

**ETHNOMEDICINAL STUDIES ON THE GALO TRIBE OF NARI-KOYU, EAST SIANG,
ARUNACHAL PRADESH**

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Abstract

Traditional healing practices amongst Galo tribes in this area are the method to treat ailments by using herbs in form of fresh drug, crushed juice, decoction of drug part and powdered medicine for oral intake and paste for local application on skin diseases and wounds. They use locally available medicinal herbs, cultivated drugs from different habitat as well as cultivating depleting medicinal plants. The study reveals detailed documentation of healing practices used by traditional healers of the community health. Malaria and jaundice being the prominent diseases in the area are treated with the traditional form of medicine. The present paper recorded 37 medicinal plants species use by the Galo tribe in Nari-koyu, East Siang district, Arunachal Pradesh.

Keywords: Galo Literature; Herbalist; Voucher Specimens; Ethnomedicine; *Nyibo*

Introduction

Indigenous people of different parts of the world have been gathering knowledge of herbal medicine and medication, which has been handed down for generations on verbal tradition. The Galo tribe of Nari-Koyu, East Siang district of Arunachal Pradesh, India is rich in plant based medicinal knowledge among the tribes of Arunachal Pradesh. Their wealth of plant based medicinal knowledge has mostly passed through ancient Galo literature and mythology which have passed from one generation to another accompanied by various magico-religious beliefs and practices. Based on such age-old

tradition, Galo tribe is considered as one of the most knowledgeable tribe in the field of herbal medicines in Arunachal Pradesh (Baruah *et al.*, 2007). Galo people in East Siang district use plants for traditional medication. There are still lesser-known plants that need to work out at pharmacological level and validity. Though some information of other tribes from ethnobotanical studies conducted in the state, there is hardly any ethnobotanical record on Galo. The scenario is changing fast as most area is brought under settled agriculture land. An anthropogenic activity such as timber operation and developmental projects and large-scale collection of medicinal plants from the wildness has resulted into depletion of certain potential species having curative properties. Each herbalist rears some of the important herbs and shrubs at their backyard to cure common ailments. The present paper attempts to document such valuable age-old medicinal knowledge to create awareness among the herbal practitioners, products users and scientific community so that they could initiate some conservation efforts for the sustainable use. This will also become useful for further researcher in the same field through clinical and pharmacological level.

Methodology

Study area

Nari-Koyu in East Siang district of Arunachal Pradesh named after the mighty Siang river, the downstream of the Tsang-po of Arunachal Pradesh located within the geographical parameter of about 27°03' N to 29°20' N latitudinal and 93°04' E to 95°36' E longitudinal. The east and west are fringed by the sister districts Dibang valley and lower and upper Sabansiri, respectively. The area is located in the subtropical temperate zone with forest coverage of about 63% of the present territorial occupancy, inhabited by 224470 people at a rate of density of 12.12 people per sq. km to its total geographical area. The indigenous people inhabiting this area are Galo, a mongoloid racial community, with a livelihood basically on forest resources. Apart from hunting, gathering, fishing and other activities. The Galo use to practice *Isi-reke*, known as the shifting cultivation or *Jhum* cultivation. Shifting cultivation as a system of cropping practice represents the indigenous form of agriculture being the most

commonly and customarily accepted in the region for their total livelihood. Annually rain occurs during the Summer (May to September). Soil is acidic in nature (PH 4.5 to 7.2), rich in organic matter content (0.8 to 5.2% OC) which declines sharply with depth. The soils of Summit to ridges are mostly shallow to deep, loamy skeletal to sandy-skeletal excessively drained & subject to severe erosion hazards.

Specimen collection and identification

The ethnobotanical survey was conducted during the year 2012-13 in Galo-Adi dominated area of Nari sub-division under East-Siang, Arunachal Pradesh that come under the Nari Reserve Forest area which is covered with rich natural vegetation. For ethical reasons, ethnobotanical data were collected with the prior approval and permission of the local administrator (Village Head) and the informants for publication of the research. Specimens (with flowers and fruits) of all the wild medicinal plants identified by the local guides were collected as voucher specimens during field walks following a guided methodology (Jain SK and Rao RR, 1977). Each specimen was given a collection number along with a scientific and local name when possible. The information was also taken in photographs of the sites, individual plants. The plant specimens were pressed, and herbarium voucher specimens were prepared following chemical sterilisation. Identification of the specimens was done according to the literature, "Flora of British India" (Hooker, 1871-97), referring to specimens in Botanical Survey of India (BSI, Arunachal Pradesh), and classified following Bentham and Hooker's classification system.

