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CASE STUDY

Revitalizing Traditional Health Care Practices by Exploring Medicinal Plants: A Case Study of Jorhat, Assam, India

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ABSTRACT
India is one of the few mega biodiversity countries with a rich diversity of flora and fauna, as well as a home for traditional health practices, remedies and therapies. Traditional medicine has been used for thousands of years with great contributions made by practitioners to human health, particularly as primary health care providers at the community level. Most of the populations especially in the rural areas depend on the oral knowledge of the Traditional Health Practices (THPs), remedies and therapies to meet their primary health needs. However, in view of the oral transmission of this folk knowledge over several generations, it is getting rapidly eroded. In order to prevent the erosion of THPs and to promote the safe and efficacious remedies used by the Traditional Health Practitioners a pilot study on Local Health Practices was undertaken with selected traditional health practitioners from 4 villages of Jorhat district, Assam. The study was undertaken by questionnaire, interview and the video documentation method with prior consent of the Traditional Health Practitioners. In support of the documented THPs plant Herbarium Specimens were collected for authentication and promotion of the safe and efficacious Local Health Practices. Analysis of the survey showed revitalization is important and contributes for primary health care.
Keywords: *Documentation, Assessment, Traditional Health Practices (THPs), Traditional Health Practitioners, Plant Herbariums, Community Knowledge Registers/ People's Biodiversity Registers*

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INTRODUCTION

India is one of the few mega biodiversity countries with a rich diversity of flora and fauna, as well as a home for traditional health practices, remedies and therapies. Traditional medicine has been used for thousands of years with great contributions made by practitioners to human health, particularly as primary health care providers at the community level. Traditional and cultural medical knowledge has a catalyzing effect in meeting health sector development objectives. But there exist major differences in the usage of Traditional Complementary and Alternative Medicine (TCAM) in developed and developing world. While safety is the prime concern in developed countries, access and cost seem to be issues in developing countries. There is scant data on utilization of TCAM and a dearth of policy research as well as good integration models in the sector (*Yokohama Journal of Social Sciences, Vol. 14 No. 6, Unnikrishnan Payyappallimana*). It is essential not to romanticize the TCAM but seriously consider issues of safety, efficacy and quality, access and rational use through suitable policy measures and appropriately integrate them with the mainstream health system without compromising the diversity and unique aspects.

In the modern era, due to socio-political reasons, such traditions are facing the threat of rapid erosion to a great extent. A considerable amount of knowledge is being lost due to inadequate transmission of traditional health care knowledge. The fact that the majority of the carriers of traditional healing practices are old and younger recruits are few, adds to the seriousness of the situation.

The goal of the present study is to produce a written evidence of the oral literature and make it available to the masses so as to eradicate the erosion of the Local Health Traditions and to give value addition to the Local Healer's knowledge and to state the status of the medicinal plants (according to IUCN Red List Criteria) used in various formulations in India.

Materials and Methods

The present study was undertaken in the selected villages of the State of Jorhat, Assam i.e. (Bogoriguri,Gowal Gaon, Charingia Bezgaon, Titabor bibizan) for Documentation of Local Health Practices through questionnaire, interview with photo and video documentation and Carry out floristic study of medicinal plants and preparation of herbarium of the collected medicinal plants and authentication of the collected specimens so that the plants can be properly authenticated along with their ethno-medicinal uses.

The work was conducted in the month of April 2012 in Jorhat, Assam. During the course of the research work the healers were visited several times to document their traditional knowledge in a systemic way using a questionnaire in which the healers were asked several question related to their knowledge starting with signing of the Prior Consent Form to clarify whether the healer is willing to share his/her knowledge or not and then the further proceedings were done.

Table 1. List of plants documented along with their family, local name, part used and ethno medicinal use

