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Ethnobotanical knowledge of the Kaibarta community of the Upper Brahmaputra Valley zone of Assam

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Abstract

An ethnobotanical study was carried out among the peoples of the Kaibarta Community of Upper Brahmaputra Valley Zone of Assam to assess their rich indigenous knowledge system, regarding the application of the ethnomedicinal plants as phyto remedies against certain common ailments. The information on the application of medicinal plants was obtained by interviewing the selected respondents using a semi-structured questionnaire and group conversation. A total of 33 medicinal plants belonging to 24 families were recorded which are used by the target groups for curing 14 common and frequently occurring ailments. 16 of the recorded plants were herbs, 11 were shrubs, 5 were trees, and 1 climber. The data collected during the fieldwork were analyzed for various parameters, i.e., Informant's Consensus Factor (ICF) Fidelity value (FL%), Use-value (UV) index, and Plant part value (PPV). The highest ICF was calculated against Tonsilitis and Piles followed by Helminthiasis, Gastric, and Diabetes. The majority of reported plant species were used against a single specific ailment. Therefore, they have a high FL% i.e., 100 percent. The highest use value (>.5) was recorded for *Ocimun sanctum, Houttuynia cordata, Oxalis corniculata, Azadirachta indica, Musa balbisiana*, and *Citrus medica*, while the leaf has the highest PPV (0.5). The biological activities of the recorded plants were reported from available phytochemical and pharmacological literature and found a positive correlation between the traditional knowledge of the community and the biological activities of the recorded plants. Therefore, it is strongly recommended for extensive ethnobotanical study of the community to fully explore their indigenous knowledge.

Keywords

ethnomedicinal plants; indigenous knowledge; Kaibarta; phyto- remedies; Plant part value

Introduction

Ethnobotany is a multidisciplinary research area that deals with the study of the interrelationship between people and plants. Ethnobotany has a very long history worldwide. Ethnobotany gives valid information about the utility of plant species by indigenous people (1). Ethnobotanical studies can provide insights into the ways that societies interact locally with their environmental resources (2), and have significant value in discovering contemporary drugs from indigenous medicinal plant resources (3).

Medicinal plants have been used in healthcare since time immemorial. Medicinal plants have a high value to humans due to their medicinal constituents and potential biological consequences (4).

Throughout history, plant resources have remained an important aspect of human society (5). Medicinal plants and their products have been used virtually in all cultures as a source of medicine since time immemorial (6). Studies have been carried out globally to verify their efficacy and some of the findings have led to the production of plant-based medicines (7). India has a long history of traditional medicine. Traditional Indian medicine is one of the oldest medical sciences in the world (8). Plants have traditionally been used as a source of medicine in India by indigenous people of different ethnic groups inhabiting various terrains for the control of various ailments afflicting humans and their domestic animals (9).

Like other parts of India, the people of North-East India rely much on the indigenous traditional knowledge system and use various parts of the plants for the treatment of various ailments (10). Assam is the second-largest state in northeastern India by area and the largest in terms of population. Assam is well known for its rich wealth of ethnomedicinal plants. The state is inhabited by numerous aboriginal ethnic tribes. The use of plants, to get rid of various diseases, is a kind of common practice of the people of Assam. The ethnic peoples of Assam possess accurate knowledge of the application of locally available medicinal plants and herbs as ethnomedicine. Phytochemical screening and antimicrobial analysis of a few such plants have convincingly demonstrated the presence of bioactive components in these plants having the potential to be used as medicines. Indigenous communities hold important knowledge about how to utilize a plant for multiple purposes and are custodians of traditional knowledge (11). The ethnobotanical study of a particular community provides information on how a community uses the plant resources in its surroundings. Documenting traditional knowledge of medicinal plants has enabled researchers to obtain a good understanding of the consumption patterns of plants for basic healthcare purposes (12). The study holds a significant role in the discovery of bioactive compounds from plants and the development of new drugs. There have been several reports on medicinal plants as a source for drug discovery (13). Documentation of ethnobotanical knowledge not only plays an important role in the conservation of the Indigenous knowledge system of a community but is also helpful in the conservation of biological diversity and sustainable uses of bioresources. Ethnobotanical information plays an important role in scientific research (14); especially towards drug discovery.

