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Ethnomedicinal practices among ethnic groups in *Marat Longri* Wildlife sanctuary, Assam- A quantitative study

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Abstract

Ethnomedicine deals with the study of medical practices in cultural societies. Studies on ethnomedicine are very important as it offers a source for the discovery of new drugs. The present work was designed to document plant species used as medicine by local medicinemen and inhabitant in *Marat Longri* Wildlife Sanctuary, Assam. Data were collected through semi-structured interview method during the year 2020–2021. Forty (40) medicinemen from four reserved forests (Mijungdisa, Disama, Kaki and Inglongkiri) in *Marat Longri* WS were interviewed for collection of ethnomedicinal information. Plants used in healing practices including the method of formulation and doses were recorded. Data was analyzed using Informant Consensus Factor (Fic), Fidelity Level (FL), Relative Frequency Citation (RFC) and Use Value (UV). A total of 45 plants prescribed by medicinemen for 18 ailments have been documented. Informants showed high consensus for 45 plants ranging from 0.72 to 1.00, which is indicative of high effectiveness of the ethnomedicine for the disease. One plant *Mikania micrantha* showed 100% FL suggesting these has great importance for a particular disease. Higher value of RFC (1.00) for 9 plants explains their local importance as therapeutic source. *Mikania micrantha* showed highest UV^2. The study indicated ethnic groups in *Marat Longri* WS possess valuable

traditional knowledge of therapeutic plants and animals as source remedies. Meanwhile, biodiversity of the sanctuary has been greatly threatened by various factors and thus present a case for their conservation.

Key words : Quantitative ethnobotany, Marat Longri Wildlife Sanctuary, ethnomedicine, informant consent.

Ethnomedicinal practices have been a source of healing people for millennia[23]. This multi-disciplinary complex system was established by the use of plants and animals, holiness and natural environment[19]. According to WHO[35], 80-90% of the world population uses natural preparations and traditional medicines for their primary healthcare. Studies on ethnomedicine are often significant as it provides lead for discovery of new drugs from local plant source[35].

The Northeast (NE) region of India (21°34'N to 29°50'N latitude and 87°32' E to 97°52'E longitude) is known for its biological diversity, which is the Biogeographical Gateway to India and finds its place in part of two-biodiversity hotspots in India[33]. Owing to the rich biodiversity, the traditional communities living in Northeast India have built an invaluable information about the use of their rich bio-resources. The region has a strong legacy of ethnomedicinal practices, which have become an integral part of its indigenous culture. There are numerous literatures documenting the ethnomedicinal practices by the indigenous communities of Northeast India[6,9,10,18,21,22,24,]. Most of these documentations, list of medicinal plants of a particular region or community is given and not much focus has been given on the quantitative techniques, also called quantitative ethnobotany, for analysis of data. Quantitative ethnobotany describes the variables quantitatively and analyze the observed patterns to test different hypotheses about the relationship between plant species and humans[3, 14]. Cox & Balick[31] and Cordell[8] stated that quantitative ethnobotanical methods play an important role in biodiversity prospecting. Appropriate selection of important medicinal plants is a requirement to initiate the ethno-pharmacological, phytochemical and toxico-logical studies due to huge laboratory cost[7]. For this reason, it is very important to determine the species that are most used to treat a particular disease. A useful tool to find a specific plant is the Informant Consensus Factor[4, 11].

In Karbi Anglong district, which is also known as the hill district of Assam, ethnome-dicinal practice is the leading healthcare practice practiced among the hill communities. Therefore, the present investigation was aimed to study medicinal uses of plant species using ethnobotanical indices in *Marat Longri* Wildlife Sanctuary in Karbi Anglong district, Assam, which could provide leads to finding potential drugs.

