



Medicinal Plants Used by the Local Fringe Communities of Chirang Reserve Forest, BTAD, Assam

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ABSTRACT

The present study documents about 64 medicinal plant species of 38 families and 60 genera that are being used by the local communities living in the fringe of Chirang Reserve Forest of Kokrajhar District, BTAD, Assam. These plants are being used by them for different types of health treatment since immemorial. Most of the plants used are herbs. The tribal people prefer these plants as a home remedy against various diseases like asthma, jaundice, dropsy, piles, elephantiasis, bronchitis, rheumatism, leprosy, cancer, pneumonia, paralysis, hysteria, pharyngitis, etc. The different parts of the plants are used to cure several kinds of illnesses. The leaf is predominantly used, and is followed by whole plant, roots, seeds, flower, stem, tubers, and fruit. The botanical name, family name, vernacular name and their uses has been provided in the paper. The present documentation can be used for the welfare of human society.

Keywords: fringe people, medicinal plant, herbal treatment, Chirang Reserve Forest, Assam

INTRODUCTION :

Plants play significant role not only in economy but also in traditional medicines. Both rural and urban people of India care for medicinal plants as they know so much about them and have done significant work on its applications. Probably no other medical culture has such an extensive, detailed and deep understanding about the value of medicinal plants in the world [9]. Medicinal plants in India are used in different codified systems namely- Ayurveda, Siddha, Unani and Tibetan. Different communities have their own medicinal tradition depending on their historical background, theoretical logic and practices and social realities [3]. In the developing countries like India more than 80% of populations are still dependent on forest resources for curing diseases. This is due to the effectiveness of the medicinal plants, lack of modern healthcare system and low economic condition of the people [4]. Northeast India, which is known for its rich bio & ethnic-diversity, is also an abode of medicinal plants in the map of world. Since historical time there is never ending relation between ethnic communities and use of medicinal plants for herbal treatment in the region [12]. The rural people and different tribes are still dependent on the indigenous system of medicine. A good number of medicinal plants have been documented from NE India but much number of folk medicine remained endemic to certain tribal pockets. Various works have been undertaken to document different types of medicinal plants used by various ethnic groups in the region like [7,2,10,5] to mention a few. Although a number of medicinal plants have been found in the region but very few of them have been documented in reference to their use. Most of the works on medicinal plants were concentrated in the tribal areas of the region a few have been documented in reference to use by different communities of a particular area having plants of medicinal importance.

The objective of the present study is thus an attempt to document the plant species used by the fringe communities of Chirang RF for curing various diseases and to access the richness of ethno medicinal plant species in the region. This will also help in protecting the traditional knowledge from disappearing.

BACKGROUND :

The Chirang Reserve Forest falls under the Haltugaon Forest Division of the Western Assam Circle Conservancy. The RF

lies in between 26° 06' 56.05" N to 26° 54' 1.95" N latitude and 90°12'03.76"E to 90°29'07.02"E longitude covering an area of 592.54 sq km [11]. The Chirang Reserve forest is located within the Assam-Duars in the western Assam region. It can be considered a plateau, rising gently towards the north where it meets the Bhutan Hills. The elevation reaches as high as 500 m in the north. The plateau merges with the cultivated lands in the south and drains towards the River Brahmaputra [4,11]. From the north, and for a few kilometers to the south, the tract is composed of rocks and pebbles, and remains waterless for most of the year, representing a typical Bhabar characteristic. The major forest type of the region is characterized by natural regeneration of Bhabar and Terai sal forests [3]. Located adjacent to lower central Bhutan, the RF falls within the Assam Plain Endemic Bird Area and a marginal part of the Eastern Himalaya Endemic Bird area with a significant avian diversity. The Chirang Reserve Forest is a part of the Ripu-Chirang elephant corridor and shares its eastern boundary with Manas Tiger Reserve as a potential Mammalian Habitat [2]. Due to its unique geographic location Chirang Reserve Forest is rich in floral diversity and one of the richest reservoirs medicinal plants. A large number of wild plants are used by various communities of the region for curing various diseases since the time unknown.

