

## Use of Ethnomedicinal Plants by the Kuki Tribe of Cachar District of Assam, India

M. K. Baruah<sup>1\*</sup>, G. Chakraborty<sup>1</sup> and M. Dutta Choudhury<sup>2</sup>

<sup>1</sup>Department of Botany, Cachar College, Silchar, Assam,

<sup>2</sup>Department of Life Science, Assam University, Dargakona, Silchar-788011, Assam

\* Corresponding author: E-mail: mkb\_taxonomy@rediffmail.com

[Received revised 10.12.2011; Accepted 13.12.2011]

### Abstract

The “Kuki tribe” in Cachar district of Assam mainly confined to remote villages and they have migrated from China through Patkai section and settled on the way in the Naga Hills. Some of them came to Barak Valley about 200 years ago from Myanmar border. Kukis have profound knowledge in traditional ethno-medicinal plants. Through the present survey to record how people of this tribe use plants for controlling and curing various diseases, a total of 42 ethno-medicinal plants, belonging to 28 families are recorded. They use these plants to treat 18 different diseases viz. Arthritis, cough, asthma, cuts and wounds, dysentery, eye diseases, fever, gastric and indigestion, hypertension, dog and snake bite, jaundice, skin diseases, stomachache, toothache, kidney problem, sinus problem, vomiting, etc. Some of the species reported here are in critical condition mainly due to different anthropological exploitations. Immediate and appropriate steps need to be taken for the conservation of these ethno-medicinal plants of the area.

**Key words:** Ethno-medicine, Diseases, Kuki tribe, Cachar, Assam

### INTRODUCTION

North East India comprises of eight states i.e. Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura is predominantly tribal region has a tremendous scope for ethnomedicinal study. Some of the tribal medicines have been incorporated in the organized system of medicine. However, larger number of the folk medicines has remained endemic to certain tribal pockets of North East India. Therefore, ethnomedicinal study in this region may proceed a meaningful way for promotion of traditional herbal medicines for the benefit of mankind at large. Different parts of the North East India are located either in the Himalaya Hotspot or in the Indo-Burma Hotspot as recognized by IUCN. The Cachar district of Assam has houses a number of tribal or ethnic communities who are mostly living in remote rural areas, punjis and reserve forests. Topographically, this region is with hilly terrains, plateaus and plains cross-cross disproportionately by rivers and rivulets. This is a distinct geographical entity having variegated natural landscape with diverse colorful ethnic communities. The maximum amount of rainfall in this area indicates a special feature and trees, plants and green vegetation punctuate the monotony of the place. They have profound knowledge in traditional ethnomedicinal plants. Such a rich biodiversity in the area has provided an initial advantage to its inhabitants for observing and scrutinizing the rich flora and fauna to develop their own traditional knowledge. Over the years, they have developed a great deal of knowledge on the use of plants and plant products in curing various diseases and ailments. Therefore, it is necessary to gather the information on the plant species used by the tribal groups and similar studies need to be carried out across the various tribal communities for comparison as well as documenting the knowledge which is under threat due to the influence of modernization.

Geographically, Cachar district South Assam or Barak Valley of North East India is surrounded by North Cachar Hills and Khasi and Jaintia on the North, Mizoram on South, Manipur on East and Tripura state on West. The district Cachar covers an area of 3,786 sq km. The area is located at an altitude of 26–27 m amsl and lies between longitude 92° 24' E and 93° 15' E and latitude 24° 22' N and 25° 8' N. The topography of Cachar district is heterogeneous and composed of high hills, low lands and plains. On the north, east and south it is surrounded by ranges of purple hills whose forests are seamed with beautiful landscapes. The Bhuban range on the eastern frontier covers a considerable area having peaks over 900 m amsl. The high lands are planted with tea, while the lower levels are covered with rich crops of waving paddy. The river Barak flows from east to west through the centre of the valley. Barak, Jiri and Siri are the main rivers passing through the district. The alluvial soil of the area is sandy, loamy and silt types depending on the silt and sand content. The pH of the soil varies between 5.0 and 6.5 or around neutral. The climate of the district is very hot with dry cold seasons. The average temperature of the district lies in between 15 and 35° C, and the average annual rainfall is around 300 mm and average atmospheric humidity is 75 – 85 % (Anonymous 2002).

Kuki people from Nagaland and Manipur migrated to Cachar about 200 years ago mainly due to the poorly fertile soil in their jhum field and that is of quite good quality in Cachar. These people have self managed system of folk medicine based mainly on local herbs. Even today, modern medical facilities are yet to reach in many remote parts of district and, at the same time, ethnic people in this area has deep belief in the traditional folk medicines systems and rely extensively on their own herbal cures or remedies from diseases.