Methodology:

Marat Longri WLS (25°47'-25°59' N and 93°08' -93°21' E) in Karbi Anglong district, Assam was recognized on 17th April 2003 with

a geographical area of 451.00 sq. km. As per 2011 census, total population in the study area is 4361 (male: 2283; female: 2078). The sanctuary comprises of four reserved forests (RF) namely Mijungdisa RF, Disama RF, Kaki RF and Inglongkiri RF[13] (Figure 1). The vegetation type in the sanctuary are semi-evergreen forest and moist-deciduous forest. The sanctuary is an integral part of Dhansiri-Lumding elephant reserve. The sanctuary is natural habitat of seven ethnic communities' viz. *Karbi, Dimasa, Hmar, Garo, Chakma, Nepali and Adivasi* since many years[25] and forest forms the chief source of survival (food, nutrition, medicines, recreation and livelihoods). Food insecurity is a severe problem in the sanctuary as agricultural land is scarce and *jhum* production is not adequate for the whole year. People had to collect forest resources (leaves, fruits, tubers, roots, bush meat, insect etc.) from the sanctuary to meet their food requirement and tide over hungry season.

***Data Collection*:** Field survey was carried out during September 2020 to December 2021 in *Marat Longri* WLS. Ethnomedicinal data were collected through participatory approach and direct observation in the field[5, 20]. Semi-structured interview method was followed to record ethnomedicinal use of plants. Sixty households from randomly selected 20 villages (5 villages from each Reserved Forest)

