

# TRADITIONAL USES OF PLANT RESOURCES BY KHASI TRIBES IN NONGKHYLLEM WILDLIFE SANCTUARY, MEGHALAYA, INDIA

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**Abstract:** An investigation was carried out among the Khasi tribe residing nearby the Nongkhyllem Wildlife Sanctuary, Meghalaya to document the plants and their traditional uses in the area. A total of 90 species belonging to 83 genera and 53 families were recorded from the study area. Out of the documented species 40 were trees, 17 were shrubs, 13 were herbs, 10 were climber, 5 were climber shrub and the rest 1 species was climber herb. These documented plants are used for a total of purposes including many diseases like jaundice, Stomach trouble, malarial fever, diarrhoea, dysentery etc. Meghalaya a state in North Eastern Region of India is a rich source of biodiversity which includes high potential of naturally occurring medicinal plants. Due to unscientific and over exploitation, these medicinal plants have become merely extinct and endangered. For that reason, management of these medicinally important plants should be viewed seriously.

**Keywords:** Traditional healing, verbal communication, tribal communities, sustainable utilization.

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## 1. Introduction:

Plant resources have always formed an important source of chemical compounds which can be used for medicinal purposes. Many secondary metabolites of plant are commercially important. They are extracted and find use in a number of pharmaceutical compounds. These plants are reported used by indigenous people in their traditionally way [1]. Ethno-botanical approach is very important to encourage rural people in conservation activities for the conservation of biodiversity [2]. Medicinal plants have been used since prehistoric period for the cure of various diseases. Human knowledge of the medicinal value of plants date back perhaps for more than five thousand years [3]. Different medicinal plants and their uses are greatly well-known to indigenous communities of different parts of the world. They are expert for mounting inventive practices and products from their surroundings [4].

The need for natural medicine is now increasing day by day; about 64% of the total global population depends on traditional medicine in the management of various diseases and trauma [5]. Almost 80% of the human population in developing countries relies primarily on indigenous, largely natural drug to convene their primary healthcare needs. Due to high prices of allopathic medicines which is beyond the reach of poor people and lack of proper therapeutic clinics and hospitals in interior rural areas traditional medicine/traditional healing system is still prevailing. Traditional medicine which is decentralized nature, easily and quickly available in addition to their traditional faith binds tribal people to their own traditional healing system [6]. Traditional healing systems have a significant task in maintaining the physical and psychological welfare of the huge majority of tribal people in India [3].

India is considered to be rich in medicinal plants genetic resources by virtue of its favorable agro-climatic condition and seasonal diversity. India is one of the world's 12 biodiversity centers. About 45000 different plant species present in India, out of these 7000 - 7500 species are used for their medicinal values by traditional communities [7]. India is known to be rich storehouse of medicinal plants since time immemorial. Many great scholars like Charaka, Barathwaj, Athreyan, Agnivesha, Dhanyandhari, Shushruthan, Wakbadan etc. investigated the prospect of such diversity for human welfare and the discovery of numerous indigenous medicinal plants that were scripted mainly in Vedas (1500 BC). Meghalaya a state in North Eastern Region of India is a rich source of biodiversity which includes high potential of naturally occurring medicinal plants. The state has high concentration of plant species and harbours about 3128 (21%) including 1237 endemic flowering plants in just 0.7% of the country's land area [8]. The state is predominantly hilly with varying climatic and forest vegetation zones which favors the growth of various medicinal plants and large numbers of plants have been considered as important therapeutic aid for alleviate ailments of human kind. Meghalaya is divided into 3 hilly regions - Garo hills (Western Meghalaya), Khasi hills (Central Meghalaya) and Jaintia Hills (Eastern Meghalaya). Meghalaya

has an estimated population of about 2,357,510 with a density of 104 people per sq. km. Almost 70% of the total area of the state is covered by forest and 90% of this forest is covered by tribal communities [9]. Three principal tribes, the Garo, the Khasi and the Jaintia inhabit the state. Due to poor transportation and lack of modern medical facilities in the rural areas and availability of wild herbal plants, traditional local medication is still prevailing among local people. Various tribes as well as rural people have been using medicinal plants from time immemorial which provide a major part of the medicines for treatment of different diseases. This traditional system of medicine plays a very prominent role in people's healthcare especially for poor communities living in the remote areas covering all types of ailments. This knowledge of medicinal plants is passed through generation by verbal communication, which now required a scientific evaluation [10].

