.) DC. [Asteraceae]	Revival	Whole plant	The fresh root extract of about 2-3 teaspoon is also given twice a day for 3 days in diarrhea
<i>Eryngium foetidum</i> L. [Apiaceae]	Lam sachikom	Leaf	A handful of fresh leaves are boiled with one litre of water and the filtrate decoction 1/2 cup is administered twice daily for 3 days against diarrhea
<i>Ficus tsjakela</i> Burm.f.[Moraceae]	Sangleikokna	Tender shoot	Boiled extract of tender shoot is given in diarrhea
<i>Justicia adhatoda</i> L. [Acanthaceae]	Sipchang	Leaf	Fresh leaves 6 or 7 are crushed and the extract of about 2 teaspoon is mixed with honey and given thrice daily for 3 days in diarrhea
<i>Lantana camara</i> L. [Verbenaceae]	Nganam shirong	Leaf	A decoction of three teaspoons of fresh leaves is taken three times per day to alleviate severe diarrhea
<i>Litsea sebifera</i> Pers. [Lauraceae]	Khamarinarong	Leaf	200g bark is boiled in 1.5litres and the decoction 250ml is given thrice daily for 3 days in diarrhea
<i>Lygodium japonicum</i> (Thunb.) Sw. [Lygodiaceae]	Chao-ma-libna	Whole plant	Decoction of the plant 100ml is prescribed twice a day for a week in diarrhea
<i>Lysimachiaparviflora</i> baker. [Primulaceae]	Kengoi	Whole plant	Boiled extract of whole plant is given in diarrhoea
<i>Mentha spicata</i> L. [Lamiaceae]	Suiruihan	Whole plant	Three teaspoonfuls of leaf juice are mixed with one spoon of honey and given orally in diarrhea
<i>Melastoma malabathricum</i> L. [Melastomaceae]	Yachubi	Rhizome	A cup of rhizome or fruit decoction is given twice daily for three days in diarrhea
<i>Musa paradisiaca</i> L. [Musaceae]	Mothei	Petiole	The crushed extract of the fleshy petiole (3-5ml) is also taken 181 in diarrhea
<i>Mussaenda roxburghii</i> Hook. f. [Rubiaceae]	Kongrawon	Leaf	Tender leaves cooked with lata fish is prescribed in diarrhea.

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**Table 1.** Medicinal plants used in Diarrhea by the *Tangkhum* Naga tribe of Ukhrul District of Manipur

Botanical name [Family]	Vernacular name	Parts used	Mode of use
<i>Ocimum canum</i> Sims. [Lamiaceae]	Sari	Leaf	Leaf juice with honey is prescribed in diarrhea
<i>Parkia timoriana</i> (DC.) Merr. [Fabaceae]	Yongchak	Bark	The decoction of the bark (10-15ml) is given twice daily for three days to cure diarrhea
<i>Paris polyphylla</i> Sm. [Melanthiaceae]	Nayong hanghor	Rhizome	Decoction of the leaf is administered in diarrhea
<i>Persicaria chinensis</i> (L.) H.Gross [Polygonaceae]	Hannahan	Leaf	While boiled extract of the root is also given in diarrhea
<i>Psidium guajava</i> L. [Myrtaceae]	Pungdonrong	Leaf	Crushed extract of the tender leaf or boiled extract of the root is mixed with a tablespoon of honey and given in diarrhea
<i>Punica granatum</i> L. [Lythraceae]	Kaphoi	Leaf	A half cup decoction of the outer skin of fruit is given twice daily for 3 days in diarrhea
<i>Quercus serrata</i> Murray [Fagaceae]	Hoktheithing	Seed	Roasted seeds are used in diarrhea.
<i>Rhododendron arboretum</i> Sm. [Ericaceae]	Kokliwon	Flower	Fresh petals are eaten in diarrhea
<i>Brucea javanica</i> (L.) Merr. [Simaroubaceae]	Khamkhuithei	Tender shoot	Tender shoot is eaten raw in diarrhea
<i>Sida acuta</i> Burm. [Malvaceae]	Uhan	Leaf	Juice obtained by crushing the leaves, 2-3 teaspoons, is mixed with one spoon of honey and given twice daily in diarrhea
<i>Scutellaria discolor</i> Wall. ex Benth. [Lamiaceae]	Yenakha	Leaf	Half a glass of leaves extract is given with a spoon of honey twice a day for a week to cure diarrhea
<i>Solanum anguivi</i> Lam. [Solanaceae]	Kapkhathai	Fruit	Fruits are crushed with honey and given in diarrhea
<i>Spondias pinnata</i> Kurz. [Anacardiaceae]	Khursongthai	Bark	About 250g bark with 2 litres of water is boiled and the decoction 300ml twice daily for 3 days is prescribed in diarrhea.
<i>Stephania japonica</i> var. <i>discolor</i> (Blume) Forman [Menispermaceae]	Koubru yai	Leaf	The juice obtained by pounding the leaf 2 teaspoon is mixed with honey and prescribed twice daily for 3 days in diarrhea
<i>Syzygium cumini</i> (L.) Skeels [Myrtaceae]	Chomshathai	Bark	A half cup decoction of the seeds is given twice daily for 3 days in diarrhea
<i>Tamarindus indica</i> L. [Fabaceae]	Mange	Bark	Decoction of bark is given twice daily for a week to cure diarrhoea
<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson [Menispermaceae]	Ningthoukhongli	Stem	Fresh stem juice (3-4ml) is taken twice daily for 3 days against diarrhea