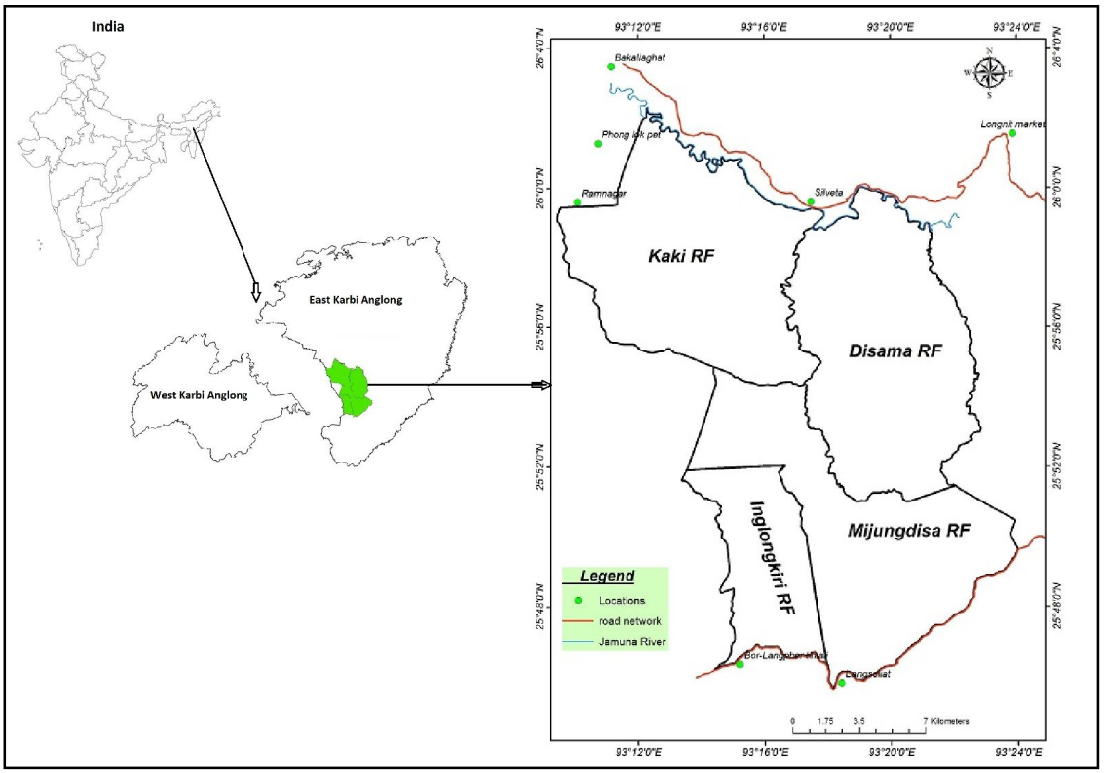

Figure 1. Map of Marat Longri WLS

were visited to record ethnomedicinal plants used; list of plants and animals was prepared through free listing. The informants were mostly elders of age groups 40 to 65 years. We conducted forest walks with key informants to study the distribution, diversity and ecology of medicinal species. Medicinal plants collected during filed investigation were identified with the help of floras[2,12,17,26,27,28,29,30]. Identification of the recorded species was authenticated at Assam Herbarium, Botanical Survey of India, Shillong. Nomenclature and family delimitation for the recorded plants were updated using online database The Plant List (www.theplantlist.org). The specimens were processed according to Jain & Rao[16].

Data Analysis :

Informants' Consensus Factor (FIC): Degree of similarity between information given by different informants was calculated by FIC[34] using the formula:

$$FIC = Nur - Nt / (Nur - 1)$$

Where, Nur = number of use reports from informants for a particular plant-use category;

The fidelity level (FL)*:* To find the percentage of informants stating the use of a certain plant for the same major purpose, was calculated for the most frequently reported diseases as:

$$FL (\%) = (N_P / N) \times 100$$

Nt = number of taxa or species that are used for that plant use category for all informants. FIC Values range between 0 and 1, where '1' indicates the highest level of informant consent. Where, N_P = number of informants that claim a use of a plant species to treat a particular disease;
N = number of informants that use the plants as a medicine to treat any given disease[1].

Relative frequency citation (RFC): The reported medicinal evidence was quantitatively analyzed using an index of RFC as:

$$RFC=FC/N \ (0<RFC<1)$$

Use value (UV): UV proves the comparative position of plants known locally and was calculated using the formula as[32]:

$$UV = \Sigma U_i/N$$

Where, U_i = Number of uses mentioned by each informant for a given species

N = Total number of informants.

A total of 45 plants belonging to 45 genera of 26 families (Table-1) prescribed by local medicine men for 18 ailments have been documented from the sanctuary. Out of 45 plants, 28 were use as oral application and the rest 17 as external applications. (Table-1). The family Asteraceae[6] had the highest representation of ethnomedicinal plants followed by Leguminosae[3], Cucurbitaceae[2], Lamiaceae[2] and Solanaceae[2]; the remaining families were represented by 1 plant each. Most recorded medicinal plants are herbs (50%) followed by trees (22.72 %), climbers (13.63 %) and shrubs (15.05 %). The habitat distribution of recorded medicinal plant species included terrestrial (75 %), aquatic (9.09 %) and marshy system (15.9 %). Leaves (41%) are the frequently used plant part, followed by fruits (9%), root (9%), whole plant (6%), stem (2%), petiole (1%), and bark (1%) which are presented in Figure 2. The herbal preparations

are administered in various methods by the inhabitant of the sanctuary. Most common preparation and administration methods used were decoction, paste, steam inhalation, herbal juice and powdered drug. Most of the recorded herbal preparation are taken orally (23%) than external or topical (23%) application.

Table-1. Medicinal plants of *Marat Longri* WLS with scientific name, vernacular name, parts used, ailments and mode of administration.

