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## Ethnomedicinal plants used by Chorei tribes of Southern Assam, North Eastern India

Shuvasish Choudhury<sup>1,2,\*</sup>, Parul Sharma<sup>1,2</sup>, Manabendra Dutta Choudhury<sup>2</sup>, Gauri Dutt Sharma<sup>2</sup><sup>1</sup>Natural Product Process Laboratory, Central Instrumentation Laboratory, Assam University, Silchar–788011, Assam, India<sup>2</sup>Ethnobotany and Medicinal Plants Research Laboratory, Department of Life Science and Bioinformatics, Assam University, Silchar – 788 011, Assam, India

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## ABSTRACT

**Objective:** To explore and enumerate the medicinal plants used by the Chorei tribe residing in Southern Assam part of North Eastern India in the treatment of various ailments. **Methods:** Systematic and intensive field surveys were conducted in Chorei inhabited parts of Southern Assam part of North East India to collect information on medicinal plants used by them in treatment of various ailments. Data was collected through structured questionnaires and personal observations made during the field visit. **Results:** A total of 53 different medicinal plants were recorded along with their vernacular names, parts used and mode of utilization by the Chorei tribes. Each of the plants was categorized according to their use in treatment of particular disease. **Conclusions:** The present study revealed that the Chorei tribe is primarily dependent of medicinal plant for treatment of various ailments.

## 1. Introduction

The human use of plants as a source of medicine dates back to the middle Paleolithic age around 60,000 years ago and has learnt to identify and use plants according to its needs<sup>[1]</sup>. The herb or crude drug used in the traditional system medicine is a complex potpourri of compounds, some beneficial, some harmful and some toxic, but all integrated under certain natural rule to make the crude fraction into a single chemical agent. These crude drugs have components amalgamated in a fashion where one chemical counter balance the undesirable side effect of the other, ultimately aimed to provide beneficial effects. Plants have been used as a medicinal agent since ancient times, first only on a folkloric basis and later developed on a scientific way into a single agent drug<sup>[2]</sup>. It has been estimated that out of 4,22,000 of flowering plants available in this world, approximately 50000 are used for medicinal purpose of which India represents 43%<sup>[3–5]</sup>. According to

the World Health Organization (WHO), approximately 65% of the world population incorporates plants as medicine as a primary source of health care, where ethnomedicinal information plays a key role<sup>[6]</sup>. The value of such information is thus regarded far more than a significant anthropological or archeological finding<sup>[7]</sup>.

In the North Eastern region of India, several workers have contributed significantly in documentation of ethnomedicinal information on plants and consequently many important research publications have emerged. Information on 37 antifertility plants belonging to 26 families used by ethnic communities of three districts of Assam was reported<sup>[8]</sup>. Other major work in the field of Ethnobotany of North East India includes several reports on Mao Naga tribes of Manipur<sup>[9]</sup>, Zeme tribe North Cachar Hill district of Assam<sup>[10]</sup>, Reang tribe of Tripura state<sup>[11]</sup> and the Thai–Khamyangs of Assam<sup>[12]</sup>. Other recent and worth mentioning works on the ethnobotany of North Eastern India include comprehensive report on ethnobotany of plant wealth of North East India and ethnobotany of pteridophytes of Assam<sup>[13–14]</sup>. Ethnomedicinal plants used by different tribes of Arunachal Pradesh have also been reported recently<sup>[15]</sup>.