The people in modern societies are not aware of this knowledge but many of such medicines could be of much use for them in future. So, it has become imperative to collect information and document the same for scientific evaluation. Moreover, the rapid inroad of modern facilities the culture of using indigenous knowledge for the treatment of common ailments is also rapidly disappearing. Thus, keeping in view the importance of above facts the present survey work to enlist the medicinal plants used by the Kuki tribes living in Southern part of Assam in North East India has been undertaken. Also emphasis has been given to collect information about the mode of preparation of ethnic medicines and their mode of application.

## MATERIALS AND METHODS

Two villages of Cachar District of Assam, Ziribam and Dwarbandh kuki punji were selected for the study and Kuki tribe was considered as target community. These two villages in the district were visited many times during the years of 2007 to 2009. Data related to the medicinal uses of plants were collected through interview with local herbal practitioners (*Kabiraj/ Boidya*), headmen and elderly people in the community. Data collected from one person were verified with others by asking the same questions. Most of the medicinal plants were identified in the field and in case of unknown ones proper voucher specimens were collected. These specimens were brought to Cachar College Herbarium and processed through herbarium techniques of Jain & Rao (1977). These were examined and identified by comparing with the *Flora of Assam* (Kanjilal *et al* 1934 – 1940), *Flora of British India* (Hooker 1872 – 1897) and consulting with the expert scientist of Botanical Survey of India, ERC, Shillong. Voucher specimens have been kept under author's possession for future studies and will be deposited in the Herbarium of Department of Life Science and Bioinformatics of Assam University, Silchar, in due course of time.

## RESULTS

Collected ethno-medicinal plants are enumerated in a tabular form (Table-1) classifying them disease wise one or each plant species, correct scientific name with author citation, vernacular name, name of family, parts used and applications are provided.

**Table 1:** Ethnomedicinal plants used against different diseases by the Kuki tribe in Cachar district of Assam, India

Diseases	Name of species	Kuki name	Parts used/ Applications
ARTHRITIS	<i>Justicia adhatoda</i> Linnaeus [Acanthaceae]; GCMKB 004	Basaka/ Alubulai	Leaves; boiled leaf juice is taken to cure muscles pain
ASTHMA	<i>Aegle marmelos</i> (Linnaeus) Correa [Rutaceae]; GCMKB 013	Bel	Leaves and Fruits, Leaves juice is given to take to cure fever and asthma
COUGH	<i>Leucas aspera</i> Linnaeus [Lamiaceae]; GCMKB 023	Drun	Leaves, leaves are used in cough
	<i>Ocimum basilicum</i> Linnaeus [Lamiaceae]; GCMKB 042	Tolshi	Leaf, Crush leaves with honey are given to take in cough
CUTS & WOUNDS	<i>Mikania micrantha</i> Linnaeus [Asteraceae]; GCMKB 017	Jemapakistan	Leaves; The crushed leaves are applied in minor cuts
	<i>Piper beetle</i> Linnaeus [Piperaceae]; GCMKB 001	Pathi	Leaf; Paste of leaf is used in minor cuts and injuries.
	<i>Bryophyllum pinnatum</i> (Lamarck) Oken [Crassulaceae]; GCMKB 009	Kupatti	Leaves, leathery leaves are used as bandage in wound portion and in muscle fracture.
	<i>Curcuma domestica</i> Valetton [Zingiberaceae]; GCMKB 002	Shengtum,	Rhizome; Paste of rhizome is applied in joint injuries and swelling parts
	<i>Paederia foetida</i> Linnaeus [Rubiaceae]; GCMKB 011	Vain angui	Leaf pastes are used in wound
	<i>Melastoma malabatricum</i> Linnaeus [Melastomataceae]; GCMKB 029	Mukhlong	Leaves pastes are used to stop bleeding in minor cuts and fruits are edible
DYSENTERY	<i>Clerodendrum viscosum</i> Ventenat [Verbenaceae]; GCMKB 037	Loholaw/ Mathang	Young leaf.; Fresh young leaves juice is given to take in dysentery
	<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; GCMKB 022	Lambak	Whole plant. Extract juice is used in chronic dysentery
	<i>Aegle marmelos</i> (Linnaeus) Correa [Rutaceae]; GCMKB 013	Bel	Leaves and Fruits, Fruit juice and ripen fruits are given to take in dysentery.
	<i>Psidium guajava</i> Linnaeus [Myrtaceae]; GCMKB 019	Pumton	Young leaf twigs are used in dysentery
	<i>Holarrhena pubescens</i> (Buchanon-Hamilton) Wallich [Apocynaceae]; GCMKB 036	Leiwomthi	leaves are used in dysentery
	<i>Tamarindus indica</i> Linnaeus [Caesalpinaceae]; GCMKB 003	Thaipai	Pulp with banana and milk is given in dysentery +
EYE DISEASES	<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; GCMKB 022	Lambak	Whole plant; Extract juice is used in eye infection
	<i>Scoparia dulcis</i> Linnaeus [Scrophulariaceae]; GCMKB 030	Thaicha	Leaves and stem, used in eye diseases
FEVER	<i>Aegle marmelos</i> (Linnaeus) Correa [Rutaceae]; GCMKB 013	Bel	Leaves, Leaves juice is given to take to cure fever
	<i>Alstonia scholaris</i> (Linnaeus) R. Brown [Apocynaceae]; GCMKB 020	Chatni/ Chonperong	Bark is used in fever
	<i>Mimosa pudica</i> Linnaeus [Mimosaceae]; GCMKB 007	Seinkaibi	Roots. Roots are kept in forehead for the remedy of fever