Exploration on Meghalaya ethnomedicine used by different tribes was done by various authors. 31 medicinal plants used by tribal of Meghalaya were reported by Rao [11]. Study on folklore medicobotany of Khasi and Jaintia tribe was done by Kharkongor and Joseph [12]. Work on Khasi and Chakama tribes of north east reported 37 plant species belonging to 34 genera and 15 families by Choudhuri and Neog, 2003 [13]. Eighty species were reported by Laloo et al. [14] from the disturbed and undisturbed sacred forests of Meghalaya. Very few studies have been conducted among different tribal populations in addition to different types of forest of Meghalaya. The present study is thus an attempt to document different plant varieties used by different communities of Meghalaya.

## 2. Material and Methods:

### Study site:

Present study was conducted in and around the Nongkhyllam Wildlife Sanctuary, Meghalaya. The area lies on the western part of the state of Meghalaya bounded by the East Garo Hills district on the east, the South Garo Hills on the south-east, the Goalpara district of Assam on the north and north-west and Bangladesh on the south. It is situated approximately between the latitudes  $90^{\circ} 30'$  and  $89^{\circ} 40' E$ , and the longitudes of  $26^{\circ}$  and  $25^{\circ} 20' N$ . The population is pre-dominantly inhabited by the Khasi, Garos etc. The climate of the district is mildly tropical in the northern and southern foothills, while in the central upland zone, the climate is temperate and places at medium altitude in the northern, western and southern parts of the district, experience sub-tropical climate. The district is influenced by the South- West monsoon and rainfall is assured during summer, but differs greatly in intensity from area to area within the district. The average rainfall ranges from 1200 mm to 3000 mm per annum. The District may be divided into four broad geographical units. There is the Western sector with dense jungles with an elevation of 600 to 900 metres, bordering the Garo Hills. In the Southern sector, especially the south-eastern part, the hills slope rather abruptly to an elevation of about 150 metres, close to the plains of Bangladesh. In the Northern sector, there are a series of hills and ranges which gradually slope down to an altitude of about 150 metres till they reach the plains of Assam. In the central sector, the hill ranges run parallel from East to West forming the highest part of the district with an average altitude of about 1400 metres.

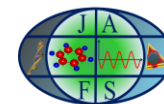
### Data collection and sampling techniques:

The extensive fieldwork is carried out in the selected areas. Knowledgeable consent was acquired from all village head prior to interviews. They were explained the reasons for conducting the survey and the information that will be collected. By direct contacts with the villagers information was collected from all the study sites. Participation rural appraisal (PRA) methods and tools were used for interacting with them. Information was extracted through key informant interviews and focus group discussions. To find out the resources used by the local people of the area, sufficient numbers of people from different communities were interviewed. Elder people both male and female, traditional local doctors, plants collectors were interacted. A semi-structured questionnaire was used for the interviews. Information on plant parts used, purpose of use, formulations, processing, dosages and side-effects, if any and storage were collected through proper questionnaires. The collected information was evaluated for different genera and species of the medicinal plants in order to understand the pattern in medicinal plant uses and occurrences. With the help of information, field visits and collection of ethno-medicinal plants were done in all seasons. Plants were collected for herbarium records. Identification of collected plants species were done using vernacular names, published literatures and floras.

## 3. Results and Discussion:

During the floristic exploration on medicinal plants in various forest types of Meghalaya, 90 species of plants belonging to 53 families (Table 1) were found used by the people of the areas. The details regarding family, parts used and medicinal values of the medicinal plants were given in the Table 1.

Table 1: Enumeration of Plants with Botanical Fame, family, Part used, Usages and Habit of the Plant.