\*Corresponding author: Shuvasish Choudhury, Natural Product Process Laboratory, Central Instrumentation Laboratory, Assam University, Silchar–788011, Assam, India  
Tel: 09435175587  
E-mail: [shuvasish@gmail.com](mailto:shuvasish@gmail.com)

The Southern Assam of North East India comprises of three districts viz., Cachar, Karimganj and Hailakandhi is situated within 24.500N latitude and 92.510E longitude. The average climate of the region is tropical, warm and humid. Majority of the areas of Southern Assam consists of low lands and high hilly terrains and level plains. Heavy rainfall and high humidity in this region has made it rich in floral resources and prosperous in medicinal plant wealth. The Chorei tribe is among the small group of descendents of Mongolian community distributed in Southern Assam part of North Eastern India. They are mostly nomadic people living in hilly terrains under the rule of despotic chiefs. To our knowledge, there are no reports regarding the ethnomedicinal aspects of Chorei tribe of North East India. The present study aims to enumerate the ethnomedicinal aspects of the tribe, with an aim to add information to strengthen the resource on medicinal usefulness of plants. Such study may highlight important aspects on medicinal properties of plants used by the tribe and also to validate the same for future drug discovery process. The present investigation aims to explore the ethnomedicinal aspects of Chorei tribe residing in the parts of Southern Assam of North Eastern India.

## 2. Materials and methods

Intensive field work has been undertaken for a period of two years covering different seasons so as to gather information on each of the plant species found to be used in traditional healing practices of Chorei tribe of Southern Assam of India. Information was gathered by taking interview of local medicine men using structured questionnaires in some cases and documentation of verbal information and personal observations. Medicine men were selected on the report of local informant. Before the interview, the respondent was explained with the aim of the study, followed by verbal consent. Each of the healers was selected based on their previous experience of using medicinal plants in treatment and the data obtained from one healer was cross verified with the other. The vernacular name, mode of preparation and also disease treated were recorded. In certain cases, where the healers do not know the name of the disease, the names of the diseases were given on the basis of symptoms described by them. The collected specimens were tagged and herbarium sheets were prepared for each of the species. The specimens were identified consulting flora and monographs. Finally specimen identification was authenticated consulting Assam University Herbarium, Assam University, Silchar, India. Set of herbarium sheets were deposited in the herbarium for future reference. The alphabetic arrangement of all the plant species were made along with information on vernacular names, place of collection, parts used, mode of uses and disease classification.

## 3. Results

The ethnomedicinal aspect of Chorei tribe of Southern Assam of North Eastern India has been thoroughly studied for the first time. The present study reveals 53 different medicinal plants belonging to 33 families of angiosperms (Table 1) were reported to be used by the Chorei tribes in treatment of various ailments, which includes skin infections, boils, eczema, constipation, kidney stone, etc. The number of traditional healers consulted was six as majority of the population of the tribe have shifted to cities in search of livelihood. In course of the study, the average age group of healer was 65–70 years, with only male informers. Of all the 53 plant species collected, 18 species of plants are being used for treatment of skin related infections, 7 plants for constipation and jaundice, 4 plants are being used to cure cough and cold and 4 plants for diabetes (Fig. 1). Among all the families, Verbenaceae was the most dominant family with 5 species of plants. For most of the plants crude drug is prepared as aqueous extracts. It was also interesting to note that in most of the parts used, leaf is used in majority of the cases.

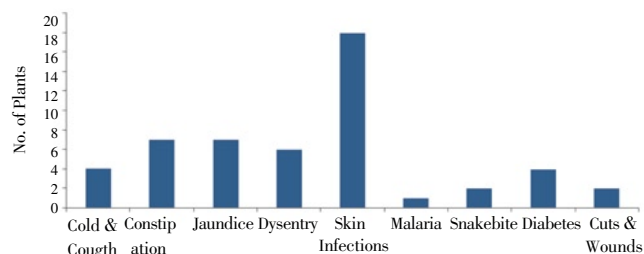


Fig. 1. Disease wise classification of number of plants used by the Chorei tribe

## 4. Discussion

The North Eastern India is one of the mega biodiversity hot spots of the world and houses rich floral diversity. Moreover, there are several ethnic communities, which are rich in their ethnic traditions to use plants as a source of medicine. Ethnomedicine broadly defines the use of plants as a source of medicine by humans has provided us with immense information on medicine properties of plants and based on such information, several plants were taken up for drug discovery efforts. However, with rapid change in human life style resulting in loss of the ethnic culture, many of such information will disappear. Many of such information on traditional uses of plants by different tribes are yet to be reported or compiled in suitable form. Collection of ethnomedicinal information thus remains primary and important endeavor in enlisting plants with their specific medicinal use, which can be further utilized in discovery