Diseases	Name of species	Kuki name	Parts used/ Applications
<b>GASTRIC &amp; INDIGESTION</b>	<i>Ananas cosmosus</i> Linnaeus [Bromeliaceae]; GCMKB 010	<i>Anaras</i>	fruits, Fruit juice is used in indigestion
	<i>Oxalis debilis</i> var. <i>corymbosa</i> (DC.) Loureiro [Oxalidaceae]; GCMKB 012	<i>Tiew-lapongnai</i>	Whole plant. Uses: Juice is given to take in indigestion and gastric
	<i>Solanum nigrum</i> Linnaeus [Solanaceae]; GCMKB 014	<i>Samantho/ Sangang</i>	Fruits and leaves. Fruit and leaf extract is given to take in indigestion
	<i>Gmelina arborea</i> Linnaeus [Verbenaceae]; GCMKB 035	<i>Baklong</i>	Boiled Bark and roots juice is are taken in gastric and ulcers
<b>HYPERTENSION</b>	<i>Clerodendrum viscosum</i> Ventenat [Verbenaceae]; GCMKB 037	<i>Loholaw/ Mathang</i>	Young leaf; young leaf twig paste with bulb of garlic is given to take in controlling high blood pressure
	<i>Rauvolfia serpentina</i> (Linnaeus) Bentham ex Kurz [Apocynaceae]; GCMKB 028	<i>Larkai</i>	Leaf and roots; The leaf juice is given to take to reduce high blood pressure
	<i>Moringa orelifora</i> Linnaeus [Moringaceae]; GCMKB 018	<i>Sajna</i>	leaves and bark, Leaf and bark extract is used in high BP
<b>JAUNDICE</b>	<i>Cajanus cajan</i> Linnaeus [Fabaceae]; GCMKB 016	<i>Aral</i>	Leaves, Extract of leaf twigs is given to take in jaundice
	<i>Averrhoa carambola</i> Linnaeus [Averrhoaceae]; GCMKB 024	<i>Theirheoi</i>	Fruit juice are given to take to cure jaundice
<b>KIDNEY PROBLEM</b>	<i>Bryophyllum pinnatum</i> (Lamarck) Oken [Crassulaceae]; GCMKB 009	<i>Kupatti</i>	Leaves, Leaf juice is given to dissolve kidney stone
<b>SINUS PROBLEM</b>	<i>Eucalyptus globosus</i> Linnaeus [Myrtaceae]; GCMKB 015	-	Leaves in sinus problem
<b>SKIN DISEASES</b>	<i>Alstonia scholaris</i> (Linnaeus) R. Brown [Apocynaceae]; GCMKB 020	<i>Chatni/ Chonperong</i>	Leaves paste is used in skin diseases
	<i>Azadirachta indica</i> Jussieu [Meliaceae]; GCMKB 032	<i>Neem</i>	Leaves, Fresh leaves are used in skin diseases and in chicken pox to protect from infection.
	<i>Aconogonum molle</i> (D. Don) Hara [Polygonaceae]; GCMKB 021	<i>Jaryndew</i>	Leaf. Paste of leaves is used in skin diseases and in boil.
	<i>Curcuma domestica</i> Valetton [Zingiberaceae]; GCMKB 002	<i>Shengtum</i>	Rhizome. Paste of rhizome is used in skin diseases and also applied in joint injuries and swelling parts
	<i>Ocimum basilicum</i> Linnaeus [Lamiaceae]; GCMKB 042	<i>Tolshi</i>	Leaf, Uses: Crush leaves with honey are given to take in cough and paste is used in skin diseases.
	<i>Cassia alata</i> Linnaeus [Caesalpinaceae]; GCMKB 027	<i>Dodulsa</i>	Leaves are used in skin diseases
<b>SNAKE AND DOG BITE</b>	<i>Rauvolfia serpentina</i> (Linnaeus) Bentham ex Kurz [Apocynaceae]; GCMKB 028	<i>Larkai</i>	Root is used in dog bite and also in insect bite.
	<i>Dolichos lablab</i> Linnaeus [Fabaceae]; GCMKB 025	<i>Sim</i>	Leaves are used in Snake bite.