	Name of plants [Family]	Local	Part use name	Ailments	Mode of administration
1.	*Acacia concinna* (Willd.) DC. [Leguminosae]	*Sirhup-arikang*	Leaves and fruits	Skin disease	Paste of leaf and fruit applied externally
2.	*Acorus calamus* L. [Acoraceae]	*Lang abab*	Rhizome, leaf	Gastrointes-tinal, fever, cold and cough	Juice of rhizome taken orally for diarrhea and fever. Leaf aroma is inhaled by children during cold.
3.	*Alternanthera sessilis* (L.) R.Br. ex DC. [Amaranthaceae]	*utukreng*	Tender shoot	Jaundice	Juice taken orally
4.	*Aristolochia saccata* Wall. [Aristolochiaceae]	*Ri-etso*	Root	Jaundice	Juice taken orally
5.	*Bauhinia racemosa* Lam. [Leguminosae]	Ngku-kelok	Bark, leaf	Gastrointes-tinal	Juice of bark and leaf taken orally
6.	*Blumea lanceolaria* (Roxb.) Druce [Asteraceae]	*Hanm-oiso*	Leaves	Analgesic	Leaf paste taken orally
7.	*Callicarpa arborea Roxb.* [Lamiaceae)]	*Arhi arong*	Bark	Skin disease	Bark paste applied externally
8.	*Capsicum annuum* L. [Solanaceae]	Birikman	Fruit	Cool and cough	Raw fruit with curry taken orally
9.	*Centella asiatica* (L.) Urb. [Apiaceae)]	*Chong amok*	Leaf	Gastroin-testinal	Raw leaf taken orally
10.	*Cheilocostus speciosus* (J.Koenig) C.D.Specht [Costaceae]	*I-u-po*	Rhizome, stem	Urinary stone cases, ear-ache	Root is boiled and given in urinary stone cases. Hot fomentation of stem juice is used as ear-drop against ear-ache
11.	*Chromolaena odorata* (L.) R.M.King & H.Rob. [Asteraceae]	*Bab bongnai*	Leaf	Cut and wound	Leaf juice applied externally
12.	*Clerodendrum glandulosum* Lindl. [Lamiaceae]	*Phark-lung*	Tender shoot	Hypertension	Tender shoot and leaf are boiled and taken orally

13.	*Coccinia grandis* (L.) Voigt [Cucurbitaceae]	Kaikruk	Leaf	Diabetes	Leaf juice taken orally
14.	*Commelina benghalensis* L. [Commelinaceae]	Kurveng	Stem	Ear ache	Stem juice applied externally
15.	*Cynodon dactylon* (L.) Pers. [Poaceae]	*Bab duribon*	Tender Shoot	Jaundice	Tender shoot applied externally
16.	*Dendrocnide sinuata* (Blume) Chew [Urticaceae]	*Bab kangsam*	leaf	Urinary disorder	Leaf is boiled and taken orally
17.	*Enhydra fluctuans* Lour. [Asteraceae]	*Bab-kani*	Tender shoot	Gastroin-testinal, skin disease	Raw leaf taken orally for diarrhea, also said to be good for eye site; leaf paste applied externally for skin disease.
18.	*Eupatorium cannabinum* L. [Asteraceae]	*Ar-hi*	Bark	Skin disease	Bark paste applied externally
19.	*Hippochaete debilis* (Roxb. ex Vaucher) Ching [Equisetaceae]		Whole plant	Skin disease	The plant is boiled with water and the water is taken as bath.
20.	*Ipomoea aquatica* Forssk. [Convolvulaceae]	*Kormo-so*	Tender shoot, leaf	Blood purification	Leaf juice taken orally
21.	*Lantana × aculeata* L. [Verbenaceae]	*Bub nem-i*	Whole plant	Constipation	Leaf juice with a little common salt and soda taken orally
22.	*Maranta arundinacea* L. [Marantaceae]	*Ruiloru*	Bulbs	Increase lactation	Raw or boiled bulb taken orally
23.	*Mikania micrantha* Kunth [Asteraceae]	*Rikang*	Leaf	Cut and wound	Leaf paste applied externally
24.	*Mimosa pudica* L. [Leguminosae]	*Babt-herak*	Root	Jaundice	Powder of root taken orally
25.	*Momordica charantia* L. [Cucurbitaceae]	*Kang-koroi-so*	Leaf and fruit	Gastroin-testinal	Leaf and fruit juice taken orally
26.	*Monochoria hastata* (L.) Solms [Pontederiaceae]	*Antimi*	Tender shoot and leaf	Curing boils	Leaf paste applied externally
27.	*Murraya koenigii* (L.) Spreng. [Rutaceae]	Theng-sakso	Leaf	Constipation	Paste of raw leaf taken orally
28.	*Musa × paradisiaca* L. [Musaceae]	*Lorop*	Inflores-cence	Diarrhea	Inflorescence is cooked as curry and taken orally
29.	*Nymphoides indica* (L.) Kuntze [Menyanthaceae]		Whole plant	Scurvy, fever, jaundice, skin disease	Plant is boiled with water and the water is taken orally for curing and relieving scurvy

