Plants used in folklore medicine by Bangnis of East Kameng, Arunachal Pradesh

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Abstract

The state of Arunachal Pradesh has 25 major tribes and many sub-tribes that belong to the Indo-Mongoloid group and comprise 65.66% of the state's population. The district of East Kameng is home to the Bangni tribe who practice Jhum, depend on forests for supplementing their daily needs and are now taking to the newer modes of land use and settled agriculture. They have evolved their culture and tradition, myths and folktales in close association with the nature and have an intricate understanding of the forests and natural resources. This paper attempts to describe 74 traditional medicinal and healing plants of this tribe, comprising of 4 Pteridophytes and 70 Angiosperms, belonging to 37 families. These could be screened for the active principles and assessed for their medicinal potential.

Keywords: Bangni tribe, East Kameng district, Arunachal Pradesh, Ethnobotany.

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Introduction

Situated in the western part of Arunachal Pradesh, in the Eastern Himalayas, between 92° 30' -93°24' E longitude and 26°56' -27°59' N latitude is the district of East Kameng. The topography of the district is mainly mountainous and the altitude ranges from near sea level to about 4000 m. The area forms the watershed of river Kameng and its several tributaries. Iron-ore and limestone are the major mineral occurrence. The soil is moderately to severely eroded with low fertility and Jhum is the major land use in the area.

The typical sub-tropical climate in the foothills and the temperate conditions in the northern part have led to varied forest types. The district has tropical semi-evergreen, sub-tropical and temperate forests, and the higher inaccessible reaches have alpine forests. The major species are Phoebe sp., Ailanthus grandis Prain, Michelia sp., Cedrela sp., Amoora wallichi King, Altingia excelsa Noronha, Pterospermum acerifolium Willd., Dysoxylum sp., Sterculia villosa Roxb., Lagerstroemia parviflora Roxb., Quercus lamellosa Sm., Acer hookeri Miq., Castanopsis indica A. DC., Primula and Saxifraga sp.

The total population of the district is 57,065, showing a decadal increase of 13.24% over the period 1991-2001. The population is predominantly tribal (85.56%) and 73.78% of the total population is rural. The district has a low literacy rate of 40.89%, a population density of 14 and a sex ratio of 985 (ref.1). The major tribal groups representing the area are the Mijis in the North-East, the Akas in the South-West, the nomadic Sulungs of the northern hills and the Bangnis, interspersed all over the territory. These tribes belong to the Indo-Mongoloid group and speak dialects belonging to the North Assam group of the Tibeto-Burman family of languages.

The Bangnis are demographically the dominant tribe of the district. They are also called Nishis in the other parts of Arunachal Pradesh, predominantly in the Papum Pare, Lower Subansiri and Kurung Kumey districts. A
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distinction is sometimes made between the Bangnis and the Nishis on dialectical grounds, though they are taken to be the western and eastern sections of the same tribal community. They are polygynous, patriarchal and clannish people. Complex systems of belief in spiritual qualities of nature and at the same time conception of a Supreme Being are the two important ideas characterising their religion. Donyi-polo or the Sun-Moon is regarded as one high God symbolising eternal truth.

Living in the lap of nature, the forests, trees and animals find an expression in their art and craft; myths and legends; and culture and traditions. They have developed an intricate understanding of the processes of nature and the forests are rich repositories of energy, food, game and medicinal wealth.

There are records of studies on the traditional medicinal plants from different areas of the state covering different tribal groups as Tirap. The plant Coptis teeta Wall. was studied with special reference to the local uses and distribution among the Mishmi tribe. An ethno-botanical study of 76 medicinal plants used by the Monpas of West Kameng was made. In a study of the folklore medicine of the Subansiri, 14 species were recorded, and a survey of 129 species of the tribes of the Subansiri district was also reported. In an investigation on the traditional medicinal plants of the Khamptis, Singphoos, Tangsas and Noctes of Tirap, 50 species were reported.

Fifty six species were enumerated from the Siang, Subansiri and Tirap districts and 171 plants used by the Nishis, Hill Miris, Sulungs and Apatanis of the Subansiri were studied. There are also records of 145 Angiosperms, 1 Gymnosperm, 7 Pteridophytes and 1 Fungi in the ethnomedicine of the Nishis and Apatanis of Lower Subansiri. An account of folklore medicine of some tribal societies of Arunachal Pradesh, covering the Nishis, Adis and Khampis has also been compiled.