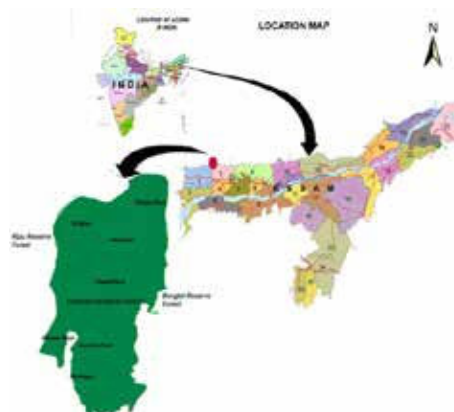


Fig 1 : Map of Chirang Reserve Forest, Assam

The local inhabitants of the area are mainly Bodo, Rajbanshis, Nepali, Adivasi, SC, etc. Bodos are the most prominent tribal group of the area [6, 12]. These people have an intricate relationship with plants. They know a lot about plants and their utilizations for various purposes specially for their medicinal value.

MATERIALS AND METHODS:

Several of visits had been made to the fringe villages of Chirang RF for collection of data from the local medicine men and women. Information was gathered using questionnaires specially made for the purpose on type of ailments cured by the traditional use of medicinal plants and plant parts used. The data were cross checked with respondents from different

age classes as there is not a single medicine man available in the present investigated area. Plant species were collected and herbarium was prepared using standard herbarium techniques [8]. Identification of the plant species was done with the help of literatures and herbaria of Gauhati University.

OBSERVATION :

The present investigation could document a total of 64 plant species belonging to 38 families and 60 genera that have been using by the communities living in the fringe of the Chirang Reserve Forest for their medicinal value. The different plants that have been documented during the present investigation along with their part, mode of use in different health treatment by the local communities are being illustrated in the

TABLE I. List of the plant species documented with their family name, vernacular name, part used and their medicinal uses by the communities living in the fringe of Chirang Reserve Forest