Botanical Name	Family	Habit	Morphology of the parts used	Medicinal usage
<i>Achyranthes aspera</i> Linn.	Amaranthaceae	H	Root, leaves	Plant showing antifertility activity
<i>Rhus javanica</i> Linn.	Anacardiaceae	T	Fruits	Fruits- stomach and skin trouble. Leaves used in rheumatism.
<i>Spondias pinnata</i> (Linn.f) Kurze.	Anacardiaceae	T	Bark	Bark- dysentery, muscular and articular rheumatism. Fruits- bilious dyspepsia.
<i>Panax pseudoginseng</i> Wall.	Araliaceae	H	Root, flower	Highly medicinal. Used as an aphrodisiac. Drug "revital ginsang" extracted.
<i>Polygonum orientale</i> Linn.	Asclepiadaceae	H	Leaves	Plant tonic, vulnerary.
<i>Artemisia nilagirica</i> (Clarke.) Pamp.	Asteraceae	S	Leaves	Anthelmintic and stomachache. Febrifuge and inferior substitute for cinchona in fevers and measles
<i>Mikania micrantha</i> Kunth	Asteraceae	C	Leaves	Rich source of vitamin A & C. Applied to itches.
<i>Senecio scandens</i> Buch.-Ham.ex D. Don.	Asteraceae	C	Leaves	Jaundice. Leaves- eye troubles.
<i>Begonia roxburghii</i> A.DC. Prodr.	Begoniaceae	H	Leaves, tuber	To relieve fever and body temperature
<i>Alnus nepalensis</i> D. Don	Betulaceae	T	Bark	tannine and dye.
<i>Viburnum foetidum</i> Wall.	Caprifoliaceae	S	leaves	Plant astringent and emmenetic; juice of leaves used in menor, and in post-partum hemorrhage.
<i>Garcinia acuminata</i> Planch.	Clusiaceae	T	Stem and resin	leaf and fruit acidic and used to cure dysentery, stomach trouble
<i>Garcinia cowa</i> Roxb. ex. DC.	Clusiaceae	T	fruit	Acidic fruits- to cure dysentery and stomach trouble.
<i>Garcinia lancifolia</i> (D. Don.) Roxb.	Clusiaceae	T	Fruit	Uses as a digestive tonic
<i>Combretum acuminatum</i> Roxb.	Combretaceae	C	Root	Roots anthelmintic. Used for expelling tapeworms.
<i>Terminalia bellerica</i> (Gaertn.) Roxb	Combretaceae	T	Fruit	Fruits- tonic, piles, dropsy, diarrhea, leprosy and headache.
<i>Terminalia citrina</i> (Gaertn) Flem	Combretaceae	T	Fruit	Fruits- chronic ulcers and wounds, bleeding of gums.
<i>Commelina beghalensis</i> Linn.	Commelinaceae	H	Leaf, stem	Used in leprosy.
<i>Dillenia indica</i> Linn.	Dilleniaceae	T	fruits	Dried fruits used for dysentery. Fruits as a tonic, laxative, used in abdominal pains.
<i>Dioscoria bulbifera</i> Linn.	Dioscoreaceae	C		Applied to ulcers, piles and dysentery.
<i>Ealeocarpus floribundus</i> Bl.	Elaeocarpaceae	T	Fruit, leaves	Used for inflamed gums.