However, no ethno-medico-botanical survey of the Bangnis of the East Kameng district has so far been carried out. This paper attempts to describe 74 species used mainly in their traditional medicine.

**Materials and Methods**

The author conducted the present study during his tenure as Divisional Forest Officer at Seppa, East Kameng, Arunachal Pradesh. Surveys and field trips in the various interior villages of the district, namely Sanchu-Sulung, Chayangtajo, Soshi-Bagang, Namchar-Bagang, Sangrikwa, Bana, Lumdung, Mankhya and Khewa were made during the year 2002-03. The specimens were collected with the help of the villagers, village priests (Njeibu), Gaon Burahs (GBs, Village Headman) and the local staff of the Seppa Forest Division following the methods detailed. Additional information on the medicinal and other use of the plants was gathered from the local medicine men, the Njeibus and the village GBs. The literature available was also consulted.

The collected specimens were made into herbariums, preserved and were identified at the State Forest Research Institute (SFRI), Itanagar. Flora of Assam and other literature were made use of in taxonomic classification of the specimens and to give their taxonomic details. The plants are arranged alphabetically as per their botanical names. These are followed by the family name in brackets and then by their
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English names and local Bangni name in italics. The plant part used, along with the method of application is described next. The other uses of the plants by the indigenous people, if available, are described in the end.

Species Enumeration

Acorus calamus Linn. (Araceae)
Sweet Flag; Taku
Bark of the rhizome is scraped, crushed and the juice is applied on the cracked skin.

Ageratum conyzoides Linn. (Asteraceae)
Goat Weed; Passo payo
Leaves are crushed and juice is applied on cuts and wounds as a haemostatic. Also applied to Leech bite.

Aglaia spectabilis (Miq.) S.S. Jain et Bennet (Meliaceae)
Pathi
Raw Fruits are eaten for relief from cough.

Acorus calamus Linn. (Araceae)
Sweet Flag; Taku
Bark of the rhizome is scraped, crushed and the juice is applied on the cracked skin.

Aegle marmelos (Linn.) Correa ex Roxb. (Rutaceae)
Bael Tree; Sunmo
The fruit pulp is taken either raw or in a decoction to cure dysentery and stomach trouble.

Aeschynanthus gracilis Parish ex C. B. Clarke (Gesneriaceae)
Rasson
Leaves are pounded and applied on the body part affected with skin diseases and for relief from itching.

Allium sativum Linn. (Liliaceae)
Garlic; Diote
Clyves are dried, crushed into a powder and is taken with water for relief from cough, cold and chest congestion. Also used as a spice and condiment.

Alocasia fornicata (Roxb.) Schott (Araceae)
Nyarak
Juice from fresh stem is an effective remedy against scorpion and insect bite. Also applied for relief from skin irritation and to reduce inflammation.

Alpinia nigra (Gaertn.) Burtt (Zingiberaceae)
Buk barara
Soft tender portion of the shoots are eaten raw as vermicide. It is roasted and eaten for relief from cough and cold. The Leaves are also burnt to ward off Wiyus (Evil Spirits) who are believed to cause epidemics.

Amomum maximum Roxb. (Zingiberaceae)
Papi tallang
Tender shoots are eaten raw as vermicide.

Andrographis paniculata Wall. ex Nees (Acanthaceae)
Great; Passap
Leaves and tender twigs are pound into a paste and taken with water as a remedy for malaria. Juice from crushed leaves is taken to cure dysentery and diarrhoea.

Areca catechu Linn. (Areaceae)
Areca nut; Gavoy
Nuts are used as a masticatory.
Asplenium finlaysonianum Wall. ex Hook. (Aspleniaceae)
Tamang
The roots are cleaned, washed with water and pounded. The paste is taken with a small quantity of water as a remedy for dysentery.

Begonia palmata D. Don (Begoniaceae)
Baya
Leaves and petioles are taken to cure throat congestion and pain, cold and fever.