The Kaibarta community is one of such earliest settlers of Assam. It is the second largest Scheduled Caste among the sixteen Scheduled Castes of Assam. The community has a very rich cultural heritage. Like all the ethnic communities of Assam, the Kaibarta community also possesses a distinctive indigenous knowledge system regarding the application of phyto remedies against various frequently occurring human ailments. The community considers the plants around them as a powerful tool in treating illnesses. They have tremendous faith and belief in traditional herbs. A large number of ethnobotanical studies have been reported to explore the indigenous traditional knowledge of different ethnic communities of Assam. However, the ethnobotanical study of the Kaibarta community from Assam is very limited.

The objective of this study was to assess the rich indigenous knowledge system of the Kaibarta community of Assam, regarding the application of ethnomedicinal plants as phyto remedies against certain common and frequently occurring ailments. After documentation of the ethnomedicinal plants, the biological activities of the recorded plants were reported from available phytochemical and pharmacological literature to determine the known physiological effects of either the crude plant or isolated chemical compounds that the plant contains. If the antimicrobial, phytochemical, and pharmacological information supports the ethnomedicinal use of a plant species it can be grouped into the validation level with the highest degree of confidence.

Materials and Methods

The study site: Assam is situated in the south of the eastern Himalayas and extends from 22°19' to 28°16' North latitude and 89°42' to 96°30' East longitude. The Upper Brahmaputra Valley (UBV) (South) zone of Assam comprises six districts covering an area of 16,013 sq. km. The zone is extending from 26.45° and 27.15° N latitudes and 94.25° and 95.25° E longitudes. It has an elevation of 86.6 Mtrs. The average annual rainfall is 108.44 cm and temperatures vary between 15°-36°C. The climate of the study area is characterized by a moderate climate with hot, humid, and very wet summer months followed by cold, foggy, and sunny winters. The climate of the Upper Brahmaputra Valley is characterized by high rainfall, i.e., more than 2500 mm per annum and high relative humidity. The temperature range is 15°-38°C. The soils are mostly alluvial which comprises moderately acidic, sandy loam and suitable for cultivation. The vegetation Pattern is semi-evergreen deciduous forest and grassland are the dominating vegetation type of the study site. (Fig.- 1) (15)

Site selection: To make it easy and convenient for field survey and sample collection, the study was conducted in eight villages of three districts viz. Sivasagar, Jorhat and Golaghat of UBV zone of Assam. The villages selected for survey and sample collection were based on the criteria that, the villages where the target groups i.e., the Kaibarta community dominated and have the common tradition of using phytomedicine in family health care. The villages selected from different districts are – Akhoiphutia, 2 No. Chaulkora, Rajabari, and Palashani of Sivasagar district, Borali, Bhitorkokila, Jankhana of Jorhat district, and Dakhin Dolijalia of Golaghat district.

Method of the study: Documentation of the indigenous plants used against different common and frequently occurring ailments by the peoples of the Kaibarta community of the Upper Brahmaputra Valley Zone of Assam, was the principal aim of the present study. Information on different ethnomedicinal plants used against common diseases by the peoples of the Kaibarta

