

RESEARCH PAPER

Ethno-medicinal practices of the Lepcha Tribe in Kalimpong District of West Bengal, India

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ABSTRACT

Diverse use of natural resources is an age old practice of Lepcha tribe. Their health management system has two parts, first is good or bad spirit responsible for causing diseases and second one is curative herbal medicine prescribed by local healers. The present paper enumerates a total of 75 ethno-medicinal plant species belonging to 71 genera and 48 families used by Lepcha tribe residing in Kalimpong areas of West Bengal. Family Zingiberaceae is dominant with 6 species among all the medicinal plants recorded during the study. As far as plant parts is concerned they use mostly leaves (22 spp.) followed by bark (19 spp.), roots, fruits and seeds (14 spp. each) and rhizomes of 7 species. Of the total plants recorded 72% of them were found to be wild. While considering number of plant species for treating particular disease, maximum number *i.e.* 21 species is recorded for treating stomach related problems, 10 for treating skin diseases, 8 for rheumatism, 7 for cold and cough, 6 for fever and piles. During the study it has been observed that original Lepcha culture and tradition along with use of herbal medicines is deteriorating with changing of time, therefore documentation and conservation of this nature oriented, eco-friendly culture is of utmost importance.

KEYWORDS: Lepcha, ethno-medicinal plants, Kalimpong, West Bengal

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Introduction

The Lepchas are the tribe that is believed to be created from the snow of mount Kanchenjunga by God himself and therefore they call themselves *Mutanchi Rong-Kup Rum-Kup* meaning beloved children of Mother Nature or God (Roy, 2011). They are also called *Rongpas* meaning ravine dwellers (Nirash, 1982). The name "Lepcha" is given by the Nepalese people dwelling in the same territory. In the Prabatiya dialect of Nepal "*Lep*" means speech and "*Cha*" means unintelligible *i.e.* the unintelligible speaker or vile speaker (Nirash, 1982); this may be because their language was difficult to understand. They were basically hunters and agriculturalist and herdsman, in past they used to take large herds of cattle in search of good pastures hence they used to live nomadic lives. Later, during mid-nineteenth century they began practicing settled agriculture (Das, 1978) and since then following the same. They have been very close to nature and are well acquainted with a lot of things about wild resources and its uses therefore they are mostly dependent on wild eatables and take them with mild modifications. They have very rich knowledge on variety of plants, insects, and flowers around them and

those who are residing in mountainous forest patches possess capacity to identify the species which are beneficial for them (Singh et al., 2014). Even today the Lepchas depend on herbal medicines. This community's health management is purely nature based. In fact they are the born botanists and zoologists as well as expert chemists. It is said that during his historic travel to Sikkim, J.D. Hooker gathered botanical knowledge on the region from Lepchas and always kept the Lepchas as his company while moving any part of the Lepcha land. He described Lepchas as "great nature lovers and good entomologists and botanists (Roy, 2011). Mostly all Lepchas possess substantial knowledge on herbal medicines, common diseases like cold, cough, indigestion, dysentery, diarrhoea, skin diseases and minor ailments cuts, wounds etc. are treated by senior members of the family from the surrounding local herbs but *Maondaok* the Lepcha medicine man is the expert who used to prepare and prescribe local herbal medicines for the community. They generally use flowers, seeds, roots, barks and leaves of plants in their indigenous medicine system. The Lepcha medicines are not prepared and prescribed for outsiders keeping the tradition

