



Ethno-Medical Landscapes: A Study of Lepcha Healing Traditions in North Sikkim

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Abstract: The current study investigates the traditional healing practices and medical knowledge of the Lepcha inhabitants in North Sikkim, with special reference to Dzongu region that serves as the cultural and anthropological centre for the Lepcha community. The ethnomedical practices of the Lepchas, who are acknowledged as the oldest indigenous residents of Sikkim, are rooted in their deep ecological and spiritual bond with their environment. The research, which is based on field surveys conducted in Dzongu, North Sikkim reveals a rich corpus of medicinal plant use that constitute a sophisticated synthesis of ethno-medicinal knowledge and animistic cosmology. The community's pharmacopoeia is made up of a vast range of flora found in Dzongu's different biological zones, which range from temperate forests to alpine highlands. The healing system of the Lepchas in this area emphasises a holistic approach where ecology, spirituality, and health are linked by combining plant-based treatments with ceremonial and spiritual activities mediated by traditional healers, the Bongthings and Muns. Through oral transmission the Lepchas maintain their ancient healing knowledge in the face of contemporary challenges including ecological deterioration, cultural assimilation, and the increasing dominance of biomedicine. The study emphasises the importance of this ethnomedical legacy in the Eastern Himalayas as a repository of indigenous knowledge and an essential part of healthcare and cultural resilience.

Keywords: Lepcha Community, Ethnomedicine, Spiritual Ecology, Oral Tradition, Shamanic Healing, Holistic Medicine

Received : 08 October 2025

Revised : 11 November 2025

Accepted : 19 November 2025

Published : 30 December 2025

TO CITE THIS ARTICLE:

Gourav Debnath (2025). Ethno-Medical Landscapes: A Study of Lepcha Healing Traditions in North Sikkim. *Journal of History and Archaeology*, 1: 2, pp. 151-160.

In North Sikkim, the Lepcha population is predominantly concentrated in the region known as Dzongu, a protected reserve of profound cultural, ecological, and ethnomedical significance. Recognized as the original inhabitants of Sikkim, the Lepchas have maintained an enduring connection with their natural environment, which continues to shape their economic, cultural, spiritual, and medicinal life. Dzongu thus represents not only the cultural and ethnographic heartland of the Lepcha community but also a

living repository of their traditional ecological wisdom. The Lepchas of this region possess extensive knowledge of local flora, which they employ for therapeutic purposes, reflecting a worldview deeply rooted in animism and an intimate understanding of the environment. In view of this demographic and cultural concentration, the present study has chosen Dzongu as its primary field site, and the data have been systematically collected from field surveys conducted within this area.

The area Dzongu is demarcated as a protected Lepcha reserve under the Government of Sikkim, reflecting the state's acknowledgment of the community's deep ties to the land. The region is characterized by rugged mountains, high rainfall, temperate and sub-tropical forests, and a network of rivers, particularly the Teesta and its tributaries, which shape the local ecology. The altitude ranges from temperate mid-hills to alpine regions, creating diverse habitats that harbor a wealth of flora, including numerous medicinal plants. Ecologically, Dzongu is part of the Eastern Himalayas, one of the world's recognized biodiversity hotspots. With forests covering more than 40% of Sikkim's land area and the presence of endemic, rare, and threatened species (Singh & Chauhan, 1998), Dzongu provides a natural pharmacy for the Lepchas. This abundance of biodiversity has historically sustained their ethnomedicinal practices. The remoteness of Dzongu has also limited external influences, allowing the community to preserve traditional knowledge systems that remain integral to daily life.

The Lepchas are widely acknowledged as the first known inhabitants of Sikkim, predating the arrival of Tibetan settlers and later Nepali migrants (Mainwaring, 1876; Subba, 2008). Their society is structured around kinship and clan networks, with "putsho" (clans) forming the basis of identity and social organization. Traditional Lepcha society emphasized egalitarianism, cooperation, and communal life, although the arrival of Bhutia and later British colonial influence introduced feudal hierarchies (Risley, 1894).

