



Indigenous Technological Knowledge (ITK) Applied to Specific Herbal Medicinal Plants for Common Ailments: Study From Assam, Northeast India

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Abstract: The present study was undertaken to explore the knowledge and existing practices of indigenous technological knowledge (ITK) by rural women of Assam, North-east India on herbal medicinal plants for the treatment of common ailments. Simple random sampling design was followed for selection of two blocks. One hundred (100) numbers of female respondents were selected from four villages of the two blocks. First-hand information was gathered by personal interview method through structured interview schedule. The majority (67.00%) of the respondents was from medium socio-economic status and 68.00 percent of the respondent had medium level of knowledge. The highest percentage of respondents (98.00%) had used different indigenous technological knowledge on herbal medicinal plants for treatment of common ailments such as cold and cough, digestive problems, diabetes, urinary disorder, depression, urinary problem, cuts and wounds and skin disease. The different parts (leaf, fruit, root and whole plant) of herbal medicinal plants were used for curing above mentioned ailments in the form of paste, extract, chutney or curry.

Keywords: Indigenous Technological Knowledge (ITK), Herbal medicinal plants, Rural women

India is inhabited by a large number of people having diverse ethnic group. There are over 400 different tribes and other ethnic groups residing mostly in rural areas in India. Most of them are still living in the remote forest areas and depend to a great extent on the indigenous system of medicines. The knowledge on herbal medicinal plants has been continuing for years and has been transmitted orally from generation to generation. Plants and their parts used by the different tribal and non-tribal people has some or the other relevance with the plants that used by these traditional healers residing in this remote part of India. However, recently it seems that this type of knowledge on traditional medicine is vanishing from the modern society since younger generations are not interested to carry on this tradition. In India, folk medicine plays an important role in rural areas. It is estimated that traditional medicine use 8,000 plant species and more than 25,000 herbal formulas (Sen et al 2016).

Health status of Indian women especially in rural area is in poor state. Women and girl child are sometimes not allowed to health centres or local dispensaries even if these are available in their village. Therefore with all the limited means and resources at her disposal, tries to r health through traditional medicinal knowledge and plant resources available in rural areas. But this forced responsibility has also helped her to acquire basic knowledge about local plants and use of different plant parts as therapeutics. With the help of

self-acquired traditional knowledge are well mastered to identify the plant at right development stage of use through visual markers which sometimes are not even known to the scientific world the elderly women play a pivotal role in retaining and passing on traditional knowledge to the next generation. Women share and practiced herbal medicinal plants for both in daily diet as well as curing different ailments.

The people of Assam have good thriving knowledge on several common diseases as well as their remedial therapies with the traditional use of different parts of naturally available herbal medicinal plants like root, leaves and shoots since time immemorial. Scientific documentation of indigenous traditional knowledge through survey of medicinal properties of herbal medicinal plant specimens are important for the conservation and sustainable utilization of natural resources extensively used in human welfare. Therefore, it is the need of the hour to preserving the rich indigenous traditional knowledge of tribal women of Assam, North East India. Thus, the present study was undertaken to understand the ITKs applied to specific herbal medicinal plants for treatment of common ailments.

MATERIAL AND METHODS

The study was carried out in Jorhat District of Assam, North-East India. The descriptive research design, especially survey method was used in this study. A simple random

sampling design was followed for selection of two blocks namely Dhekorgarah and Titabor from respective subdivision i.e. Jorhat and Titabor. A list of villages from each of the selected blocks was collected from Block Development Officers. While collecting data special care was taken to select such villages, which were most inaccessible to medical institute, poor transportation facilities and where record of use of such traditional practices of herbal medicine has been continuing till date. The four villages, two villages from each block were purposively selected. For the selection of respondents, a list of total household was prepared from each of the selected villages with the help of village leader. Adopting the methods of the ethnomedicinal information was collected through general conversation with the informants such as village headman (gaon buhas), traditional healers (Bejs), local men and women (Barbhuiya 2022). There was a formal discussion with these informants. The women folk were given a significant role in the discussion since they possess more information about the use of local herbs in primary curing of various diseases. Among those 25 numbers of married women from different age and classes were selected from each village by using simple random sampling method. Thus altogether, 100 numbers of respondents were selected for the present study. The data regarding plant name, plants parts used, form or mode of preparation and treatment for common ailments were collected through personal interview method with the help of the interview schedule developed and analysed.