as secret to avoid dilution; it is used as household remedies for local use only (Tamsang, 2004). For indigenous medicine Lepchas also depend on *Bongthing* (Priest) or *Mun* (Priestess) who are their local herbalist for treating different ailments such as jaundice, malaria, piles, bone fracture, cardiovascular diseases, leprosy, gynaecological disorders etc. Lepchas invite *Bongthings* or *Muns* during sickness, cultural and social rituals including funerals. If required modern medical treatment they take permission from their *Bongthing* or *Mun* before going for their treatment (Roy, 2011). They perform the rituals connected with super-natural forces. Some plants especially *Oroxylum indicum* (*Phago Rip*) plays an important role in Lepcha culture. The plant is regarded as the most sacred and used by *Bongthings* and *Muns* in their different socio-religious rituals and it is equally valuable as medicine which is used as liver tonic and anti-diabetic (Panda & Mishra, 2012). Lepchas can differentiate edible and non-edible plants. They know the indigenous technique of freeing poison from some poisonous roots and make them edible (Roy, 2011). According to Tamsang (2004) the Lepcha indigenous herbal medicine "*Rungker*" (*Swertia chirayita*) possesses antimalarial property as quinine and was used since ancient times by Lepchas before quinine was introduced in India. Similarly, "*Tuknyi*" (*Artemisia vulgaris*) has been used by them for treating skin diseases and stopping nose bleeding since long. Such indigenous knowledge within the community transmits verbally from generation to generation. But due to the inherent secret nature of Lepchas as well as superstitious belief that if this knowledge on medicinal plants is shared to unauthorised persons the efficacy of the plants will be reduced or it will no longer remain effective. Such belief systems and their intrinsic secret nature the precious knowledge on utilization of plant resources is dying out gradually with the demise of these knowledge proprietors.

Materials and methods

Kalimpong is a tiny hill station in the state of West Bengal and located at an average elevation of 1250 m. The river Teesta separates Kalimpong from the state of Sikkim. It is one of the tourist destinations in Darjeeling hills owing to its pleasant weather and magnificent Himalayan beauty. Beside agriculture, horticulture plays an important role in economic upliftment of the local inhabitants. It has a flower market notable for its wide range of orchids; nurseries also produce and export gladioli, various flower

bulbs, tubers and rhizomes, which contribute further to the economy of the area.

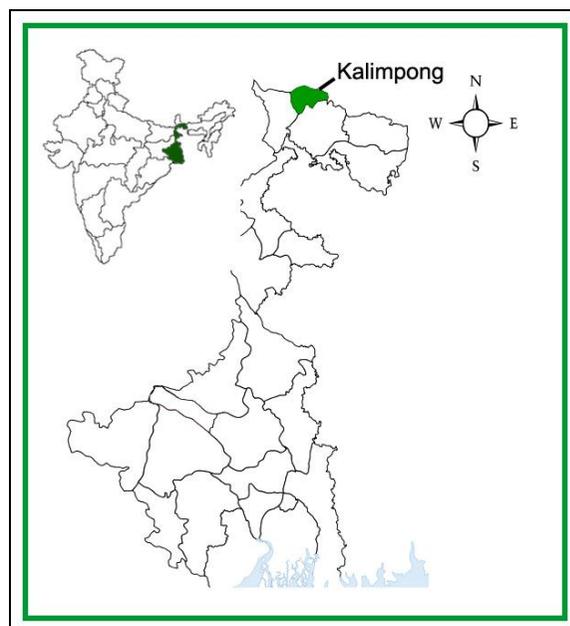


Figure 1. Location map of study area.

It is said that Lepchas were the original inhabitants of the Kalimpong being the part of Lepcha *Mayel Lyang* (the land of hidden paradise) which covers Sikkim Himalaya including Kalimpong and Darjeeling districts along with Ilam of Nepal. Hence, study on uses of plant species as medicines by this ethnic tribe was carried out in different Lepcha dominated places of Kalimpong *viz.*, Kaffer, Lower Bong Busty, Nassey, Sindybung, Algarah areas and vicinity (Fig.1). The data was collected from household survey with the help of structured questionnaire, semi directive interviews and group discussion with resource persons including Lepcha medicine men *Maondaoks* and *Bongthings*. Effort was made to gather knowledge on medicinal uses of local plant species from elderly citizen of the community as they have acquired such knowledge through their years of trial and error methods and experiences. The plants used by them were identified with the help of available literature (Biswas, 1956; Sharma, 1994; Singh et al, 2002; Tamsang, 2004; Pradhan & Badola, 2008; Lepcha & Das, 2011; Yonzon, 2012; Rai et al., 2013; Rai & Shankar et al., 2016)

Results and Discussion

A total of 75 plant species belonging to 71 genera and 48 families have been documented during the recent study and are listed alphabetically in table 1, alongwith local names in Nepali and Lepcha, habit, parts used, uses etc. Of the total plants recorded 33 were herbs, 10 shrubs, 25 trees and 7 climbers (Fig.2).