Diseases	Name of species	Kuki name	Parts used/ Applications
STOMACHACHE	<i>Solanum viarum</i> Clarke [Solanaceae]; GCMKB 040	<i>Vekur</i>	Fruits and roots in stomach problem
	<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; GCMKB 022	<i>Lambak</i>	Whole plant; Extract juice is stomachache
	<i>Terminalia chebula</i> Retzius [Combretaceae]; GCMKB 025	<i>Pakla</i>	Fruit juice is given to take in stomachache
	<i>Cardiospermum helicacabum</i> Linnaeus [Sapindaceae]; GCMKB 038	<i>Thazung domlou</i>	The whole plant juice is given to take in stomachache and dysentery
	<i>Cassia nodosa</i> Buchanon-Hamilton ex Roxburgh [Caesalpiniaceae]; GCMKB 026	<i>Tam kui</i>	The bark juice is used in dysentery and stomachache
	<i>Zizyphus mauritiana</i> Lamarck [Rhamnaceae]; GCMKB 034	<i>Boroi</i>	Fruit juice is used in stomach ache
	<i>Sterculia villosa</i> Roxburgh [Sterculiaceae]; GCMKB 031	<i>Rooisa</i>	Leaves juice are used in stomachache
TOOTHACHE	<i>Cinnamomum tamala</i> Nees [Lauraceae]; GCMKB 041	<i>La-pynriang</i>	Parts used: leaf. Juice extract is given to relief in toothache
	<i>Chromolaena odorata</i> (Linnaeus) R. King & Robinson [Asteraceae]; GCMKB 033	<i>Basmaput/ Luiramshi</i>	Leaf paste is applied locally in toothache.
	<i>Spilanthes paniculata</i> Wallich ex DC. [Asteraceae]; GCMKB 039	<i>Marsang/ kararia</i>	leaves used in toothache
VOMITING	<i>Citrus medica</i> Linnaeus [Rutaceae]; GCMKB 006	<i>Banjamir</i>	Leaves against vomiting nausea.
WORMS	<i>Spilanthes paniculata</i> Wallich ex DC. [Asteraceae]; GCMKB 039	<i>Marsang/ Kararia</i>	Flowers and leaves used in worm infestations.
	<i>Andrographis paniculata</i> Nees [Acanthaceae]; GCMKB 008	<i>Chilta</i>	Worm infestations.

## DISCUSSION AND CONCLUSION

The study revealed that Cachar district of Assam is rich in various plants with medicinal values. Several interesting observations were made during the course of the survey. Several plants used by the tribe have already been reported to have medicinal values. Again some plants are used for same purpose as used by certain other tribes of N.E. India, which have already been reported by several workers like Rawat & Choudhury (1998), Gogoi & Boishya (1984), Borthakur (1992), Asolkar *et al* (1992). Some of the relevant works in this field including *The Indigenous drugs of India* (Dey 1986); *Indian Medicinal Plants* (Kirtikar & Basu 1935); *Glossary of Indian Medicinal Plants* (Chopra *et al* 1956); *Medicinal Plants of India* (Jain 1968); *Economic Plants of India* (Nayar *et al* 1989); *Glimpse of Indian Ethnobotany* (Jain 1981); *Ethno-medicobotany of Arunachal Pradesh* (Rawat & Choudhury 1998) also recognized the medicinal properties of these plants.

The medicinal value of *Centella asiatica* is very well known. Rawat & Choudhury (1998) also reported the use of the plant by Apatani and Nishi tribes of Arunachal Pradesh to cure gastric and abdominal pain. From the survey, we found that the Kuki tribes of Cachar district also use the plant for curing eye infection, dysentery and stomachache.

