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A Survey on Traditionally Used Medicinal Plants of Rangjuli (Belpara), Goalpara, Assam



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Abstract

The Northeastern region has a number of sacred grooves or forests which exist with rich resources of biodiversity embracing a large number of diverse type of medicinal plants with high potential for alleviating poverty and thus boosting rural economy while conserving the valuable resources.

Many rural people of the Goalpara district rely on medicinal plants because of their effectiveness, cultural preferences and lack of modern healthcare alternatives. The inhabitants of this area are well aware of the medicinal properties of the plants occurring on their surroundings. Many of the traditional healers, Kabiraj, Bej collect the various parts, such as, roots, rhizomes, bulbs, flowers, bark, fruits and other medicinally important parts of the plants for extracting drugs.

The study was conducted among the rural community of the village Belpara, Rangjuli, Goalpara district through survey, personal interviews and field visits. A total of 47 plant species distributed in more than 6 habitats belonging to 45 families used to cure various ailments by the communities.

Thus the present survey offers a model for studying the relationship of vast therapeutic importance. The study also gathers a broad spectrum of information concerning medicinal plants used by rural community.

Keywords: Traditional Healers, Belpara, Medicinal Plants, Rural Community, Biodiversity, Ailments, Therapeutic

Introduction

Medicinal plants are used for preventive, promotive and curative purposes. Human have used them throughout history to cure various diseases. The indigenous system of medicine, viz.- Ayurvedic, Siddha and Unani have been in existence for several centuries. Wild herbs utilized for medicinal purposes for different ailments in day to day life either traditionally from one generation to the other, ultimately reaching the home of the common people (M. Islam, 2009). According to World Health Organization (WHO) about 80% of the world's population of the developed and developing countries rely on traditional herbal medicine, for the primary health care because of their great efficacy and little or no side effects. North Eastern India has a wide stretch over with a hilly forest areas as well as plains of Assam. It covers the states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The states of Sikkim and Arunachal Pradesh fall under Himalayan hills whereas Manipur and Nagaland covers Naga hill and Meghalaya occupied by Garo, Jayantia and Khasi hills; State of Mizoram comes under Lusai hills. According to the names of the hills, each one has variable range of altitudinal and topographic variations which influence the occurrence and distribution of biodiversity covering medicinal plants distribution. According to the variation of climatic zones, medicinal plants vary for their occurrence in different hills. The northeast region of India supports almost all types of vegetation from cultivated plains to grasslands, meadows, marshes, swamps, scrub-forests, tropical forests, temperate forests and alpine vegetation etc. Therefore, the present study aims to identify and document, some of the plant species used for medicinal purposes by the rural community of Goalpara, Assam.

Objective of study

The brief objective of the study can be stated as under:

- To document the herbal medicines used by indigenous people of village Belpara, Rangjuli of Goalpara, district, Assam.
- To find out the role, value and potentiality in treating common diseases.
- To know the usages of different parts of plants by traditional healer.

Review of Literature

Borthakur (1992 and 1996) studied on native phytotherapy for child and women diseases and post natal care of women in traditional system in the state. It covers the traditional herbal treatment of Jaundice and liver disorders, malaria, piles. Sanjay Kr. Uniyal, K.N. Singh, Pankaj Jamwal, Brijlal 2006; studied traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya and 35 plant species are commonly used by local people for curing various diseases. C. Kingston, S. Jeeva, G.M. Jeeva, S. Kiruba, B.P. Mishra, and D. Kannan 2007; studied traditional knowledge of using medicinal plants in treating skin diseases in Kanyakumari district, Southern India and found 30 plant species belonging to 29 genera and 22 families were used in the treatment of various skin diseases. L. R. Dangwal, Antima Sharma, C. S. Rana 2010; studied ethno-medicinal plants of the Garhwal Himalaya used to cure various diseases. They recorded ethno-medicinal plants used for the treatment of various diseases and ailments like dysentery, cough, asthma, inflammation, body-ache, wound healing, bronchitis, mouth ulcer, cold, smooth delivery, headache, throat sore, constipation, diarrhoea, menstrual disorders, malaria, vomiting, jaundice, skin diseases etc.