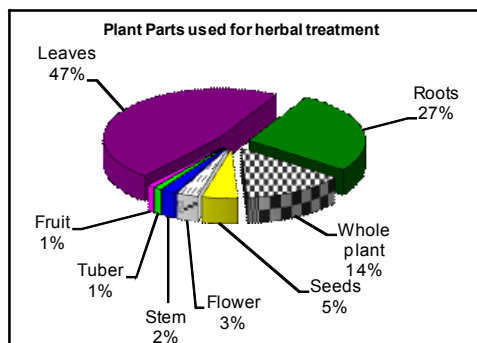
Plant species	Family	Vernacular name	Part used	Uses
<i>Aegle marmelos</i> (L.) Corr.Serr.	Rutaceae	Bel	Flower/fruits/ Leaves/ Bark	Fruits, leaves, bark and roots are used for stomach trouble, Gastric, Tuberculosis, and Constipation
<i>Ageratum conyzoides</i> Linn.	Compositae	Gondhuabon	Leaves/ Roots	The juice is used in minor cut or injuries.
<i>Alternanthera sessilis</i> R. Br.	Amaranthaceae	Matikaduri	Leaves	Juice used for stomach trouble and also given to mother to increase the flow of milk after birth.
<i>Amaranthus spinosus</i> Linn.	Amaranthaceae	Hatikhutora	Roots/ Stems	Used as antidote against snakebite, roots are used in gonorrhoea.
<i>Argemone maxicana</i> Linn.	Papaveraceae	Sialkatahi	Roots/ Seeds	Used in leprosy, scabies, and syphilis. Seed latex is used in dropsy, jaundice, healing of ulcers, skin diseases. Also used as antidote against snakebite.
<i>Argyrea speciosa</i> Sweet.	Convolvulaceae	Takoria alu	Leaves/ Tuber	Used to suppress boils. Also used in skin diseases.
<i>Artemisia vulgaris</i> L.	Compositae	Chirota	Leaves	Juices are used as blood purifier. Used against worm troubles, asthmatics trouble, brain disorder and nervous affections.
<i>Asparagus racemosus</i> Willd	Liliaceae	Satamul	Roots	Roots are used as diuretic, prepared medicated oil is good for rheumatic pain, nervous disorder. Also useful in diarrhea and dysentery.
<i>Bonnaya reptans</i> Spreng	Scrophulariaceae	Kasidoria	Leaves	Leaves are used in cold bite and cut injuries.
<i>Boerhavia diffusa</i> L.	Nyctagraceae	Purnanwa	Leaves	Leaf Extract is used in Jaundice and liver problems.
<i>Bryophyllum pinnatum</i> Kuntz..	Crassulaceae	Dupartenga	Leaves	Leaves are used in wounds, boils, jaundice, snakebite, dysentery and urinary trouble.
<i>Calotropis gigantea</i> (L) R.Br.	Asclepidaceae	Akon	Roots/ leaves/ flower	Leaves paste are used in body pain. Flowers are used as digestive remedy for cough, asthma, and cold. Root bark is used in dysentery; cough, cutaneous affection, and elephantiasis.
<i>Cannabis sativa</i> L.	Cannabinaceae	Bhang	Leaves/ flower	Dried flower used medicinally as sedative, analgesic, narcotic.
<i>Capsella larsa-pastoris</i> Medic.	Brassicaceae	Gonga moola	Seed	Seed oil is used in dropsy. Also used in diarrhea.
<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Lota kopalputa	Whole plant	The plant juices is used to relief pain, fever, piles, nervous disorder.
<i>Cassia tora</i> L.	Leguminasae	Bon medelwa	Roots/ leaves	Leaves paste is used against ringworm. Leaf paste is externally used for bronchitis and asthma. Roots are also used as antidote against snakebite
<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	Nayantara	Roots/leaves	The parts of plant are used as anti-carcinogenic agent and used against cancer.
<i>Centella asiatica</i> (L) Urban	Umbeliferae	Bor manimuni	Whole plant	Used in dysentery, liver trouble, nerve disorder, and stomach problem, taken with milk to improve memory.
<i>Clerodendron infortunatum</i> Gaertn.	Verbenaceae	Dhopat tita	Roots/leaves	Leaves extract are used against malarial fever. Roots are used externally against tumors.
<i>Clitoria ternatea</i> L.	Leguminasae	Aparajita	Leaves	Leaves used in earache and swelling of adjacent gland to relive pain.

Plant species	Family	Local name	Part used	Uses
<i>Coffea bengalensis</i> Roxb.	Rubiaceae	Kothonaphool	Leaves	Young shoots and leaves paste are used for cattle eye boil.
<i>Colocasia esculanta</i> L.	Araceae	Kochu	Leaves/ roots	Leaves used for blood coagulation in small injuries, roots used in pharyngitis.
<i>Costus speciosus</i> (Koen.) Smith.	Zingiberaceae	Jomlakhuti	Leaves/roots	Leaves and root juices are taken in Diabetes
<i>Commelina bengalensis</i> L.	Commelinaceae	Kana simolu	Roots	Juice is applied in eye-lid sore. Root pastes are used in fever, snakebite and leprosy.
<i>Datura stramonium</i> L.	Solanaceae	Dhatura	Roots/leaves/ seeds	Smoke of leaves is used for asthma. Roots are used for tooth-ace.
<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Oxy	Seed/Bark	The seed and the bark of the plant is used against cancer.
<i>Drymaria cordata</i> Willd.	Caryophyllaceae	Laijabori	Whole plant	Juice of the plant is laxative and anti febrile. The plant is also used in fever.
<i>Eclipta alba</i> Hassk.	Compositae	Kehraj	Leaves/ roots	Leaf and root juices are used in liver affection, jaundice and dropsy
<i>Erechthites valerianaefolia</i> DC.	Compositae	Bon kopah	Leaves	Juice of the leaves is used to cut wounds for quick healing.