Begonia roxburghii (Miq.) DC. (Begoniaceae)
Hati Njerang
Leaves are heated on fire and bound on the affected part for relief from swelling and inflammation.

Callicarpa arborea Roxb. (Verbenaceae)
Yarphu-changne
Bark is used as masticatory.
Fruits are eaten raw.

Canarium resiniferum Bruce ex King (Burseraceae)
Dhuna/Sanglam
Resin from the bark is burnt for expelling mosquitoes from house.

Chisocheton paniculatus (Roxb.) Hiern (Meliaceae)
Tasso Roro
Crushed leaf paste is mixed with water and taken for throat congestion and pain. Also applied externally for wounds and skin diseases.

Chloranthes elatior R. Br. (Chloranthaceae)
Lope
Stem-bark is pounded and is applied on the affected part to treat fracture.

Chloranthes officinalis Blume (Chloranthaceae)
Lakang taklang
Roots are pounded and applied on affected parts for treating fracture.

Chromolaena odorata (Linn.) King & Rob. (Asteraceae)
Christmas Bush; Yamdak
Juice from the crushed leaves is applied externally to heal cuts and wounds.

Cissampelos pareira Linn. (Menispermaceae)
Seyipapu
The root paste is used to cure wounds and skin irritation. Also taken for stomachache and other troubles.

Clerodendrum colebrookianum Walp. (Verbenaceae)
Papua toh
Decoction or juice of leaves and tender stem are taken for lowering BP and as a remedy for Gastric disorders. Leaves are boiled and taken as vegetable.

Crassocephalum crepidioides (Benth.) Moore (Asteraceae)
Harang nimang ‘Babuk’
Leaves are crushed and paste applied as an antiseptic for cuts and wounds. The leaves are eaten raw for Gastric trouble.

Curcuma angustifolia Roxb. (Zingiberaceae)
East Indian Arrowroot; Kesu kela
Paste of the rhizome is applied externally for relieving body pain and inflammation. Also eaten for dysentery and stomach troubles.

Curcuma longa Linn. (Zingiberaceae)
Turmeric; Haldi
Dried rhizome is pounded into powder and taken with water for relief from dysentery and stomach troubles. Also taken as a vermicide.

Cynodon dactylon (Linn.) Pers. (Poaceae)
Dhub Grass; Mipia tala
The plant is crushed and applied on fracture, 2 times a day for one week.

Dendrobium aphyllum (Roxb.) Fisch. (Orchidaceae)
Tai taming
The flowers are crushed and pounded into paste and applied on the forehead for relief from headache and dizziness.

Drymaria cordata (Linn.) Willd. ex Roem. & Schult. (Caryophyllaceae)
Sara kiklo ‘Kekso’
The whole plant (leaves + stem) is crushed into a paste, heated on fire and applied as a remedy for swelling and inflammation.

Emblica officinalis Gaertn. (Euphorbiaceae)
Indian Gooseberry; Amlaki
Fruits are eaten against vomiting and nausea.

**Eria pannea** Lindl. (Orchidaceae)
**Taming**
The rhizome is turned into paste and applied externally as a remedy against Chicken Pox. Paste of leaves is taken for relief from cough and cold.

**Eugenia khasiana** Duthie (Myrtaceae)
**Yamda changne**
Fruits are crushed and mixed with sand and applied to stream or water course as a fish poison.

**Euphorbia hirta** Linn. (Euphorbiaceae)
**Ritah**
The latex from the leaves is applied externally to get relief from skin irritation.

**Ficus pumila** Linn. (Moraceae)
**Jengto jingo**
Leaves are crushed, turned into a paste and the juice is applied on the affected part for treatment of eczema and skin irritation.

**Hedyotis scandens** Roxb. (Rubiaceae)
**Harang labang**
The roots and tubers are cut, mixed with cold water and the vapour is inhaled for remedy for dental pain and plaque.

**Helixanthra parasitica** Lour. (Loranthaceae)
**Tacha changne**
Stem-bark is pounded and applied, every 4-6 days, 2-4 times for treatment of bone fracture.

**Hibiscus rosa-sinensis** Linn.
**Shoe-flower, Raffa**
The juice from the crushed leaves is used for washing hair as a remedy against dandruff and hair problems.

