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Research article

ETHNOGRAPHIC STUDY ON THE ETHNOMEDICINAL PLANT OF GARO TRIBE OF KAMRUP DISTRICT, ASSAM, INDIA

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ABSTRACT: The *Garos* inhabit both in plains and hilly areas of the entire state of Assam including many areas of Kamrup District. The tribal communities including the *Garos* practice some primitive methods of traditional herbal treatment since time immemorial on the basis of knowledge acquired through their experiences generations after generations. It is worth mentioning that almost all the rural masses over the world believe and depend on herbal treatment practiced against a number of ailments. Many important modern drugs find their origin in traditional knowledge and use of ethno medicines. The present study is aimed at collection of the wild as well as the domesticated medicinal herbs and to record information on folk medicinal use of those herbs practiced locally by certain ethnic communities of Kamrup district, Assam. The data collected is based on carefully planned intensive survey and field study among the tribal people, mainly the *'Garos'* dwelling in Kamrup district. The outcome of the findings will help to know about the ethnography and ethnobotany of these lesser known people of the study area and also bring light to immense wealth of different plant species used by the tribal community.
Key words: *Garo* tribe, Ethnography, Ethnobotany, Plant resources, Conservation

INTRODUCTION

The *Garos* represent one of the scheduled tribes of Kamrup district of Assam state. Ethnically they belong to the Mongoloid race, like most of the tribes of North East India. The community is mainly segregated into Hill *Garo* and Plain *Garo*. Another group, the *Hana Garos*, is also found in Kamrup district, bordering the Khasi hill of Meghalaya state. According to their traditional belief they are the direct descendants of the *Garos*, who entered Assam in regime of the king Arambit and they descended as emigrants from the hills [1]. The different epic lores of the *Garos* portray the glorious aspects of the history of the *Garos* nine hundred years back when they were independent and powerful enough with their capital at Gour, now in ruins in modern West Bengal [2]. The *Garos* have also a tradition that in the dim and distant past their forefathers, i.e. nine headmen, the offspring of a Hindu fakir and a Tibetan women, come down from the northern mountains and after a halt at Koch Behar made their way to Jogighopa and then crossed the Brahmaputra to Dalgoma and thus finally into the present *Garo* Hills. Some *Garo* traditions recorded in the Gazettes of the *Garo* hills district suggests that the *Garos* originally came from the Tibet and settled in Koch Behar for about 400 years [3]. Some similarities in the Tibetian and *Garo* vocabularies tend to confirm their belief.

The Lilasing Arambit Legend also drew the attention of the scholars from time to time. The *Garos* while dwelling at *Kamakhya,* suffered prosecution at the hands of the king named Lilasing. A neighboring Chief named Arabmit having fallen in love with a *Garo* maiden, married her and allowed the *Garos* to settle in his kingdom. But Arambit began to enslave them and so they took up their residence on Baghmelepchar, a hill about 11kms west of Chaygaon and 8 kms East of Boko.

The study of a group revealing the cultural knowledge and the system of a specific ethnic group is Ethnography. Knowledge of folk medicine and other healing practices is a major element of such cultural knowledge. Such conventional knowledge is transmitted informally from generation to generation through word of mouth. It serve in improving the livelihoods of rural communities.

Now a days many such conventional knowledge have proved to be the basic sources of modern pharmaceuticals [4]. Ethnomedicinal and Ethnobotanical knowledge plays a pivotal role in cultural importance, especially in the developing countries [5,6,7]. Ethnographic study of traditional medicine can be useful in revealing insights and analyzing changes and effects within the system of medicine [8]. It helps in documenting folk concepts of disease, illness and treatment and to identify threats and determinants for continuity of traditional medicine. Ethnographic approach of traditional medicine has potentials for identification of valued medicinal plants for further research and validation of folk system of medicine. People living in the remote areas including the tribal people depend excessively on medicinal plants for their health care. The exploration of the therapeutic activity of medicinal plants has been rendered from generation to generation [9]. The traditional *Garo* practitioners or the medicine men are much more dependent on adjoining forest areas for meeting their medicinal plant needs [10]. Thus, the present study is aimed at collecting the Ethnographic information on ethnomedicinal herbs, wild as well as the domesticated herbs, used in folk medicine of the *Garos* of Kamrup district, Assam.