Economically, the Lepchas of Dzongu historically practiced hunting, fishing, and gathering alongside shifting cultivation (jhum). With time, they transitioned to more settled forms of agriculture, cultivating rice, maize, millet, buckwheat, and barley. A defining feature of their agricultural economy is the cultivation of large cardamom (*Amomum subulatum*), which emerged as a cash crop in the twentieth century and continues to play a significant role in household incomes (Pradhan, 2014). However, cardamom plantations are also vulnerable to climate change, pests, and soil degradation, which has affected economic sustainability. Despite exposure to modern economic systems, Dzongu retains its subsistence-oriented character. Many households continue to cultivate home gardens rich in medicinal and food plants, which act as repositories of biodiversity and knowledge. Livelihood practices, including weaving, bamboo craft etc. remain significant, although increasingly supplemented by wage labour and tourism-related activities. The state government's policy of promoting ecotourism in Dzongu has brought new opportunities but also raised concerns about cultural commodification and ecological pressures.

The Lepchas' religious life is marked by a distinctive blend of indigenous animism and Tibetan Buddhism. Their indigenous faith revolves around worship of spirits inhabiting mountains, rivers, forests, and celestial bodies. Mount Kanchenjunga, in particular, is revered as their guardian deity, embodying both protective and punitive powers (Bhattacharya, 1984). Religious specialists such as Bongthings (male shamans) and Muns (female shamans) mediate between humans and spirits, conducting rituals to cure illnesses, protect crops, or restore harmony between the human and natural worlds. With the arrival of Bhutia settlers in the seventeenth century, Tibetan Buddhism, particularly the Nyingmapa school, began to influence Lepcha practices (Desai, 1988). Many Lepchas adopted Buddhist

rituals and monastic practices while retaining core animist traditions. This religious syncretism is evident in their festivals, rituals, and healing practices. Even today, Lepcha households often maintain Buddhist shrines alongside sacred groves and animist ritual sites, reflecting the coexistence of two spiritual worldviews.

Animism lies at the heart of Lepcha ethnomedicine. Illness is often interpreted as a disruption of harmony between humans and spirits of nature. Healing, therefore, requires not only physical remedies but also spiritual reconciliation. Bongthings and Muns are central to this process. They diagnose ailments by divination and prescribe both plant-based medicines and ritual offerings to appease offended spirits. For example, if a person suffers from recurring fever, the healer may attribute it to an angry river spirit disturbed by pollution or disrespectful behaviour. Treatment would involve both the administration of *Swertia chirayita* (a potent febrifuge) and ritual offerings to the river. This integration of natural and spiritual medicine reflects a holistic approach to health, where ecology, spirituality, and human well-being are inseparable (Zhang & Li, 2010). Animism also fosters sustainable harvesting of medicinal plants. Ritual taboos ensure that plants are collected respectfully, often with prayers or symbolic offerings. Sacred groves act as reservoirs of biodiversity, where overharvesting is prohibited. This belief system has enabled the Lepchas to conserve their ethnobotanical resources across generations, even without written manuals.

The Lepchas' medicinal knowledge is extensive and orally transmitted. It encompasses treatments for common ailments such as coughs, fevers, digestive disorders, wounds, and reproductive health, as well as more complex conditions like spiritual afflictions. Medicinal plants are usually harvested from forests but are also cultivated in home gardens. Knowledge is not uniformly distributed—shamans, elderly women, and experienced cultivators are particularly skilled in identifying, preparing, and prescribing remedies.

A field survey conducted in September, 2025 has documented an exclusive repertoire of Lepcha medicinal plants found in Upper Dzongu, which reflects the community's sophisticated ethnobotanical knowledge. The survey identified a diverse array of species employed in treating digestive disorders, infections, cardiovascular ailments, reproductive health, and even cancer. For instance, *Allium wallichii* (Rumbo) is consumed raw for digestive health and anemia, while *Alnus nepalensis* (Sungdung kung) is valued for its antioxidant properties and cancer-preventive use, with bark decoctions prepared as medicinal drinks. Hypertension and cardiac conditions are addressed through plants such as *Bauhinia variegata* (Aaraykung), whose flowers are dried and boiled into therapeutic infusions, and *Calamus acanthospathus* (Roo), consumed as cooked shoots. Nutrient deficiencies are mitigated through *Castanopsis purpurella* (Kushyo Turol kung) fruits eaten raw, while gastrointestinal disorders like diarrhea and blood dysentery are managed with raw consumption of *Choerospondias axillaris* (Sulatpot) or distilled extracts of *Cinnamomum bejolghota* (Sungshoor Kung). Similarly, roots of *Curcuma caesia* (Anokbu Manga) are dried or powdered to counter gastric troubles and food poisoning. Several species address wound care and hypertension, such as *Diplazium maximum* and *Diplazium spectabile*, whose young fronds are respectively applied as skin paste or consumed as boiled liquids. The Lepchas also employ fruits of *Elaeocarpus sikkimensis* (Shaykyue kung) for throat pain, while *Elatostema obtusum* (Khanshal bee) and *Fragaria nubicola* (Zyeuepot) are prepared as decoctions or pastes for stomach ache and throat ailments. Immunity enhancement is sought through raw consumption of *Machilus edulis* (Kuyum Pot) and *Passiflora edulis* (Ranipot), while *Musa balbisiana* (Punzok Kuang) stem juice is used against stomach infections. The Lepchas also address jaundice with boiled *Nasturtium*

