Pleione 8(2): 462 - 474. 2014. **ISSN: 0973-9467**

Diversity of medicinal plants in Poba Reserved Forest, Dhemaji district, Assam, India

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[Received 28.10.2014; Revised 20.10.2014; Accepted 26.11.2014; Published 31.12.2014]

Abstract

Medicinal plant diversity in Poba Reserved Forest is presented here. Methods included interview of ethnic groups in fringe areas of Poba forest, participantion observation and ethnobotanical inventory or field interview, forest and village walks with key informants and market survey. The present study recorded 89 medicinal plants from Poba forest belonging to 74 genera distributed under 53 families. Some medicinal plants like *Zanthoxylum rhetsa* (Roxburgh) de Candolle., *Z. hamiltonianum* Wallich, *Bryophyllum pinnatum* Roxburgh, *Plectranthes ternifolius* D. Don., *Sarcochlamys pulcherimma* Gaudichaud-Beaupré and *Vitex negundo* Linnaeus have in the recent times become rare in the forest. Poba forest deserves better conservation status for maintaining goods and services, and ecological stability in Jonai subdivisional and adjoining areas.

***Key word*:** Poba forest, fringe communities, traditional knowledge, medicinal plants, conservation.

INTRODUCTION

Ecosystem services provided by forests are vital for human survival and well-being; forests are also indispensable for conservation of biodiversity. Indigenous peoples around the world use forest in many different ways (for example agriculture, fishing, hunting, medicines, raw materials for construction and implements, etc) and for them forest is the basis of survival and well-being. They have developed an intricately woven knowledge system, popularly referred as Traditional Knowledge (TK), for optimal and sustainable exploitation of forest resources. The Poba Reserved Forest (RF) in Jonai sub-division of Dhemaji district, Assam is important biodiverse ecosystem of immense significance to local environment and human well-being. Established in 1924 and with present area of 10,221 hectares, Poba RF is an important elephant corridor linking the foot hills of Arunachal Pradesh and Dibru Saikhowa National Park via the Kobu Chapori (proposed) Reserve Forest. Poba forest receives annual rainfall of 3600 mm to 4000 mm; highest temperature so far recorded is 35^0 C in summer and lowest 7^0 C in winter. The forest is bounded by Daying Ering Wildlife Sanctuary, NH-52 and foot-hills of Arunachal Pradesh in the North, Dibru-Saikhowa National Park and the Siang, Dibang and Lohit rivers in the East, Laly River (referred as Brahmaputra downstream) in the South, and a few revenue villages to the West.

Fringe areas of Poba forest is inhabited may many ethnic groups like Mising, Bodo, Sonowal Kachari, Nepali and Hajong (Rabha) whose subsistence is largely associated with the forest. Medicinal plants form one of the prominent use categories of bioresource by the fringe communities. Healthcare facilities in fringe ares of Poba RF is not adequate and folks have little access to modern medicines. In lieu of this the people largely depend on traditional medicines in which Poba forest formed chief source of raw materials. Assessment of medicinal plant diversity through documentation of traditional knowledge of plants used by fringe communities in Poba RF in healthcare practices is the objective of the present investigation. To achieve this objective we developed a working hypothesis that 'fringe communities have developed traditional knowledge system of plant medicines with raw materials extracted from Poba forest'. The present study will contributes to documentation of traditional knowledge and healthcare practices of ethnic groups, plant diversity and resource potentials of Poba RF. Further, traditional medicine based study can help in identification of new candidate of plant family/genera/species for further studies.

There is dearth of information on the biodiversity status of Poba RF for which utilization of plants resources by fringe communities is under explored. Study on wild edible plants was the first report on plant resources of the forest (Pegu et al. 2013). This was followed by study on assessment of human-wildlife conflicts (Pegu et al. 2014). People-forest interaction in protected area is important area of ethnobotanical investigation with valuable publications from around the world (Sajeev & Sasidharan 1997; Rodrigues et al. 2003; Betti 2004; Parinitha et al. 2004; Ramachandran et al. 2009; Kaeslin & Williamson 2010; Paul et al. 2011; Kutum et al. 2012; Borah et al. 2012; Wayangal 2012). Ethnobotanical study in protected areas can help in assessment of biodiversity through documentation of traditional knowledge and pattern of utilization and management of bioresources.