MATERIAL AND METHODS

Study area: In the present study, field survey was undertaken among the *Garos* dwelling in the fringe area of Kamrup district during October 2011 to May 2014.The district is situated between $25^0$43' and $26^0$51' N latitude and between $90^0$36' and $92^0$12' E longitude. The study design included Rapid Ethnobotanical Appraisal method and informants of different age group were involved, to make an inventory of knowledge on plants and their pattern of use among the community. The methods used also included village walks and walk along forest transects with key informants. Group discussions with women was undertaken to document gender specific ethnomedicinal knowledge while traditional healers (*Ojas* and *Bezas*) were consulted to record folk healing practices and ethno-medicines. Information collected as above was substantiated to the possible extent through personal observations by camping in the study area and by attending social and religious occasions of the *Garos*. All information including local names, parts used, preparation or processing, taboos, rituals, and other relevant data were recorded in field diary during field study. Plant specimens reported by the informants were collected for voucher specimen from local environment and forests for botanical identification.

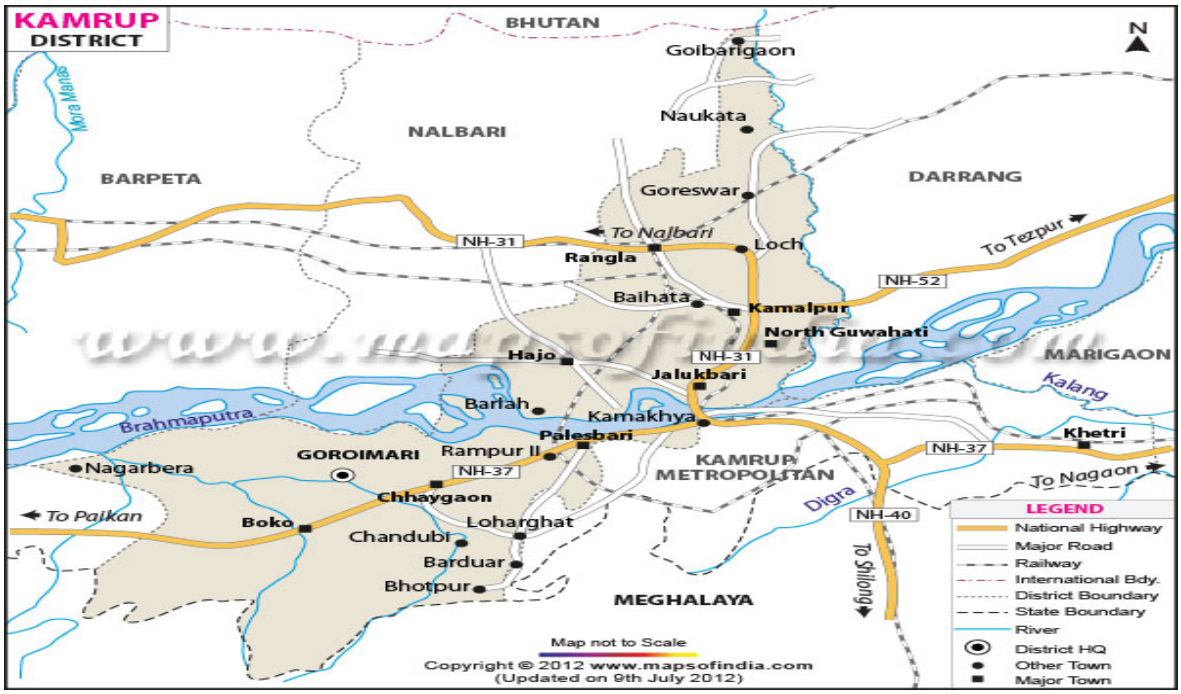

Fig. 1: Map of Kamrup district, Assam

RESULTS

Ethnography of *Garo* tribe:

Among the *Garos* there are a number of dialectical and cultural groups. Each of them originally settled at a particular area of the *Garo* Hill and its outlying plain lands. Accordingly based on their places of residence, dialectical and cultural variations occurred and thus are found to be divided into several sub group or sub tribes.

The *Garos* have been maintaining the matriarchal family structure since its early history without any erosion. As a result of this practice the mother is the head of the family and the father is considered to be an outsider only who is inducted to the family by virtue of marriages. The children also acquire the little of the clan/sub clan name of their mother only. Thus in a *Garo* family, the father according to the customs, is not necessitate to play any dominant role. Being matrilineal family structure, all properties of the family whether movable or immovable belong to the mother and after her death the properties are inherited by the youngest daughter of the family who is considered to be most favourite. In the marriage system, the *Garos* strictly follow the rules of exogamy. Generally the girl selects her husband and the marriage proposal shall have to be initiated from the girl's family. The prevailing practice of negotiated or arranged marriage is called *Do' sai*, which is performed in a very simple way by sacrificing two fowls in front of the couple followed by a feast, dancing and merry making.