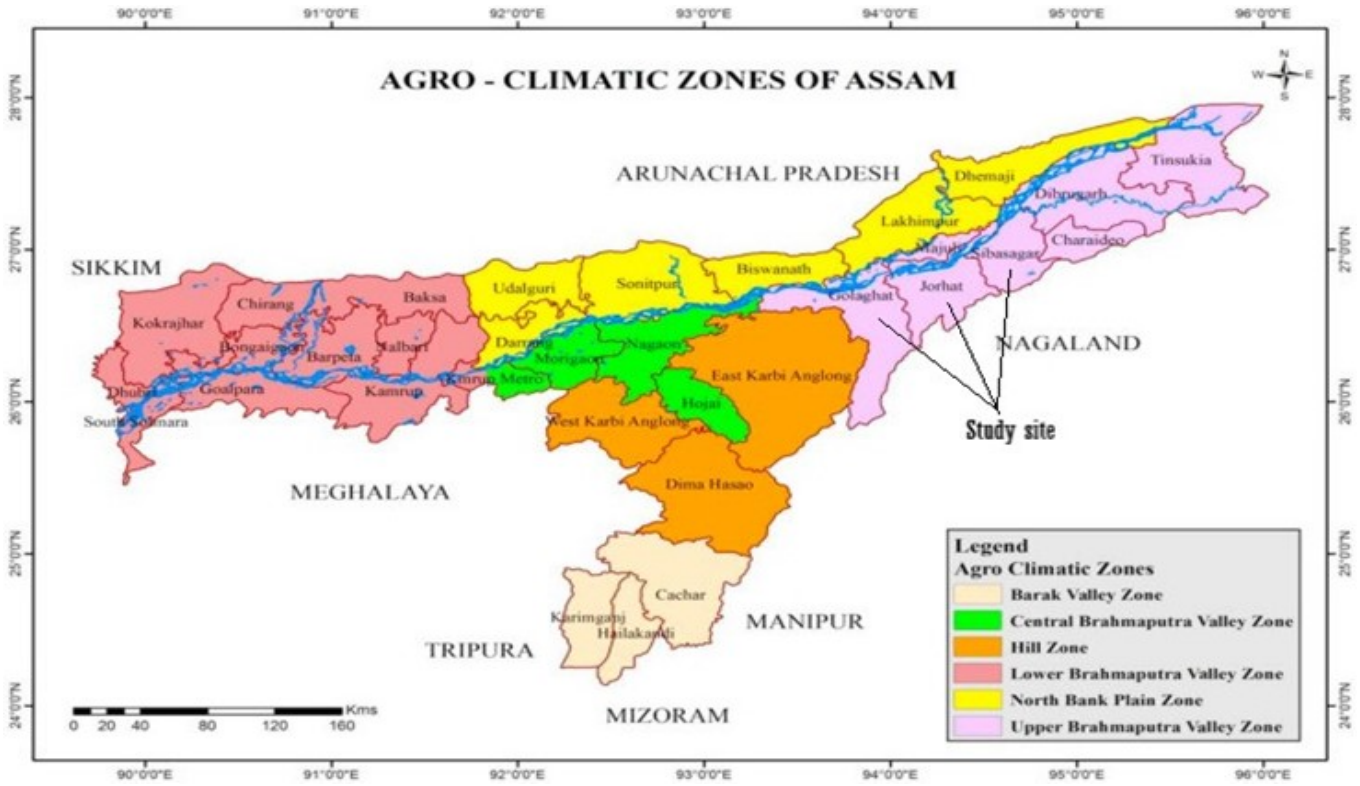

Fig.1 - Map of the Agroclimatic zone of Assam showing the study site i.e., Upper Brahmaputra Valley zone. (© Borah et al., 2021) (15)

community of Assam was collected and documented. The data were collected between August 2022 to December 2023. To collect direct information on the indigenous traditional knowledge about the application of Phyto remedies against various diseases informal interviews with the selected respondents of the target group were carried out with a semi-structured questionnaire and group conversation. A total of 83 respondents of 30 to 91 years old were interviewed of which 11 respondents are traditional healers locally known as Bejs and Bejanis. The plant species used by the community for various diseases were collected from the field and preserved in the form of herbarium sheets (16). The herbarium sheets were identified following Flora of Assam (17, 18) comparing them with the herbarium of the Department of Botany, Jagannath Barooah University, Jorhat. For the scientific name of the plant's online databases, the Plant List (http://www.theplantlist.org) was referred to.

The biological activities of these plants have been recorded in consultation with the Phytochemical, pharmaceutical, and pharmacological literature available for the plants recorded.

Data Analysis: The data collected during the fieldwork were analyzed for various parameters, i.e., Informant's Consensus Factor (ICF), Fidelity value (FL%), use-value (UV) index, and Plant part value (19 - 22).

ICF (informant consensus factor): Informant consensus factor is a quantitative analytical parameter used to calculate the homogeneity of the informants' knowledge about a particular remedy for a particular ailment. The ICF values ranged from 0 to 1. The zero value of ICF indicates that informants disagree regarding the uses of plants. A high ICF value indicates an agreement among respondents about the taxa selected for a disease category. The ICF value was calculated by using the following formula of (19)

ICF = Nur – Nt / (Nur – 1)

Where, Nur = number of use reports from informants for a specific disease category; NT = number of taxa or species that are used for that disease category from all informants.