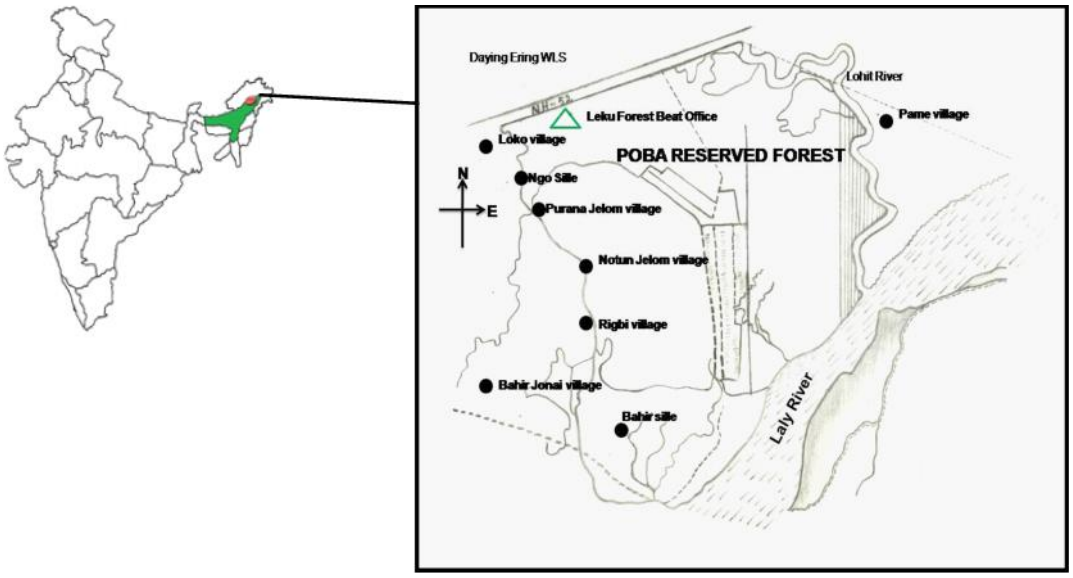

Figure 1. Location map of Poba Reserved Forest along with the location of proximate villages

MATERIALS AND METHODS

The present study was undertaken in Poba RF (27°50'11"N and 95°17'45"E) and fringe villages (Figure 1) inhabited by ethnic groups. Twenty two villages have been included for collecting data on traditional healthcare practices and use of plant medicines for treatment of

various ailments. Field study was undertaken during July 2012 to June 2014 after verbal consent of community elders was obtained in accordance with ethics of ethnobiological research (ISE 2006). The study design included interview, participantion observation and ethnobotanical inventory or field interview, forest and village walks with key informants and market survey (Martin, 1995; Alexiades 1996; Cunningham 2001). Interview of focus groups like women was arranged to document gender specific ethnomedicinal knowledge and with traditional healers to record folk healing practices and ethnomedicines.

Interviews: This included semi-structured group interview and focus groups interview of folks (informants) of different age groups in 22 villages. This technique produced a wealth of data on the interactions of fringe communities with Poba forest in addition to utilization of medicinal plant resources. We asked informants questions (though flexible) about common diseases prevailing in the area, healthcare practices and use of plant medicines. Information divulged by them on medicinal plants, local name and method of preparation were recorded for analysis. Focus group interview with medicine men and women was conducted to record specialized knowledge of plants used for remedies of various ailments. Selection of such informants was based on suggestions of village elders and their recognition as medicinal practitioners among the communities.

Participation observation: During the study period (2012-2014) we visited fringe villages at regular intervals and accompanied local people to Poba RF for collecting minor products and observed collection of medicinal or hallucinogen plants. This helped us to corroborate (to the possible extend) information provided by informants in group and focus group interviews.

Ethnobotanical inventory or field interview: This consisted of walks in the field and Poba forest with informant(s) and recorded information about medicinal plants and their identification and uses. This technique allowed us to see the plants in their natural state.

Market survey: We surveyed informal or local markets in and around Jonai town to have direct observations of plants and plant products sold. In the process we recorded medicinal plants collected from Poba forest and recorded its uses from vendors as well as consumers. Market survey allows the identification of overexploited wild plant species or of plant products with a high potential for horticultural or industrial development as new crops or products (Alexiades 1996).