Like the plains dweller Assamese communities, the *Garos* too depend on agriculture for their livelihood. Their requirements are very few and devote themselves almost exclusively to agriculture. The *Garos* follow the *Jhuming* (slash and burn) method of cultivation that involves clearing a patch of forest and burning the slash to create cultivable field. The most important crop grown are the varieties of rice (Migel), however, millet (Misi) is another important crop cultivated by the community. In the first year, along with millet and rice cultivation, the *Garos* also rear cattle, pigs and poultry. Sericulture, mainly *endi* is subsidiary source of livelihood for the *Garo* people. Like the other tribes of the North-East India, rice is the staple food of the *Garos*. Rice is generally cooked in earthen pots and sometimes in bamboo tubes. In addition to rice they also consume maize, millet and wheat occasionally. Dried fish called '*Nakam*' is one of the favorite delicacies. They eat fleshes of almost all kinds of animals available except a few and almost all kinds of birds. Another delicacy of the *Garos* is the curry prepared from tender bamboo shoots. They are great salt eaters but oil or ghee is not used for cooking by the *Garos* particularly those residing in interior places. Besides taking vegetables grown in their fields such as sweet potato, melon, pumpkin, brinjal, they also grow chilli, ginger, yam, taro, tapioca etc. They use to obtain many edible creeper and roots from the forests for their livelihood. In normal occasions the *Garos* are well verse in sustainable utilization of their available resources with simple diet though they eat three times a day and liquor must be unstintingly provided along with. Rice-beer is the most favorite drink for the *Garos*.

To a large extent, *Garo* people depend on the bounties of nature for their basic needs which are simple and therefore, the need to manufacture things does not seem to matter much. They practically manufacture some cloths, few mats, boats and some simple instruments of iron. One of the items that the *Achiks* (hill *Garos*) manufacture is Pak or simpak, a bedding material, prepared from the bark of certain species of trees like bany (*Ficus rumphi).* The *Garos* have a rich culture and it is manifested through their cultural traits, fairs and festivals, dances and music, folk literature, dresses and ornaments. The *Garoes* have their own language which is also called *Garo*. Singing and dancing are integral parts of the cultural life of the *Garos*. Both men and women take part in dancing and singing in accompaniment of musical instruments. There are various occasions like the selection of new *Nokma* (Village headman), ceremonies observed for the dead, annual worship at the sacrificial stone, entering into a newly constructed house by a newly-wed couple, inauguration of a newly constructed bachelors' dormitory etc. But for each occasion the style of dance performed have variations. But the most likely dances performed by the *Garos* are during the celebration of their harvesting festival called *Wangla* otherwise known as the *festival of hundred drums*. It is in fact a feast for the eyes. The *Garo* people are very much fond of ornaments. Some of the ornaments used by them are '*Nadongbinr Sisha'*, '*Nadirong'*, '*Natapsi'*, '*Jaksan'*, '*Ripok'*, '*Jaksil'*, '*Sengki'* and '*Pilne'*. Bachelors' dormitory is a very important part of life in a *Garo* society known as 'Nokpante'. There must be at least one 'Nokpante' in a *Garo* village. It serves as an institution for informal education. The *Garos* have their own traditional dresses and ornaments. The *Garos* living in the plains, however, dress like the Assamese community does. The traditional attire of a man is a strip of woven cloth and turban. The main attire of woman consists of a cloth wrapping around the waist. In the upper part they wear blouse. Now-a-days, the native *Garo* women's dress has been improved by making it broader and longer so that it covers the legs. It is made more attractive by giving a border of native design. This is known as *'Nakmanda'*. It is used with a *'chadar'* like the *'Mekhela'* of the Assamese women. The *Garos* of the plains weave a kind of cloth, known as *kancha* which is made of cotton and usually in dark blue or red in colour. It is noteworthy that yak's tails are highly priced and regarded as sacred by the *Garos*. Yak is not found in the *Garo* Hills but it is said and believed that their ancestors while migrating from Tibet brought yak's tails with them and they have preserved this article since then.

Ethnomedicines of the Garo Tribe

A good number of plant resources used by the *Garos* for health care practices are known for their medicinal values. Survey on the ethnomedicines has revealed that some diseases are cured by using a single plant. For example, *Boerhavia diffusa* L. is used for control of swelling of feet during the period of pregnancy. However, *Zingiber officinale* is also used as in the treatment of asthma.