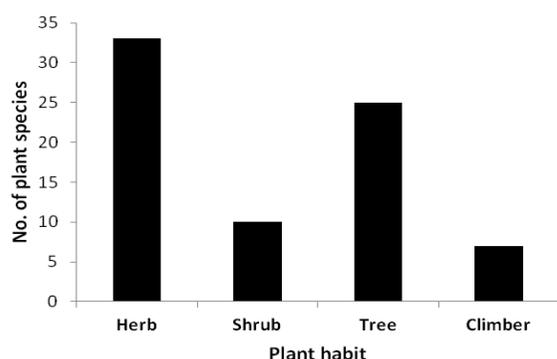


Figure 2. Habit wise representation of ethno-medicinal plants from study area.

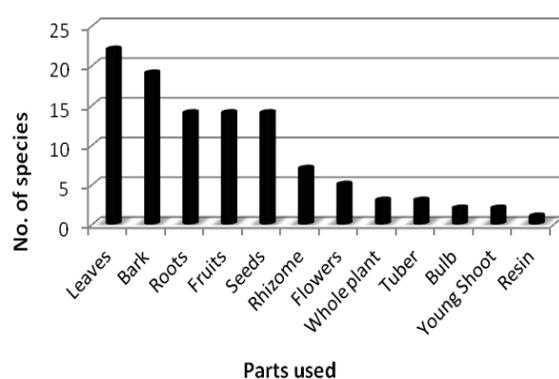


Figure 3. Plant parts used by Lepcha tribe for medicinal purpose.

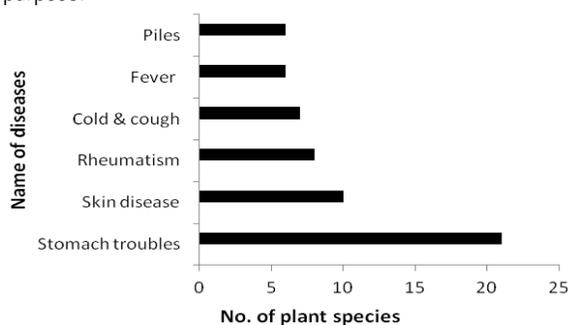


Figure 4. Number of plant species used for treating different diseases.

Family Zingiberaceae occupies the dominant position with 6 species followed by Apiaceae with 4 species, Asteraceae, Cucurbitaceae, Liliaceae, Mimosaceae, Poaceae and Rutaceae 3 species each Combretaceae, Fabaceae, Lamiaceae, Lauraceae, Moraceae, Rosaceae and Solanaceae 2 species each and rest 33 families viz. Acanthaceae, Acoraceae, Apocynaceae, Araceae, Bignoniaceae, Bombacaceae, Bromeliaceae, Caricaceae, Caryophyllaceae, Convolvulaceae, Costaceae, Dipterocarpaceae, Ericaceae, Flacourteaceae, Gentianaceae, Hydrangeaceae, Juglandaceae, Magnoliaceae, Malvaceae, Meliaceae, Menispermaceae, Oleaceae, Pandanaceae, Phyllanthaceae, Piperaceae, Ranunculaceae, Rubiaceae, Santalaceae, Sapotaceae, Scrophulariaceae, Theaceae Urticaceae and Verbenaceae with 1 species each. Lepchas use mostly wild plants, they do not depend on nature, only for food and shelter but even today most Lepchas depend on forest for herbal medicine (Roy, 2011) which can be further established from the recent studies that out of total plants recorded 72% were found to be wild and 28% cultivated. While considering plant parts used for treating various ailments, Lepchas mostly use leaves (22 spp.), followed by bark (19 spp.), roots, fruits and seeds (14 spp. each), rhizomes (7 spp.), flowers (5 spp.), tubers and entire plants (3 spp. each), bulbs and young shoots (2 spp. each) and resin (1 sp.) (Fig. 3). Of the different diseases treated by the recorded ethno-medicinal plants maximum number of them (21 species) are used for treating various stomach disorders including, gastritis, indigestion, diarrhoea, dysentery etc. whereas 10 species are used for treating skin diseases, 8 species for rheumatism, 7 species for cold and cough whereas 6 for fever and piles each (Fig. 4). Diseases like asthma, jaundice, malaria, pneumonia, leprosy, typhoid etc. along with minor cuts and wounds are also treated by these plants.