Plants collected with assistance of informants during filed study were identified with the help of Hooker (1875-1897), Kanjilal et al. (1934-1940) and Prain (1903). Ethnobotanical data recorded from informants were presented in tables and bar diagrams; the latter was executed in MS excel spread sheet. Nomenclatures of plants were compared with the online database *The Plant List* (www.theplantslist.org).

RESULTS AND DISCUSSION

Diversity and utilization of medicinal plants

Poba forest forms the bedrock of plants resources and ethnomedicine is the mainstay of healthcare among fringe villagers. With their ingenious traditional knowledge system they have been collecting medicinal plants from the forest for management and cure of wide range of ailments prevailing in the area. However, distribution of knowledge of medicinal plants is polarized; traditional medicine men and women have more medicinal knowledge than the general folk. We recorded 89 medicinal plants belonging 74 genera and distributed under 50 families (Table 1) used by ethnic groups for disease like jaundice, diarrhea, cough,

gynaecological disorders, etc. All parts of plants are included in local ethnomedinal system-whole plant (9), rhizome (2), roots (8), shoots (5), leaves (51), tendrils (2), stem/bark (10), flowers (9), fruits (16), seeds (1) and latex (1) (Figure 2). The increase in the number of plants is because some plants are used for curing more than one disease. The ethnomedicines are prescribed in various forms such as paste, juice, decoction, maceration, powder, oil, latex and smoke. One of the distinct features of ethnomedicinal system in fringe villages of Poba RF (even in other parts of the country) is dietary utilization of medicinal plants. Analysis of 89 medicinal plants revealed, 52 plants are regularly consumed as food by the fringe inhabitants.

Table 1. Medicinal plants used by fringe communities of Poba RF, Dhemaji district, Assam. Local names of plants are given in Mising (Mis), Assamese (Ass) and Bodo.

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Abroma augusta (Linnaeus) Linnaeus *f* [Malvaceae]; POBA-148; 02.04.2013	*Ui-sipak* (Mis)	Leaves	Paste applied on boil to enhance puss removal.	
Acmella paniculata (Wallich *ex* de Candolle) R.K.Jansen [Asteraceae]; POBA-39; 19.04.2012	*Marsang* (Mis); *Jati malkathi* (Ass); *Ushumoi* (Bodo).	Inflorescence, shoots	Tootache, bronchial problems, mouth ulcer, dysentery. Galatagogue	Food
Acorus calamus Linnaeus [Acoraceae]; POBA-03; 17.02.2012	*Alokoni* (Mis)	Rhizome	Juice in stomach pain, constipation and indigestion	
Ageratum conyzoides (Linnaeus) Linnaeus [Asteraceae]; POBA-30; 20.02.2012	*Namnyin I'ng* (Mis); *Gunduabon* (Ass)	Whole plant	Paste on wound to control bleeding	Fuel
Alstonia scholaris (Linnaeus) R. Brown [Apocynaceae]; POBA-23; 20.02.2012	*Soti* (Mis); *Chotiana* (Ass)	Latex	With *Perilla ocimoides* for enhancing fertility in male and female	Fuel
Alternanthera sessilis (Linnaeus) R.Brown *ex* de Candolle [Amaranthaceae]; POBA-01; 17.02.2012	*Patang oying* (Mis); *Matikaduri* (Ass)	Leaves, shoots	Liver problem and dysentery	Food
Antidesma ghaesembilla Gaertner [Phyllanthaceae]; POBA-113; 15.02.2013	*Somkong* (Mis) *Borheloch* (Ass)	Leaves, stem	Headaches; to stimulate normal menstrual flow	Food
Baccaurea ramiflora Loureiro [Phyllanthaceae]; POBA-116; 15.02.2013	*Buri a:ye* (Mis) *Leteku* (Ass, Bodo)	Stem bark, root	Mouth ulcer in children.	Food, fuel