Usage of plant species like *Vitex negundo, Azadiracta indica, Costus specious, Syzygium jambos, Rouvolfia serpentina, Leucas plukenti, Centella asiatica* and a few other plants are found to be similar to the usage by other ethnic communities of North East India. Ethnomedical repository of the *Garos* is enumerated in Table 1.

Table 1: Inventory of medicinal plants used by *Garos* in Kamrup district, Assam

Assamese Name	Scientific Name & [Family]	Plant parts used and prescription
Dighalati	*Litsea salicifolia* [Lauraceae]	Cattle is gently beaten with areil parts of the plants on the first day of spring festival called Bihu. Leaf Decoction is given in dysentery Tender leaf as vegetable is said to act as cooling agent.
Simla alu	*Manihot esculenta Crantz* [Euphorbiaceae]	Tubers are eaten cooked.
Bokal bih	*Millettia pachyearpa* Benth [Fabaceae]	The roots of the plant are used to poison fish.
Nor hing	*Murraya Koenigii Spreng* [Rutaceae]	Leaf are use in medicinal purpose
Sajana	*Moringa oleifere* L [Moringaceae]	Juice of leaves are applied frequently to remove black head pimples
Athia kol.	*Musa balbiana* Colla[Musaceae]	This is invariably given in dysentery, diarrhoea and as a vermifuge.
Sewali phul	*Nyctanthus arbortristis L* [Oleaceae]	Root paste is applied in toothache Decoction if leaves are given as vermicide and also in gastric pain.
Bhedai lota	*Paederia Scandens* (Lour) [Rubiaceae]	Decoction prepared from the leaf and tender shoot is most effective in the Control of diarrhea, dysentery
Dhemesi Sak	*Polygonum fagopyrum* Roxb [Polygonaceae]	The plant is cultivated for vegetable purpose.
Khutura	*Portulaca oleracea* L [Portulacaceae]	Infusion is given in intestinal worms and in diabetes. Decoction is given in bacillary dysentery. Paste is applied on swelling, tumors, wounds, burns, abscesses and ringworm
Madhuri aam	*Psidium guajava* L [Myrtaceae]	Tender shoot is roasted then boiled with water and the extract is given in diarrhea.
Kher	*Saccharum spontaneum* L [Poaceae].	Leaf is used as thatching, Emerging young shoots are prescribed to eat in impotency as stimulant.
Til	*Sesamum orientale* L [Pedaliacae]	Oil from seed is used as hair oil, which is said to act as hair tonic seeds.
Arjun	*Terminalia arjuna* (Roxb) [Combretaceae]	Bark is immersed in a glass of water for overnight and the extract is taken in diabetes.
Phul-Jharu	*Thysanolaena maxima* (Roxb) [Poaceae]	Panicle used for making brooms. Collected from wild and sold in market in bundles.
Bon Bogari	*Zizyphus rugosa* L [Rhamnaceae]	The ripe fruit in eaten wood tough reddish in color used generally as post or as fire wood.
Pategoja	*Kalanchoe pinnata* L [Crassulaceae]	Leaf juice is given in kidney stones. It is also given as diuretic. Tender leaf is used as vegetables.
Bhenda	*Jatrpha Curcas* L [Euphorbiaceae]	Twig is used as tooth brush in swollen gums. Latex is used to cure pile and tender crushed leaf is applied in boils.
Mitha alu	*Ipomea batatas* L [Convolvulaceae]	Tubers are eaten by boiling. Also used as vegetables.
Saru mani muni	*Hydrocotyle rotundifolia* Roxb [Apiaceae]	Plant is used for women after child birth used in chronic dysentery as antiseptic in wounds.