officinale (Khaneybee), and food poisoning with bark preparations of *Phoebe allenuala* (Munbong Kuntu). For respiratory disorders and sore throats, *Piper hamiltonii* (Kuntin Reek) fruits are prepared as paste or decoctions, and the stems of *Rheum nobile* (Sanakundung) are consumed raw to relieve fever, cough, and indigestion. Together, this pharmacopoeia illustrates not only the Lepchas' reliance on the rich biodiversity of Upper Dzongu but also the integration of empirical plant knowledge with animistic belief systems, underscoring the resilience of indigenous medicine in contemporary times.

Beyond the pharmacological value of plants, healing in Lepcha society involves ritual performance. Bongthings and Muns often chant incantations while administering medicines, invoking ancestral and nature spirits to restore balance. Ritual paraphernalia, including effigies, rice beer, animal sacrifices, and symbolic offerings, are employed depending on the severity of illness. For instance, in cases of epidemic illness, community-wide rituals may be performed to expel evil forces and purify the village. These ceremonies reinforce social cohesion while addressing communal anxieties. Healing thus transcends individual health to encompass collective well-being (Kotturan, 1983).

The Lepcha ethnomedical system bears similarities to other Himalayan communities such as the Tamangs of Nepal and the Bhutias of Sikkim, who also integrate animism and Buddhism in healing. However, the Lepcha system is distinguished by its profound ecological intimacy and emphasis on sacred landscapes. Unlike more textual traditions such as Tibetan medicine, Lepcha medicine is primarily oral and experiential, embedded in daily interactions with the environment. In modern times, Lepcha medicine faces challenges from biomedicine, market integration, and youth migration. Nevertheless, many Lepcha families continue to use traditional remedies for primary healthcare, particularly in remote areas with limited access to hospitals.

The survival of Lepcha medicinal knowledge is contingent on multiple factors. First, modernization and formal education often alienate younger generations from indigenous practices, as biomedical models gain dominance. Second, ecological threats such as deforestation, climate change, and hydropower projects in North Sikkim threaten the habitats of medicinal plants (Turner & Singh, 2017). Third, cultural assimilation and migration dilute traditional knowledge transmission. However, there are also positive developments. Efforts by Lepcha organizations to document oral traditions, promote eco-tourism, and advocate for indigenous rights contribute to the resilience of their culture. Increasing global interest in traditional medicine and biodiversity conservation also opens opportunities for the Lepchas to share their knowledge while asserting intellectual property rights.

The medicinal knowledge of the Lepcha people of Dzongu is a testament to their enduring relationship with nature, spirituality, and community life. Rooted in animism, their ethnomedicine offers a holistic framework that unites ecological awareness, spiritual healing, and physical treatment. Their society and economy, grounded in agriculture and communal solidarity, sustain these practices, while their religious syncretism demonstrates resilience amidst historical transformations. A glimpse of the intricacy of their pharmacopoeia can be found in the plant chart (Table:1) of Dzongu which was developed through field study as well as botanical and linguistic verification.

The Lepcha people of Dzongu hold an intricate ethnobotanical knowledge system that blends empirical plant-based remedies with shamanic rituals. The Bongthings, acting as both healers and religious leaders, play a central role in maintaining and transmitting the animistic knowledge. Lepchas' worldview links human health to environmental and spiritual harmony (Siiger, 1967).