					and also for reducing fever; and jaundice. Paste is applied externally for skin infection.
30.	*Olax acuminata* Wall. ex Benth. [Olacaceae]	*Hanboka*	Leaf	Skin disease	Leaf paste applied externally
31.	*Oroxylum indicum* (L.) Kurz [Bignoniaceae]	*Nopak-ban*	bark	Jaundice on the palm and foot	Paste of bark mixed with firewood ash is massage
32.	*Oxalis corniculata* L. [Oxalidaceae]	*Vothung-mekbop*	Whole plant	Antidote	Antidote
33.	*Paederia foetida* L. [Rubiaceae]	*Rikang menthu*	Leaf	Gastroin testinal	Leaf paste taken orally
34.	*Persicaria hydropiper* (L.) Delarbre. [Polygonaceae]	*Lang birik*	Whole plant	Skin disease	Leaf paste applied externally
35.	*Phlogocanthus thyrflorus* Thyrsiflorus	*Jok-an*	Inflores-cence	Gastroin-testinal	Cooked as chutney and taken orally
36.	*Phyllanthus emblica* L. [Phyllanthaceae]	*Habit thelu*	Fruit	Gastroin-testinal	Raw fruit taken orally
37.	*Pistia stratiotes* L. [Araceae]		Leaf	Skin disease	Leaf juice mixed with coconut oil applied externally in chronic skin disease.
38.	*Pogostemon benghalense* (Burm.f.) Kuntze [Lamiaceae]	*Hanbipo*	Tender shoot	Analgesic	Tender shoot is cooked as curry and taken orally
39.	*Psidium guajava* L. [Myrtaceae]	*Habit suprime*	Leaf	Gastroin-testinal	Leaf juice taken orally
40.	*Ranunculus sceleratus* L. [Ranunculaceae]		Whole plant	Rheumatic pain, expel intestinal worms	Plant Juice taken orally
41.	*Scoparia dulcis* L. [Plantaginaceae]		Root	Jaundice	Applied externally
42.	*Solanum aculeatissimum* Jacq. [Solanaceae]	*Theso kumbong*	Fruits	Dental pain	Smoke of fruits applied in tooth ache
43.	*Spilanthes acmella* (L.) L. [Asteraceae]	*Bab chuki*	Inflores-cence	Dental pain	Raw inflorescence is chew to relief dental pain
44.	*Terminalia chebula* Retz. [Combretaceae]	*Siluka*	fruit	Gastroin-testinal	Raw fruit taken orally
45.	*Ziziphus jujuba* Mill. [Rhamnaceae]	*Bogori*	Bark, fruit	Gastroin-testinal	Bark juice taken orally