Dimoru	*Ficus racemosa* L [Moraceae]	Ripe fruit eaten fresh leaf used as fodder for cattle leaf is used for removing Scales of fish.
Kola jamu	*Eugenia jambolane* Lank [Myrtaceae]	Seed paste is used in diabetes. Ripe fruit eaten fresh, wood is used for house building.
Boga Madar	*Erythrina indica Lank* [Fabaceae]	Juice of the bark is given in jaundice.
Keyabon	*Cyperus rotundus* L [cyperaceae]	Tuber pounded and boiled in water and the extract in given to stomach discomfort.
Rabab tenga	*Citrus decumana* [Rutaceae]	It is also used as offering in religious ceremony.
Amita	*Carica papaya* L [Caricaceae]	Fruit latex from lender fruit with cow's milk is seven in peptic ulcer. Unripe fruit are eaten in curries for liver disorder. Ripe fruit used as stomachic.
Taruwa Kadom	*Acacia farnesiana* L [Mimosaceae	Decoction of root in used as ear drop to control discharge from the ear stem is used as toothbrush to cure pyorrhea.
Bel	*Aegle marmelos* L [Rutaceae]	Leaf used as offering to god and goddesses by Hindu. Fruit Dried pulp of unripe fruits are used as tea substitute. Ripe fruits pulp one eaten in constipation and also eaten fresh. Unripe fruit pulp mixed in water and is given in chronic dysentery.
Man-kachu	*Alocasia indica* (Roxb) [Araceae]	Rhizome is taken as food after washing thoroughly. The rhizome is boiled generally along with rice and eaten with little salt and mustard oil. Petiole is eaten as curry.
Kola Kachu	*Alocasia macrorrhiza* L. [Araceae]	Petiole cooked and eaten paste of rhizome is applied on abscesses to expel pus.
Matikandari	*Alternanthera Sessilis* L [Amaranthaceae]	Tender shoots and leaves boiled in water and taken in dysentery. Used as vegetables extract of leaves and stem are given for snake bite.
Khutora	*Amaranthus viridis* L [Amaranthaceae]	Tender plant and shoot are used as vegetables, which is said to improve Eye sight and act as restorative. Used as vegetables, Commonly sold in market.
Ol Kachu	*Amorphophalus paenifolius* (Dennst). [Araceae]	Corm cut into pieces and eaten by boiling with rice and also curries. Leaf paste is applied in abscesses powder of sundried corn is use piles corm is taken in acute rheumatism.
Chirata	*Andrographis paniculata* (Burm.f). [Acanthaceae]	Leaf paste in applied on teeth in toothache. Decoction with leaves of Azadirachta indica is given in venereal disease. Powder of the dried leaves is given as antidiarrhocal.
Kothal	*Artocarpus heterophyllus* Lamk [Moraceae]	Ripe fruit is taken fresh which is sweet and tasty. Paste of leaves is locally applied to kill head lice. Leaf juice in applied to ring worm twice daily till cure.
Kordoi	*Averrhoea caramboa* L [Averrhoaceae]	Fruit juice is given in jaundice and also given as refrigerant unripe fruit is eaten in curries
Neem	*Azadirachta indica Juss*. [Meliaceae]	Infusion is given as bath in skin disease and also act as a blood purifier leaves fried in oil is eaten as anthelmintic. Leaf twig hang Over the roof of living room to prevent from small pox, chicken pox and measles.
Kumura	*Benincasa hispida* (Thumb) [Cucurbitaceae]	Root Infusion is given in gonorrhoea. The mature fruits are preserved for use throughant the year Tender fruit locally known as 'jali' Kumra and mature fruits as "Boga kumra"
Machundari	*Houttugnia cordata Thunb*. [Saururacea]	Leaf use in dihorreoa

Folklore Medicine: Herbs, shrubs and trees found in the forests of Kamrup district is found to contain medicinal properties and a large number of such plants are being traditionally used by the *Garo* tribe to treat score of ailments. Knowledge of these folk medicines have been acquired through the ages by trial and error and transmitted orally from generation to generation. Some ethno medicines of the *Garos* of folkloristic significance have been enumerated in the table 2.