Fidelity Level (FL%): Fidelity level is the percentage of informants who mentioned the uses of certain plant species to treat a particular ailment in the study area (22). Fidelity Level % was calculated by using the following formula earlier given by (20)

$$\mathbf{FL} = (Np / N) \times 100$$

Where Np = number of informants that claim the 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.

A medicinal plant with a high value will likely have a lot of citations and be the most popular species for treating a specific condition (5).

The use value of species (UV): The use value of species is a quantitative method that demonstrates the relative importance of species known locally (22). The use value of species was calculated by the formula given by (21)

$$\mathbf{UV} = \Sigma U / ns.$$

Where, U is the sum of the total number of use citations by all informants for a given species, and ns is the total number of informants.

Plant part value (PPV): Plant Part Value is calculated to estimate the plant part which is mostly used by the respondents. PPV was calculated by using the formula given by (22)

$$\mathbf{PPV} = RUplantpart / RU.$$

Where RUplant part is the sum of uses reported per part of the plant; RU is the number of uses reported of all parts of the plant.

The part with the highest PPV is the most used by the respondents (22).

Results and Discussion

Demographic profile of the respondents:

The majority of the respondents (61.4%) are male and 38.5% are female. 44.57% of respondents belong to the 30-50 years age group, 43.37% belong to the 51 - 70 years age group, and 13.26 % of respondents belong to the above 70 years age group. A large majority of respondents are married (85.55%). The majority of respondents are educated (74.6 %) of which only 10.84% respondents are highly educated. Whereas, 25.4% respondents are illiterate. 40.96 % of the respondents were fishermen, some of whom were also involved with cultivation, 21.68 % were housewives, 19.27 % were businessmen and 13.25 % respondents were employees in the government or private sector. Most of the respondents (81.92%) acquire their ethnobotanical knowledge from their forefathers (Table - 1). Illiterate respondents have more faith and belief in ethnomedicinal plants and they possess more accurate knowledge regarding the application of locally available plants for medicinal purposes. Similar findings were also reported by [3, 23].

Table 1. Demographic profile of the respondents

Variables	Categories	Total	Percentage
Gender	Female	32	38.55
	Male	51	61.44
Age	30-50 Years	37	44.57
	50-70	36	43.37
	>70	11	13.26
Marital status	Married	71	85.55
	Divorced	02	2.40
	Widower	06	7.22
	Single	04	4.81
Educational status	Illiterate	21	25.30
	Primary	24	28.91
	Secondary	29	34.93
	Higher	09	10.84
Employment status	Unemployed	04	4.81
	Fisherman	34	40.96
	Businessman	16	19.27
	Housewives	18	21.68
	Job at govt or private sector	11	13.25
Source of TK	Forefathers	68	81.92
	Herbalists	08	09.63
	Reading books and magazines	04	04.81
	Social media	03	03.61

Ethnomedicinal plants used in major illness:

A total of 33 medicinal plants belonging to 24 families were recorded which are used by the target groups for curing 14 common and frequently occurring ailments. 16 of the recorded plants were herbs, 11 were shrubs, 5 were trees, and 1 climber. The leaf is the predominantly used part followed by the rhizome and aerial stem. Plants used by the people of the Kaibarta community of the study site as ethnomedicines are enumerated and arranged in an order having the botanical name, family name, local name in the Assamese language, mode of preparation of medicines along with doses against different diseases. Experimental data available on the biological activities of the plants are also included (24 – 58) (Table - 2),

The plant families used by the target groups for curing different common and frequently occurring ailments are illustrated in Fig - 2.

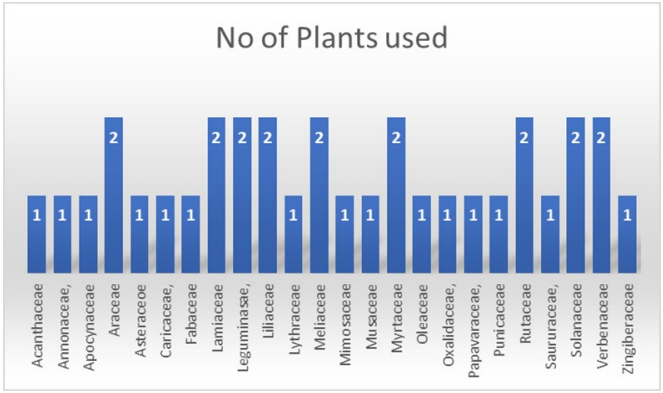

Fig. 2 – Families of the plant species used.

