

Original Research Article

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An Overview of Medicinally Important Phyto Resources Used by the Manipuri Community of North Tripura District of Tripura, North East India

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Abstract

An ethno-medicinal investigation was conducted for the documentation of the traditional knowledge of medicinal plants being used by the Manipuri community of north Tripura district. This present investigation provides valuable information about the different uses of plants in their primary health care system. The information had been documented by interviewing their own medicine man called *Maiba* or *Maibi* following different ethnobotanical methods. We have documented 43 plants species belonging to 35 families used for treating 42 human ailments. Among the medicinal plants reported, the most common growth form was herbs (55.81%) followed by trees (30.99%) and shrubs (13.95%). Leaves were the most frequently used plant parts. The high degree of consensus among the informants suggests that existing use and knowledge are still strong, and thus the preservation of indigenous knowledge would show good prudence in acting before much has been lost. This study also provides a better database for future studies.

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Introduction

Starvation and ailment are the two most important phenomena which threaten the survival of human beings since primeval time. Human beings have tried various methods and strategies to cure themselves from several diseases. Due to the unproblematic access to the number of plants of medicinal interest growing around the dwelling place, the initial empirical attempts were made with plants and plant products. In spite of tremendous advances in synthetic drugs and medicine, a large number of people still believe on herbal drugs with hope of safety and efficacy (Sandberg et al., 2001; Peter, 2004; Salim et al., 2008). The survey conducted by World Health Organization (WHO), revealed the fact that as many as 80% of the world's people depend on traditional

medicine for their primary healthcare need (Azaizeh et al., 2003) due to the considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of several diseases. A variety of higher plants are well known for drug therapy in conventional medicine (Martini-Bettolo, 1980; Farnsworth et al., 1985; Akerele, 1993; Aniyam, 1995; Martin, 1995a, 1995b; Ghorebani et al., 2006; Shanmugasundaram et al., 2011).

The use of phyto resources as a remedy of various diseases was practiced by our ancestors, a process which must have started by trial and error (Umapriya et al., 2010) but with the dawn of modern civilization such traditional knowledge about medicinal plants are transmitted very inadequately from one generation to

other or transmitted in less significant fractions (Kuhnlein and Receveur, 1996; Sheng-Ji, 2001). The valuable knowledge is therefore remain as an unwritten form and requires burning measures of conservation and documentation. However, several ethno-medicinal surveys were conducted in Tripura by different researchers (Shil and Dutta Choudhury, 2009; Singh et al., 1997; Majumdar et al., 2006; Majumdar et al., 2007; Das et al., 2009; Das and Dutta Choudhury, 2010; Roy, 2010; Sen et al., 2011; Das and Dutta Choudhury, 2012; Das et al., 2014; Sharma et al., 2014). But no survey was conducted among the people of Manipuri community of north Tripura district. Therefore, current ethnobotanical survey was conducted for investigating and documenting the traditional usages of different plant resources by Manipuri community for their healthcare system.

Materials and methods

Study area

Tripura, the third smallest state of India occupying an area of about 10,491.69 kilometer² (22°56'N' to 24°32'N' and 91°09' E to 92°20') is a place of enormous interest and potential for ethno botanist. 19 tribal community such as live harmoniously together within the district with several non tribal groups like the Bengali, Manipuri, etc. According to the Census, 2011 the total population of this state is 36, 71,032. Tripura has been subdivided into 8 districts (January, 2012) namely; North Tripura, West Tripura, South Tripura, Dhalai, Khowai, Unakoti, Sipahijala and Gomati. Most of the villages are situated far from modern conveniences and inaccessible by road or rail. Thus, the rural villagers have deep faith in their traditional healthcare system and in most of the cases prefer them to the modern system of medicine.

Investigating methods

Field investigations were conducted during the year 2013-2014 as per well planned schedule to collect information on medicinal plants used by the Manipuri community. Survey was done by standard procedure (Jain and Rao, 1977), through a questionnaire and group discussion with the community heads, old people, and women and also from neighboring market (Rao and Hajra, 1994) and cross checked. The interviews and discussions were carried out in the local language because the author is a native speaker of the language. The collected ethnobotanically important plant specimens were identified with the help of Flora of Tripura State (Deb, 1983).