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Bacopa monnieri (Linnaeus) Wettstein [Plantaginaceae]; POBA-185; 05.11.2013	*Brahmi* (Mis, Ass.)	Whole plant	Constipation, cough, fever, clearing voice, diabetes, memory tonic.	Food
Bombax ceiba Linnaeus [Malvaceae]; POBA-49; 19.04.2012	*Singgi* (Mis); *Simolu* (Ass)	Leaves	Hair conditioner, applied on boil.	Food, fuel
Boswellia serrata Roxburgh *ex* Colebrooke [Burseraceae]; POBA-51; 19.04.2012	*Dhuna-goch* (Ass)	Gum	Gum in skin diseases and the smoke as insect repellent	Ritual
Bryophyllum pinnatum (Lamarck) Oken [Crassulaceae]; POBA-103; 17.11.2012	*Dupor tenga* (Mis, Ass)	Leaves	With salt in kidney stone and constipation; burns.	Food
Caesalpinia crista Linnaeus [Fabaceae]; POBA-52; 19.04.2012	*Letaiguti* (Mis)	Leaves, fruits	Antihelminthic, malaria, skin diseases, pneumonia.	Fuel
Calotropis gigantea (Linnaeus) Dryander [Apocynaceae]; POBA-194; 13.09.2013	*Akon* (Mis, Ass)	Leaves	Bodyache, wound of cattle.	
Cannabis sativa Linnaeus [Cannabaceae]; POBA-65; 16.10.12	*Bhong, Ganja* (Mis, Ass)	Leaves	Hallucinogen, appetizer for cattle.	Fuel
Catharanthus roseus (Linnaeus) G. Don [Apocynaceae]; POBA-25; 20.02.2012	*Sada Bahar* (Mis); *Nayantara* (Ass)	Leaves	Leukemia, hypotensive, antispasmodic, diabetes.	
Centella asiatica (Linnaeus) Urban [Apiaceae]; POBA-02; 17.02.2012	*Bormanimuni* (Mis, Ass)	Whole plant	Gastrointentinal problems, liver disorder, cuts, wounds, memory tonic.	Food
Cheilocostus speciosus (J. Koenig) C.D.Specht [Costacaceae]; POBA-102; 17.11.2012	*Peki jigjig* (Mis); *Jomlakuti* (Ass)	Stem	Jaundice and urinary problems.	
Chromolaena odorata (Linnaeus) R.M.King & H.Robinson [Asteraceae]; POBA-17; 20.02.2012	*Jarmanibon* (Mis & Ass); *Bangrilewa* (Bodo)	Leaves, root	Sprains, cuts and wound, insect bite and scorpion sting.	

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Cinnamomum tamala (Buchanan-Hamilton) T. Nees & Ebermaier [Lauraceae]; POBA-145; 02.04.2013	*Tezpat* (Mis, Ass).	Leaves	Diarrhea, spleen enlargement and diabetes.	Food
Cissus quadrangularis Linnaeus [Vitaceae]; POBA-198; 11-05.2014	*Gomset sori'* (Mis) *Harjora* (Ass)	Tendrils	Bone fracture.	Cordage
Clerodendrum glandulosum Lindley [Lamiaceae]; POBA-193; 11-05.2014	*Pakkom* (Mis), *Nefafu* (Ass).	Leaves	Antihelminthic, high blood pressure.	Food
Clerodendrum infortunatum Linnaeus [Lamiaceae]; POBA-195; 11-05.2014	*Doppat-tita* (Ass)		*E'pob* (starter cakes), skin disease.	
Colocasia esculenta (Linnaeus) Schott [Araceae]; POBA-28; 20.02.2012	*Ange* (Mis); *Kochu* (Ass); *Thaso* (Bodo)	Aerial parts	Cuts, pharyngitis.	Food
Commelina benghalensis Linnaeus [Commelinaceae]; POBA-96; 10.11.2012	*Konasimolu* (Ass)	Tender shoots, roots	Burns, eye sore, indigestion.	Food
Cordia dichotoma G.Forster [Boraginaceae]; POBA-106; 15.02.2013	*Si'mang* (Mis) *Gobarhuta* (Ass)	Bark	Stomach problems.	
Crateva religiosa G. Forrest [Capparaceae]; POBA-69; 16.10.12	*Barun* (Ass)	Bark	Urinary problems, prostate enlargement, bladder sensitivity, kidney stones.	
Cyclosorus extensus (Blume) H. Itô [Thelypteridaceae]; POBA-189; 18.12.2013	*Rukji* (Mis); *Bhilongoni* (Ass)	Leaves	*E'pob*, galactagogue	Food
Datura stramonium Linnaeus [Solanaceae]; POBA-186; 05.11.2013	*Dhatura* (Mis, Ass)	Leaves, roots	Asthma, cancer, toothace.	
Dendrocnide sinuata (Blume) W.L.Chew [Urticaceae]; POBA-190; 18.12.2013	*Pe'ji* (Mis) *Surat pat* (Ass) *Khoma* (Bodo)	Leaves, flowers	Bronchitis, pharyngitis.	Food