**Table 1**

Enumeration of medicinal plants used by Chorei tribe of Southern Assam in their traditional system of medicine

Botanical name	Family	Vernacular name	Specimen examined	Parts used	Mode of use	Disease classification
<i>Adhatoda vasica</i> Ness.	Acanthaceae	Vasak Pata (Bengali, Chorei)	Magura and Manikbond in Karinganj district	Leaves	Crude extract of leaf is taken orally to cure severe cough problems	Cough and cold
<i>Aegle marmelos</i> (Linn.) Correa	Rutaceae	Bel (Bengali, Chorei)	Magura, Manikbond in Karimganj district and Tripurapunji and Chotasalganga in Cachar district	Fruit	The fruit pulp is mixed with cold milk and taken regularly empty stomach to cure the problem of constipation. Raw pulp is given in cases of acute dysentery for 6–7d.	Constipation and acute dysentery
<i>Alocasia indica</i> Schott.	Araceae	Bar (Chorei), Kochu (Bengali)	Tripurapunji in Cachar district	Tuber	The tuber is boiled in water and taken as food for 4–5days during jaundice	Jaundice
<i>Alpinia nigra</i> (Gaertn.) Burtt.	Zingiberaceae	Nari (Chorei)	Magura in Karimganj district	Rhizome	The rhizome is shade dried, powdered and taken orally to control high blood sugar. The fresh roots are used as additive in preparation of rice beer	Diabetes
<i>Alstonia scholaris</i> (L.) R. Br.	Apocyanaceae	Letiwang (Chorei)	Magura, Manikbond and Rongpur in Karimganj district	Bark leaves	The bark latex is used against snake bite. The latex is applied locally to the affected part. The latex of leaves is applied on breast nipples to induce lactation in mothers after child birth	Snake bite and as lactation inducer
<i>Areca catechu</i> Linn.	Araceae	Tambul (Chorei and Assamese)	Manikbond and Charagi in Karimganj district and Chotasalganga in Cachar district	Nuts	The nuts are used as diuretic. The nuts are soaked in water overnight and used for bathing to cure skin rashes and boils.	Skin rashes and boils
<i>Azadirachta indica</i> Juss	Meliaceae	Inkbow (Chorei), Neem (Hindi, Bengali and Assamese)	Magura, Cheragi and Baruatilla in Karimganj district	Leaves	The crude extract of the leaves is applied locally for 4–5 days to cure skin infections.	Skin disease
<i>Begonia thomsonii</i> A. DC.	Begoniaceae	Shekhuk (Chorei)	Baruatilla in Karimganj district	Roots	The crude root extract is applied locally for 3–4 days and bandaged to prevent infections that may result due to metal wounds. It is occasionally used in the treatment of skin infections.	Skin disease
<i>Callicarpa arborea</i> Roxb.	Verbanaceae	Buordop (Chorei)	Magura in Karimganj district, Tripurapunji in Cachar district	Leaves	10–20 leaves are boiled in water, and the water is used to bathe the mother after delivery of child. The crude extract applied for 6–7 days to treat skin rashes	Skin disease
<i>Carica papaya</i> L.	Cariaceae	Thinfolma, Kofol (Chorei)	Magura in Karimganj district, Tripurapunji in Cachar district	Seeds	The dried seed powder is taken with hot water during bed time to cure tape worm infection. One teaspoon of seed powder is mixed with hot water and taken orally for 7 days	Tape worm infection
<i>Cassia siamea</i> Lamk.	Caesalpinaceae	Bandorlathi (Chorei)	Manikbond in Karimganj district	Leaf	The crude extracts of the leaves is applied locally for healing deep wounds	Wounds