G. D. Wadankar, S. N. Malode and S. L. Sarambekar 2011; studied traditionally used medicinal plants for wound healing in the Washim district, Maharastra, India. They documented 39 plants that have wound healing properties and are as well as traditional in. Dr. B. Senthi Kumar, S. Sundaresan 2013; studied traditional medicinal plants from the Vellore district, Tamil Nadu, India and recorded traditional uses of 124 plant species belonging to 40 families and described their medicinal properties in treatment of skin allergy, dysentery, for anti-bacterial activity, diabetes, jaundice, asthma, fertility, antifertility, dental diseases, etc.

M. Siddalinga Murthy and G. M.Vidyasagar 2013; studied traditional knowledge on medicinal plants used in the treatment of respiratory disorders in Bellary district, Karnataka, India and found 26 plant species belonging to 23 genera and 16 families, they documented whole plant or various parts used in the treatment of respiratory disorders. Ripunjoy Sonowal 2013; studied indigenous knowledge on utilization of medicinal plants by Sonowal-Kachari tribe of Dibrugarh district in Assam, North-East India and found a total of 33 species of medicinal plants belonging to 29 families. S. K. Nath 2014; studied medicinal plants of aquatic macrophytes wetlands of Laokhowa Wildlife Sanctuary, Nagaon, Assam. During

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this study, it has been found that Tribes of Laokhowa Wildlife Sanctuary use thesemedicinal plants in different diseases.

Tanmay Datta, Amal Kumar Patra and Santanu Gosh Dastidar 2014; studied medicinal plants used by tribal population of Coochbehar district, West Bengal, India an ethno-botanical survey and found a total of 46 plant species belonging to 42 genera and 27 families were reported to be used for trating 33 various physical ailments. Arup Nama Das, Rezina Ahmed 2015; listed 30 species of medicinal plants used by traditional healers of Oyan village in East Siang district of Arunachal Pradesh and founds that results of over exploitation and shrinkage of forest area and diminishing of traditional knowledge among villagers are the major concern. Also they focussed on the conservation of ethnological medical knowledge developed socio-economic system to for development.

Materials and Methods Study Area

The present study area is the district of Goalpara, Assam that is situated in the western part of Assam. The district is bounded by the Bongaigaon district on the North; Barpeta and Kamrup district on the East; Meghalaya on the South; and Dhubri on the West. It lies between 90°-91°7′ East longitude and 25° 55′-26° 15′ North latitude covering 1824 sq. km. of geographical area and has a population of 8,22,035. In this area, the temperature ranges from minimum about 100 c in winter and maximum 350 c in summer with humidity (RH%) ranging from 56% to 90% in different season, there is variation of different annual rainfall and also in number of rainy days in a year. The village Belpara, Rangjuli located between 25⁰ 58'02" North latitude and 90⁰ 56'18" longitude.



Fig.1. Map of Assam, India.

Materials required

1. Digital camera 2. Notebook 3. Pen **Methodology**

The study was carried out in the village Rangjuli (Belpara) of Goalpara district, Assam. The methodology included a survey of the number of families of medicinal man engaged in traditional medicine practices. During the course of investigation, the entire area of Rangjuli (Belpara) was surveyed. The intensive field work was conducted in the study area over a period of 7 months i.e. from October'

2017 to April' 2018. The information required for the study was collected through secondary and primary data sources. The secondary data sources include books, review of literatures in technical journals etc. Information regarding the ailment, dosage, method of preparation, plant identification etc. was carefully documented by interviewing the traditional healers or traditional medical practitioners who are locally called Bez/Kabiraj and knowledgeable and experienced interactive through questionnaires, discussion and observation focusing on local name, parts used for medicinal purposes and administration. Results & Findings

Some of the frequently found medicinal plants in an around Rangjuli are as follows-