Eryngium foetidum L.	Umbeliferae	Man dhania	Leaves	An aromatic herb used as condiments in soups, meat etc. good for stomach problem.
Eupatorium odoretum L.	Compositae	Germanhabi	Leaves/ Flowers	Leaves and flower tops are used medicinally as emetic, and used in cut wounds.
Euphorbia hirta L.	Euphorbiaceae	Dudh bon	Whole plant	The entire plant is considered as sedative, used in asthma, chronic bronchitis. The milky juice is useful in destroying warts
Hedyotis lineata Roxb	Rubiaceae	Kasidoia	Roots	Root juice mixed with black peeper is used to cure pneumonia.
Heliotropium indicum L.	Boraginaceae	Hatisuriya	Whole plant	The juice of the plant is used in ulcers, wounds and local inflammation. Leaves paste is used against insect bite and boils.
Holarrhena antidysentrica R.Br. Sans	Apocynaceae	Dudhkhori	Leaves/ Roots	Leaf and root juices are used in dysentery.
Hydrocotyle rotundifolia Roxb.	Umbeliferae	Sorumanimuni	Whole plant	Used in dysentery, liver trouble, nerve disorder, and stomach problem and induces appetite.
Gymnopetalum cochinchinense Kurtz.	Cucurbitaceae	Kawri korola	Roots	Roots made in to paste and rubbed on body in body pain.
Impatiens roylei Walp	Baslainiaceae	Bijolkoria	Leaves/ fruits	Leaf and fruit paste is used on head as a remedy in high fever.
Ipomea aquatica Forssk. f	Covolvulaceae	Pani kolmou	Leaves	Leaves juice is used in jaundice, also used in urinary trouble and nervous problem.
Justicia japonica L.	Acanthaceae	Jooron	Leaves	Leaves of the plants are used in ophthalmia.
Justicia adhota L.	Acanthaceae	Titaphul	Flower/ leaves	The flower and leaves of the plant is used to cure various stomach disorders. Also used against worms.
Jussiaea suffruticosa L.	Onagraceae	Bon jolokia	Whole plant	The plant is used in dysentery and fever.
Leucas plukentii (Roth) Spreng	Labiatae	Duron bon	Whole plant	The plant is used against rabies virus, leaves juice with garlic are good for Stomach, liver, spleen problems.

Plant species	Family	Local name	Part used	Uses
Melastroma malabathricum L.	Melastomaceae	Phutuka	Leaves	Leaf powder is used in wound portion to prevent mark in skin.
Mikania micrantha L.	Compositae	Japanihabi	Leaves/ roots	Juice of leaves and roots are used in insect bite and scorpion sting.
Mirabilis jalapa L.	Nyctaginaceae	Godhuligopal	Roots	Root juices are used to cure dropsy.
Nasturtium indicum DC.	Brassicaceae	Bonhariah	Seed	Juices of the seed is mixed with milk are used in kidney trouble.
Ocimum canum Sims	Labiatae	Bon tulusi	Leaves	Leaves made into paste applied to the fingers to relieve from fever. Seed are used as remedy for dysentery. Leaf paste is applied in skin disease.
Ocimum gratissimum Linn.	Labiatae	Bon tulusi	Whole plant	Plant juice is used as insect repellent. Seed powder is mixed with coconut oil and is applied in painful areas of the body. Leaves are used for gonorrhoea, rheumatism and paralysis.
Oldenlandia corymbosa L.	Rubiaceae	Bon jaluk	Whole plant	The juice of the plant is taken in liver problems, urinary disorders, jaundice and bilious infection.
Oroxylum indicum (L.) Vent.	Bigoniaceae	Bhatghilla	Seed/root	The seed powder is used to kill cancer cells.
Oxalis corniculata L.	Oxalidaceae	Sorutengesi	Whole plant	Juice of the plant is taken in empty stomach to cure stomach problem and dysentery.
Paederia fotida L.	Rubiaceae	Bhebelilata	Leaves	Used in stomach, kidney and liver problems.
Peperomia pelludica H.Band	Piperaceae	Ponownoa	Leaves/ roots	Leaf paste is applied at the forehead for more than 30 minutes to reduce the body temperature.
Phyllanthus niruri L.	Euphorbiaceae	Bon amlokhi	Whole plant	Used in jaundice. Young leaves are used to cure dysentery. Root juice is used in urino-genital troubles and gonorrhoea.
Pouzolzia indica Gaud.	Urticaceae	Dudh mor goch	Whole plant	Convalescence of children, syphilis, gonorrhoea.
Ricinus communis L.	Euphorbiaceae	Era	Leaves/ roots	Roots are used in urinary trouble; juice is used to suppress boils.
Rauvolfia serpentina Benth.	Apocynaceae	Sarpagandha	Roots	Used in High Blood Pressure
Siegesbekia orientalis Linn.	Compositae	Katampam	Whole plant	The leaf juices are used against worms. Leaf paste is applied in the skin to cure skin diseases. Also used in healing gangrenous ulcers.
Solanum indicum L.	Solanaceae	Tita bhokuri	Roots/ leaves	The dried root powder is used to cure toothache, asthma and in cough
Solanum nigrum L.	Solanaceae	Pokmou	Roots	The root juice used against asthma and whooping cough.
Solanum xanthocarpum Schrad. & Wendl.	Solanaceae	Kantakori	Roots/ leaves	The root juices are taken to relief chest pain. Mixer of the root juice is used in asthma
Vitex nugondo L.	Verbenaceae	Posotia	Leaves	The leaf vapors are inhaled to relief cough. Leaves paste are externally used in skin inflammation.
Xanthium strumarium L.	Compositae	Agora	Roots/ leaves	Boiled root juices are taken in malarial fever. Leaves juices mixed with sugar to cure urinary trouble