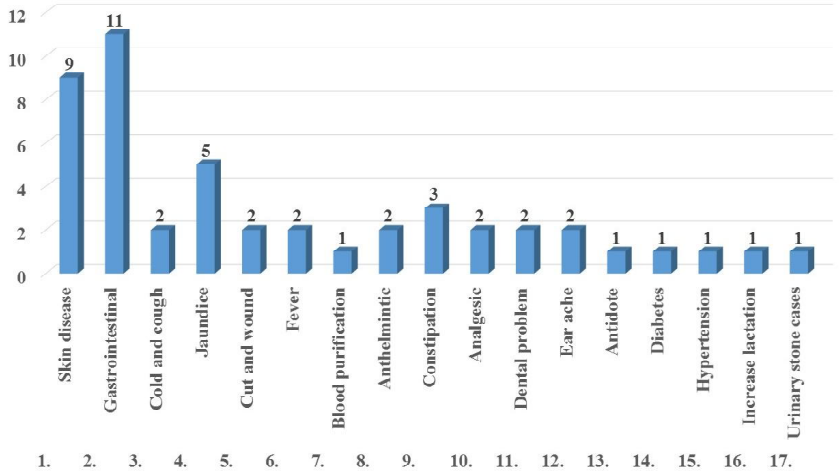

Figure 2. Number of plant species used for each ailment categories

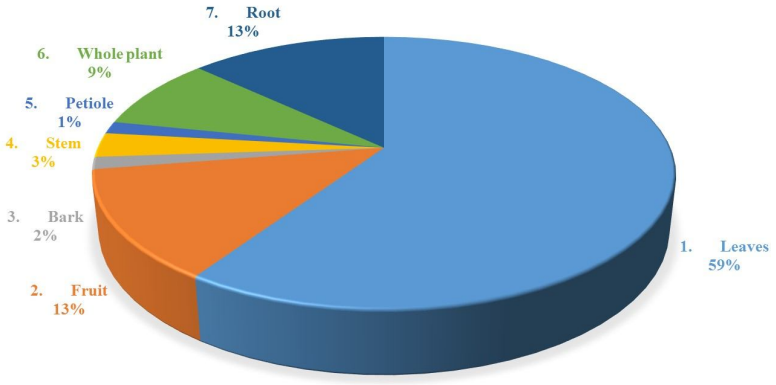

Figure 3. Pie graph representing number of plant part used

Data on quantitative ethnomedicinal uses:

Quantitative ethnobotanical methods do not replace qualitative methods but add rigor to the practice statistical analysis. Fic was analyses to find the degree of traditional knowledge among the informants in the study area regarding the use of medicinal plants to treat certain ailment categories.

Informant consensus factor (Fic): Fic values varied from 0.93 to 0.97 with an average value of 0.95 (Table-2). Gastrointestinal problem (305 use-reports for 11 plant species) and cold and cough (67 use-reports for 3 plant species) has the highest Fic value 0.97 each which is followed by Jaundice (Fic = 0.95; 142 use-reports, 7 species), Constipation (Fic = 0.94; 37 use-reports, 3 species) and Dermatological problem (Fic = 0.93; 108 use-reports, 9 species). Medicinal plants supposed to be effective in treating specific disease have high value of Fic. The high value of Fic for dysentery perhaps revealed that this ailment is common

Table-2. Categories of ailments and value of informant consensus factor (Fic) for each category

Sl no.	Use categories	Number of taxa (N_t)	Number of use report (N_{ur})	Consensus factor
1.	Skin disease	9	30	0.72
2.	Gastrointestinal	11	40	0.74
3.	Jaundice	5	35	0.88
4.	Anthelmintic	2	25	0.95
5.	Constipation	3	30	0.96
6.	Analgesic	2	37	0.97
7.	Cold and cough	2	39	0.97
8.	Cuts and wound	2	40	0.97
9.	Dermatological	2	34	0.97
10.	Earache	2	29	0.97
11.	Fever	2	21	0.97
12.	Antidote	1	20	1.00
13.	Blood purification	1	15	1.00
14.	Diabetes	1	10	1.00
15.	Hypertension	1	40	1.00
16.	Increase lactation	1	32	1.00
17.	Rheumatic pain	1	15	1.00
18.	Urinary stone cases	1	5	1.00

in the sanctuary due to poor sanitation and there is a better communication established among informants for treating this ailment category. The low value of Fic was recorded for Dermatological problem with Fic 0.93. This could be due to a lack of communication among people in different areas.

Fidelity level (%): The values of FL are presented in Table III. Highest FL is found in eight spp. *Viz. Musa acuminata, Mikania micrantha Capsicum frutescens, Centella asiatica, Centella asiatica, Maranta arundinacea, Phyllanthus emblica, Psidium guajava and Terminalia chebula*. The analyses of FL revealed that the above mentions species are the most frequently preferred medicinal plants with 40 use-reports and FL of 100% each. This signifies that these plants are the most effective ethnomedicinal species for treating gastrointestinal problem, cold and cough, and increase lactation. To determine the most frequently used medicinal plant for the treatment of certain ailment category, species with high FL (%) is selected.