RESULTS AND DISCUSSION

Socio economic status of the respondents: The majority (68.00%) of the respondents had medium level of knowledge followed by 17.00 percent of the respondents had high level of knowledge and only 15.00 percent had low level of knowledge. It is assumed that rural women might require more information regarding herbal medicinal plants and might be due to the fact that respondents had less exposure to attain the training on herbal medicinal plants.

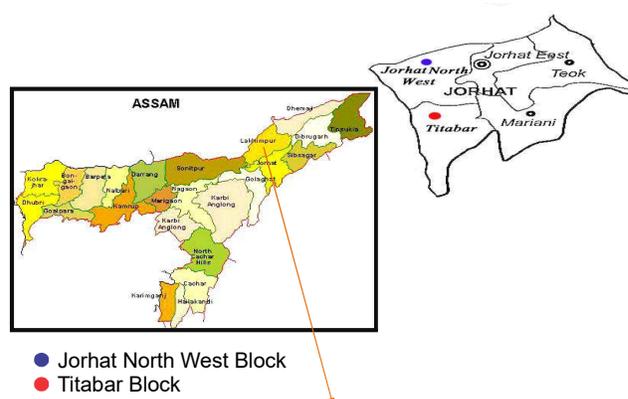


Fig. 1. Location of site of study area

All the respondents have full knowledge on some statement (Table 2). These are herbal medicinal plants are to be included it in our daily diet. Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder. Holy basil (tulsi) is good for cough relief and thyme leaf gratiola (brahmi) for brain. Mint (podina) can stop vomiting. Indian patchouli (Hukloti) helps to healing, colocasia (kosu) is a rich source of iron and curry leaves (norohinho) can increase hunger. *Trigonella foenum graecum* (methi) is very bad for pain and swelling. Second and third highest percentage of the respondents have knowledge on henna (Jetuka) as beneficial for hair and skin and "Assam is very rich in herbal medicinal plants (97.00 and 94.00 percent, respectively).

Practices of ITK among rural women on herbal medicinal plants for treatment of common ailments: The data on existing practices of ITK on herbal medicinal plants according to parts use, purpose of use and form of use of the selected 30 numbers of herbal medicinal plants (Table 3). The data on existing practices of herbal medicinal plants by rural women for treatment of five common ailments i.e. cough and cold, digestive problems, urinary disorder, diabetes and skin disease are presented in Table 3. Majority of the respondent (98.00%) use leaf of nine numbers of herbal medicinal plants

Table 1. Description of different forms of herbal medicinal plants commonly used

	Description
Paste	Herbal paste is called kalka in Ayurveda. It is one of the basic dosage forms. In this study paste is defined as the fresh herb ground as it is or by adding water. Paste is used for external application and oral administration.
Extract	In Ayurveda pharmaceuticals and therapeutics, extract is described as primary and most potent dosage form. In this study extract is defined as immediately after collection of herbs, it is washed, crushed and by applying pressure the liquid or juice obtained. It can be used directly or diluted with water.
Curry	In this study curry means first make a smooth paste of herbs, then heat oil, put the paste, boil the paste with a little more water and adjust seasoning with little salt and turmeric powder.
Oil	Herbal oil is pure, whole, organic oil from natural source like herbs. In this study oil is defined as base oil infused with one or more herbs- combining the nourishing and soothing qualities of the oil with the healing properties of the herbs.
Raw	In this study raw form is defined as directly eating or chewing fresh parts of the herbs.

namely holy basil, curry leaf, mint, Chinese flower, Indian sorrel, heart leaf, acid plant, henna and amaranth. Maximum percent of respondents (88.00%) use fruit of black pepper. The 76.00 percent of respondents use stem of amaranth and 98.00 percent of respondents use root of three herbal

medicinal plants i.e. turmeric, garlic and onion. Maximum (98.00%) use the whole plant of four numbers of herbal medicinal plants i.e. Asiatic pennywort, theme leaved gratiola, prickly amaranth and green amaranth.