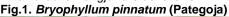




Fig.2. Ocimum tenuifloram (Tulsi)



Fig.3. Mentha viridis Linn (Pudina)



Fig.4. Lawsonia inermis L. (Jetuka)



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Fig.5. Centella asiatica(L.)(Bormanimuni)

Fig.6. Hydrocotyle rotundifolia (L)



Fig.7. Hibiscus rosa-sinensis Linn. (Joba ful)



Fig.8. Aegle marmelos Linn. (Bel)



Fig.9. Tagetes erecta (Narji phool)



Fig.10. Catharanthus roseus (Nayantora)



Fig.11. Clitoria ternatea (Aparajita)



Fig.12. Aloe vera (Sal kuwonri)



Fig.13. Carica papaya (Omita)



Fig.14. Piper betle (paan)





Fig.16. Terminalia chebula (Silikha)



Fig.17. Moringa oleifera Lamk. (Sajna tree)



Fig.18. Melastoma malabathricum (phutki)



Fig.19. Polygonum hydropiper (Bihlongoni)



Fig.20. Paederia foetida Linn. (Bhedai lota)



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	Table: 1- List of Diversity of Medicinal Plants						
SI. No.	Assamese name	Common name	Scientific name & Family	Habit	Parts used & preparation	Medicinal value/Mode of action	
1	Aada	Canton ginger, common ginger	Zingiber officinale Roscoe, Family: Zingiberaceae	Herb	The root or underground stem (rhizome) of ginger plant is used fresh, powdered, dried as a spice, or as juice.	It helps in relieving nausea, cold and flu, pain reduction and in inflammation, asthma, jaundice (dry ginger powder mixed with equal amount of honey).	
2	Haladhi	Turmeric, haldi	Curcuma longa Roscoe, Family: Zingiberaceae	Herb	Rhizome, it is used as paste (apply on skin) and juice is also taken orally.	It is used in skin disorder, cancer(juice of raw turmeric 3 tsp twice in a day)	
3	Lajukibon	Touch- me-not, sensitive plant	Mimosa pudica (L.) Family: Fabaceae	Herb	Leaf and root, paste of leaves, liquid extract from leaves; leaves and faeces of goat mix with coconut oil and apply	It is used in minor cuts and wounds, to stop excessive bleeding during menstruation, to cure piles or bleeding piles, also for joint pain or arthritis, for treating diabetes, diarrhoea, jaundice, stomach ache and kill intestinal worm.	
4	Dhekia	Dhenkir shaak	Diplazium esculentum (Retz.), Family: Dryopteridaceae	Herb	Leaf and stem	Used in low blood pressure, to cure urinary disorder, it cleans alimentary canal.	
5	Khutura	Green am aranth, note shaak	Amaranthus viridis (Linn) Family: Amaranthaceae	Herb	Leaf, take as a curry, and juice of the leaves.	It is used to cure cough, it also helps in digestion, it increases haemoglobin.	
6	Paleng	Spinach	Spinacia oleracea (L.) Family: Chenopodiacea e	Herb	Leaf, curry and salad take as a meal	Used to treat ureter stone, it increases immunity, various stomach disease and to cure jaundice.	
7	Brahmi	Herb of grace, water hyssop	Bacopa monnieri (L.) Family: Plantaginaceae	Herb	Leaf, curry take as a meal and making salad with garlic	It is used to cure asthma, diabetes, hair fall control, ulcers, tumors, inflammations and anaemia.	
8	Huha bon	Huhanibo n, toothache plant	Acmella cillata, Family: Asteraceae	Herb	Leaf and flower, juice of leaves and flowers	It is a appetite enhancer, it is anti-inflammatory.	
9	Sariyah	Behor, mustards, shoirshya	Brassica campestris, Family: Brassicaceae	Herb	Leaf, flower, and seed, take as a curry, and oil	It is used to treat itchy skin, to treat nausea, menstrual stomach-ache, night blindness, swelling.	
10	Methi shak	Fenugree k, samudra methi	Trigonella foenum- graecum, Family: Fabaceae	Herb	Seed, take 1 glass of water, put 7-8 methi guti in it, allow it to mix overnight.	For gastric trouble and high blood pressure, and diabetes drink this mixture in the morning without brush your teeth.	
11	Dhania	Coriander, cilantro, Chinese parsley	Coriandrum sativum (L.), Family: Apiaceae	Herb	Leaf and dried seeds, chewing raw leaves with salt (decay), 2 spoonful juice of leaves with equal	Used to treat decay, TB, insomnia, asthma, joint pain, it is a digestion enhancer.	