Thus, from the Survey and Results (Tables 1 & 2) it is found that out of 42 plant species recorded, 9 species have multiple applications in diseases and from the survey it has been observed that the kuki tribe of the district has very deep understanding about the medicinal uses of various plants. The destruction of natural habitats by overgrazing, deforestation due to Jhum or shifting cultivation, many species of plants are fast disappearing. Information on the utilization of plants in

**Table 2.** Recorded medicinal plants with multiple usage

Plants	Application in Diseases
<i>Centella asiatica</i>	Dysentery, Eye diseases and Stomachache
<i>Aegle marmelos</i>	Asthma, dysentery and fever.
<i>Alstonia scholaris</i>	Fever and Stomachache.
<i>Rauvolfia serpentina</i>	Hypertension, Insects and snake bite.
<i>Clerodendrum viscosum</i>	Dysentery and Hypertension.
<i>Bryophyllum pinnatum</i>	Cuts and wounds and Kinney stone
<i>Ocimum basilicum</i>	Fever and skin diseases
<i>Spilentes paniculata</i>	Toothache and Worm infestations
<i>Curcuma domestica</i>	Cuts and wound and skin diseases

medicine passes on through oral communication from one generation to another. It has also been observed that the younger generations of Kukis are no more interested to learn the uses of these plants from the older people. Therefore, it is important to preserve the indigenous knowledge of our tribal communities. It is also important to conserve and multiply these medicinal plant species before they become endangered and extinct.

These medicinal plants can be investigated for their active principles and tested for pharmacological and clinical trials on humans for their safe use. These studies may thus bring to light some new sources of drugs of herbal origin and by establishing herbal drug collection centers in the tribal villages; the economy of tribal people can be improved. This survey will serve as base for any further study in this regards. Hence major steps need to be taken for conservation and multiplication of ethno-medicinal plants of north east India before they become endangered and extinct.

#### Acknowledgements

The authors are grateful to the Deputy Director, B.S.I., Eastern Regional Circle, Shillong, for providing Herbarium and Library facilities for the identification of plants. Author are also thankful to all the persons for their cooperation who are related to this survey works.

#### LITERATURE CITED

- Anonymous 2002. *Statistical Hand Book, Cachar*; Silchar, Govt. of Assam. Deputy Director of economics & Statistics, Cachar, Silchar.
- Asolkar, L.V.; Kirtikar, K.K. & Clark, O.J 1992. Second supplement to *Glossary of Indian Medicinal Plants with Active Principle*, CSRI Publication, New Delhi.
- Borthakur, S.K. 1992. Native phytotherapy of child and women diseases in Assam, North Eastern India. *Pitoterpia* 63(6): 486 – 488.
- Chopra, R.N.; Nayar, S.L. & Chopra, L.C. 1956. *Glossary of Indian Medicinal Plants*. CSIR, New Delhi.
- Dey, K.L. 1986. *Indigenous drugs of India*. International Book Distributors, Dehradun.
- Gogoi, P. & Boissya, C.L. 1984. Information about a few herbal medicines used by the people of Assam (India) against jaundice. *Himal. Res. Dev.* 2: 141 – 144.
- Hooker, J.D. 1872 – 1897. *The Flora of British India*, Vol. 1-7. L. Reev & Co, London
- Jain, S.K. 1968. *Medicinal Plants*, National Book Trust, New Delhi.

- Jain, S.K. (Ed.) 1981. *Glimpse of Indian Ethnobotan*. Oxford, New Delhi.
- Jain, S.K. & Rao, R.R. 1977. *A Hand book of Field and Herbarium methods*. Today and Tomorrow's Printers and Publishers. New Delhi.
- Kanjilal, U.N.; Kanjilal, P.C.; Das, A.; De, R.N. & Bor, N.L. 1934 – 1940. *Flora of Assam*. Vols. 1 – 5. Govt. Press., Shillong.
- Kirtikar, K.R. & Basu, B.D. 1935. *Indian Medicinal Plants*, Vol. I – IV. Lalit Mohan Basu Publication, Allahabad.
- Nayar, M.P.; Ramamurthy, K. & Agarwal, V.S. 1989. *Economic plants of India*, vol.1, Botanical Survey of India, Calcutta.
- Rawat, M.S. & Choudhury, S. 1998. *Ethno-botany of Arunachal Pradesh (Nishi and Apatoni tribes)*. Bishen Singh Mahendra Pal Singh, Dehradun.