**Hibiscus rosa-sinensis** Linn. (Malvaceae)
**Raffa**
The juice from the crushed leaves is used for washing hair as a remedy against dandruff and hair problems.

**Hypoxis** sp. (Hypoxidaceae)
**Kingyo Josu**
Latex of rhizome is applied on cracks on heels and lips.

**Lycopodium cernuum** Linn. (Lycopodiaceae)
**Tapang**
The whole plant is slightly heated over a light flame and tied on the forehead. Helps in recovery from unconsciousness and severe headache.

**Macranga denticulata** Muell.-Arg. (Euphorbiaceae)
**Yah changne**
Gum like exudate from the base of the leaf petiole is applied on cuts and wounds for healing.

**Mastersia assamica** Benth. (Fabaceae)
**Rabe rata**
Exudate from the stem is applied for drying and healing of an open wound.

**Melia azedarach** Linn. (Meliaceae)
**Persian Lilac; Sanka changne**
Bark is pounded and its decoction is taken with water for stomach ailments.

**Mikania micrantha** Benth. (Asteraceae)
**Sarak**
Paste of the leaves is applied for healing cuts and wounds.

**Nephronepis cordifolia** (Linn.) Presl. (Nephrolepidaceae)
**Tako tayo**
Rhizomes are pounded into a paste and applied for relief from body ache.

**Ocimum basilicum** Linn. (Lamiaceae)
**Sweet Basil; Bangkan/Tulsi**
The decoction of the leaves is taken as a remedy against cough, cold and fever.

**Paederia foetida** Linn. (Rubiaceae)
**Appe taruh**
The paste of the leaves is taken as a remedy of dysentery and other stomach troubles. It is also crushed and applied externally to get relief from skin irritation.

**Phegopteris auriculata** J. Sm. (Thelypteridaceae)
**Rabdk**
The leaves and fronds are heated and applied for relief from body pain and to cure swelling and inflammation. Dried leaves are pounded and used for fermentation of Apong (rice beer). Crushed leaves are mixed with sand and used as a fish poison.
**Phlogacanthus curviflorus** Nees
*(Acanthaceae)*

**Labang**
Stem-bark is pounded into a paste and applied for treating bone fracture.

**Pholidota imbricata** Lindl.
*(Orchidaceae)*

**Kingyo jopu**
The pseudo-bulb is pounded and the juice is applied on cracked skin on heels and lips. Also used for treating skin rashes.

**Pilea** sp. *(Urticaceae)*

**Gileng seley**
Paste of leaves used as an insecticide and poison.

**Piper haridasanii** Gajurel, Rethy & Y. Kumar *(Piperaceae)*

**Loass**
Whole plant is ground into a paste and tied on the fractured part. Acts as a cure for skin irritation, inflammation and bone fracture.

**Piper nigrum** Linn. *(Piperaceae)*

**Black pepper; Sabe ricke**
Fruits crushed and taken for relief from cold, cough and fever.

**Piper peepuloides** Roxb. *(Piperaceae)*

**Amlipan**
Dried leaves are ground and mixed with water and consumed for relief from fever. Leaves are also taken as a masticatory.

**Piper rhytidocarpum** Hook. f. *(Piperaceae)*

**Ricka**
The stem is ground with water and consumed for relief from vomiting and nausea.

**Piper** sp. *(Piperaceae)*

**Sara kiklo ‘Ketta’**
Leaves are crushed and the paste is heated and applied to get relief from swelling and inflammation.

**Pogostemon elsholtzoides** Benth.
*(Lamiaceae)*

**Bangka tanam**
The decoction of leaves is taken for relief from cough, cold and headache.

**Polygonum capitatum** Ham.
*(Polygonaceae)*

**Chingma**
The black nuts are crushed and paste is applied on the forehead as an effective remedy for dizziness.

**Pothos scandens** Linn. *(Araceae)*

**Lowsik lomic**
Bark of the stem is pounded into a paste and applied, every 5-6 days, 2-4 times as an effective treatment of bone fracture.

**Psidium guajava** Linn. *(Myrtaceae)*

**Common Guava; Yasoh**
Fruits are eaten raw to cure stomachache. Juice from the crushed leaves is taken to cure dysentery.