Plant use is deeply embedded in the Lepcha cosmology. Illness is often perceived not merely as a physiological malfunction but also as a disruption in spiritual balance. Consequently, treatment

involves both medicinal plant preparations and ritual performances intended to appease deities and ancestral spirits. Bongthings commonly administer remedies in the form of herbal decoctions, leaf pastes, or powders prepared from roots, barks, flowers, or seeds. The dosage and preparation methods are often accompanied by recitations of mantras or symbolic offerings, reflecting the inseparability of medicine and ritual (Balick & Cox, 1996).

During the present survey, plant uses were recorded for ailments such as fever, cold, stomach disorders, skin infections, wounds, respiratory problems etc. Some species were reported to have multipurpose applications, while others were considered highly specific. The Lepchas' detailed ecological knowledge was evident in their ability to identify plant habitats, phenological cycles, and sustainable harvesting practices.

The documentation process however, was not without difficulties. The Lepchas, like many other indigenous groups, have historically been cautious in sharing their ethnomedicinal knowledge with outsiders due to concerns of misappropriation and the sacred value attributed to such knowledge. Convincing informants required patience, cultural sensitivity, and repeated assurances that the purpose of the study was preservation rather than commercialization. Another challenge was linguistic. While Nepali is widely spoken in Sikkim, many Lepcha plant names do not have straightforward Nepali or English equivalents. Reliance on interpreters was therefore essential. Furthermore, the dialectal variations within Lepcha vocabulary occasionally created inconsistencies that had to be cross-verified through group discussions.

The ethnomedicinal practices of the Lepchas in Dzongu offer a unique window into the interplay between nature, culture, and spirituality. Dzongu's rich vegetation, coupled with the Lepchas' enduring reliance on ethnomedicine, emphasizes the importance of safeguarding both the ecological and cultural heritage of this area. Continued documentation, coupled with community participation and ethical collaboration, can ensure that this knowledge is preserved for future generations while potentially contributing to modern healthcare solutions.

Table 1: List of Identified Lepcha Medicinal Plants Exclusively Found in Dzongu, North Sikkim (Field Survey Conducted in September, 2025)

| <i>Plant Name (in Lepcha)</i> | <i>Scientific Name</i> | <i>Uses</i> | <i>Parts Used</i> |
|-----------------------------------|--|--------------------------------------|-------------------|
| Rumbo | <i>Allium wallichii</i> Kunth | Digestive, Anemia | Roots and Leaves |
| Sungdung kung | <i>Alnus nepalensis</i> D. | Antioxidant, Cancer | Bark |
| Aaraykung | <i>Bauhinia variegata</i> L. | Controlling Hypertension | Flower |
| Kandan | <i>Brassica nigra</i> (L.) W.D.J.Koch | Weakness, Menstrual Disorder | Whole plant |
| Roo | <i>Calamus acanthospathus</i> Griff. | Hypertension, Cardiac Disorder | Young shoot |
| Kushyo Turol kung | <i>Castanopsis purpurella</i> (Miq.) N.P.Balakr. | Nutrient Deficiency | Fruit |
| Sulatpot | <i>Choerospondiasaxillaris</i> (Roxb.) B.L.Burt | Blood Dysentery, Appetizer, Diarrhea | Fruit |
| Sungshoor Kung | <i>Cinnamomumbejolghota</i> (Buch-Ham.) Sweet | Diarrhea | Leaf, Root, Bark |
| Anokbu Manga | <i>Curcuma caesia</i> Roxb. | Food poisoning, Gastric Trouble | Root |
| Tungtokbee | <i>Diplazium maximum</i> (D.Don) C.Chr. | Wound Healing | Young frond |
| Tungtokbee | <i>Diplazium spectabile</i> (Wall. ex Mett.) Ching | Maintaining Hypertension | Young frond |