Sl. No.	Botanical Name	Family	Local Name (Assamese)	Part Used	Remedy
1.	*Abelmoschus moschatus*	Malvaceae	Gorokhia	Fruit	Boils in the mouth of children
2.	*Abrus precatorius*	Leguminosae	Latu-moni	Leaves and Seeds	Pneumonia
3.	*Acacia farnesiana*	Mimosoidae	Torua kadam	Stem	White Discharge
4.	*Acorus calamus*	Araceae	Bach	Roots	Dysentery
5.	*Aegle marmelos*	Rutaceae	Sukhuma Bel	Fruit	Dysentery
6.	*Ageratum conyzoides*	Asteraceae	Gandhua-Bon	Tender Leaves	Cuts and Wounds
7.	*Allium sativum*	Liliaceae	Naharu	Tubers	Cavities in the Teeth
8.	*Alocasia acuminata*	Araceae	Kochu	Shoots and Leaves	Blood Impurity
9.	*Aloe barbadensis*	Liliaceae	Bijol-kori	Leaves	Ringworm
10.	*Alpinia nigra*	Zingiberaceae	Tora	Whole Plant	Sores on the body
11.	*Alstonia scholaris*	Apocynaceae	Sotiona	Bark	Indigestion
12.	*Alternanthera sessilis*	Amaranthaceae	Mati- Kanduri	Whole Plant	Hepatic Disease
13.	*Amaranthus spinosus*	Amaranthaceae	Hathi Kuthora	Tubers	Piles
14.	*Amaranthus viridis*	Amaranthaceae	Hati-Khutora	Whole Plant	High Fever
15.	*Aquilaria malaccensis*	Thymelaeceae	Shagoni Lata	Stem	White Discharge
16.	*Asparagus racemosus*	Liliaceae	Satamul	Roots	Stomach Pain.
17.	*Atropa belladonna*	Solanaceae	Bisoliya-karani	Tender leaves	Cuts and Wounds
18.	*Azadirachta indica*	Meliaceae	Neem	Leaves	Ringworm
19.	*Bambusa balcooa*	Poaceae	Bholuka bah	Leaves	Menstrual Bleeding
20.	*Benincasa hispida*	Cucurbitaceae	Jeng-tioh	Fruit	Gall Bladder Stone
21.	*Boerhavia diffusa*	Nyctanginaceae	Ponunua	Leaves	Schizophrenia
22.	*Bombax ceiba*	Bombacaceae	Himolu	Sores on the Bark	Low Back Pain
23.	*Bryophyllum calycinum*	Crassulaceae	Dupor-tenga	Leaves	Gall Bladder Stone
24.	*Bunium persicum*	Apiaceae	Kaal-jeera	Seeds	Tuberculosis
25.	*Caesalpinia bonduc*	Caesalpiniaceae	Leta-guti	Stem	Pneumonia
26.	*Cajanus cajan*	Fabaceae	Roho dali	Leaves	Jaundice
27.	*Calendula officinalis*	Asteraceae	Zergul	Stem	Piles
28.	*Callistemon citrinus*	Myrtaceae	Outenga	Leaves	Dandruff
29.	*Calotropis procera*	Asclepiadaceae	Akhon goso	Juice	Sores on the body
30.	*Cannabis sativa*	Cannabinaceae	Bhang	Leaves	Ear Pain
31.	*Capsicum annuum*	Solanaceae	Julokia	Leaves	Tuberculosis
32.	*Carthamus tinctorius*	Asteraceae	Dhonya	Seeds	Tuberculosis
33.	*Cassia fistula*	Caesalpiniaceae	Khonaru	Roots	Indigestion
34.	*Castanopsis indica*	Fabaceae	Singori	Leaves	Schizophrenia
35.	*Centella asiatica*	Mackinlayaceae	Bor-manimuni	Whole Plant	Diarrhoea
36.	*Centipeda minima*	Asteraceae	Hasiu-biphang	Leaves	Cold and Cough