Results and discussion

This present investigation documented 43 medicinal plants from 35 families (Table 1). The prominent families include Rutaceae (3 species); Acanthaceae, Amaryllidaceae, Apiaceae, Araceae, Lamiaceae, Zingiberaceae (2 species each) and rest of the families contain only 1 species each. Among the medicinal plants reported, the most common growth form was herbs (55.81%) followed by trees (30.99%) and shrubs (13.95%) (Fig. 1). This study indicates that the people of the Manipuri community north district of Tripura have acquired considerable knowledge about the medicinal uses of plants in their surroundings, and in their daily life to remain healthy.

Different plant parts of these species, such as leaf, stem, bark, fruit, seed, root, rhizome, etc. were used in different forms for the management of various ailments as a curative agents (Figs. 2, 3 and 4). The drug used for different diseases are generally taken by orally. The time of taking, dose and duration of practice of these folk-medicines are varied on the basis of disease. Many of these plant species and their parts are used as vegetable, spice and fruit in daily life by the people of Tripura, which also provide nutrition, supply minerals and may confer beneficial effect to remain healthy. Unfortunately, there is lack of fruitful attempts to promote and conserve this immense treasure of traditional knowledge.

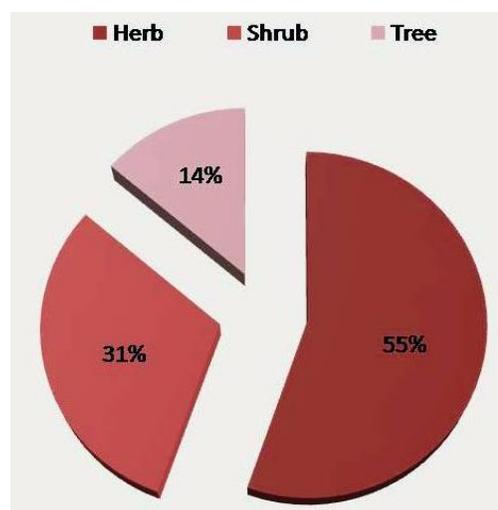


Fig. 1: Habits of documented ethnomedicinal plant species.

During the survey, it has been observed that the people of Manipuri community still believe on traditional herbal medicines up to great extent. Though pharmacological activities of several plants have been

investigated and some of them are already incorporated in modern medicinal system based upon the traditional knowledge. During the course of this survey we also found that many of these traditional medicinal plants used by the Manipuri community are still a large unexploited source of structurally novel compounds that might serve as lead for the development of novel drugs and have great potential to

be developed as standard preparation for different disorders. The establishment of community clinic may be helpful in changing gradually the existing pattern of indigenous knowledge based system of healthcare. Therefore, some initiative should be taken up to perform phytochemical and pharmacological studies to support and validate the potential of local plants used in medicine.

Table 1. Enumeration of medicinal plants used for curing various human diseases by Manipuri community in North Tripura district.