Data collection

The objective of the study was clearly explained to the participants (local informants). A questionnaire containing a prior informed consent (PIC) developed following the method of Edwards *et al.* (Edwards *et al.*, 2005) was signed by an informant before an interview was conducted. The informants from 35 to 70 years of age including traditional healers were interviewed on the local household use of wild plants as medicine and recipes for the preparation.

Validation and Reliability of the data

A consensus of the informants was used to validate the reports, to identify the plants most cited by the informants and also the information gathered was compared and cross-checked with the help of group discussions among different age classes of Apatani villagers that include both the genders of the society.

Results and discussion

Altogether 37 wild medicinal plants belonging to different genera and families are reported based on local claims of use as medicine. The 37 species were reported to cure 10 different types of diseases during the study. The above ground plant parts (leaf and fruits) were used more than the underground plant parts (root, tuber, rhizome, bulb, etc.). The study revealed that as a tribe is good in plant based ethnomedicine. Out of 37 plants studied, 5 plants are used in Bronchitis and 2 for fever, 4 are used for diarrhoea 1 for bone fracture, 3 in ulcer, 3 is used as ointment for treatment of various wound and skin infections, 3 species are used for dental ailment like bleeding gums, toothache and loose teeth, 1 plant in piles, 2 in diabetes, 2 in jaundice, and rest are used for curing different ailments, which are used either singly or in combined form.

However, the benefit Associated with the farming of medicinal plants in the studied area may be summarized as follows:

- i. A source of employment generation: The overall employment scenario in Arunachal Pradesh is as worse as for any other Indian state. Higher growth of population, fast increase of literacy rate along with massive in-migration are the main reasons for increasing figure of unemployment scenario in the state. Since the government with its limited resources is virtually incapable to provide rooms for much employment opportunity in the organized sectors, farming of medicinal plants alike of other agricultural extension programs may open up the scope for unemployed youth to earn their living.

- ii. A stimulant for raising the standard of living: Growing population pressure along with underutilization of natural resources force the mass to live below poverty line. The farming of medicinal plants may compensate the 69% of the total population in the area, who depends on agriculture and more particularly on jhumming, very often succumbs to crop failure due to different sort of natural calamities. The cultivation of medicinal plans would give them readymade cash to purchase their livelihood. Moreover, it is unlike the household need that they get from the jhum land, the farming of medicinal plants, which will attach the people with market mechanism, would give them better understanding of the outer world.
- iii. A catalyst for Industrialization: Perhaps the difficult terrains and low level of infrastructures hinder the process of industrialization at this north-east extremity of India. Medicinal plants on the other hand, an endowed factor along with traditional knowledge of the *Nyibo* (the village medicine men) may be the economic agents to begin the history of industrialization in the area.
- iv. An approach to commercialization and modernization of agriculture; If the medicinal plants which grow naturally in the Study area could accumulate a fair deal of cash inflow into the economy if they were brought into commercial cultivation applying the modern technology. Thus the farming of medicinal plants in the area may be an approach to transform the subsistence agriculture into a commercialized one.
- v. Manifestation of indigenous knowledge system: Tribal people have vast and extended knowledge about the various medicinal plants available in this region which certainly helps in conserving the biodiversity. Cultivation of medicinal plants, if undertaken commercially, would not only save the natural vegetation but also it is to prevent from flood and other natural disasters caused by the massive deforestation.

Table 1. Medicinal plants recorded during their the study.