Highest percentage of respondents (98%) use holy basil

Table 2. Distribution of respondents according to responded percentage of the knowledge statements regarding herbal medicinal plants

Statements	N=100	
	Percentage (%)	
	Yes	No
Herbal medicinal plants are to be included in our daily diet.	100	0
Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc.	100	0
Holy basil (tulsi) is good for cough relief.	100	0
Thyme leaved gratiola (brahmi) is good medicine for brain.	100	0
Trigonella foenum graecum (methi) is very bad for pain and swelling.	100	0
Mint (podina) can stop vomiting.	100	0
Indian Patchouli (Hukloti) helps to healing.	100	0
Colocasia (kosu) is a rich source of iron.	100	0
Curry leaves (noroxinho) can increase hunger.	100	0
Henna (Jetuka) is beneficial for hair and skin.	97	3
Assam is very rich in herbal medicinal plants.	94	6
Ginger (adda) cures pain.	90	10
Herbal medicine has contributed to primary health care.	82	18
Garlic (nohoru) can prevent bacterial infection.	71	29
Henna (Jetuka) is beneficial for hair and skin.	70	30
Thumba (Durun) is very bad for low blood pressure.	67	33
Root of Shame Plant (Nilaji Bon) is use for curing piles.	57	43
Herbal medicinal plants cannot be used by pregnant women.	57	43
Herbal medicinal plants have less side affect.	54	46
Acid plant (dupor tenga) helps to cure urinal infections.	47	53
Asiatic Pennywort (Manimuni) cures fever.	45	55
Black nightshade (Bhekuri tita) helps to relieves pain.	43	57
Thyme leaved gratiola (Brahmi) leaves is bad for pain and blood.	43	57
Herbal medicinal plants are not very expensive.	42	58
High doses of herbal medicines are dangerous to health.	42	58
Amaranth (Moricha) is good for blood.	39	61
Aloevera (saalkuori) helps to kill worms.	36	64
Aloevera (saalkuori) helps in purifies the blood.	35	65
Rosy Periwinkle leaf (nayantora) is good for diabetic patient.	33	67
Stone Breaker (mati amlokhi) cures viral infections.	28	72
Prickly amaranth (Hati khutura) is beneficial in skin care.	27	73
Turmeric leaf (Halodhi paat) helps to reduce depression.	21	79
Chiretta (Sirota) is good for stomach trouble.	12	88
Onion (ponoru) helps to relieve irritation.	10	90
<i>Eclipta prostrata</i> (Bhringraj) is good for tooth ache.	8	92

Table 3. Distribution of respondents according to parts use, purpose of use and form of use of selected 30 herbal medicinal plants
N=100 (Multiple respond table)

Scientific name	English name	Local name	Part use (%)							Purpose of use (%)					Form of use (%)							
			Leaf	Fruit	Stem	Root	Whole plant	Cough	Stomach trouble	Skin care	Depression	Urinary problem	Increase appetite	Hair care	Diabetes	Increase memory	Cuts and wounds	Paste	Extract	Chutny/ Curry		
<i>Ocimum tenuiflorum</i>	Holy basil	Tulsi	98					98					58							98		
<i>Aloevera</i>	Aloevera	Saalkuwoori	42									36								42		
<i>Murraya koenigii</i>	Curry leaf	Norohinho	98									98								98		
<i>Centella asiatica</i>	Asiatic pennywort	Manimuni						98				98								54		44
<i>Mentha arvensis</i>	Mint	Podina	98		30							98								62		98
<i>Paederia foetida</i>	Chinese flower	Bhedailota	98									98										98
<i>Curcuma longa</i>	Turmeric	Halodi	58					98			32	55	70	20						20	70	63
<i>Oxalis Corniculata</i> Linn	Indian sorrel	Tengesi	98										51							51		98
<i>Houttuynia cordata</i> Thunb	Heart leaf	Mosondori	98									98										98
<i>Bacopa monnieri</i>	Thyme leaved gratiola	Brahmi						98														98
<i>Bnyophyllum pinnatum</i>	Acid plant	Dupor tenga	98																			98
<i>Pogostemon Heyneanus</i>	Indian patchouli	Hukloti	83																		78	83
<i>Colocasia esculenta</i>	Colocasia	Kosu	52										52									52
<i>Solanum nigrum</i>	Black nightshade	Bhekuri tita	66								44											66
<i>Catharanthus roseus</i>	Rosy periwinkle	Noyontora	31																			31
<i>Allium sativum</i>	Garlic	Nohoru						98				59								40		98
<i>Coriandrum sativum</i>	Coriander	Dhaniya	82		70															82		82
<i>Leucus aspera</i>	Thumba	Durun	90									70									41	58

Cont...