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Dillenia indica Linnaeus [Dilleniaceae]; POBA-104; 15.02.2013	*Sompa* (Mis), *Outenga* (Ass)	Fruits	Stomach disorder, diabetes, hair conditioner.	Food
Drymaria cordata (Linnaeus) Willdenow *ex* Schultes [Caryophyllaceae]; POBA-72; 16.10.12	Laijabori (Mis, Ass); *Jabshri* (Bodo).	Aerial parts	Sinusitis.	Food
Dysphania ambrosioides (Linnaeus) Mosyakin & Clemants [Amaranthaceae]; POBA-78; 10.11.2012	*Jilmil sak* (Ass)	Leaves	General tonic, antispasmodic.	Food
Eclipta prostrata (Linnaeus) Linnaeus [Asteraceae]; POBA-31; 20.02.2012	*Keharaj* (Mis, Ass).	Leaves	Liver and gastric problems	
Ehretia acuminata R.Brown [Boraginaceae]; POBA-112; 15.02.2013	*Susang* (Mis) *Uzal*, *Gual* (Ass)	Leaves	*E'pob*	
Eryngium foetidum Linnaeus [Apiaceae]; POBA-18; 20.02.2012	*Bormang ori* (Mis); *Man dhania* (Ass)	Leaves	Appetizer, stomach problems	Food
Ficus hispida Linnaeus *f* [Moraceae]; POBA-155; 18.05.2013	*Takpi* (Mis) *Dimoru* (Ass)	Fruits	Liver problem.	Food
Ficus racemosa Linnaeus [Moraceae]; POBA-156; 18.05.2013	*Taji'g* (Mis) *Dimoru* (Ass)	Latex	Piles, diarrhea.	Food
Garcinia cowa Roxburgh *ex* Choisy [Clusiaceae]; POBA-81; 10.11.2012	*Kauthekera* (Mis, Ass).	Fruits	Dysentery	Food
Garcinia lanceifolia Roxburgh [Clusiaceae]; POBA-80; 10.11.2012	*Rupohi tekera* (Mis, Ass)	Fruits	Dysentery	Food
Garcinia pedunculata Roxburgh *ex* Buchanan-Hamilton [Clusiaceae]; POBA-83; 10.11.2012	*Borthekera* (Mis & Ass)	Fruits	Dysentery, pneumonia.	Food
Hedyotis scandens Roxburgh [Rubiaceae]; POBA-13; 20.02.2012	*Bhebeli lota* (Mis & Ass)	Leaves	Cuts and wounds.	

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Houttuynia cordata Thunberg [Sauruaceae]; POBA-182; 12.10.2013	*Mosondari* (Mis, Ass, Bodo)	Leaf	Stomach disorder.	Food
Hydrocotyle sibthorpioides Lamarck [Araliaceaee]; POBA-21; 20.02.2012	*Horumanimuni* (Mis, Ass).	Aeria parts	Gastrointentinal problems, liver disorder, tonic for memory, cuts and wounds.	Food
Ipomoea aquatica Forsskal [Convolvulaceae]; POBA-98; 17.11.2012	*Pani kolmou* (Ass)	Leaf	Jaundice, urinary problem, nervousness.	Food
Isodon ternifolius (D.Don) Kudô [Lamiaceae]; POBA-142; 02.04.2013	*Mi'rnekotung* (Mis) *Jiglari* (Bodo)	Leaf, flower	Stomach disorder, diarrhea, bodyache.	Food
Leucas aspera (Willdenow) J.H.F. Link [Lamiaceae]; POBA-122; 15.02.2013	*Durun* (Mis, Ass)	Shoot	Sinusitis	Food
Ludwigia octovalvis (Jacquin) P.H.Raven [Onagraceae]; POBA-166; 06.06.2013	*Bon jolokia* (Ass)	Bark	Dysentery, fever.	
Melastoma malabathricum Linnaeus [Melastomataceae]; POBA-150; 18.05.2013	*Beyo* (Mis); *Phutkala* (Ass); *Thung khu* (Bodo)	Leaf	*E'pob*	
Melia azedarach Linnaeus [Meliaceae]; POBA-152; 18.05.2013	*Neem* (Mis), *Ghoraneem* (Ass)	Leaf	Skin diseases, antihelminth.	Wood, tooth brush
Mentha arvensis Linnaeus [Lamiaceae]; POBA-133; 12.03.2013	*Takemare* (Mis)	Leaf	Stomach disorder, influenza.	Food
Merremia umbellata (Linnaeus) Hallier *f* [Convolvulaceae]; POBA-101; 17.11.2012	*Sori-riki* (Mis); *Gorialota* (As)	Tendril	Sprain	
Mimosa pudica Linnaeus [Fabaceae]; POBA-154; 18.05.2013	*Yuptap I'ng* (Mis) *Lajukibon* (Ass)	Root	Antihelminthic	
Murraya koenigii (Linnaeus) Sprengel [Rutaceae]; POBA-76; 16.10.2012	*Narasingha* (Mis & Ass)	Leaf	Stomach disorder, liver tonic.	Food