Botanical name	Family	Description	Uses for Ailments/Diseases
<i>Clitoria ternateae</i>	Fabaceae	Perennial climber	Bleeding, piles, dyspepsia, jaundices and constipation etc.
<i>Mallotus philippensis</i>	Euphorbiaceae	Tree	Bronchitis, abdominal disorder, spleen enlargement.
<i>Saraca asoca</i>	Caesalpiniceae	Tree	Diabetes, dysentery, uterine fibroids, haemorrhage etc.
<i>Plumbago indica</i>	Plumbaginaceae	Shurb	Increase digestive power, leukoderma, paralysis, enlarge gland
<i>Jasminum sambac</i>	Oleaceae	Shurb	Eye diseases, itching, headache, ulcer, wound and epilepsy
<i>Millettia pinnata</i>	Fabaceae	Tree	Have antiseptic property for curing wounds
<i>Piper longum</i>	Piperaceae	Creeping herb	Stomach ache, cough, bronchitis
<i>Costus speciosus</i>	Costaceae	Herb	Constipation, skin diseases
<i>Mesua ferrea</i>	Calophyllaceae	Tree	Asthma, cough, fever and vomiting, piles
<i>Asparagus racemosus</i>	Asparagaceae	Shrub	Treat infertility, impotency, menopause
<i>Acacia arabica</i>	Fabaceae	Tree	Liver diseases, jaundice
<i>Rauvolfia serpentina</i>	Apocynaceae	Perennial shrub	Blood pressure, insomnia, itching skin
<i>Erythrina stricta</i>	Fabaceae	Tree	Epilepsy, skin diseases
<i>Houttuynia cordata</i>	Saururaceae	Herb	Pneumonia, infectious diseases
<i>Centella asiatica</i>	Apiaceae	Creeping herb	Relive hypertension, wound and debates.
<i>Murraya koenigii</i>	Rutaceae	Tree	Have anti-diabetic property.
<i>Spilanthes paniculata</i>	Asteraceae	Herbs	Used for toothache
<i>Drymaria cordata</i>	Caryophyllaceae	Herb	Used as ointment for treatment of skin diseases and boil
<i>Eryngium foetidum</i>	Apiaceae	Annual herb	Used as anti-inflammatory and analgesic effect, prevent epilepsy
<i>Zanthoxylum alatum</i>	Rutaceae	Shrub	Treatment of toothache
<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Herb	Use as ointment for skin treatment
<i>Osituum burtiun</i>	Astaraceae	Shrub	Treatment of wounds,
<i>Vitex negundo</i>	Lamiaceae	Shurb	Bronchitis, asthma, dysentery, and wound and ulcer
<i>Terminallea indica</i>	Lamiaceae	Shrub	Used for ulcer and asthma

<i>Oroxylum indicum</i>	Bignoniaceae	Tree	Curing gastric ulcer and mouth cancer
<i>Mimusops elengi</i>	Sapotaceae	Tree	Use for dental ailment like bleeding gum, loose teeth
<i>Syzygium cumini</i>	Myrtaceae	Tree	Diarrhoea, dysentery, diabetics
<i>Silaginella sp</i>	Selaginellaceae	Creeping herb	Diarrhoea, dysentery
<i>Ageratum conyzoides</i>	Asteraceae	Herb	Treatment of wounds,
<i>Urena lobata</i>	Malvaceae	Herb	Cough, bronchitis
<i>Solanum torvum</i>	Solanaceae	Shrub	Use as inflammatory agent for treatment of cough and bronchitis
<i>Melastoma malabaricum</i>	Malastomataceae	Shrub	Treatment of wound and infection
<i>Hibiscus rosa sinensis</i>	Malvaceae	Tree	Liver disorder, high blood pressure
<i>Solanum indicum</i>	Solanaceae	Shrub	Treatment of cough, bronchitis, asthma
<i>Gynura cusumbua</i>	Asteraceae	Herb	Treatment of wounds and cough
<i>Cuscuta reflexa</i>	Convolvulaceae	Parasitic plant	Used for dislocation of bones

Conclusion

The preparation and dosage of administration against different ailments is mostly crude and subject to approximation during treatment procedure. The science of orthopaedics is highly developed as the bone healers heal the patient within one week. Their medicinal preparation techniques are mostly accompanied with the enchanting of mantra. Seventy percent of the herbalists are from old generation, strongly bonded with their traditional wisdom. The traditional wisdom in the young generation of the Galo tribes is degrading fast due to the medical modernization. Younger generations are least concerned about their ancestral wisdom which are practices by few illiterate or less literates and prefer allopathy run by educated people. Herbal practitioners among Galo tribe being mostly marginal farmers, having very little income from their agriculture produce earn their sustenance partly from selling their herbal preparations. However, some expert practitioners have their own herbal garden. The degree of dependence of local herbal practitioners on the forest resources is partial rather than total. There is enormous traditional medicinal knowledge embedded among the Galo communities of Nari-Koyu area to grow medicinal plant in separate and even together in a very systematic

way. This knowledge is based upon the informational experimentation with local environment being adapted to local ecosystem and is effectively functioning in sustainable resources tapping and conservation. All the management practices are highly self-reliant with little external input and low dependency from external resources make it extremely endogenous and sustainable. If properly utilized can have a tremendous impact on the development of the area. The traditional knowledge and skill related to management and natural resource by the Galo is immense and that can be replicated elsewhere.

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