<i>Gaultheria fragrantissima</i> Wall.	Ericaceae	S	leaves	Stimulant, carminative, used in rheumatism, neuralgia as an antiseptic. Wormicidal activity against hookworms.
<i>Lyonia ovalifolia</i> (wall.) Druce.	Ericaceae	T	Root	Fresh roots- rheumatism, sprains, scabies, eczema and cut wounds
<i>Rhododendron arborum</i> Smith.	Ericaceae	T	leaves	Tender leaves- headache, diarrhea and dysentery.
<i>Erythroxylum kunthianum</i> Wall.ex Kurz.	Erythroxylaceae	S	Bark, leaves	Bark chewed with betel leaves as a stimulant.
<i>Antidesma acuminatum</i> Wall.ex Wt.	Euphorbiaceae	T	Leaves	acidic and diaphoretic
<i>Bridelia stipularis</i> Bl.	Euphorbiaceae	S	Bark, Leaves	Decoction of bark- fever, asthma. Leaves- jaundice.
<i>Croton caudatus</i> Geisel.	Euphorbiaceae	C	Leaf and shoot	Leaf and shoot extract used for malaria and cholera.
<i>Glochidion lanceolarium</i> (Roxb.) Voigt.	Euphorbiaceae	T	Bark	Bark used for stomach ailments.
<i>Homonioia riparia</i> Lour.	Euphorbiaceae	S	Root	Roots- laxative, diuretic, used in piles, stone in bladder and in urinary discharge
<i>Casearia vareca</i> Roxb.	Flacourtiaceae	S	Fruit	Fruit paste is taken in intestinal parasites, also used during earache.
<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	H	Root	Root tubers used for skin troubles, diuretic and tonic. Used in piles diarrhea, jaundice and asthma.
<i>Engelhardtia spicata</i> Leschen ex Bl.	Juglandaceae	T	Bark	Bark used in medicine.
<i>Scutellaria discolor</i> Coleb.	Labiataeae	H		Used in rheumatism.
<i>Elsholtzia blanda</i> Benth.	Lamiaceae	S	Leaves	Leaves juices are applied to old wounds of cattle to clear of pus and maggot.
<i>Cinnamomum tamala</i> Fr. Nees.	Lauraceae	T	Bark	Used in gonorrhea and coughs.
<i>Cinnamomum bejolghota</i> (Buch.-Ham.) Sweet.	Lauraceae	T	Leaf, bark	Used in dyspepsia and liver complaints.
<i>Lindera caudata</i> Benth.	Lauraceae	T	bark	Decoction given for pain caused by mechanical injury.
<i>Litsaea cubeba</i> Lour.	Lauraceae	T	Fruit	Fruits used for hysteria, paralysis and loss of memory.
<i>Persea bombycina</i> King.ex Hk.f.	Lauraceae	T	Leaves	Leaves yield mucilage in water and it is used in falling of hairs.
<i>Erythrina stricta</i> Roxb.	Leguminosae	T	Flower, leaves	Rheumatism, itching, burning, fever, fainting, asthma and leprosy.
<i>Michelia champaca</i> Linn.	Magnoliaceae	T	Bark, Roots	Bark- stimulant and febrifuge. Roots- purgative and emmanagoue
<i>Hiptage benghalensis</i> (Linn.) Kurz.	Malpighiaceae	CS	Leaves, stem	Leaves used in cutaneous diseases. Leaf juice insectisidal. Vine used in chronic and asthma.
<i>Kydia calycina</i> Roxb.	Malvaceae	T	Leaves	Leaves used in rheumatism and lumbago.

<i>Melastoma malabathricum</i> Linn.	Melastomataceae		Bark and leaves	and	Bark and leaves used for skin troubles.
<i>Cissampelos pareira</i> Linn.	Menispermaceae		Leaves		Leaves- tonic and heart complaints. Poultice of leaves is applied to scabies, itches, pimples, boils and burns
<i>Stephania japonica</i> (Thunb.) Miers.	Menispermaceae	CS	Root		Roots- fever, diarrhea, dyspepsia and urinary diseases.
<i>Mimosa pudica</i> Linn.	Mimosoideae	H	Root, Leaves		Decoction of root used in urinary complaints. Leaves juice- dressing for sinus, sores and piles.
<i>Ficus hispida</i> Linn. f.	Moraceae	T	Fruits, seeds and bark		Fruits, seeds and bark purgative and emetic.
<i>Myrica esculenta</i> Buch.-Ham.ex D. Don	Myricaceae	S	Bark		Bark- astringent, carminative and antiseptic. Fever, asthma, chronic bronchitis, lung infection, and dysentery. Bark chewed for toothache.
<i>Maesa indica</i> (Roxb.) Wall.	Myrsinaceae	T	Leaves		Leaves used as a fish poison. Insecticides.
<i>Syzygium cumini</i> (Linn) Skeels	Myrtaceae	T	Leaves, fruit		Leaves- dysentery. Ripe fruit- stomachache, carminative and diuretic. Fruits- astrngent.
<i>Olea dioica</i> Roxb.	Oleaceae	T	Bark		Bark febrifuge
<i>Oxalis corniculata</i> Linn.	Oxallidaceae	H	Leaves		Use in stomachache, antiscorbutic and appetizing. Juice- piles, anemia and tymanitis.
<i>Peperomia pellucida</i> (Linn.) HBK.	Piperaceae	S	leaves		Crushed leaves- headache and fever. Juice is given in abdominal pain.
<i>Piper betel</i> Linn.	Piperaceae	C	Leaves, Oils		Leaves- digestive, stimulant and carminative. Oils are used in various respiratory catarrhal.
<i>Piper longum</i> Linn.	Piperaceae	C	fruits and root	and	Decoction of unmmature fruits and root- used in chronic, cough and cold. Roots and fruit - anted to snake bite and scorpion sting
<i>Piper thomsonii</i> Hk.f.	Piperaceae	C	Root		Roots are macerated in water and used as a diuretic.
<i>Imperata cylindrica</i> (Linn.) P. Beauv.	Poaceae	H	Rhizome		Rhizomes- restorative, tonic and antipyretic and as a fumigant for piles.
<i>Polygonum chinense</i> Linn.	Polygonaceae	H	Leaves		Plant tonic, vulnerary, antiscorbutic
<i>Drymaria cordata</i> (Linn.) Roem. & Schutt.	Polypodiaceae	H	Juice		Juice laxative and antifebrile
<i>Ranunculus cantonensis</i> DC.	Ranunculaceae	H			Used as a vesicant and shows antibacterial activity.
<i>Hedyotis scandens</i> D. Don.	Rubiaceae	CS	Leaves, young twig		Gastric trouble and eye diseases, mouth sore, malaria, abscess.
<i>Mussaendra glabra</i> Vahl.	Rubiaceae	CS	Flower		Flowers- diuretic, dropsy and asthma.
<i>Paedaria foetida</i> Linn.	Rubiaceae	C	whole plant		Rheumatic affections.
<i>Psychotria monticola</i> Kurz.	Rubiaceae	S	Root		ulcers.