37.	*Chenopodium album*	Chenopodiaceae	Buthua	Leaves	Common Worms
38.	*Christella parasitica*	Thelpteridaceae	Sal-Daukhumi	Leaves	Lack of Sensations
39.	*Cinnamomum tamala*	Lauraceae	Tej Paat	Leaves	Heart Disease
40.	*Cinnamomum zeylanicum*	Lauraceae	Dalchini	Bark	Asthma
41.	*Clausena excavata*	Rutaceae	Mejenga	Roots	Asthma
42.	*Clerodendron glandulosum*	Lamiaceae	Nefafu	Tender Twigs	High Blood Pressure
43.	*Clerodendrum viscosum*	Verbenaceae	Gwkhna	Roots	Inflated body
44.	*Cocos nucifera*	Arecaceae	Nariyal Tel	Oil	Burn Case
45.	*Coix lacryma-jobi*	Graminae	Kuamoni	Roots	Toothache
46.	*Colocasia esculenta*	Araceae	Kola-Koshu	Stem	Hearing Impairment
47.	*Colocasia macrorrhiza*	Araceae	Bor-kosu	Root	Tooth Decay
48.	*Commelina benghalensis*	Commelinaceae	Simolu	Leaves	Bone setting
49.	*Coptis teeta*	Ranunculaceae	Misimi teeta	Leaves	Goiter
50.	*Costus speciosus*	Costaceae	Bon-lakhuti	Stem	Ear rotting
51.	*Crinum asiaticum*	Amaryllidaceae	Mwshou-sambram	Bulb	Rheumatic Pain
52.	*Croton tiglium*	Euphorbiaceae	Koni-bihor	Seeds	Tooth Decay
53.	*Curcuma angustifolia*	Zingiberaceae	Keturi-halodhi	Rhizome	Kidney stones
54.	*Curcuma caesia*	Zingiberaceae	Kola-halodhi	Rhizome	Kidney stones
55.	*Curcuma longa*	Zingiberaceae	Halodhi	Rhizome	Whooping Cough
56.	*Cynodon dactylon*	Graminae	Dubari Bon	Leaves	Gastritis
57.	*Cymbopogon nardus*	Graminae	Bahta-sambram	Leaves and Roots	Bleeding Nose
58.	*Cyperus scariosus*	Cyperaceae	Keyabon-guti	Tubers	Pneumonia
59.	*Datura inoxia*	Solanaceae	Dhatura	Leaves	Heart Disease
60.	*Drymaria cordata*	Caryophyllaceae	Lai jabori	Leaves	Swelling of Fingers of hands and legs
61.	*Eclipta prostrata*	Asteraceae	Kheraj	Leaves	Menstrual bleeding
62.	*Elettaria cardamomum*	Zingiberaceae	Choti elaichi	Fruit	Asthma
63.	*Emblica officinalis*	Euphorbiaceae	Amlukhi	Fruit	Hair Fall
64.	*Eryngium foetidum*	Apiaceae	Bondhonia	Tender leaves	Jaundice
65.	*Eugenia caryophyllus*	Myrtaceae	Laung	Seed	Asthma
66.	*Euphorbia neriifolia*	Euphorbiaceae	Siju	Tender leaves	Cavities in the Teeth
67.	*Hibiscus rosa-sinensis*	Malvaceae	Joba-Phool	Leaves	Hair Fall
68.	*Hiptage benghalensis*	Malpighiaceae	Madhoi-lota	Roots	Blisters
69.	*Ipomoea aquatica*	Convolvulaceae	Maande-Maigon	Twig	Impotency
70.	*Jatropha gossypifolia*	Euphorbiaceae	Bongoli-era	Leaves	Burn Case
71.	*Justicia adhatoda*	Acanthaceae	Boga bahak	Leaves	Whooping Cough
72.	*Lasia spinosa*	Araceae	Sengmora	Tubers	Piles
73.	*Lavender joni*	Lamiaceae	Joni	Seeds	Tuberculosis
74.	*Lawsonia inermis*	Lythraceae	Jetuka	Leaves	Dandruff
75.	*Lens esculenta*	Leguminosae	Masoor dali	Seeds	White Marks on the Skin
76.	*Leucas aspera*	Lamiaceae	Darun-bon	Roots	Pneumonia
77.	*Litsea salicifolia*	Lauraceae	Dhig-loti	Leaves	Loose motion
78.	*Lycopersicon esculentum*	Solanaceae	Bilahi-bengena	Roots	Asthma
79.	*Lygodium japonicum*	Schizaceae	Kopau-dhekia	Roots	Intermittent Fever