Table 2: Enumeration of folkmedicine used by the *Garo* tribe

S. No.	a) Name of the disease	b) Plants associated	c) Part used
d) 1.	e) Gastric pain	f) *Swertia chirata*	g) Any part of the plant
		h) *Rauvolfia sepentina*	i) Root
		j) *Asclepias Curassavica*	k) Root
l) 2.	m) Digestive disorder	n) *Nyctanthes arbortristic*	o) Leaf
		p) *Oxalis corniculata*	q) Leaf
		r) *Acalypha indica*	s) Powder extract from
		t) *Mangnifera indica*	u) Cotyledon.
		v) *Euphorbia nerifolia*	w) Leaf
		x) *Mentha spicata*	y) Leaf
		z) *Psidium quajava*	aa) Apical shoot
bb) 3.	cc) Dyspepsia and Flatulence	dd) *citrus grandis*	ee) Shoot
		ff) *Zieyphus jujube*	gg) Dried fruit
		hh) *Psidium quajave*	ii) Shoot
		jj) *Magnifera indica*	kk) Dried endosperm
ll) 4.	mm) Jaundice	nn) *a)Morinda angust infolia*	oo) Bark
		pp) *b)Curcuma longa*	qq) Flower
		rr) *c)Zingiber officinale*	ss) Flower
		tt) *d)Centella asiatica*	uu) Plant
		vv) *e)Hydrocotyle rotundifolia*	ww) Leaf
5.	Leucorhoea	xx) *Costus specious*	Rhizome
		yy) *Cordia dichotoma*	Bark
		zz) *Erythrina indica*	Bark
		aaa) *Paedaria foctida*	Bark
6.	Ringworm	a) *Cassia fistula*	Rhizome
		b) *Cordia dichotoma*	Bark
		c) *Erythrina indica*	Bark
		d) Paedaria foctida	Shoots
7.	Fracture of Bone	*a) Equisetum debile*	Stem
8.	Typhoid and pneumonia	*a) Myristica fragrans*	Fruit
		b) Xanthium strumarium	Shoot
9.	High Blood pressure	*a) osbeckia nepalensis*	Root
		b) Canella asiatica	Plant
		c) Hydrocotyle rotundifolia	Plant
10.	Infantile fever	*a) Selaginella rupestris*	Shoot
		b) Centella asiatica	Stem
11.	Rheumatic pains	*a) Areca catechu*	Root
		b) Mangifera indica	Root
		c) Allium sativum	Tubens
12.	Otitis inflammation of ear	*a) Colocasia esculenta*	Leaf
13.	Hair falling	*a) Aconitum napellns*	Root
14.	Neuralgia	*a) Azadirachta indica*	Leaf
		b) Allium sativum	Bulb

15.	Bitting of Rabies Dog	*a) Datura fastuosa*	Leaves
16.	Gonorrhoea	*a) Ficus religiosa*	Leaves
		b) mangifera indica	Bark
17.	Burning or painful urination due to obstruction in the urinary tract	*a) Alpinia allughas (A. nigra)*	Seeds
18.	Urinary trouble	*a) Saccharum officinarum*	Leaves
19.	Quick delivery	*a) Tamarindus Indica*	Root
20.	Whooping cough	*a) Euphorbia nerifolia*	Leaves
21.	Diarrhoea and dysentery	*a) Allium cepa*	Few pieces
		b) Rauvolfia	Root
22.	Menstrual disorder	*a) Saraca indica*	Bark
23.	Flow of Breast milk	*a) Carica papaya*	Root
24.	Diabetes	*a) Moringa Olifera*	Stem
25.	Birth Control	*a) Abrus precatorius*	Seed
		b) Ricinus communis	Seed

DISCUSSION

In the present study, cultural practices and beliefs of the Garos in Kamrup district have been documented; no specific mechanisms for conservation of biodiversity have not been observed. They believe in supernatural power and consider unique vegetation, unnatural grove, forest with rare plant, etc. are the dwelling place of supernatural powers and ancestral souls. Any form of injury to these plants is believed to bring incurable disease which may lead to death. As a result some trees are not harmed for which the plants grow till its natural death. Such cultural beliefs thus, indirectly helped in in- situ conservation of certain species in their locality. Some example of such plants under fetishism is Dillenia indica L., Mangifena indica L. and Ficus benghalensis L. People take pride in presence of large trees in the vicinity of village and even name the place in honor of such tree, a unique culture of mankind. Medicine men never uproot or pluck the whole plant or gather the medicinal parts from single population; this gives ample scope for regeneration of the plants. A common practice among the Garo medicine men is they usually do not introduce medicinal plants to common people with the pretext that the latter lack knowledge of sustainable collection/harvesting and conservation ethics; this contribute towards conservation of important medicinal plants particularly rare and endangered species. Certain plants (food, medicines, etc) which have rare distribution in the wild are planted in home gardens to ensure regular supply of plant materials and do away the need to travel to forest frequently.

CONCLUSION

The nature of people interactions with forests is critical for sustainability and conservation. In many instances the intensity of exploitation exceeds beyond the carrying capacity of the natural ecosystems. Value addition of local products can contribute to food security, health and well-being of rural mass and forest people. Mechanism of transmission of traditional knowledge of plants used in traditional societies is an interesting area worth investigating. Further, studies on people-forest interactions must incorporate the role of women because despite being active users and conserver of biodiversity, their invaluable contribution remained neglected in many instances. It may be mentioned that, men folk remains outside the house for most part of the time and women take care of the needs of the family. In doing so, women had developed knowledge of plant use; they are exposed to more diversity of natural resources than their male counterpart and so obviously have superior knowledge of plant use.

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