Sl. No.	Scientific name	Family	Vernacular name	Parts used	Ethnomedicinal uses
1	<i>Adhatoda vasica</i> L.	Acanthaceae	Nongmangkha	Fresh leaves	Fresh leaves are used in Cough, cold, dysentery and allergic problems
2	<i>Aegle marmelos</i> Correae Koen.	Rutaceae	heikakok	Fresh leaves, fruits	Leaves are used for religious purposes. Leaves are also used for curing stomach disorder or loose motion. Fruits are eaten raw and boiled as well. Fruit pulp is used against stomach disorder.
3	<i>Allium cepa</i> L.	Amaryllidaceae	Thilhau	Bulb	Bulb is useful in purifying blood.
4	<i>Allium sativum</i> L.	Amaryllidaceae	Chanam	Bulb	Paste of the bulb is useful in lowering the blood pressure.
5	<i>Alocasia indica</i> (Roxb.) Schott.	Araceae	Yendem	Petiole	Petiole Boiled with added ingredients and taken for rejuvenating women after giving birth
6	<i>Alocasia macrorrhizos</i> (L.) G.Don.	Araceae	Hongoo	Corm	Corm is used as a vegetable for nursing mother and old men
7	<i>Aloe vera</i> (L.) Burm.f.	Xanthorrhoeaceae	Ghritokumari	Fresh leaves	Fresh leaf juice are useful in fever, burn injury and stomach ache
8	<i>Alpinia galanga</i> (L.) Willd.	Zingiberaceae	Kanghu	Rhizome	Rhizome is useful in expel ling intestinal worm and controlling high blood pressure
9	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem	Fresh leaves	Fresh leaves are consumed during stomach problem, cough, cold, pimples, fever, small pox , chicken pox and worm
10	<i>Averrhoa carambola</i> L.	Oxalidaceae	Heiningjom	Fruit	The fruit juice mixed with sugar is used to cure jaundice .Fruits are also useful in curing Burns and scalds
11	<i>Blumea balsamifera</i> (L.) DC.	Asteraceae	Langthrei,	Tender shoots, fresh leaves	Tender shoots and fresh leaves are useful for treating stomach ache
12	<i>Catharanthus roseus</i> L.	Apocynaceae	Darilei	Fresh leaves	Fresh leaf juice is taken regularly in diabetes; the fresh leaves of the plant are crushed and applied on place of insect bite and fresh wound.
13	<i>Carica papaya</i> L.	Caricaceae	Awathabi,	Fruits	Fruits are used constipation. Fruits are also used in insect and dog bites.
14	<i>Centella asiatica</i> L.	Apiaceae	Peruk,	Whole plants	Whole plants useful for Irritation, inflammation of throat and dysentery
15	<i>Chenopodium album</i> L.	Amaranthaceae	Monsaobi	Tender shoot	Tender shoots are useful in treating Leucorrhoea
16	<i>Citrus medica</i> L.	Rutaceae	Champra	Fruits	Fruits are used to cure obesity
17	<i>Citrus macroptera</i> Montrouz.	Rutaceae	Haribob	Fruits	Fruits are used in treating gall bladder stone.
18	<i>Clerodendrum viscosum</i> Ventenat	Verbenaceae	Kuthap	Fresh leaves	Fresh leaf extract used as expectorant; decoction used in high blood pressure.

Sl. No.	Scientific name	Family	Vernacular name	Parts used	Ethnomedicinal uses
19	<i>Cynodom dactylon</i> (L.) Persoon	Poaceae	Tingthow	Young twigs	Root infusion in piles, crushed roots in chronic gleans; plant juice astringent, useful in cuts and wounds,
20	<i>Eryngium foetidum</i> L.	Apiaceae	Awaphadigom	Whole plants	Whole plant is used in the treatment of hypertension, constipation, stomach ache, worms and diarrhoea.
21	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Jaba kusum	Leaves and flowers	Young flowers are taken in irregular menstruation problem; flowers and leaves are made into paste and applied on hair in dandruff problem. Leaves are also used in curing from irritation, burn injuries and fever
22	<i>Houttuynia cordata</i> Thunb.	Saururaceae	Toninghok	Whole plant	Fresh whole plants are used in the treatment allergy and tonic
23	<i>Ipomea aquatica</i> Forsk.	Convolvulaceae	Komrek	Fresh leaves	Paste of the leaves are useful for the patient suffering from diabetes
24	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Hangaidakmana	Fresh leaves	Crushed leaf is kept on wound/injury to stop bleeding; fresh juice of the leaf is taken in early morning in dysenteric condition and kidney stone.
25	<i>Leucas aspera</i> Spreng.	Lamiaceae	Lembum	Tender shoot	Fresh tender shoot is used as a vegetable and also useful in treating the patient suffering from cough.
26	<i>Mimosa pudica</i> L.	Mimosaceae	Ikaithabi	Tender shoots	Tender shoots are used in treating the patients of Piles and jaundice.
27	<i>Momordica charantia</i> L.	Cucurbitaceae	Karanakhabi	Fruits	Fruit juice is taken as a treatment of viral fever and malaria.
28	<i>Moringa oleifera</i> Lam.	Moringaceae	Sajna	Bark	Bark paste is applied in toothache and used to clean the teeth
29	<i>Musa paradisiaca</i> Roxb.	Musaceae	Laphu	Unripe or ripe fruits, stems,	Stems and unripe fruits are useful in dysentery and diarrhoea. Ripe fruits clearance of stomach.
30	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Thambal	Young leaves, dried leaves, seeds, roots	Leaves are useful in diabetes, diarrhoea, cholera, liver disfunction. Seeds are used in cardiac complaints. Roots are useful in piles bleeding.
31	<i>Nymphaea rubra</i> Roxb. ex Andrews	Nymphaeaceae	Tharo angangba	Rhizomes	Rhizomes are useful in treating the patient suffering nose bleeding, piles, dysentery and also function as cardio tonic.
32	<i>Nyctanthes arbortristis</i> L.	Oleaceae	Singarei	Leaves and flowers	Leaves are blend into a paste using mustered oil and applied in worm infection externally; flowers are crushed and applied to reduce inflammation.
33	<i>Ocimum basilicum</i> L.	Lamiaceae	Naosek-lei	Fresh leaves and tender shoots	Fresh leaves and young shoots are used in treating fever.
34	<i>Ocimum sanctum</i> L.	Lamiaceae	Tulsi	Fresh leaves and tender shoots	Fresh leaves are useful in bronchitis, stomach problem, fever, cough, cold and congestion of lungs.
35	<i>Perkia javanica</i> Lam.	Fabaceae	Yongchak	Fruits	Fruits are as a part of their meal and useful for stomach disorders.
36	<i>Phlogacanthus thyrsiflorus</i> (Hardwicke) Mabberleys	Acanthaceae	Nongmangkha	Fresh leaves	Vapour in hot water with <i>Nyctanthes abor-tristis</i> and <i>Clerodendron viscosum</i> is inhaled in rheumatism.
37	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Haigu	Fruit	Fruits are made into paste and applied in hair to reduce hair fall.