Some ethnobotanical studies have been reported to explore the indigenous traditional knowledge of different ethnic communities of Assam (51,59,60,61,62). However, the ethnobotanical study of the Kaibarta community from Assam is very limited. This is the first report from the Upper Brahmaputra Valley zone of Assam. The present study suggests that the Kaibarta community of Assam possesses a distinctive indigenous knowledge system regarding the application of phyto remedies against various frequently occurring human ailments. The community considers the plants around them as a powerful tool in treating illnesses. They have the practice of using some plant formulations in crude forms against certain very common and frequently occurring ailments. Many peoples of the Kaibarta community of Assam possessed remarkably accurate knowledge about the ethnomedicinal use of the plants around them. The biological activities of the recorded plants were reported from available phytochemical and pharmacological literature and found a positive correlation between the traditional knowledge of Kaibarta's of Assam and biological activities which strongly validates the Ethnobotanical Knowledge of the Community of Upper Brahmaputra Valley Zone of Assam regarding the application of phyto remedies against different illnesses.

The majority of the recorded medicinal plants (44.1%) are cultivated and grown in their home gardens, 38.2% of recorded medicinal plants are collected from forests and 17.6% of the recorded are grown in grasslands

Table 2. Ethnomedicinal plants used in major illnesses.

Botanical name	Family name	Local name in the Assamese language	Habit	Mode of preparation	Experimental data available on biological activity
Asthma					
Acorus calamus L	Araceae	Boch	H	About 10 ml juice of rhizome is given with lukewarm water for 3-5 days.	Bronchodilatory effect (24)
Solanum xanthocarpum L	Solanaceae	Tita bhekuri	S	about 5 ml of root juice is given once daily until cured.	The genus Solanum is effective against bronchial asthma (25)
Albizia lebbeck (L.) Benth	Mimosaceae	Sirish	T	Powder of dried stem bark mixed with honey and made into small-sized pills; one pill is given once a day for 4-5 days	Effective against bronchial asthma, (26)
Skin diseases					
Cassia occidentalis L	Fabaceae	Hant-thenga	H	Leaf juice is applied on itchy skin and scabies until cured.	antibacterial, antifungal, (27)
Argemone mexicana L	Papavaraceae	Shiyal-kata	H	Latex of the plant is used in affected areas of skin diseases for 7 days.	Antifungal (28)
Senna tora (L.) Roxb,	Leguminasae	Bon medelwa	S	Leavespaste is applied on the affected areas of ringworm and eczema for 7 days.	Antibacterial; Antifungal (29)
Azadirachta indica A. Juss.	Meliaceae,	Mohaneem	T	The crude extract of the leaves is applied locally for 4-5 days to cure skin infections.	Antifungal (30)
Vitex negundo L	Verbenaceae,	Pochotia,	S	Leaf Paste is applied to scabies until cured.	Antifungal and Antibiofilm Effects (31)
Measles					
Azadirachta indica A. Juss.	Meliaceae	Mohaneem	T	Leaves decoction is mixed with water and applied on the affected areas of measles.	Antiviral (32)
Cajanus cajan, (L.) Millsp.	Leguminosae,	Arhar,	S	Leaves are crushed and used in the infected areas of Measles.	Antiviral (33)
Cough					
Allium sativum L,	Liliaceae,	Naharu	H	About 10 - 15 cloves are crushed and heated with mustard oil and used to massage the chest, neck, and back to get relief from lung congestion twice daily until cure.	Antimicrobial (34)
Ocimun sanctum L	Lamiaceae	Tulsi	H	30 leaves of *Ocimum sanctum* and 5 g of *Zingiber officinale* tuber are boiled in 100 ml of water for 5 minutes and filtered, the filtered extract is mixed with honey and is taken orally once for 3-4 days.	Anti-tussive activity (35)
Zingiber officinale Roscoe.	Zingiberaceae	Ada	H	Rhizome paste is mixed with crushed molasses and consumed twice for 3 days.	Cough Suppressing Activity (36)
Fever					
Aloe vera (L.) Burm. f.	Liliaceae	Chalkuwari	H	Leaf paste is applied to the forehead during fever.	anti-inflammatory, antimicrobial (37)
Nyctanthes arbor-tristis L.	Oleaceae	Sewali	S	10 ml of young tender leaves juice mixed with honey and consumed once a day for 2-3 days.	The plant possesses pharmacological activity (38)
Tinospora cordifolia (Willd.) Hook F. & Thoms	Menispermaceae	Hoguni-lota	C	The fresh juice 5 ml fresh stem juice is mixed with honey and given twice a day for fever.	Pharmacological properties (39)