<i>Randia cochinchinensis</i> (Lour) Merr.	Rubiaceae	T	roots	Decoction of roots used for bowel complaints.
<i>Rubia cordifolia</i> Linn.	Rubiaceae	CH	Root, Stem	Juice- skin diseases. Root- tonic, alternative and astringent. Stem- cobra bite and scorpion sting.
<i>Saprosma ternatum</i> Hk.f.	Rubiaceae	T	leaves	Leaves eaten to relive flatulence and stomachache
<i>Achronychia pedunculata</i> (Linn.) Miq.	Rutaceae	T	Root, bark	Used in external application for sores and ulcer.
<i>Citrus medica</i> Linn.	Rutaceae	T	Root, flower, bud and Juice	Roots anthelmintic, useful in vomiting, urinary calculus; flowers and buds stimulant and carminative. Juice used as stringent.
<i>Glycosmis arborea</i> (Roxb) DC.	Rutaceae	S	Root	Roots used in low fever. Wood used in snakebite.
<i>Sabia lanceolata</i> Colebr.	Sabiaceae	CS	Leaves	Leaves- swelling and pains on the ankle and wrist.
<i>Salix tetrasperma</i> Roxb.	Salicaceae	T	Leaves	Leaves powder- rheumatism, epilepsy, piles and stones in bladder. Bark- febrifuge.
<i>Dimocarpus longan</i> Lour.	Sapindaceae	T	Fruit	Fruits stomachache, anthelmintic, and refrigerant in fevers.
<i>Picrasma javanica</i> Bl.	Simaroubaceae	T	Bark	Bark- febrifuge, Leaves- applied to sores.
<i>Symplocos racemosa</i> Roxb.	Symplocaceae	T	Bark	Bark- eye diseases, ulcers. Decoction- used to give firmness to spongy and bleeding gums.
<i>Eurya japonica</i> Thunb.	Theaceae	S	Leaves	Leaves used for poulticing skin eruptions.
<i>Schima wallichii</i> (DC.) Korth.	Theaceae	T	Bark	Irritates skin, anthelmintic and rubefacient.
<i>Pouzolzia hirta</i> Hassk.	Urticaceae	S	Roots-	Roots- fractures and dislocation of bones.
<i>Callicarpa arborea</i> Roxb.	Verbenaceae	T	Bark	Bark aromatic, tonic, carminative- decoction of bark applied to cutaneous diseases.
<i>Clerodendrum viscosum</i> Vent.	Verbenaceae	S	Leaves, Fresh juice	Leaves as a bitter tonic, laxative. Fresh juice for removal of ascarides, external application to tumors.
<i>Lantana camara</i> Linn.	Verbenaceae	S	Root, leaves	Oil- itch, antiseptic for wound. Plants- vulnerary, diaphoretic, antispasmodic and propels. In tumors, tetanus, malaria and abdominal viscera.
<i>Premna latifolia</i> Roxb.	Verbenaceae	T	Leaves	Leaves- diuretic and used in dropsy.
<i>Vitex pinnata</i> Linn.	Verbenaceae	T	Bark, leaves	Decoction of bark given for stomach and poultice of leaves applied to wounds.
<i>Tetrastigma serrulatum</i> Roxb.	Vitaceae	C	Juice of plant	Alcoholic extract shows anticancer activity against walker carcinosarcoma 256 in rats.
<i>Costus speciosus</i> (Koenig) Smith	Zingiberaceae	S	Root	Roots used as a tonic and anthelmintic.
<i>Curcuma angustifolia</i> Roxb.	Zingiberaceae	H	Tubers	Tubers- starch (easily digestible)