The modern healthcare system is more costly for the villagers so the people mostly prefer the herbal treatment, as they are very cheap and easily available. It was also observed that older person and womenfolk of the community are familiar with the use of different medicinal plants, the knowledge of which is being transmitted from one generation to next generation. And most of them become expertise in preparing medicinal plants because of their prolonged practical experiences.



The communities use their traditional therapy for the treatment of almost all type of diseases from simple cold to complicated cancer. It is interesting to note that the plants *Catharanthus roseus*, *Dillenia pentagyna* and *Oroxylum indicum* are used as anti carcinogenic medicine by them. Other diseases treated by them includes Leprosy, Jaundice, Dropsy, pneumonia, asthma, elephantiasis, piles, hysteria, malaria, bronchitis, pharyngitis, rheumatism, piles, pains, stomach trouble, snake-bites etc. Several parts of the plants are being used according to their preferences and mode of treatment. The leaves are mostly used for the medicines followed by roots, seeds, flowers, stems, fruits, tubers and sometimes the whole plant. It is also found that some plants are used for curing more than one disease. 68% of the plants used are herbs 28% are shrubs and only around 4% medicinal plants are documented as tree.

Among the different parts of the documented plants people utilize the leaves mostly (47%), followed by roots (27%), some times the whole plant (14%), seeds (5%), flowers (3%), stems (2%), tubers (1%) and fruits (1%).

Different methods have applied by them for the preparation of medicines from the plants. Sometimes parts or the whole plant is being crushed to extract the juice, sometimes decoction; smoke, powder, seed oil etc. are used as medicine.

Among the plant used the members of the *compositae* family is mostly used, as this family is found as the most dominant family of medicinal plants across the Northeastern states of India [13] represented by 9 species of 8 genus.

DISCUSSION :

There may be number of other medicinal plant which medicinal value is not known or cannot be documented, that are being traditionally used by the communities present in close proximity to the Chirang Resrve Forest. Manas is a natural abode of number of medicinal plants, which is also helping the local communities to maintain their tradition. The local communities located in the proximity to the park are away from the modern medicine system. They still rely on such herbal system because the modern system is out of reach due to distance, communication and economy. So they are still maintaining their traditional uses herbs for health care with casual modern treatment.

The results of the present study provide evidences that medicinal plants are still continuing to play an important role in traditional health care system.

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