Sl. No.	Scientific name	Family	Vernacular name	Parts used	Ethnomedicinal uses
38	<i>Polygonum posumbu</i> Buch.-Ham. ex D. Don	Polygonaceae	Fakpai	Tender shoots and fresh leaves	The juice of the tender shoot and the fresh leaves are used to reduce heart beat.
39	<i>Psidium guajava</i> L.	Myrtaceae	Pungdon	Fruits and leaves	Juice of young leaf or raw leaf is taken in empty stomach to reduce abdominal pain and dysentery; paste of the leaf is applied in gum to reduce tooth pain. Fruits are also useful for the treatment of dysentery.
40	<i>Sapindus trifoliatus</i> L.	Sapindaceae	Kekru	Fruits	The fruit is used for treating asthma.
41	<i>Terminalia chebula</i> Retzius	Combretaceae	Manahi	Dried fruits	Powder of the fruit with honey is used to reduce vomiting; dried fruit is kept in water overnight and early morning the water is taken in cough and asthmatic condition; paste of the fruit is used in stomach pain.
42	<i>Tamarindus indica</i> Linn.	Caesalpiaceae	Mangge	Fruits, leaves seeds and flowers	Both ripe and unripe fruits are used in stomach disorders, general body pain, jaundice, yellow fever, as blood tonic and skin cleanser. Leaves are used as fodder. Fried or cooked seeds are taken as delicacy.
43	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Shing	Rhizome	Fresh juice of the rhizome is used in cough and menstrual disorder.