\*\*H-herb, T-tree, S-shrub, C-climber, CS-climbing shrub, CH- climbing herb

The Rubiaceae forms the largest family with 7 species, followed by Euphorbiaceae (5), Verbanaceae (5) Lauraceae (5), Piperaceae (4), Rutaceae (3), Combretaceae (3) (figure 1).

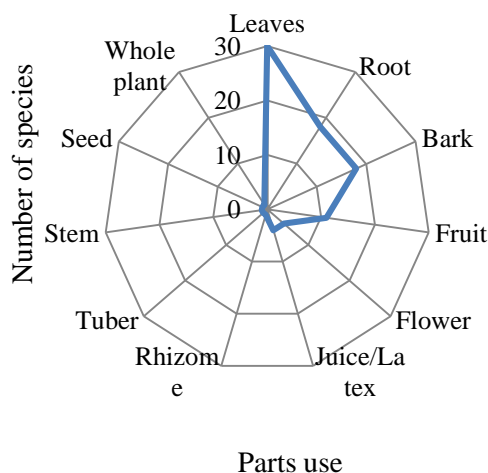


Figure 1: Different Plant Parts used

Various plant parts such as leaves, roots, stems, flowers, fruits, barks, seeds, gum, rhizomes etc. were used for medicinal purposes. As per plant parts used, leaves (30) were predominant, followed by root (18), bark (18) and fruits (11) (Figure 2).

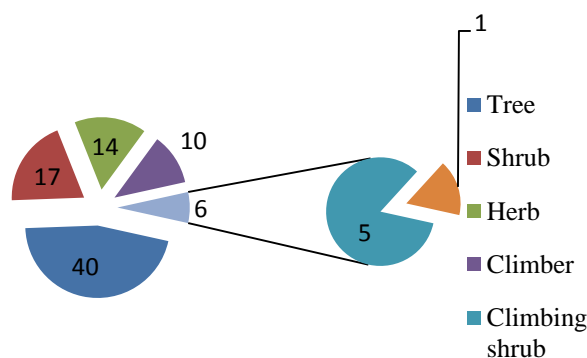


Figure 2. Medicinal Plants Based on Habit

Out of 90 plants it was observed that 30 plants had more than one part used in combination for medicinal purposes. These different plant parts are used in the form of fresh juice, latex, powder, paste, decoction, direct use for the cure of illness. Leaves were found to be the most useful part and applied frequently in the paste and juice for curing various ailments. During the investigation it was observed that the same plant used for the treatment of different disease. From the study site it was observed that almost all the people use some sort of medicinal plants in their everyday life. These medicinal plants use to cure 48 types of ailments. Different medicinal plants are used for the management of several diseases like ulcers, leprosy, diarrhea, piles, dysentery, fever, asthma, jaundice, malaria, cholera, sinus, headache, stomach trouble, hypertension, skin diseases, piles, laxative etc. 10 plant species possess ability to cure stomach trouble, 8 plants are used for the treatment of dysentery, skin diseases and wounds; 6 plants are for diarrhea, piles and fever; and 6 plants used in medication of asthma and ulcers (Table 1). Some plants like *Bauhinia variegata*, *Dillenia indica*, *Dioscoria bulbifera*, *Garcinia cowa*, *Leea indica*, *Rhododendron arborum*, *Spondias pinnata*, and *Terminalia bellerica* are used in the treatment of dysentery. Plants like *Lantana camara* and *Croton caudatus* used in malaria. Some plants like *Rubia cordifolia* and *Piper longum* are used for snake bite. *Bridelia stipularis* and *Senecio scandens* are used in the cure of jaundice. The

recorded species belong to different life forms, i.e., trees (40 species), shrubs, herbs, climbers, climbing shrub, and climbing herbs. (Figure 3).