Conclusion

There is no evidence of epidemic in Lepcha history, the community possess good health and their health management is purely nature based and eco-friendly (Roy, 2011). They have built their knowledge from their long experience and observation.

The Lepcha tribe still depend upon traditional medicines. However this traditional medicine system is facing serious threat owing to anthropogenic pressure. In the present

Table 1. List of medicinal plants used by Lepcha tribes of Kalimpong areas

Sl.no.	Botanical names with family	Local names L- Lepcha, N- Nepali	Habit	Parts used	Uses	C/W
1.	<i>Abelmoschus esculentus</i> (L.) Moench (Malvaceae)	Tarya bee (L) Bhindi (N)	H	Seeds, Leaves	Seeds used as purgative and leaves juice used in conjunctivitis	C
2.	<i>Acorus calamus</i> L. (Acoraceae)	Ruk laop (L) Bojo (N)	H	Rhizome	Grinded paste used to cure skin disease and taken orally to relieve bowel complaints	W
3.	<i>Albizia</i> sp. (Mimosaceae)	Tuk chyer Koong (L) Siris (N)	T	Leaves, Bark & Seeds	Bark and seeds used against piles and diarrhoea. Powdered bark of roots used to strengthen gums, juice of young leaves applied on eyes to cure night blindness	W
4.	<i>Allium cepa</i> L. (Liliaceae)	Munggu (L) Piyaz (N)	H	Bulb	Stimulant and expectorant, juice of bulbs applied over bee sting to relieve pain	C
5.	<i>Allium sativum</i> L. (Liliaceae)	Oo Tsong / Payk (L) Lasun (N)	H	Bulb	Taken in gastritis, indigestion and high altitude sickness. Juice used in skin diseases and as ear drops in ear ache, mixed with water and sprinkled around houses to drive out snakes, scorpions and other insects	C
6.	<i>Aloe vera</i> (L.) Burm.f (Liliaceae)	More (L) Ghiu Kumari (N)	H	Leaves	Jelly pulp from leaves applied over burnt skin and taken orally during stomach problem and gastritis	C
7.	<i>Alstonia scholaris</i> (L.) R.Br. (Apocynaceae)	Puru Koong (L) Chatiwan (N)	T	Bark & Root	Bark paste used in skin diseases and rheumatism. Juice extracted from root mixed with milk taken orally to cure leprosy	W
8.	<i>Amomum subulatum</i> Roxb. (Zingiberaceae)	Lenzee (L) Alaichi (N)	H	Seeds & Roots	Decoction of seeds used in teeth and gum infection. Powdered roots are used to cure urinary diseases in cattle	C
9.	<i>Ananas comosus</i> (L.) Merr. (Bromeliaceae)	Kaong Chyey (L) Bhui katahar (N)	H	Leaves & Fruits	Leaf juice used for expelling intestinal worms of children. Fruit juice to cure swollen and bleeding gums, fruits taken for improving digestion	C
10.	<i>Ageratum conyzoides</i> (L.) L. (Asteraceae)	Nambyu (L), Elamey (N)	H	Leaves	Juice applied on cuts and wounds to stop bleeding	W
11.	<i>Artemisia vulgaris</i> L. (Asteraceae)	Tuk nyil (L) Titey pati (N)	S	Leaves	Crushed and rubbed on diseased or infected areas of skin. Juice used in nose bleeding. Decoction of young shoot taken to increase appetite and promote digestion. Fumigation of leaves used for repelling insects	W
12.	<i>Bauhinia variegata</i> L. (Fabaceae)	Kachyik Koong (L) Taaki (N)	T	Roots, Leaves, Barks, Flowers and	Paste made of bark used in ulcers, inflammation of joints and skin disease. Dried flower buds taken orally in diarrhoea, dysentery and piles. tender leaves and young shoots eaten as vegetables for maintaining good health	W