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					amount of honey and half tsp black pepper (for TB)	
12	Mandhania	Katamoso la, foul- smelling thistle, bhandhani a	Eryngium foetidum (L.), Family: Apiaceae	Herb	Leaf, take as a curry and salad	It is used for burns, fevers, stomach-ache, worms, infertility complications, snake bites, diarrhoea, nerve problem and malaria.
13	Piyanj	Bulb onion, common onion	Allium cepa (L.), Family: Liliaceae	Herb	Leaf and bulb, eat raw or cooked	To cure jaundice (eat finely chopped onion mixed with lemon juice); thyroid (1 pinch of dalchini powder mixed with 1 tsp onion juice)
14	Naharu	Garlic, rusun,	Allium sativum (L.); Family: Liliaceae	Herb	Leaf and bulb, eat raw or cooked	It is used to treat vaginal flow, early in the morning eat 2 bulbs of garlic. It is also effective in gastric troubles (take one bulb with warm water).
15	Kola kochu	Taro, madumbi, kochu pata	Colocasia esculenta; Family: Araceae	Herb	Leaf, corms and stem, paste of leaves and paste of stem is applied	Blood purifier, used in anaemia, and minor cuts and wounds for stop bleeding.
16	Masandari	Fish mint, heart leaf, chameleo n plant, bishop's weed	Houttuynia cordata (Thunb); Family: Saururaceae	Herb	Leaf, leaves are wrapped in banana leaves an d cook in fire	Dysentery, it is antidiabetic, used to treat infectious diseases.
17	Tita kerela	Bitter melon, bitter gourd, bitter squash	Momordica charantia; Family: Cucurbitaceae	Herb	Fruit, leaf, paste of leaves, and juice of the fruit is taken, eat raw or cooked	Anti-diebetic, anticancer, anti-inflammation, cholesterol lowering effects, reduces respiratory disorders, used to treat septic
18	Titabhaturi	Black nightshad e, belkuri tita	Solanum nigrum; Family: Solanaceae	Shrub	Root and leaf, juice of root mix with black pepper	It is used against asthma, whooping cough, effective in tonsil
19	Kaskol	Kachakola , purakol	Musa sapientum; Family: Musaceae	Shrub	Fruit, flower, eaten as curry or raw (fruit)	Stimulates the production of haemoglobin, hence effective in anaemia reduces blood pressure, helps in constipation
20	Karabi phool	Yellow oleander, lucky nut	Thevetia neriifolia; Family: apocynaceae	Shrub	Bark and leaf, paste of bark and leaves of bor manimuni is taken	Helps in reducing menstrual stomach-ache, decoction of leaves is taken to treat jaundice, headache, fever and as a purgative of intestinal worms.
21	Bhimkol	Bhimkola	Musa balbisiana; Family: Musaceae	Shrub	Fruit, bark, root, alkali prepared from bark of banana, making juice from root	Diabetes, stomach problem (dysentery)
22	Era	Castor plant	Ricinus communis; Family: Euphorbiaceae	Shrub	Root, leaf Juice of 8-10 leaves of era, add 50 gm coconut oil, then boil, when it turns black, allow	In toothache 2 drops of this oil mixture apply on the teeth, and for muscle and joint pain massage with this oil. In constipation, the juice of the leaves is used