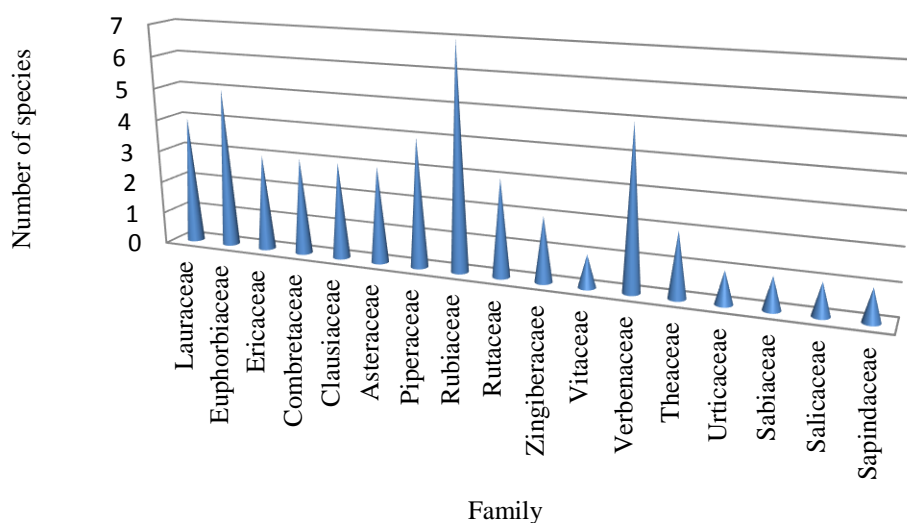


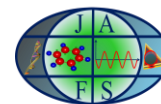
Figure 3: Number of Species per Family

Garcinia and Piper are represented by 3 species and Cinnamomum, Terminalia, Polygonum are represented by 2 species (Table 1). During the study it was found that, the elder persons (above 50 years of age) of the family possess more knowledge regarding medicinal plants use and identification of than that of younger generations. Data also showed that, females knew more about the usage of medicinal plants than that of male. Most of the plant parts used for curing ailments is gathered from forest, but some rural people are keen to raise certain species with medicinal properties, particularly *Azadirachta indica* Juss., *Punica granatum* L., *Ocimum sanctum* L. etc.

North eastern India harbours about 50% of the total flora of India [15]. This region also habitat of many primitive angiosperms not reported from any other part of country [2]. Enormous timber plants, medicinal plants and other economically important plants exist in this region as it is an admixture of Asiatic and peninsular Indian element. Meghalaya which rich in medicinal plants, timber plants as well as other economically important plants is due to its physical geography, nature of rainfall, temperature and altitude. The present work has brought to light the indigenous medicinal plants of this area which extensively used in various diseases without any side effects. The herbal pharmaceuticals in this area are totally reliant on naturally occurring herbs of this region. Though this region is rich in medicinal plant, but unfortunately there is no pharmaceuticals and processing units in this province and the herbal medicines are being procured from other parts of the country. So here, these resources can be initially used for various processing in addition to their large scale cultivation practices. Increasing biotic influences including socioeconomic development, unrestricted commercial exploitation of forest wealth have threatened the survival of the genetic resources amounting to a great loss of natural heritage [15]. These medicinal plants are harvested unsustainably therefore they are becoming rare and some are at the margin of extinction. Due to unscientific and over exploitation, these medicinal plants have become merely extinct and endangered. For that reason, management of these medicinally important plants should be viewed seriously. There is a need for in situ and ex situ conservation of medicinal and aromatic plants resources. Conservation of the plant resources on the ground level is required for the benefit of human beings and sustainable development of environment. Awareness at the grass root level is very essential for the conservation of plant resources. Large scale cultivation of economic and medicinal plant species by local communities should be encouraged to minimize the pressure on natural habitats. Though large number of the plant parts used collected from forest, but some of plants are being cultivated recently in north east with medicinal properties [16]. Their traditional knowledge with scientific and technical research for sustainable utilization can also help in conservation of plant diversity.

In a particular community, the people have huge local knowledge which passes through generation to generation. This unique knowledge can make a contribution to a sustainable development approach that accounts for the potential of the local environment and wisdom of the indigenous population. The tribal communities of Meghalaya have possess such of great knowledge particularly from their healthcare viewpoint, which transmitted from generation to generation. For daily healthcare Rural people have a strong dependence on plant resources. Because of their high dependence on plants for medicinal uses, they have a close sympathetic of the ecology [17]. This awareness could easily provide the basis for the commercial farming of some selected plants, which are endangered to this region.





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