				Flower buds		
13.	<i>Bombax ceiba</i> L. (Bombacaceae)	Tunglu koong / Singlu (L) Simal (N)	T	Gum & Roots	Gum extracts used in dysentery and young root in gonorrhoea	W
14.	<i>Buddleja asiatica</i> Lour. (Scrophulariaceae)	Pondam Koong (L) Bhimsen pati (N)	T	Leaves	Leaf paste applied on skin diseases	W
15.	<i>Callicarpa arborea</i> Roxb. (Lamiaceae)	Sa-ngaa Kung (L) Guyelo (N)	T	Bark	Bark crushed and soak in water and liquid taken to cure pneumonia	W
16.	<i>Carica papaya</i> L. (Caricaceae)	Naaroo Paot (L) Mewa (N)	H	Fruits	Taken ripe or unripe matured fruits for better digestion	C
17.	<i>Centella asiatica</i> (L.) Urban (Apiaceae)	Kahley Nyaok (L), Gol patta (N)	H	Leaves	Chewed raw during sore throat and lungs infection	W
18.	<i>Cheilocostus speciosus</i> (J.Koenig) C.D.Specht (Costaceae)	Ruyang (L) Betlauri (N)	H	Rhizome & Stems	Decoction prepared from rhizome taken against burning sensation during urination and juice extracted from stem taken to cure jaundice	W
19.	<i>Cinnamomum glaucescens</i> (Nees) Hand. - Mazz. (Lauraceae)	Ruhun Koong (L) Malagiri (N)	T	Bark & Leaves	Bark used to cure gonorrhoea and leaves paste used in rheumatism	W
20.	<i>Citrus medica</i> L. (Rutaceae)	Kachyo Kung (L) Bimbira (N)	T	Fruits	Taken orally for better digestion. Dried rind powder taken during indigestion and dysentery	W
21.	<i>Clematis buchaniana</i> DC. (Ranunculaceae)	Chyeelaok rik (L) Pinasey Lahara (N)	Cl	Roots, Leaves	Root juice taken for curing headache and leaves burnt and inhale to cure sinus	W
22.	<i>Colocasia esculenta</i> (L.) Schott (Araceae)	Sungte /Pazaok luktuk (L) Pindalu (N)	H	Tuber/Corm	Crushed and cooked with butter and taken for curing Tuberculosis	W
23.	<i>Coriandrum sativum</i> L. (Apiaceae)	Oo Su (L), Dhaniya (N)	H	Leaves	Fresh leaves taken orally in gastritis, helps in digestion	C
24.	<i>Cucumis sativus</i> L. (Cucurbitaceae)	Saret (L), Kakra (N)	Cl	Fruits & Seeds	Taken raw against urinary trouble	C
25.	<i>Cucurbita pepo</i> L. (Cucurbitaceae)	Tung zaong (L) Pharsi (N)	Cl	Seeds & Leaves	Seeds taken orally to kill intestinal worms, leaves juice applied externally over burnt skin	C
26.	<i>Curcuma caesia</i> Roxb. (Zingiberaceae)	Gey sying (L) Kalo hardi (N)	H	Rhizome	Chewed fresh or dried rhizome orally against stomach troubles and to get relieve from flatulence	W
27.	<i>Curcuma longa</i> L. (Zingiberaceae)	Mung gaa (L) Hardi (N)	H	Rhizome	Paste made of rhizome applied over sprains and wounds. Decoction taken against cough and cold. Fresh paste used as antiseptic on skin infection	C
28.	<i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Paong mook (L) Dubo (N)	H	Whole plant	Fresh roots taken orally in piles. Juice of aerial parts applied over cuts and wounds	W
29.	<i>Datura metel</i> L.	Rinchen Nyongboou (L)	S	Roots, Leaves	Leaves paste used in rheumatic swelling, lumbago, sciatica and	W