80.	*Machilus bombycina*	Lauraceae	Som	Leaves	Blisters
81.	*Mangifera indica*	Anacardiaceae	Aam	Bark	Blood Dysentery
82.	*Melastoma malabathricum*	Melastomataceae	Phutuka	Tender Leaves	Pimples
83.	*Mentha arvensis*	Lamiaceae	Poduna	Whole Plant	Diarrhoea
84.	*Meyna laxiflora*	Rubiaceae	Kotkora-aag	Tender Leaves	Heart Disease
85.	*Mimosa pudica*	Mimosoidae	Daosa-Mukreb	Leaves and Roots	Micturition
86.	*Mimusops elengi*	Sapotaceae	Bokul-gos	Bark	Pieria
87.	*Murraya koenigii*	Rutaceae	Mokhorali Paat	Leaves	Dysentery
88.	*Musa paradisiaca*	Musaceae	Bhim-kol	Bark	Diabetes
89.	*Musa sapientum*	Musaceae	Kela	Leaves	Indigestion
90.	*Myristica fragrans*	Myristicaceae	Jaiphal	Seed	Asthma
91.	*Nerium indicum*	Apocynaceae	Koru-bi	Leaves	Swelling of Fingers of hands and legs
92.	*Ocimum sanctum*	Lamiaceae	Krishna tulosi	Leaves	Cough, Cold and Running nose
93.	*Oldenlandia corymbosa*	Rubiaceae	Bon-jaluk	Leaves	Pneumonia
94.	*Oryza sativa*	Graminae	Bhat	Grain	Gastritis
95.	*Oxalis corniculata*	Oxinidae	Tengesi-tenga	Leaves	Head-Ache
96.	*Paederia scandens*	Rubiaceae	Vadai-Lota	Leaves	Inflammation
97.	*Phlogacanthus thyrsiflorus*	Acanthaceae	Tita-bahek	Leaves	Ringworm
98.	*Phragmites karka*	Graminae	Nol	Whole Plant	Sores on the body
99.	*Phyllanthus fraternus*	Euphorbiaceae	Bon-amlokhi	Whole Plant	High Fever
100.	*Piper longum*	Piperaceae	Pipoli	Fruit	Asthma
101.	*Piper nigrum*	Piperaceae	Gol-moris	Seeds	White Discharge from the Urine.
102.	*Plumbago zeylanica*	Plumbaginaceae	Agor-Sita	Roots	Dog bite
103.	*Pogostemon benghalensis*	Lamiaceae	Sukloti	Leaves	Stomach Pain
104.	*Polygonum hydropiper*	Polygonaceae	Pothora-bihlogoni	Leaves	Appendix
105.	*Psidium guajava*	Myrtaceae	Muhurian	Bark	Blood Dysentery
106.	*Punica granatum*	Lythraceae	Dalim	Bark	Dysentery
107.	*Randia dumetorum*	Rubiaceae	Bihmona	Roots	Goiter
108.	*Ricinus communis*	Euphorbiaceae	Era patta	Leaves	Bone setting
109.	*Rubus moluccanus*	Rubiaceae	Jetuli Poka	Whole Plant	Blood Dysentery
110.	*Saccharum spontaneum*	Graminae	Birina	Roots	Kidney stones
111.	*Santalum album*	Santalaceae	Rang-chandan	Seeds	Dysentery
112.	*Sida rhombifolia*	Malvaceae	Khon-boriola	Roots	Intermittent Fever
113.	*Smilax prolifera*	Smilacaceae	Tikoni borua	Roots	Mental Disorder
114.	*Solanum ferox*	Solanaceae	Khuntai-gwkha	Flowers	Tooth Decay
115.	*Solanum khasianum*	Solanaceae	Kutahi-bengena	Seeds	Ringworm

116.	*Sorghum bicolor*	Graminae	Japora	Tuber	Body Pain
117.	*Spondias pinnata*	Anacardiaceae	Amora	Fruit	Wounds between the fingers in the foot.
118.	*Stellaria media*	Caryophyllaceae	Nao-bikhi	Leaves	Snake Bite
119.	*Tamarindus indica*	Fabaceae	Tetli Paat	Leaves	Dysentery
120.	*Tectona grandis*	Euphorbiaceae	Morolia-sak	Bark	White Discharge from the Urine.
121.	*Terminalia arjuna*	Combretaceae	Arjun	Bark	White Discharge
122.	*Terminalia chebula*	Combretaceae	Hilikha	Fruit	Blood Dysentery
123.	*Vitex negundo*	Verbenaceae	Posotia	Leaves	Appendix
124.	*Zanthoxylum nitidum*	Rutaceae	Tejmuri	Stem	Gum Shrinkage
125.	*Zingiber cassumunar*	Zingiberaceae	Bura-Ud	Rhizome	Acidity
126.	*Zingiber officinale*	Zingiberaceae	Adak	Rhizome	Whooping Cough

RESULTS AND DISCUSSIONS

Documentation was carried out with the selected healers from different villages of Jorhat district from 2nd April 2012 to 30th April 2012. All the healers interviewed were male healers in the age group of 35 to 50 years. 72 diseases and 100 remedies were documented and 42 species (considering their status in the wild according to IUCN Criteria for Plants in India) used in the remedies were collected with the help of 4 knowledgeable healers. Altogether 126 plant species used in various remedies were documented and photography was done for all the documented plants used by the 4 healers.