<i>Cassia occidentalis</i> Linn	Caesalpinaceae	Moitharbi (Chorei)	Manikbond in Karimganj district	Ripe fruit	The dried fruit is powdered and mixed with garlic, taken once daily for 7 days to cure stomach and digestive problem	Digestive problems
<i>Cassia tora</i> Linn.	Caesalpinaceae	Moitharni (Chorei)	Manikbond in Karimganj district	Leaves	Crude extract of leaves is used to cure itching	Skin itching
<i>Centella asiatica</i> L.	Apiaceae	Parup (Chorei)	Magura in Karimganj district and Tripurapunji in Cachar district	Leaves	The fresh leaves are applied over affected areas to cure skin boils. Fresh leaves are taken raw to cure gastric problems	Skin boils and digestive problems
<i>Chromolaena odorata</i> L.	Asteraceae	Gingthaitruk (Chorei)	Magura and Manikbond in Karimganj district	Leaves	10–15 young leafs are crushed to yield fresh juice and applied instantly to cuts and wounds by metal weapons to stop bleeding and prevent further infection	Metal Cuts and Wounds
<i>Cleome gynandra</i> Linn.	Capparidaceae	Chekloitaboi	Tripurapunji in Cachar district	Leaves	Crude extract of the leaves is used to treat ulcers and ring worm infection. The extracts is applied locally to the affected area for 3–5 days	Skin ulcer and ring worm infection
<i>Clerodendrum viscosum</i> Vent.	Verbenaceae	Jutherpeny	Magura and Baruatilla in Karimganj district, Paloi, Tripurapunji and Chotosalganga in Cachar district	Young leaves	2–3 leaves are given mixed with coconut and taken orally to cure dysentery in children	Dysentery
<i>Datura stramonium</i> Linn.	Solanaceae	Dutra (Chorei)	Magura and Manikbond in Karimganj district	Leaf and Fruit	Crude extract of leaves and fruit are mixed together and applied locally to treat skin infection.	Skin disease
<i>Duranta repens</i> Linn.	Verbanaceae	Hena Pata (Chorei)	Magura and Manikbond in Karimganj district	Leaves	The crude extract of the leaves are applied externally to remove skin scar marks	Skin disease
<i>Dellinia indica</i> Linn.	Dilleniaceae	Daliphok (Chorei)	Magura and Cheragi in Karimganj district	Fruit	The fruit are edible and taken as laxative	Constipation
<i>Docynia indica</i> Dcne.	Rosaceae	Giron (Chorei)	Magura in Karimganj district	Leaves	The dried leaf powder is added as brewer during preparation of rice beer. Fresh crude extract is used as antiseptic and applied locally for 2–3 days to cure skin infection due to wounds	Skin infections
<i>Dracaena aungustifolia</i> Roxb.	Agavaceae	Linsir (Chorei)	Baruatilla in Karimganj district	Leaves	Used in the treatment of diabetes, the crude leaf extract is diluted with water and taken once daily to control diabetes	Diabetes
<i>Eclipta prostate</i> Linn.	Asteraceae	Kheraj (Chorei)	Manikbond in Karimganj district	Leaves and roots	The crude leaf extract is given 2–3 time daily to cure jaundice. The fresh root extracts are given orally occasionally to cure diarrhoea	Jaundice and Diarrhoea
<i>Ehretia acuminata</i> R. Br.	Boraginaceae	Taijan (Chorei)	Baruatilla in Karimganj district	Leaves	The extract of the leaves mixed with water and taken orally once daily for 2–3 days to cure acute dysentery	Dysentery
<i>Ensete glaucum</i> (Roxb.) Cheesm.	Musaceae	Junterpy (Chorei)	Tripurapuni in Cachar district	Inflorescence	The inflorescence in boiled with fresh water crab to yield an extract, which is than given for 20–30 days regularly to persons suffering from jaundice	Jaundice