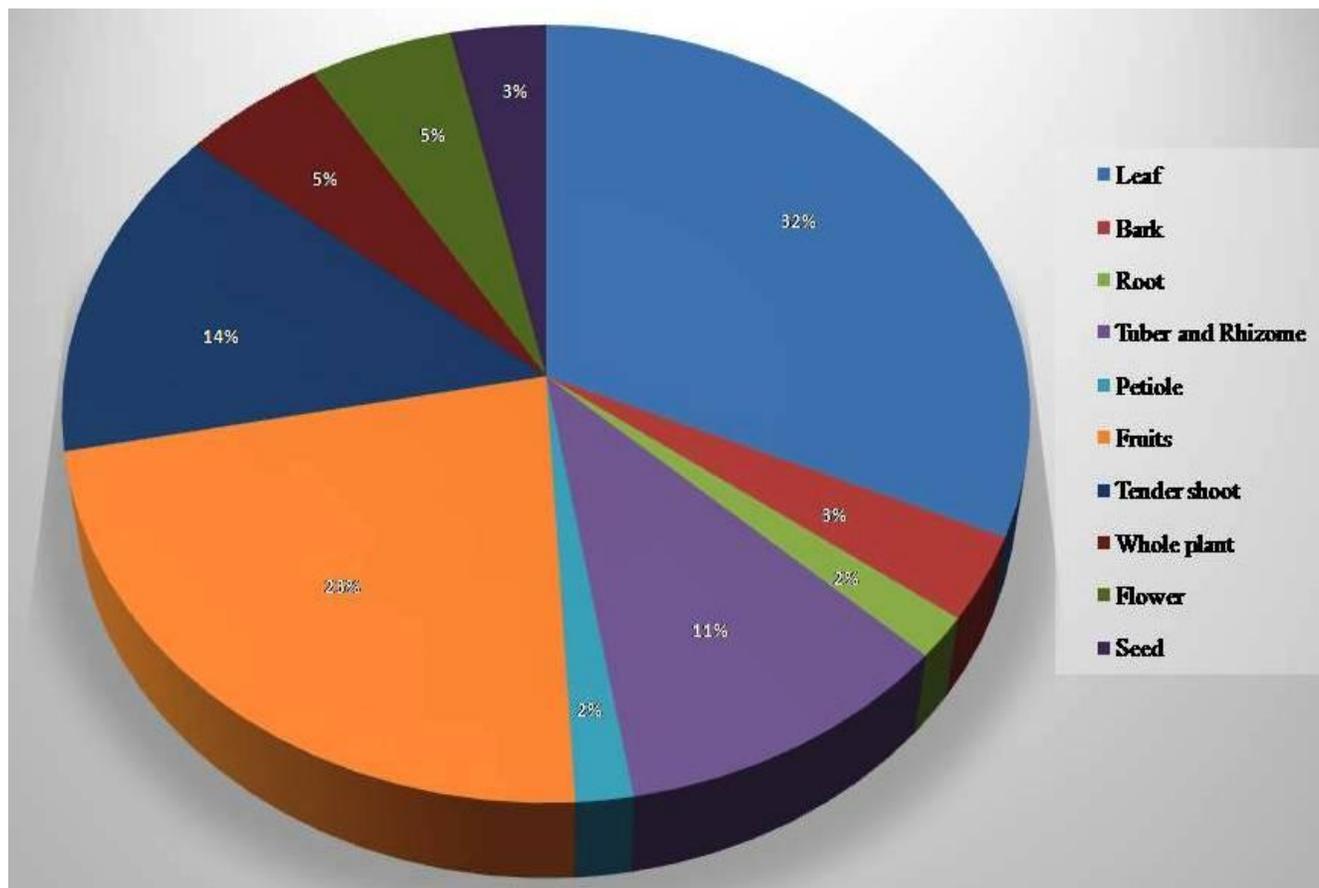


Fig. 2: Pie-chart showing percentage of different plant parts used for ethnomedicinal purposes.

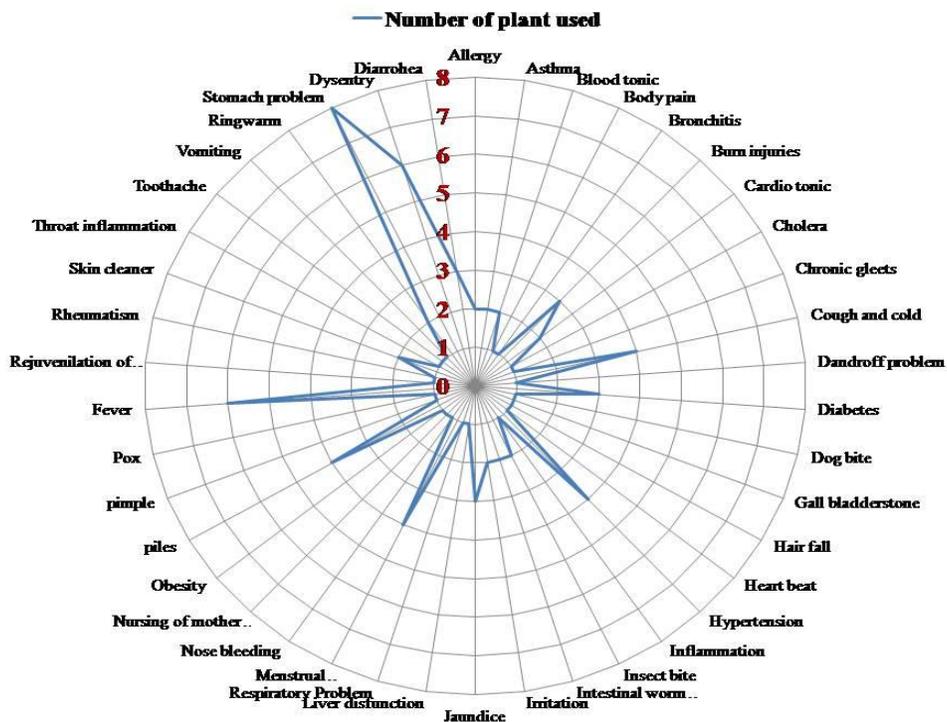


Fig. 3: Utilization of different ethno medicinal plant species used for human ailments by the Manipuri community of north Tripura district.