Of these 126 medicinal plants 60 species are Herbs, 39 shrubs, 23 trees, Climbers and ferns 2.

These documented plants belong to 55 different families of which the maximum number of plants belonged to Graminae, Euphorbiaceae, Zingiberaceae, Lamiaceae, Solanaceae, Asteraceae, Araceae, Leguminosae and Rutaceae families.

Diseases with maximum number of formulations out of these 100 documented remedies are listed below:

Table. 2. Maximum formulations recorded for various diseases

Disease	No. of Formulations
Stomach Disorders	06
Cuts and wounds	06
Respiratory (cold, cough, Bronchitis, asthma, running nose)	05
Tooth decay, tooth ache	05
Dysentery, Diarrhea	04
Jaundice	04
Women specific (Heavy Menstrual discharge, White discharge)	04
Ear problems (ear pain, ear rotting)	03

The plants that are used for most of the remedies are: *Piper nigrum, Curcuma longa, Leucas aspera, Vitex negundo, Phyllantus emblica, Aegle marmelos, Costus specious, Terminalia chebula, Azardirachta indica, Psidium guajava.*

The analysis of the 126 plants according to IUCN Red List Criteria gave the following result:

Table 3. Analysis of IUCN category of Plant species

IUCN Red List Category	No. of Plants
Vulnerable	26
Least concern	26
Endangered	22
Threatened	19
Critically Endangered	16
Near Threatened	08
Safe	05
Data Deficient	04

Out of 126 documented species all are having Botanical evidences and 61(about 50%) species are having Ayurvedic reference. About 35(27%) species are reported to have toxic effects. It was found that about 45% of the plants fall under RET species under the IUCN category. But, the study analysis has shown that about 70% of the plants can be cultivated in the home gardens. Therefore, establishment of Home Herbal Garden (HHG) helps in conservation and sustainable usage of the medicinal plants.

During documentation it was found that the healers have got immense knowledge in the field of traditional medicine and the herbal preparation. Due to modernization, the traditional system of the herbal use is not very popular with the younger generation. In the past, the indigenous communities had a self-regulating system that was interwoven in such a way so that each individual could receive certain economic benefits from his profession. Some of the traditional vaidyas were marginal farmers and they provided their services free of cost. In return, the villagers helped the vaidyas with their agricultural work and also offered some donation in the form of cereals, pulses and vegetables. They were happy to share their knowledge. With changing life styles and introduction of immediate economic return in terms of cash, the traditional value related to the profession of vaidyas has started changing. The younger generation of vaidyas might have visualizing fewer opportunities in the profession to become wealthy. This has resulted in sharp decline in the number of recognized vaidyas.

Nonetheless the, knowledge of herbal use is so deeply rooted in society that there are still number of women and men in the villages who know the healing properties of many medicinal plant species. The loss of traditional knowledge on preparing medicines is due to the decline in number of vaidyas coming forward to adopt this profession. In addition the survey results indicate that the practice of individual healers of identifying plants and preparing various formulations themselves for the use of their patients has been declining rapidly. Today, due to rapid socio-economic changes and urbanization, most of the vaidyas largely depend on the products supplied by the pharmaceutical industries.

For future development of the state and the country, Local Health Traditions should be regarded and established as a valuable traditional system. The various herbal formulations prepared and used by traditional vaidyas must be documented systematically so as to avoid the gaps in the traditional knowledge.

CONCLUSION

The present study on documentation of Local Health Traditions among the selected 4 healers of Jorhat district, Assam gives an insight about the richness of traditional knowledge. The study shows that various ailments can be treated by using the plant species. This would be helpful for further research on exploring their medical efficacy, value addition and use in curing for various old and new diseases. On the other hand exploring with more healers would give plethora of traditional knowledge which can contribute for primary health care at low cost. Due to modernization, the traditional system of the herbal use is not very popular with the younger generation. In other words the traditional knowledge is eroding. Therefore, there is a need for preserving rich traditional knowledge from the existing healers through Revitalization of Local Health Traditions.

In developed countries like United States a majority of people (55%) combine alternative treatments with conventional medicine. It is important to note that 13% try them because they think that conventional medicine is too expensive (Stein 2004). The Ayurvedic medicines and the herbal products are cheaper and more available to the poor. In developing countries, where the majority of people cannot afford the high cost of modern medicines, traditional herbal therapy is the only and most vital option. This aspect of traditional herbal healings can be made a highly saleable concept in both developed and developing countries.

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