<i>Eriobotrya bengalensis</i> Hkf. Leve. S.C.	Rosaceae	Oiyamoni	Magura in Karimganj district	Leaves	4–5 fresh leaves are boiled in water and the extract is filtered through clean cloth. It is then applied externally for 5–7 days to cure eczema and skin boils	Eczema and skin boils
<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Hektuk (Chorei)	Magura, Manikbond and Cheragi in Karimganj district	Leaves	The crude extract of the leaves is used as antiseptic against wounds arising from metal weapons, nails, etc.	Skin infections
<i>Euphorbia ligularia</i> Roxb.	Euphorbiaceae	Sairopal (Chorei)	Tripurapunji in Cachar district	Leaves	White latex obtained from the leaves is applied directly to cure skin infections	Skin infections
<i>Ficus benghalensis</i> Linn.	Moraceae		Tripurapunji in Cachar district	Leaves	The crude leaf extracts is occasionally used as antiseptic	Skin infections
<i>Ficus glomerata</i> Roxb.	Moraceae	Chumruithikung	Tripurapunji in Cachar district	Roots and Fruit	The crude extracts of the roots and fruit mixed together are diluted with water to cure dysentery	Dysentery
<i>Gmelina arborea</i> Roxb.	Verbanaceae	Gamair gach (Chorei)	Cheragi in Karimganj district	Leaf and Fruit	The crude extract of the leaf is taken once daily to control diabetes. The extract of the fruit is mixed with sugar and water and once daily for 7 days to cure urinary pain and kidney stones	Diabetes, Urinary infections and kidney stones
<i>Ipomoea aquatica</i> Forsk.	Convolvulaceae	Kalmou (Chorei)	Tripurapunji in Cachar district	Leaves	The crude extracts of the leaves is applied locally to wounds and boils until recovery	Skin infections and Wounds
<i>Lasia spinosa</i> (Linn.) Thumb.	Araceae	Kantha (Chorei)	Tripurapunji in Cachar district	Rhizome	The rhizome is boiled with water and garlic, applied locally to get relief from arthritis and rheumatic pains	Arthritis and Rheumatic pain
<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Pawtagaitay (Chorei)	Manikbond in Karimganj district	Leaves	The crushed leaves is applied locally and bandaged to cure wounds	Wound and Skin infections
<i>Litsea monopetala</i> (Roxb.) Pers.	Lauraceae	Kaitar (Chorei)	Magura in Karimganj district	Leaves	The aqueous extracts is taken orally for 5–7 days to cure jaundice	Jaundice
<i>Litsea glutinosa</i> Lour.	Lauraceae	Khairabul (Chorie)	Magura in Karimganj district	Leaves	The crude extracts of the leaves is applied externally specifically to cure skin boils	Skin infections
<i>Mangifera indica</i> Linn.	Anacardiaceae	Am (Chorei, Bengali, Assamese, Hindi)	Cheragi in Karimganj district	Fruit	The fruit is eaten raw to relieve constipation. The unripe fruit is also eaten as vegetable	Constipation
<i>Melastoma malabathricum</i> L.	Melastomaceae	Damchui (Chorei)	Tripurapunji in Cachar district	Leaves	2–3 fresh leaves are crushed to yield crude juice and given orally 2–3 times a day for 4–5 days to cure dysentery	Dysentery
<i>Meyna spinosa</i> Roxb. Ex. Link.	Rubiaceae	Marin (Chorei)	Manikbond in Karimganj district	Leaves	The aqueous extracts of the leaves is taken orally once daily for 5–7 days to cure jaundice	Jaundice
<i>Mikania micrantha</i> Kunth.	Asteraceae	Chektherpa (Chorei)	Magura in Karimganj district	Tender leaves	Used for recovery of cuts and wounds. The tender leaves are crushed with hand and applied to affected area instantly.	Cuts and Wounds