	(Solanaceae)	Dhatura (N)		& Seeds	inflammation. Seeds taken orally as anti-rabies during dog bites and its smoke inhaled against asthmatic troubles	
30.	<i>Dichroa febrifuga</i> Lour. (Hydrangeaceae)	Geybu Khanaok (L) Basak (N)	S	Root	Root decoction used in fever and malaria	W
31.	<i>Diploknema butyracea</i> (Roxb.) Lam. (Sapotaceae)	Yel Paot (L) Chiwri (N)	T	Seed	Oil extracted from seeds used as ointment for rheumatism. Used to get rid of seasonal damage/wrinkles during winter	W
32.	<i>Drymaria cordata</i> (L.) Willd. ex Schult. (Caryophyllaceae)	Eayok Pundim (L) Abijalo (N)	H	Aerial part	Smoke by burning aerial parts inhaled during headache and chronic sinus problem. Juice extract taken orally for curing diphtheria and pneumonia	W
33.	<i>Entada gigas</i> (L.) Fawc. & Rendle (Mimosaceae)	Kooluk Paot (L) Pangra (N)	Cl	Bark & Seeds	Bark juice used for skin diseases. Paste made of seeds used for washing hairs to remove dandruff, also applied on mumps and swelling	W
34.	<i>Eryngium foetidum</i> L. (Apiaceae)	Seyd Oosu (L) Bhotey Dhaniya (N)	H	Roots & Leaves	Roots cut into pieces and soaked overnight in water and taken that water at morning in urine trouble and kidney problems. Leaves taken during stomach disorder	W
35.	<i>Ficus semicordata</i> Buch.-Ham. ex Sm. (Moraceae)	Beesu Paot/Toksot Paot (L) Khasrey Khaniu (N)	S	Fruits	Taken for better digestion. Dried rind used in dysentery.	W
36.	<i>Fraxinus paxiana</i> Lingelsh. (Oleaceae)	Payjew (L) Lakuri (N)	T	Bark	Paste is applied over sprain, bone fracture and dislocation. Decoction taken orally during body pain	W
37.	<i>Gynocardia odorata</i> R. Br. (Flacourteaceae)	Tuk Koong (L) Gantey (N)	T	Seeds	Oil extracted from seeds used against leprosy, eczema and other skin diseases and chronic rheumatism	W
38.	<i>Helianthus annuus</i> L. (Asteraceae)	Satsuk Rip (L) Gham Phul (N)	H	Seeds	Taken orally in urine trouble, cough cold, bronchitis and lung diseases	C
39.	<i>Heracleum wallichii</i> DC. (Apiaceae)	Samben (L) Chimphing (N)	H	Seeds	Fresh or dried seeds taken orally in stomach disorder and gastric troubles	W
40.	<i>Hordeum vulgare</i> L. (Poaceae)	Kachyer (L) (Jau/uwa)	H	Seeds	Powdered grains used against indigestion. Given to sick as it is easy to digest	C
41.	<i>Ipomoea batatas</i> (L.) Lam. (Convolvulaceae)	Moongur Book (L) Sakar-Khanda (N)	H	Tuber	Boiled and taken orally in constipation	C
42.	<i>Juglans regia</i> L. (Juglandaceae)	Kaol Koong (L) Okhar (N)	T	Bark & Fruits	Bark decoction use in expelling intestinal worms. Fruits used in rheumatism	W
43.	<i>Justicia adhatoda</i> L. (Acanthaceae)	Boosyika (L) Asuro/Basak (N)	S	Root, bark, leaves, flowers	Root, bark, leaves, and flowers decoction used to remove phlegm. Flowers and leaves taken as vegetables in hypertension. Leaves juice taken in diabetes and used as antiseptic.	W