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Musa velutina H.Wendland & Drude [Musaceae]; POBA-157; 18.05.2013	*Doge kopak* (Mis)	Spathe	Dysentery, diarrhea.	Food
Ocimum americanum Linnaeus [Lamiaceae]; POBA-139; 12.03.2013	*Bon tulosi* (Ass)	Leaf	Insect repellent, ear sore, gonorrhea, rheumatism, paralysis	
Ocimum gratissimum Linnaeus [Lamiaceae]; POBA-128; 12.03.2013	*Ram tulosi* (Ass)	Leaf	Insect repellent, ear sore, gonorrhea, rheumatism, paralysis, cough.	
Oldenlandia diffusa (Willdenow) Roxburgh [Rubiaceae]; POBA-64; 16.10.2012	*Bonjaluk* (Mis & Ass).	Leaf	Liver tonic, jaundice.	
Oroxylum indicum (Linnaeus) Kurz [Bignoniaceae] POBA-42; 19.04.2012	*Bhatgilla* (Ass)	Root	Liver problems, stomachache, rheumatism, tuberculosis, diarrhea	Food
Oxalis corniculata Linnaeus [Oxalidaceae]; POBA-167; 06.06.2013	*Sorutengesi* (Mis. Ass).	Leaf	Dysentery, high blood pressure.	Food
Oxalis debilis* var. *corymbosa (de Candolle) Lourteig [Oxalidaceae]; POBA-169; 06.06.2013	*Bortengesi* (Mis, Ass)	Leaf	Dysentery, diarrhea, high blood pressure.	Food
Paederia foetida Linnaeus [Rubiaceae]; POBA-62; 16.10.2012	*Bungkirepuk* (Mis) *Bhedailota* (Ass)	Leaf	Gastrointestinal & urinal problems.	Food, cordage
Pavetta subcapitata Hooker *f* [Rubiaceae]; POBA-74; 16.10.2012	*Patang oying* (Mis)		Gastrointestinal problems.	
Pegia nitida Colebrooke [Anacardiaceae]; POBA-12; 17.02.2012	*Miditakkir* (Mis) *Dhindou Bogorilata* (Ass)	Leaf	Antiseptic, dysentery	Food
Phlogacanthus thyrsiflorus Nees [Acanthaceae]; POBA-08; 17.02.2012	*Titaphul* (Mis, Ass)	Leaf, flower	Antihelminthic, skin diseases.	Food
Phlogacanthus tubiflorus Nees [Acanthaceae]; POBA-05; 17.02.2012	*Kone oying* (Mis)	Leaf, flower	Antihelminthic, skin diseases.	Food