Table-3. Value of fidelity level (FL%) calculated among the most frequently used plant species

Sl no.	Botanical name	Ailments/disease condition	Citation for particular disease (use-report)	Fidelity level (%)
1.	*Capsicum frutescens* L.	Cold and cough	39	97.5
2.	*Musa paradisiaca* L.	Dysentery	40	100
3.	*Clerodendron colebrookianum* Walp.	Hypertension	39	97.5
4.	*Mikania micrantha* HBK.	Cut and wound	40	100
5.	*Centella asiatica* (L.) Urban.	Diarrhoea	35	87.5
6.	*Solanum aculeatissimum* Jacq.	Dental pain	32	80.00
7.	*Eupatorium odoratum* L.	Cut and wound	30	75.00
8.	*Paederia foetida* L.	Diarrhoea	26	56.00
9.	*Mimosa pudica* L.	Jaundice	20	50.00
10.	*Oroxylum indicum* (L.) Benth. Ex Kurz.	Jaundice	15	37.5

Relative frequency citation (RFC) and Use value (UV): The value of RFC and UV calculated for 45 medicinal plant species are presented in Table-4. The highest value of RFC ranked the 10 species namely *Ziziphus jujuba, Phlogocanthus thyrflorus, Centella asiatica, Psidium guajava, Capsicum annuum, Clerodendrum glandulosum, Musa acuminata, Phyllanthus emblica, Terminalia chebula* and *Mikania micrantha* with the value 1.00 each followed by *Paederia foetida* (0.925) and *Cynodon dactylon* (0.85). This high value of RFC and UV indicate the trend of exploitation of herbal preparation in the study area as such value found from the recorded species specify the percentage of traditional knowledge in the utilization of medicinal plants to treat various ailments by the local inhabitants. This finding stated that, most of the inhabitants under the study area depend on herbal medicines for the primary healthcare practice.

Table-4. Value of RFC and UV calculated for 45 recorded species

Sl. No.	Name of plants [Family]	Ailments	No of citation	RFC	UR	ΣU_i	UV
1.	*Coccinia grandis* (L.) Voigt	Diabetes	2	0.05	1	1	0.025
2.	*Eupatorium cannabinum* L.	Skin disease	4	0.1	1	1	0.025
3.	*Acacia concinna* (Willd.) DC.	Skin disease	5	0.125	1	2	0.05
4.	*Bauhinia racemosa* Lam.	Gastrointestinal	3	0.075	1	2	0.05
5.	*Hippochaete debilis* (Roxb. ex Vaucher) Ching	Skin disease	5	0.125	1	2	0.05
6.	*Olax acuminata* Wall. ex Benth.	Skin disease	9	0.225	1	2	0.05
7.	*Oxalis corniculata* L.	Antidote	2	0.05	1	2	0.05
8.	*Callicarpa arborea Roxb.*	Skin disease	7	0.175	1	3	0.075
9.	*Dendrocnide sinuata* (Blume) Chew	Anthelmintic	5	0.125	1	3	0.075
10.	*Oroxylum indicum* (L.) Kurz	Jaundice	5	0.125	1	3	0.075
11.	*Pistia stratiotes* L.	Skin disease	9	0.225	1	4	0.1
12.	*Lantana × aculeata* L.	Constipation	8	0.2	1	5	0.125
13.	*Ranunculus sceleratus* L.	Rheumatic pain, expel intestinal worms	3	0.075	2	5	0.125
14.	*Alternanthera sessilis* (L.) R.Br. ex DC.	Jaundice	14	0.35	1	6	0.15
15.	*Persicaria hydropiper* (L.) Delarbre.	Skin disease	10	0.25	1	6	0.15
16.	*Aristolochia saccata* Wall.	Jaundice	17	0.425	1	8	0.2
17.	*Scoparia dulcis* L.	Jaundice	16	0.4	1	9	0.225
18.	*Pogostemon benghalense* (Burm.f.) Kuntze	Analgesic	25	0.625	1	10	0.25
19.	*Commelina benghalensis* L.	Ear ache	19	0.475	1	12	0.3
20.	*Monochoria hastata* (L.) Solms	Curing boils	28	0.7	1	15	0.375
21.	*Enhydra fluctuans* Lour.	Gastrointestinal, skin disease	16	0.4	2	25	0.4
22.	*Ipomoea aquatica* Forssk.	Blood purification	24	0.6	1	20	0.5
23.	*Nymphoides indica* (L.) Kuntze	Scurvy, fever, jaundice, skin disease	6	0.15	4	20	0.5
24.	*Cynodon dactylon* (L.) Pers.	Jaundice	34	0.85	1	24	0.6
25.	*Mimosa pudica* L.	Jaundice	28	0.7	1	24	0.6