Diarrohea						
Oxalis corniculata L.	Oxalidaceae,	Sorutengesi.	H		10 ml of the extracts of the whole plant is given twice daily until cure.	Anti Diarrheal (40)
Carica papaya L	Caricaceae,	Amita,	T		Unripe fruits are boiled and consumed once a day for 3 days.	Anti Diarrheal (41)
Citrus aurantiifolia (Christm.) Swingle	Rutaceae	Kaji nemu	S		About 15 ml of fresh fruit juice is given orally twice a day for 3 days.	Anti Diarrheal: (42)
Houttuynia cordata Thumb.	Saururaceae,	Machandari,		H	The whole plant is cleaned and mixed with garlic cloves, wrapped in banana leaf, and roasted, it is mixed with salt and consumed once daily for 2-3 days.	Anti Diarrheal (43)
Dysentery						
Citrus medica L	Rutaceae	Gul Nemu	S		Preserved fruit in salt is given to consume once for 3 days.	antibacterial (44)
Psidium guajava L	Myrtaceae,	Madhuri	S		10 ml of fresh leaf juice mixed with an equal amount of water is given 2 times daily until cure.	Anti dysenteric (45)
Punica granatum L.	Punicaceae	Dalim	S		Fruit juice mixed with milk and consumed once daily for 3 days.	Anti Diarrheal, anti-dysenteric (46)
Helminthiasis						
Phlogacanthus thyrsiformis (Roxb. ex Hardw.) Mabb.	Acanthaceae	Titaphool	S		Dry flowers are cooked as vegetables and given to eat.	Anthelmintic (47)
Annonas cosmos L	Annonaceae,	Matikothal	H		Fresh fruits are given to eat in excess.	Anthelmintic (48)
Jaundice						
Musa balbisiana Colla.	Musaceae	Bhim kol	T		the ripening fruit of *Musa balbisiana* is dropped in water with *Cicer arietinum* (bootmah) and Palm Sugar or rock candy overnight, the juice is given 7-10 days or until cured.	Pharmacological Property (49)
Solanum nigrum L.	Solanaceae	Bhekuri	H		10 ml of leaf decoction is used once daily on an empty stomach for 7 days only.	Traditional Phyto remedy of Jaundice (50)
High Blood pressure						
Wedelia chinensis (Osbeck) Merr.	Asteraceae	Bhringaraj	H		Leaf juice is applied to the skull when a patient shows signs of HBP.	Hepatoprotective (51)
Clerodendrum glandulosum L	Verbenaceae	Nephaphu	H		Leaves paste is taken raw on an empty stomach or prepared along with vegetables by the patient of HBP.	anti-hypertensive, anti-inflammatory (52)
Gastric ulcer						
Lowsonia inermis L	Lythraceae	Jetuka		S	Leaves of *Lowsonia inermis* L. and *Leucus aspera* (Willd) Spreng are ground and juice is extracted. One teaspoonful of leaf juice mixed with water is given on an empty stomach for 7 days.	Antiulcer (53)
Psidium guajava (Linn.)	Myrtaceae,	Maduhrium		S	Young leaf juice is used in dysentery and gastric ulcers.	Wound healing, antioxidant and antibacterial activities (54)
Diabetes						
Catharanthus roseus (Linn.) Don.	Apocynaceae	Nayantora	H		Leaves are ground and rolled into small balls called “Bori”, it is taken orally on an empty stomach.	Antidiabetic (55)
Syzygium cumini L	Myrtaceae	Jamun	T		Seed powder is mixed with water and one teaspoonful is given orally on empty stomachs.	Antidiabetic (56)
Piles						
Lasia spinosa (L.) Thw.	Araceae	Chengmora	H		The root juice is boiled and decoction is given orally for 6-7 days.	Therapeutic potential (57)
Tonsilitis						
Leucas aspera	Lamiaceae	Duron		H	4-5 drops of the leaf juice are administered in the nostrils.	Traditional ethnomedicine (58)