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Phyllanthus emblica Linnaeus [Phyllanthaceae]; POBA-117; 15.02.2013	*Amloki* (Mis, Ass**)**	Fruit	Stomach disorder, pneumonia, constipation.	Food
Phyllanthus niruri Linnaeus [Phyllanthaceae]; POBA-119; 15.02.2013	*Mati amlokhi*, *Bhu amlokhi* (Ass)	Whole plant	Gastrointestinal problems.	Food
Piper longum Linnaeus [Piperaceae]; POBA-170; 06.06.2013	*Pipoli* (Mis, Ass)	Leaf	Insecticide, fever, cough, pharyngitis, tuberculosis.	Food
Piper thomsonii (C. de Candolle) Hooker *f* [Piperaceae]; POBA-173; 06.06.2013	*Angoni pan* (Mis) *Auni pan* (Ass)	Leaf	Insecticide, fever, cough, pharyngitis.	Food
Polygonum plebeium R.Brown [Polygonaceae]; POBA-174; 06.06.2013	*Pani jaluk* (Ass)	Leaf, root, fruit	Cough, bronchitis, pharyngitis.	
Psidium guajava Linnaeus [Myrtaceae]; POBA-160; 18.05.2013	*Muduri* (Mis & Ass)	Shoot	Amoebic dysentery, diarrhea.	Food
Rotheca serrata (Linnaeus) Steane & Mabberly [Lamiaceae]; POBA-194; 11-05.2014	*Oti* (Mis); *Nangal Bhanga* (Ass)	Leaf	Stomach disorder, diarrhea.	Food
Rubus buergeri Miquel [Rosaceae]; POBA-14; 20.02.2012	*Ta:sinpusin* (Mis), *Jetulipoka* (Ass)	Leaf	*E'pob*, female fertility herb.	Food
Rubus coccinatus K.Meijer [Rosaceae]; POBA-178; 06.06.2013	*Belipoka* (Mis,Ass)	Leaf	*E'pob*	
Sarcochlamys pulcherrima Gaudichaud-Beaupré [Urticaceae]; POBA-192; 18.12.2013	*Ombe* (Mis, Bodo)	Leaf	Diarrhea, dysentery.	Food
Senna tora (Linnaeus) Roxburgh [Fabaceae]; POBA-61; 16.10.12	*Bonmedelwa* (Ass)	Leaf, root	Ringworm, bronchitis, asthma, snake antidote.	Fuel
Solanum anguivi Lamarck [Solanaceae]; POBA-187; 05.11.2013	*Bangko* (Mis) *Bhekuri tita* (Ass)	Leaf, fruit	Antihelminthic, skin diseases, boils.	Food
Spondias pinnata (Linnaeus *f*) Kurz [Anacardiaceae]; POBA-52; 17.02.2012	*Dorge* (Mis) *Amora* (Ass)	Leaf, fruit	Urinary problems, dysentery.	Food

Plants [Family]; Exsiccatae	Local Name	Parts used	Prescription	Other uses
Sterculia villosa Roxburgh [Malvaceae]; POBA-188; 18.12.2013	*Sargog* (Mis) *Udal* (Ass.& Bodo)	Gum	Veterinary practice.	Fuel, fibre
Stereospermum chelonoides (Linnaeus *f*) de Candolle [Bignoniaceae]; POBA-47; 19.04.2012	*Paroli* (Mis, Ass)	Leaf	Infection of toes.	Fuel
Syzygium cumini (Linnaeus) Skeels [Myrtaceae]; POBA-162; 18.05.2013	*Kolajamu* (Mis & Ass) *Khorjam* (Bodo)	Fruit, bark	Diabetes	Food
Syzygium fruticosum de Candolle [Myrtaceae]; POBA-163; 18.05.2013	*Tepet Jamu* (Mis) *Kathiyajamu* (Ass)	Fruit, bark	Diabetes	Food
Syzygium kurzii (Duthie) N.P.Balakrishnan [Myrtaceae]; POBA-165; 18.05.2013	*Gi'rgumdotke* (Mis) *Bogijamu* (Ass)	Fruit, bark	Diabetes	Fuel
Terminalia bellirica (Gaertner) Roxburgh [Combretaceae]; POBA-92; 10.11.2012	*Lokyo* (Mis); *Bhomura* (Ass)	Fruit	Gastrointestinal disorders, pneumonia.	Food, fuel
Terminalia chebula Retzius [Combretaceae]; POBA-93; 10.11.2012	*Ilikang* (Mis) *Silikka* (Ass)	Fruit	Same as *T. bellarica*.	Food, fuel
Vitex negundo Linnaeus [Lamiaceae]; POBA-197; 11-05.2014	*Posotia* (Mis, Ass).	Leaf, root	Febrifuge, general tonic, bodyache, skin diseases.	Food
Zanthoxylum nitidum (Roxburgh) de Candolle [Rutaceae]; POBA-180; 12.10.2013	*Ri'kom* (Mis)	Aerial parts	*E'pob*, antimicrobials.	Food
Zanthoxylum rhetsa de Candolle [Rutaceae]; POBA-181; 12.10.2013	*Onger* (Mis) *Bajruli* (Bodo)	Leaf	Bodyache	Food, fuel