Table 3. Distribution of respondents according to parts use, purpose of use and form of use of selected 30 herbal medicinal plants
N=100 (Multiple respond table)

Scientific name	Herbs	Part use (%)					Purpose of use (%)					Form of use (%)											
		English name	Local name	Leaf	Fruit	Stem	Root	Whole plant	Cough	Stomach trouble	Skin care	Depression	Urinary problem	Increase appetite	Hair care	Hair Diabetes	Increase memory	Cuts and wounds	Paste	Extract	Chutny/ Curry		
<i>Allium cepa</i>	Onion	Piyaj	76			98		24		47					75			66			98		
<i>Zingiber officinale</i>	Ginger	Adda	70			92		74				52									74	92	
<i>Phyllanthus amarus</i>	Stonebreaker	Mati amlokhi	22			38		38										38					
<i>Lawsonia inermis</i> L.	Henna	Jetuka	98						98									98					
<i>Acorus calamus</i>	Sweet flag	Boch				76		76		24								70			24		
<i>Swertia Chirata</i> Ham.	Chiretta	Sirota	45					45													45		
<i>Piper nigrum</i>	Black pepper	Jaluk	88					88				12										88	
<i>Mimosa Pudica</i> L.	Shameplant	Nilaji bon				10				10												10	
<i>Trailing eclipta</i>	Eclipta prostrate	Bhringraj	66					58													58	66	
<i>Amaranthus spinosus</i>	Prickly amaranth	Hati khutura				70		98		47			21								70	98	
<i>Amaranthus viridis</i>	Green amaranth	Khutura						98		48					34							98	
<i>Amaranthus caudatus</i>	Amaranth	Moricha	98			76				21											18	56	98

for cough relief followed by Black pepper (88.00%) and sweet flag (76.00%). The 98.00 percent of respondents use curry leaf, Asiatic pennywort, Chinese flower and heart leaf for curing stomach trouble. The 98.00 percent of respondents used mint followed by turmeric (90.00%) and aloe vera 84.00 percent for skin care. 20percent of the respondents use turmeric leaf followed by black pepper 12.00 percent use for relief from depression. The 98.00 percent of respondents use Curry leaf, Mint and Heart leaf for increase appetite. The 56.00 percent of respondents use amaranth for curing diabetes followed by Rosy Periwinkle (31.00%). For increase memory 98.00 percent of respondents use thyme leaved gratiola. The 78.00 percent of respondents use Indian Patchouli for cuts and wounds followed by Turmeric (48.00%).

CONCLUSION

The herbs are natural products they are free from side effects, they are comparatively safe, eco-friendly and locally available. Traditionally there are lots of herbs used for the ailments related to different seasons. There is a need to promote them to save the human lives. North-East region in India is one of the important parts of mega bio-diverse region as it has been bestowed with diverse specific endemic plants. The present study on knowledge on the ethno-medicinal uses of most of the plant species used by rural women of Jorhat district of Assam, North-East India indicate revealed that 67 percent of respondents have medium level of knowledge on herbal medicinal plants. The 80% of respondents from the study shows that medicinal plants play an important role in proving primary health care to the rural people. The majority of the respondents practiced selected 30 herbs for medicinal purpose. They had use leaf, fruit, stem, root of the plant and the whole plant in the form of paste, extract, Chutney/curry for curing cough, stomach trouble, skin care, depression, urinary problems, increase appetite, hair care, diabetes, increase memory and cuts wounds. Mostly the respondents use holy basil, curry leaf, heart leaf, mint, henna, Indian sorrel etc. for primary care of ailments. These herbal products are today the symbol of safety in contrast to the synthetic drugs, that are regarded as unsafe to human being and environment. Folk medicine is the result of decades of accumulated knowledge and practices by people who live in rural communities based on their needs and provides an important source of information to assist the search for new pharmaceuticals. It can be recommend that the knowledge of respondents encourage to continue for use of herbal medicinal plants for the treatment of common ailments. More comprehensive scientific

explanation and research needs to be carried out to draw the complete picture of traditional use of ingenious plants of this area.

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