Abbreviations: H = Herb, S = Shrub, T = Tree, C = Climber.

and farmlands. The source of the collection of medicinal plants indicates the awareness of the community regarding the conservation of medicinal plants, as they grow medicinal plants in their home gardens. However a large majority of plants are collected from forests, and there is an urgent need for the conservation of these plants along with the conservation of their natural habitats. It was interesting to note that most of the respondents prefer plants collected from forests as a potent source of medicine. This is because, of the belief of ethnic communities that, the cultivated medicinal plants are less potent compared to plants collected from the wild, and therefore the latter are preferred (63).

About 76% of documented medicinal uses were new in the present study when we compare it with the previous reports from Assam (51,59,60,61,62). There is a considerable difference in plant parts used, and mode of preparation also. Some of the newly documented medicinal uses of different plant species include *Solanum xanthocarpum*, and *Albizia lebbeck* in asthma, *Cassia occidentalis* and *Argemone mexicana* in skin diseases, *Cajanus cajan* in measles, *Tinospora cordifolia* in fever, *Carica papaya* in diarrhoea, *Punica granatum* and *Solanum nigrum* in jaundice, *Psidium guajava,* and *Lowsonia inermis* in gastric ulcer, *Lasia spinosa* in piles. This indicates the novelty of the present study.

Data Analysis:

ICF (informant consensus factor): ICF value was calculated to analyze the agreement of the respondents in the use of plants within an ailment category. It ranges between 0 - 1. The high values indicate that a given plant has been used extensively to treat various diseases in several distinct disease categories (4). In the present study, the recorded ICF values for different disease categories are presented in Table 3. Among the disease categories, the highest ICF value was recorded for Piles and tonsilitis followed by Helminthiasis, Diabetes, Gastric, and High blood pressure. This is the first report from this region where the highest ICF value was recorded for piles and tonsilitis. However, the highest ICF values for disease categories like Diabetes, Gastric, and High blood pressure were recorded from other parts of the world too (64,65)

Table 3. Informant consensus factor for different disease categories.

Diseases Category	Use report (Nur)	Taxa (Nt)	ICF
Asthma	76	3	0.973
Cough	79	3	0.974
Diabetes	65	2	0.984
Diarrohea	67	4	0.954
Dysentery	68	3	0.97
Fever	57	3	0.964
Gastric ulcer	66	2	0.984
Helminthiasis	68	2	0.985
High Blood pressure	60	2	0.983
Jaundice	54	2	0.981
Measles	59	2	0.982
Piles	54	1	1
Skin diseases	67	5	0.939
Tonsilitis	46	1	1

Fidelity Level (FL%): A large majority of reported plant species were used against a single specific ailment. Multiple informants used these plant species in a single ailment category. Therefore, they have high FL% i.e., 100. %.. Species with less FL% i.e., less than 100 were *Azadirachta indica* A. Juss. (69.44%) used against skin infections and measles and *Psidium guajava* Linn. (88%) used against the disease category Dysentery and Gastric ulcer. FL values near 100% for a species indicate that almost all use reports refer to the same way of using the species, whereas low FL values indicate that a species is used for many different purposes (66). A higher FL level indicates high usage of a medical plant for a particular disease (67) and the recorded species has an outstanding preference in treating a particular disease category.

The use value of species: The use value of the species was calculated to quantify the relative importance of the recorded plants. The higher use value indicates the plant is very important and used predominantly, while the low use value indicates less application of the plant species by the specific groups (22). In the present study, highest use value (>.5) was recorded for *Ocimun sanctum* L, *Houttuynia cordata* Thumb, *Oxalis corniculata* L, *Azadirachta indica* A. Juss., *Musa balbisiana* Colla and *Citrus medica* L and lowest use value was recorded for *Lowsonia inermis* L and *Solanum xanthocarpum* L (0.096) (Table – 4)

There is a strong correlation between use value and use reports for a plant (11), as the local inhabitants often exploit the local and easily available plants to treat common territorial diseases. (65)

Table 4. Use value of the recorded plant species.