44.	<i>Kaempferia rotunda</i> L. (Zingiberaceae)	Sodong Maon (L) Bhui champa (N)	H	Rhizome	Paste applied on bone fracture and rheumatism	C
45.	<i>Lantana camara</i> L. (Verbenaceae)	Kadao rip (L) Kanrhe banmara (N)	S	Petals & Roots	Paste made of petals applied to cuts to stop bleeding. Root decoction taken in tuberculosis	W
46.	<i>Lycopersicon esculentum</i> Mill. (Solanaceae)	Byooru Paot (L) Tamatar /Rambhera (N)	H	Leaves	Leaf juice applied on animals wound to extract maggots	C
47.	<i>Macrotyloma uniflorum</i> (Lam.) Verdc. (Fabaceae)	Fyetaasyee (L) Gahat (N)	H	Seeds	Decoction taken orally to cure measles	C
48.	<i>Magnolia champaca</i> (L.) Baill. ex Pierre (Magnoliaceae)	Gok rip (L) Chaap (N)	T	Bark, Flower & Fruit	Bark used in fever and cough. Flowers and fruits in nausea, fever and urine trouble	W
49.	<i>Mentha spicata</i> L. (Lamiaceae)	Oosu Daong (L) Padina (N)	H	Leaves and young shoots	Taken fresh against headache and cholera. Stimulant and digestive	C
50.	<i>Mimosa pudica</i> L. (Mimosaceae)	Aaook Mook/Tuksaam mook (L), Buhari jhar/Lajjawati (N)	H	Leaves & Roots	Crushed into paste and applied on piles	W
51.	<i>Momordica charantia</i> L. (Cucurbitaceae)	Khaaktik (L) Titey karela (N)	Cl	Leaves & Fruits	Leaves juice rubbed in burning of feet soles. Fruits taken in gastritis and better digestion	C
52.	<i>Morus australis</i> Poiret (Moraceae)	Mikrap Koong (L) Kimbu (N)	S	Bark & Leaves	Bark used as purgative. Leaves decoction used for gargling to cure hoarse voice and inflammation of vocal cords	W
53.	<i>Oroxylum indicum</i> (L.) Kurz (Bignoniaceae)	Phago Rip (L) Totola (N)	T	Bark & Seeds	Paste made of bark applied on cuts and wounds. Bark ashes applied to cure chronic wounds. Seed paste taken in sores of throat and lungs and in typhoid. Good for liver	W
54.	<i>Pandanus furcatus</i> Roxb. (Pandanaceae)	Bor Koong (L), Tarika (N)	T	Bark	Juice prepared from bark taken against gonorrhoea	W
55.	<i>Persea americana</i> Hill. (Lauraceae)	Kafaam/Phaamsyi Koong (L) Phamphal (N)	T	Fruit & Bark	Fruit juice along with water taken to cure cough. Paste made of bark and leaves to stop bleeding	W
56.	<i>Phyllanthus emblica</i> L. (Phyllanthaceae)	Saa aom Paot (L), Amala (L)	T	Bark & fruits	Taken orally in diarrhoea and dysentery. Fruit juice taken to cure urine trouble	W
57.	<i>Piper longum</i> L. (Piperaceae)	Kuntim Paot (L), Pipla (N)	Cl	Roots & Fruits	Powdered fruits prescribed with sugar or molasses for inducing sound sleep. Fruits taken in asthma, cough, rheumatism, gonorrhoea and piles	W
58.	<i>Prunus cerasoides</i> Buch.-Ham. ex D. Don (Rosaceae)	Kaong kee Koong (L) Paiyun (N)	T	Bark	Paste made of bark applied over bone fracture	W
59.	<i>Rhododendron arboreum</i> Sm. (Ericaceae)	Eetok Koong(L), Lali gurans(N)	T	Flowers	Fresh or dried flower petals chewed to cure dysentery and diarrhoea	W
60.	<i>Rubia cordifolia</i> L. (Rubiaceae)	Vyumrik/ Cho-ek (L), Majito(N)	H	Root & Fruits	Paste prepared from root and fruits applied over skin diseases	W
61.	<i>Rubus ellipticus</i> Sm. (Rosaceae)	Kasyum Koong (L)	S	Roots &	Decoction given to children in colic pain and for killing intestinal	W