| <i>Plant Name (in Lepcha)</i> | <i>Scientific Name</i> | <i>Uses</i> | <i>Parts Used</i> |
|-------------------------------|---|-----------------------------------|-------------------|
| Shaykyue kung | <i>Elaeocarpus sikkimensis</i> Mast. | Throat Pain | Fruit |
| Khanshal bee | <i>Elatostema obtusum</i> Wedd. | Stomach Ache, Vermifuge | Leaf and stem |
| Zyeuepot | <i>Fragaria nubicola</i> (Lindi. ex Hook.f.) Lacaita | Throat Pain | Root |
| Kuyum Pot | <i>Machilus edulis</i> King ex Hook.f. | Immunity Booster | Fruit |
| Punzok Kuang | <i>Musa balbisiana</i> Colla | Stomach Infection | Stem |
| Khaneybee | <i>Nasturtium officinale</i> W.T.Aiton | Jaundice | Leaf and stem |
| Ranipot | <i>Passiflora edulis</i> Sims | Boosting Immunity, Heart Health | Leaf and fruit |
| Munbong Kuntu | <i>Phoebe allenuala</i> (Nees) Nees | Food Poisoning | Bark |
| Kuntin Reek | <i>Piper hamiltonii</i> C. DC. | Sore Throat, Respiratory Disorder | Fruit |
| Sanakundung | <i>Rheum nobile</i> Hook. f & Thomson | Fever, cough, indigestion | Stem |



Documenting the *Kuntin Reek* plant (*Piper hamiltonii* C. DC.) with the Local Healer (on the right) and the interpreter (on the left) used in the treatment of Respiratory Disorder in the indigenous healing system of the Lepchas, Upper Dzongu, North Sikkim. (Image Source: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Shaykyue kung*, (Scientific Name: *Elaeocarpus Sikkimensis* Mast.), used in the treatment of throat-related ailments in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Rumbo*, (Scientific Name: *Allium wallichii* Kunth) used in the treatment of Anaemia in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Roo*, (Scientific Name: *Calamus acanthospathus* Griff.) used in the treatment of Cardiac Disorder in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Kuntin Reek*, (Scientific Name : *Piper hamiltonii* C. DC.) used in the treatment of Respiratory Disorder in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



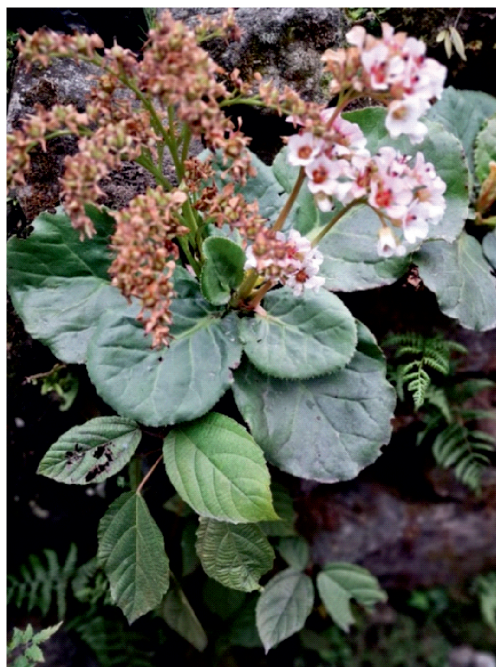
Plant Name (in Lepcha): *Khaneybee*, (Scientific Name : *Nasturtium officinale W.T.Aiton*) used in the treatment of Jaundice in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Perfek*, (Scientific Name : *Tupistra nutans Wall. Ex Lindl.*) used in the treatment of Hypertension in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Sulatpot*, [Scientific Name : *Choerospondias axillaris (Roxb.) B.L.Burt*] used in the treatment of Blood Dysentery and Diarrhea in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Tuksce Tuprok*, [Scientific Name : *Neopicrorhiza scrophulariiflora (Pennell) Hong*] used in the treatment of Bone Fracture in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Zyeuepot*, [Scientific Name : *Fragaria nubicola* (Lindl. ex Hook.f.) Lacaita] used in the treatment of Throat Pain in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)



Plant Name (in Lepcha): *Anokbu Manga*, (Scientific Name : *Curcuma caesia* Roxb.) used in the treatment of Food Poisoning and Gastric Problems in the indigenous healing system of the Lepchas in North Sikkim. (Research, Documentation and Image: Dr. Gourav Debnath)

ACKNOWLEDGEMENT

The author gratefully acknowledges the financial support of the Indian Council of Social Science Research (ICSSR), New Delhi, for providing the research grant that facilitated this study.

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