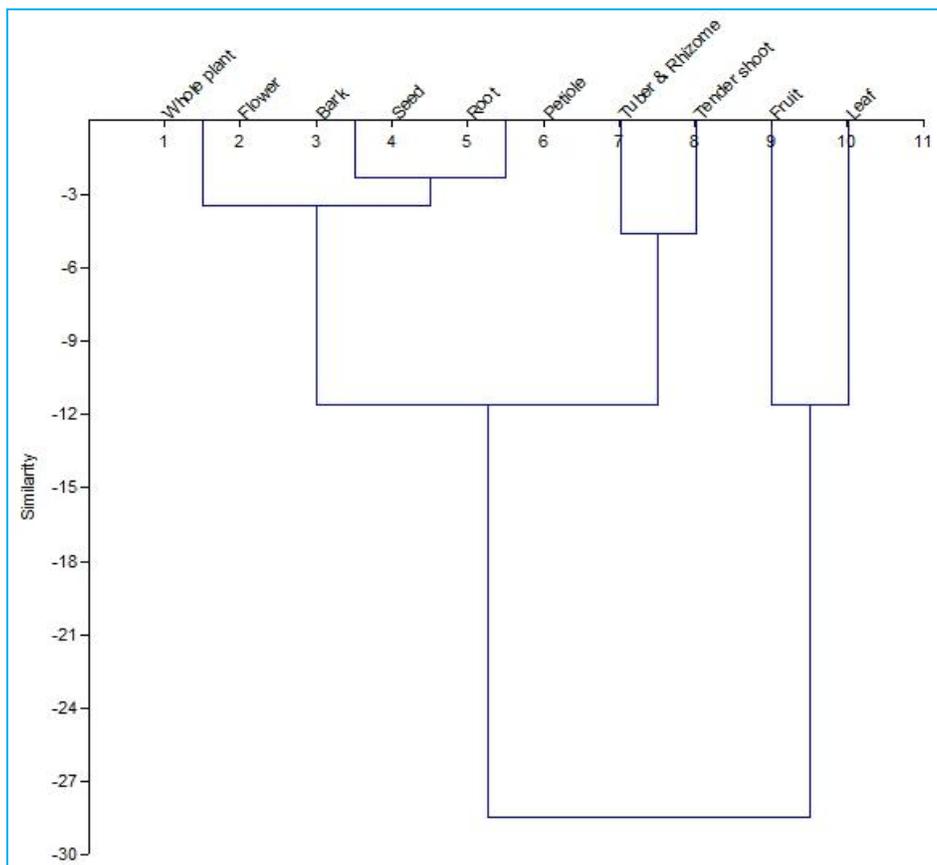


Fig. 4: Cluster analysis showing similarity between different plant parts used as a source of medicines by the Manipuri community.

Conclusion

Tripura is rich source of plants and the existing tradition of treating different plants used as medicine by Manipuri community has been collected during the course of this present investigation. This community has their own medicine man called *Maiba* or *Maibi* who conduct different rituals for the prescription of these herbal medicines. People living in rural areas still undergo these treatments this kind of knowledge is considered old-aged by the young peoples, who get influenced by the modern medicines, and the practices decline. Only a few individuals still carry on this knowledge for the future while the younger generation does not believe in it. Aggressive civilization, rapid growth of industrialization, excessive extraction of herbal raw material and pollution are an important reason for the loss of different species and cause danger to biodiversity. Preservation of medicinal plants and investigation on different plants are necessary, which can give better drug/formulation with fewer side effects in treatment of various diseases. Preservation of the indigenous knowledge of plants used in traditional health care is very important. Hence, it is the need of hour to create awareness among people on cultivation and conservation of phyto resources which are widely used for medicinal purposes.

Conflict of interest statement

Authors proclaim that they have no conflict of interest.

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