		Aiselu (N)		Young shoots	worms	
62.	<i>Schima wallichii</i> Choisy (Theaceae)	Sungbrang Koong (L) Chilauney (N)	T	Bark	Paste used for curing gonorrhoea	W
63.	<i>Shorea robusta</i> Gaern. (Dipterocarpaceae)	Tuk tal Koong (L) Saal/ Sakhuwa (N)	T	Resin	Resin fumes used for repelling mosquitoes and other insects and fumes much used for fumigating sick person's room	W
64.	<i>Stephania glabra</i> (Roxb.) Miers. (Menispermaceae)	Mungkyo Rik (L) Tamarkey (N)	Cl	Leaves, Tubers	Leaves paste used for treating boils and tubers taken against gastritis, diabetes, ulcers and its paste applied over burnt skin	W
65.	<i>Swertia chirayita</i> H. Karst. (Gentianaceae)	Rung Ken (L) Chirauto (N)	H	Whole plant	Decoction taken against fever, acidity dyspepsia and skin diseases, also taken as liver tonic	W
66.	<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Combretaceae)	Kutnaom Paot (L) Barra (N)	T	Fruits	Fresh or dried fruits taken during diarrhoea, sore throat, fever and to cure piles, good in constipation	W
67.	<i>Terminalia chebula</i> Retz. (Combretaceae)	Salim Paot (L) Harra (N)	T	Fruits	Raw fruits chewed in cough, sore throat, tonsillitis and diabetes, good in constipation	W
68.	<i>Tetradium fraxinifolium</i> (Hook. f.) T.G. Hartley (Rutaceae)	Kanu Paot (L) Khanakpa (N)	T	Fruits	Fresh or dried fruits taken during indigestion, gastritis food poisoning and dysentery	W
69.	<i>Thysanolaena latifolia</i> Roxb. ex Hornem.) Honda (Poaceae)	Pasyor (L) Amliso (N)	H	Roots	Root paste applied around boils to rupture easily	C
70.	<i>Toona ciliata</i> Roem. (Meliaceae)	Samaal Koong (L), Tuni (N)	T	Bark	Powdered bark is astringent, used for curing ulcers	W
71.	<i>Urtica parviflora</i> Roxb. (Urticaceae)	Kuzoo (L), Sisnu (N)	H	Roots, Leaves, Flowers	Root paste applied on fracture and joint dislocation. Root juice taken against gonorrhoea. Young leaves and flowers used as vegetables for controlling high BP	W
72.	<i>Viscum articulatum</i> Burm. f. (Santalaceae)	Sun tee pro/ Singhthutmu (L) Harchur (N)	S	Whole plant	Paste is used as poultice for treating muscular pain, bone fracture etc. Decoction taken orally in body and muscle pain	W
73.	<i>Zanthoxylum acanthopodium</i> DC. (Rutaceae)	Naong ryu Paot (L) Bokey timber (N)	S	Fruits & Bark	Fruits and bark used as tonic in fever and cholera. Oil extracted from dry fruits used in gout, rheumatism and toothache	W
74.	<i>Zingiber officinale</i> Roscoe (Zingiberaceae)	Heng (L) Aduwa (N)	H	Rhizome	Rhizome juice mixed with turmeric powder and honey used to cure cold, cough and asthma; rhizome juice mixed with lemon juice taken to cure dyspepsia, taken with butter to cure rheumatism. Fresh or dried rhizome peeled off and chewed as an appetizer and to cure throat troubles	C
75.	<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm. (Zingiberaceae)	Salek (L) Phachyang (N)	H	Rhizome	Fresh or dried rhizome chewed in nausea, gastritis and stomach ache	W

* L- Lepcha; N- Nepali; C- Cultivated; W- Wild; H- Herb; S- Shrub; Cl- Climber; T- Tree

scenario of ecological imbalance the Lepcha concept of nature can be used as a true model for sustainable growth (Roy, 2011). As their livelihood is basically dependent on ecological surroundings and they use simple technology to sustain their life, which seems totally conservative (Gurung et al, 2014); hence play a significant role as the true custodians of indigenous knowledge including medicinal uses of plant resources around them. Interestingly the use of root of *Eryngium foetidum* for curing urine trouble and kidney problem is reported and documented here for the first time in the region. During the survey it was also noted that the tribe has changed their life style and their dependence on nature has decreased mostly by their religious conversion into Buddhism and Christianity and thereby cultural transformation took place, consequently they are moving away from their original nature based culture. It was also documented that Lepcha now hardly live in their traditional houses made up of wood, bamboo, mud and thatched roof without any nails or screws, which are earthquake, landslide and flood proof, cool in summer and warm during winter. It was observed during the study that Lepcha traditional houses in the vicinity of town areas were found with some modifications as thatched roof was replaced by modern tinned roof due to unavailability of thatching materials (*Imperata cylindrica*). It was also known from the tribe that it is very difficult to maintain such ancient houses built in 18th century as availability of raw materials has become a major problem for them; hence they started living in modern houses. This is how original Lepcha culture and tradition is slowly deteriorating with time owing to modernization. Therefore, it is essential to preserve and document their culture along with the vast knowledge on nature including their traditional herbal practices in an appropriate manner which can be used as an important tool for sustainable augmentation before it is eroded with time.

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