There is urgent need to conserve medicinal plants Poba RF

Poba forest is under serious threats from anthropogenic activities and erosion by the Laly River. The forest is over exploited to meet local demands while large area of the forest has been encroached for agriculture. Poba RF is indispensable for food security, livelihoods and

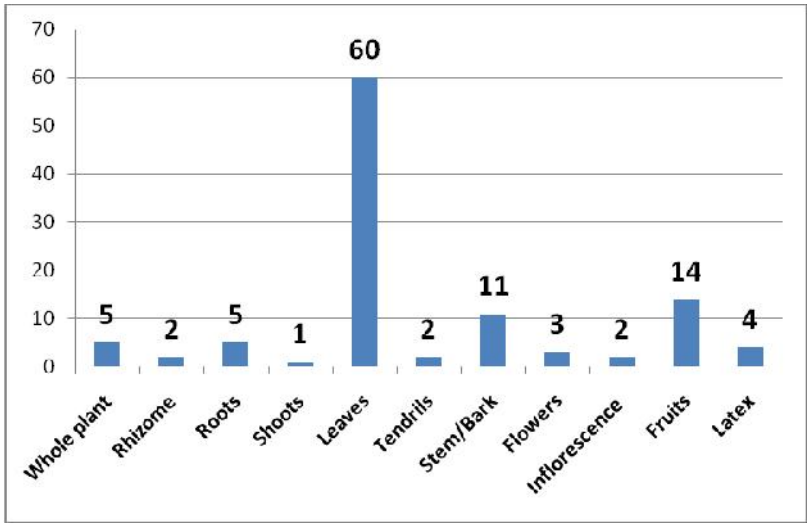

Figure 2. Numerical distribution of plant parts used in ethnomedicines among fringe communities of Poba RF.

ecological stability of not only fringe areas but the entire Jonai Subdivisional region. Many medicinal plants double as food and while some medicinal plants treble as food and feed. This invaluable dynamic link illustrates the indirect benefits of medicinal plants to the people through consumption of wild foods and livestock or its products. Further, some medicinal plants in Table 1 have commercial values which are traded in local markets by resource poor families to generate cash income. Some medicinal plants like *Zanthoxylum rhetsa* (Roxburgh) de Candolle, *Z. hamiltonianum* Wallich, *Bryophyllum pinnatum* Roxburgh, *Plectranthes ternifolius* D. Don., *Sarcochlamys pulcherimma* Gaudichaud-Beaupré and *Vitex negundo* Linnaeus have in the recent times become rare in the forest. Of particular significance is *Z. rhetsa*; the plant was encountered only once during field study. Ecological function of Poba RF is equally important; the forest forms the only natural barrier between Jonai Subdivisional Township and the eroding waters of the Laly River in the south. Had it not been for the Poba forest, Jonai and adjoining areas would have reeled under water with unprecedented loss of lives and property. In the light of the above Poba forest deserves better conservation status for maintaining goods and services, and ecological stability in Jonai subdivisional and adjoining areas.

CONCLUSION

It is pertinent to mention that Poba is the only reserved forest in the entire Jonai Subdivision; other reserved forests namely Gali, Jamjing and Sengajan have been completely encroached and rendered to oblivion. Poba RF is indispensable for survival of fringe communities and its resources has to be harvested in a sustainable manner to maintain balanced interaction and conservation of biodiversity. The forest needs better protection from encroachment and overexploitation as these factors can degrade the ecosystem resulting in loss of biodiversity before being scientifically assessed. Traditional knowledge system of forest people has been understudied except as leads for drug discovery notwithstanding it being the base of human sustenance and medicines for centuries. Additionally it can be useful in identification of new plant resource for mankind. Further research is necessary to study socio-economic aspects of fringe villages as this factor is critical for conservation of biodiversity of Poba forest.

Acknowledgements

Authors are indebted to the ethnic groups in fringe areas of Poba RF for their cooperation during filed study and for sharing their valuable ethnomedicinal knowledge and experiences. We also thank Jonai Forest Range office for granting permission to undertake the study in fringe villages and inside the forest.

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