<i>Mimosa pudica</i> Linn.	Minosaceae	Choitaymora (Chorei)	Tripurapunji in Cachar district	Whole plant	The crude extract of the whole plant is mixed with soil enriched in urine and applied externally over skin eruptions and boils	Skin infections
<i>Michelia champaca</i> L.	Magnoliaceae	Champa (Chorei, Bengali, Hindi)	Tripurapunji in Cachar district	Leaves	Fresh leaves are soaked in water for 1–2 hours and the water is used for bath to cure skin rashes due to sweating	Skin infections
<i>Ocimum basilicum</i> Linn.	Lamiaceae	Tulsi (Chorei, Bengali, Assamese, Hindi)	Tripurapunji in Cachar district	Leaves	The crude extract of leaf is mixed with freshly collected honey, given 2–3 times daily for 7 days to treat cough and throat infections	Cough and throat infections
<i>Pajanelia longifolia</i> (Willd.) K. Schuman	Bignoniaceae	Honurgach (Chorei)	Magura in Karimganj district	Leaves and Bark	The young tender leaves are applied locally to cure nail infections. The dried bark are soaked in water overnight and taken empty stomach to cure jaundice for 4–5 days	Nail infection and jaundice
<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	Amluki (Chorei, Bengali)	Manikbond in Karimganj district	Fruit	The crude extract of the fruit is applied 2–3 times daily for 4–5 days to cure oral ulcers. The raw fruit is taken as laxative	Oral ulcers and constipation.
<i>Premna latifolia</i> Roxb.	Verbanaceae	Malifak (Chorei)	Cheragi in Karimganj district	Leaves	The crude extract of the leaves is mixed with ginger and taken orally for 2–3 days to cure acute dysentery	Dysentery
<i>Psidium guajava</i> Linn.	Myrtaceae	Mouram / Sopripata (Chorei)	Magura and Manikbond in Karimganj district	Leaves	3–4 fresh leaves are extracted with water to yield a dilute crude extract. The extract is given 2–3 times a day in case of jaundice for 7–10 days. The extract is also given empty stomach in case of acute cough.	Jaundice and Cough
<i>Tamarindus indica</i> Linn.	Caesalpinaceae	Teltu (Chorei)	Tripurapunji in Cachar district	Fruit	The fruit is boiled in water by adding little salt. The hot water is used to take heap bath for 10–20 min to relieve from constipation	Constipation
<i>Terminalia arjuna</i> (Roxb.) Wight. et. Am.	Combretaceae	Arjun (Chorei, Bengali)	Manikbond in Karimganj district	Bark	The crude extract of the bark is obtained after crushing and applied in case of poisonous bites	Poisonous bites
<i>Tinospora cordifolia</i> (Willd.) Hook. f. & Th.	Menispermaceae	Vanrui (Chorei)	Cheragi in Karimganj district	Leaf and Bark	The extract of the leaf or bark is diluted with water to cure stomach ailments. The bark of the plant is chewed to control diabetes. The extract is occasionally to cure skin infections	Stomach problems, diabetes and skin infections
<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Amgrush (Chorei)	Baruatilla in Karimganj district	Bark	The bark extract of the plant is given 2–3 times a day for 5–7 days to cure malaria	Malaria
<i>Zingiber rubens</i> Roxb.	Zingiberaceae	Pauphok/ Naukapata (Chorei)	Tripurapunji in Cachar district	Leaves	The leaves are torn into thin strips and rope is made, which is used to tie up parts of snake bite to prevent flow of venom in blood	Snake bite precaution



<i>Zizyphus mauritiana</i> Lark.	Rhamnaceae	Boroi (Chorei)	Baruatilla in Karimganj district, Chotosalganga and Tripurapunji in Cachar district	Leaves and Fruits	The crude extract of leaves is prepared by crushing 2–3 leaves and applied over skin boils. The fruit is taken raw in case of constipation	Skin infections and Constipation
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and development of new natural product drugs or lead compounds.

The present work has highlighted the potential medicinal plants with diverse array of biological activities used by the Chorei tribe of Southern Assam part of North Eastern India. A total of 53 plants were recorded to be used by the tribe in the treatment of several ailments. The use of ethnomedicinal information has contributed significantly in drug discovery efforts and thus mass screening of plants will provide immense scope in finding new drugs and lead compounds.

### Conflict of interest

We declare that there is no conflict of interest

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