**Fig. 1.** Medicinal plant species as used through its different plant parts

demonstrates the comprehensive knowledge and resourcefulness of the *Tangkhum* people in using different plant components for their healthcare needs. The *Tangkhum* people harnessed the medicinal benefits of these plants through traditional techniques of preparation and administration, including decoctions, infusions, and poultices. The cultural wealth and distinctive medical system of the *Tangkhum* Naga are reflected in the diversity of their customs.

This study documented the pharmacological effects of 45 plant species belonging to 35 families and 43 genera for diarrhea treatment. Lamiaceae was the most represented family, with four species, followed by Moraceae with three species. There were two species each from Amaryllidaceae, Asteraceae, Verbenaceae, Apiaceae, Fabaceae, Myrtaceae, and Menispermaceae, and one species each from 24 other families. The *Tangkhum* people's ability to utilize various plant components underscores their extensive knowledge and resourcefulness. Furthermore, this research emphasizes the importance of conserving and sustainably using these valuable plant resources. Cultivating medicinal plants in home gardens and agricultural areas not only aids conservation efforts but also supports the economic development of the *Tangkhum* community. Thus, the survey of medicinal plants used for diarrhea treatment in the Ukhrul district, Manipur, offers valuable insights into traditional healing practices and underscores the need for the conservation and sustainable utilization of the region's diverse flora.

## REFERENCES

- Asangla N, Jamir, Jamir NS and Deb CR 2022. Traditional knowledge of herbal medicines used by the Zeliang Naga tribe living around Intanki National Park in Nagaland, India *Pleione* **16**(3): 330-337.
- Baidya S, Thakur B and Devi A 2020. Ethnomedicinal plants of the sacred groves and their uses by Karbi tribe in Karbi Anglong district of Assam, Northeast India. *Indian Journal of Traditional Knowledge* **19**(2): 277-287.
- Barnali D, Tissopi G, Devi N and Nath N 2023. Study on folk remedies using medicinal plants by Karbi tribe of West Karbi Anglong District, Assam, India *Indian Journal of Traditional Knowledge* **22**(3): 576-586.
- Jain SK and Rao RR 1977. *A hand book of Field and Herbarium methods*. Today and Tomorrow's Publication, New Delhi.
- Kanjilal UN, Kanjilal PC, Das A and Bor NL 1934-1940. *Flora of Assam*. Vols. 1-5. Govt. of Assam, Shillong.
- Panmei R, Gajurel PR and Singh B 2019. Ethnobotany of medicinal plants used by the Zeliangrong ethnic group of Manipur, northeast India, *J Ethnopharmacol* **235** :164-182.
- Parabia M and Reddy MN 2002. *Protocol for ethnomedicinal studies in Ethnobotany*. Avishkar Publishers, Distributors, Jaipur. Pp. 383-393.
- Rang HP, Dale MM, Ritter JM and Moore PK 2003. *Pharmacology. (5th edn)* Elsevier Science Ltd, New Delhi, India, 376
- Borthakur SK 2013. A survey of ethnomedicinal plants utilized by the indigenous people of Garo Hills with special reference to the Nokrek Biosphere Reserve (Meghalaya), *India Journal of Herbs, Spices & Medicinal Plants* **20**:1-30.
- Salam S and Jamir NS 2021. Antidiabetic plants used by the Tangkhul Naga tribe in Ukhrul District of Manipur, India *Pleione* **15**(3): 310-316.
- Singh NK and Tripathi RB 2019, Some Medicinal Plants Used to Cure Diarrhoea in Rural Communities of Bahraich District Uttar Pradesh, India. *International Journal of Recent Scientific Research* **10**(12): 36380-36383.
- Gairola S, Sharma J, Gaur RD, Siddiqi TO and Painuli RM 2013. Plants used for treatment of dysentery and diarrhoea by the Bhoxa community of district Dehradun, Uttarakhand, India. *Journal of Ethnopharmacology* **150**: 989-1006.
- World Health Organization 1994. *The management of bloody diarrhea in young children*: WHO/CDD/94.49. Geneva: World Health Organization; 1994.

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