**Rubia cordifolia** Linn. *(Rubiaceae)*

**Indian Madder; Tamen lata**
Roots are crushed and pounded into a paste and applied for curing headache. Also works as an astringent.

**Solanum khasianum** C.B. Clarke emend. Sen Gupta *(Solanaceae)*

**Bangka**
The yellow berries are roasted in coal fire and applied on teeth, for 3-5 minutes, to cure toothache.

**Spilanthes paniculata** Wall. ex DC.
*(Asteraceae)*

**Aang gyadu**
Leaves and tender shoots are eaten raw or boiled to treat stomachache. Paste of flowers and buds are taken for relief from cough and cold.

**Thunbergia grandiflora** Roxb. *(Acanthaceae)*

**Seng taru**
The leaves are grounded into a paste and applied for treating smallpox eruptions.
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**Tinospora cordifolia** (Willd.) Miers.  
*(Menispermaceae)*  
**Gulancha Tinospora; Nyam rak**  
The juice from the pounded stem is taken as a tonic and also to cure diarrhoea.

**Wallichia densiflora** Mart.  
*(Arecaceae)*  
**Taleh**  
Soft and tender shoots and pith on the leaf base are eaten raw to cure cough, cold and fever.  
The starchy pith of the stem is also taken as a food supplement.

**Zehneria umbellata** Thw.  
*(Cucurbitaceae)*  
**Amo chojro**  
The fruits are heated and applied for relief from tooth-ache. The latex from the rhizome is applied on boils.

**Zingiber officinale** Rosc.  
*(Zingiberaceae)*  
**Ginger; Takke**  
The juice from rhizome is taken for cough and cold, mixed with honey. Also for relief from gastric trouble.  
The rhizome is also used as a condiment.

**Zingiber pupureum** Rosc.  
*(Zingiberaceae)*  
**Talang**  
The rhizome is used as a condiment.

**Zingiber zerumbet** Rosc. ex Sm.  
*(Zingiberaceae)*  
**Talang**  
The tender shoots are eaten as a vermicide.

**Conclusion**  
The 74 plants enumerated during the course of the present study belong to 37 families spread over 64 genera. Of these, there are 4 lower plants representing the Pteridophytes and the rest 70 are higher plants, the Angiosperms. Of the Angiosperms, 20 plants further represent the Monocots and the remaining 50 are the Dicots. The Orchids are represented by 3 species.

Some of the species enumerated have a great trade potential in the medicinal plants market. *Acorus calamus, Andrographis paniculata, Emblica officinalis, Piper sp., Rubia cordifolia* and *Tinospora cordifolia*, to name a few, are some of the high value species which could be cultivated on a large scale in the favourable agro-climatic conditions of the area. This study also brings to light the fact that many of the plants used in the traditional medicine are also put to a variety of other uses as for food and vegetables (*Clerodendrum colebrookianum*), condiments and spices (*Curcuma angustifolia, Piper peepuloides*) or for socio-religious purposes (*Alpinia nigra*).

In general there have not been found too many rituals associated with the administration of the medicinal plants. There are some taboos that are to be observed at the time of collection of some of these plants. *Lycopodium cernuum* for one could be mentioned here. In addition, after the patient is treated and recovers well, a prayer is performed thanking the deities for the same. This is called *Yulo* ceremony wherein a bamboo structure or the *Yulo* shrine is made and decorated with bamboo shavings representing the different deities and spirits. Sacrifice of *Mithun* (*Bos frontalis*) or Pig is...
performed to appease and thank the deities and spirits.

The district as a whole is very fragmentarily explored botanically. The present study is a preliminary survey of the traditional medico-botany of this area. The traditional healing methods and the plants used are not recorded by the tribesmen and are passed down, generation over generation, by the word of mouth. This is also true of their genealogies and family history. Further detailed investigations need to be carried out to bring forth and document this rich treasure of herbal medicine as the same may be lost over a period of time, given the fast catching modernisation in these relatively closed societies. An attempt could now also be made to put these to the test of scientific knowledge, by investigating the curative principles and the active phyto-chemical constituents and to test their efficacy in the health-care needs.

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