Name of the plants	Use value
Acorus calamus L	0.132
Albizia lebbeck (L.) Benth	0.192
Allium sativum L,	0.253
Aloe vera (L.) Burm. f.	0.433
Annonas cosmos L	0.277
Argemone mexicana L	0.108
Azadirachta indica A. Juss.	0.53
Cajanus cajan, (L.) Millsp.	0.349
Carica papaya L	0.433
Cassia occidentalis L	0.349
Catharanthus roseus (Linn.) Don.	0.493
Citrus aurantiifolia	0.409
Citrus medica L	0.506
Clerodendrum glandulosum L	0.397
Houttuynia cordata Thumb.	0.578
Lasia spinosa (L.) Thw.	0.156
Leucas aspera (Willd.) Link	0.475
Lowsonia inermis L	0.096
Musa balbisiana Colla.	0.53
Nyctanthes arbor-tristis L.	0.373
Ocimun sanctum L	0.614
Oxalis corniculata L.	0.566
Phlogacanthus thyrsiformis (Roxb. ex Hardw.) Mabb.	0.228
Psidium guajava (Linn.)	0.445
Punica granatum L.	0.216
Senna tora (L.) Roxb,	0.228
Solanum nigrum L.	0.192
Solanum xanthocarpum L	0.096
Syzygium cumini L	0.373
Tinospora cordifolia (Willd.) Hook F. & Thoms	0.337
Vitex negundo L	0.253
Wedelia chinensis (Osbeck) Merr.	0.132
Zingiber officinale Roscoe.	0.445

Plant part value (PPV): The plant part with the highest PPV is the leaf (0.5) i.e., the leaf is the most predominantly used part which is followed by Rhizome and Aerial stem (0.093) and Root and Whole plant (0.062) (Fig. – 3). Leaves were recorded as the most frequently used part of a plant as ethnomedicine and were usually used in the form of decoction (2, 68). Leaves are mostly used because of their potency and fast regeneration ability (63).

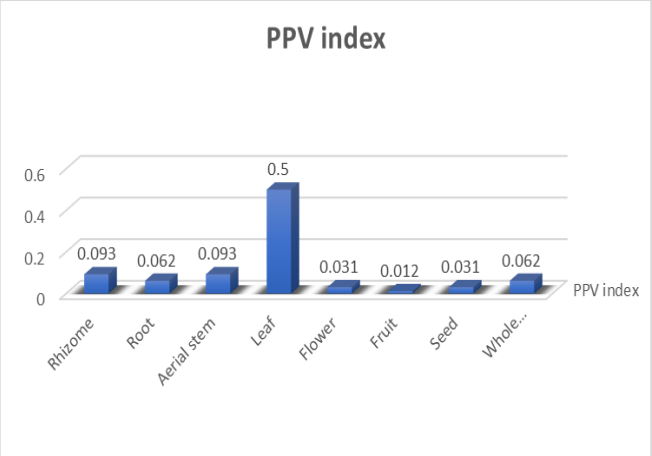

Fig. 3 – Plant Part Value of the recorded Plant species.

Conclusion

During the present study, a total of 33 ethnomedicinal plants were recorded documented used against 14 different disease categories of ailments by the peoples of the Kaibarta community of the UBV zone of Assam. The leaf is the predominantly used part followed by the rhizome and aerial stem. The majority of the recorded medicinal plants (44.1%) are cultivated and grown in their home gardens and 38.2% of recorded medicinal plants are collected from forests. During quantitative analysis of the recorded data, the highest ICF value was recorded for Piles and tonsilitis followed by Helminthiasis, Diabetes, Gastric, and High blood pressure. A large majority of reported plant species were used against a single specific ailment by multiple informants therefore, they have high FL% i.e., 100%.

The use of plants to get rid of various illnesses is a kind of common practice of the people of the Kaibarta community. The people of the community possess remarkable accurate knowledge about the application of Phyto remedies by utilizing indigenous plant resources in and around them. Their strong traditional knowledge about the application of these plant species against various common ailments is supported by available phytochemical and pharmacological kinds of literature. Which strongly validates the rich traditional knowledge content of the Kaibarta community of Assam. They acquired their knowledge system mostly from their forefathers. However, the conservation of their ethnobotanical knowledge as well as the ethnomedicinal plant resources around them needs urgent attention before vanishing. Parallelly the medicinal plants used by different ethnic communities of Assam deserve detailed studies.

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Authors' contributions

Both the authors KD and PD contributed equally. All authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interest to declare.

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