26.	*Blumea lanceolaria* (Roxb.) Druce	Analgesic	31	0.775	1	25	0.625
27.	*Ziziphus jujuba* Mill.	Gastrointestinal	40	1	1	25	0.625
28.	*Momordica charantia* L.	Gastrointestinal	31	0.775	1	28	0.7
29.	*Spilanthes acmella* (L.) L.	Dental pain	31	0.775	1	28	0.7
30.	*Murraya koenigii* (L.) Spreng.	Constipation	34	0.85	1	30	0.75
31.	*Paederia foetida* L.	Gastrointestinal	37	0.925	1	30	0.75
32.	*Solanum aculeatissimum* Jacq.	Dental pain	34	0.85	1	30	0.75
33.	*Acorus calamus* L.	Gastrointestinal, fever, cold and cough	15	0.375	3	35	0.875
34.	*Phlogocanthus thyrsiflorus*	Gastrointestinal	40	1	1	35	0.875
35.	*Centella asiatica* (L.) Urb.	Gastrointestinal	40	1	1	37	0.925
36.	*Maranta arundinacea* L.	Increase lactation	38	0.95	1	37	0.925
37.	*Cheilocostus speciosus* (J.Koenig) C.D.Specht	Urinary stone cases, ear-ache	21	0.525	2	38	0.95
38.	*Psidium guajava* L.	Gastrointestinal	40	1	1	38	0.95
39.	*Capsicum annuum* L.	Cool and cough	40	1	1	40	1
40.	*Clerodendrum glandulosum* Lindl.	Hypertension	40	1	1	40	1
41.	*Musa × paradisiaca* L.	Gastrointestinal	40	1	1	40	1
42.	*Phyllanthus emblica* L.	Gastrointestinal	40	1	1	40	1
43.	*Terminalia chebula* Retz.	Gastrointestinal	40	1	1	40	1
44.	*Chromolaena odorata* (L.) R.M.King & H.Rob.	Cut and wound	37	0.925	2	74	1.85
45.	*Mikania micrantha* Kunth	Cut and wound	40	1	2	80	2

The inhabitants of *Marat Longri* WLS have tremendous knowledge regarding exploitation of ethnomedicinal plants. Knowledge of ethnomedicinal use of plants is a legacy among the ethnic communities under study. The present investigation has found that the protected area under study has abundant medicinal plant species and ethnic communities living in and around the sanctuary are greatly reliant on plants for healthcare practices. Some medicinal plants have multiple uses; besides being used for healthcare practices, it is also used for various ethnobotanical purposes, which pose a great pressure on these plants. Hence, local inhabitants should be trained about the sustainable utilization of medicinal plants. Moreover, the perseverance of indigenous knowledge regarding medicinal utilization is more among older generation than younger ones. As such, more studies on ethnomedicines must be carried out to protect such indigenous knowledge. Further, phytochemical analysis and clinical trials are recommended in order to assess the authenticity and effectiveness of ethnomedicines. Thus, in the present investigation a baseline data about the local

medicinal plants has been generated, which is now ready to be further investigated phytochemically and pharmacologically that may lead to the discovery and development of new drug.

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