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					it to cool down and store it in a bottle.	(1 tsp for children, 2 tsp for adult). To cure jaundice drink 2-3 tsp of juice of era leaves.
23	Dhatura	Devil's trumpet, metel, dhattura	Datura metel; Family: solanaceae	Shrub	Root, leaf, paste of root rubbed with ghee	Arthritis, helps in asthma and bone setting
24	Bioni sabota		Desmodium velutinum; Family: papilionaceae	Shrub	Leaf, paste of leaves applied	Cuts and wounds
25	Saru Chirota	Chirota tita	Enicostemma axillare; Family: Gentianaceae	Shrub	Leaf, make curry and take as a meal	It works as a digestion enhancer, used to treat malaria, intestine al worm and diabetes
26	Sunborial	Atibala, jelly leaf	Sida rhombifolia; Family: Malvaceae	Shrub	Leaf, paste of leaves applied	Paste directly applied to the cut and wounds
27	Aalu	potato	Solanum tuberosum; Family: Solanaceae	Shrub	Rhizome, make paste of rhizome, eaten as curry	The paste of potato is used in burns, it helps to cool down the burning part.
28	Daalim	Anar, pomegran ate, b edana	Punica granatum; Family: Lythraceae	Small tree	Seed, eaten raw or as juice	Used in dental issue, anaemia, stomach disorders, and piles.
29	Teteli	lmli,	Tamarindus indica; Family: fabaceae	Tree	Seed, fruit and leaf, make paste of the teteli seed, paste of leaf with sugar	It is used for blood pressure an d dysentery, and to cure urinary trouble.
30	Ronga chandan	Red wood tree, lal chandan, raktakanc han, ranjan	Adenanthera pavonina; Family: Fabaceae	Tree	Wood (a red powder is made), bark, leaves (decoction), and seed	The wood poeder is used as an antiseptic paste, the ground seeds are used to treat boils and inflammations, decoction of leaves is used to treat gout and rheumatism, the bark is used to wash hair.
31	Bor thekera	Amalvet, thaikal, bheema	<i>Garcinia</i> pedunculata; Family: Guttiferae	Tree	Fruit (eaten raw or cooked, also sliced fruits are sun dried for consumption)	Very old dried fruits are good for stomach trouble, dysentery, jaundice, diabetes, urinary trouble and cooling fever. It promotes digestion.
32	Tezpat	Indian cassia, tezpata, Indian bay leaf	Cinnamomum tamala; Family: Lauraceae	Tree	Leaf and bark, dry leaves are used in curry, make powder of the bark	The bark powder is used as tooth powder to treat dental caries, bad odor, the powder mix with honey in a dose of 3-5 g to treat cough and asthma. the paste of the bark is used in the area affected with swelling an d pain; leaf is good for liver and spleen.
33	Maha neem	Mangosa tree, neem	Azadirachta indica; Family: Meliaceae	Tree	Leaf, juice or extract of the leaves	Used to treat diabetes (juice of the leaves, once in a week); swelling (paste of the leaves mix with honey, apply directly on the wound and tie overnight with a clean cloth); pimples (juice of the leaves mixed with

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						lemon juice, apply on your face, then allowed to dry, then wash with warm water).
34	Kola jamu	Jambolan, java plum, common plum	Syzygium cumini; Family: Myrtaceae	Tree	Fruits and bark, fruits are eaten raw, juice of bark is made	Fruits are good for liver, used in stomach-ache, dysentery, diarrhoea, diabetes, jaundice, urinary troubles etc. Bark astringent, used in piles. Fresh juice of bark mix with goat milk is used in diarrhoea and dysentery.
35	Outenga	Elephant apple, chalita, chalta	Dillenia indica; Family: Dilleniaceae	Tree	Fruit, leaf and bark, fruits are eaten raw or cooked	The jelly like content inside the fruit is used to treat dandruff and hair-fall, juices of the leaves and bark is taken orally for the treatment of diarrhoea and cancer, it is also used to treat diabetes.
36	Leteku	Letuk, letku	Baccaurea sapida (Roxb.); Family: Euphorbiaceae	Tree	Fruit and bark, the pulp of fruit, powder of bark	Used in constipation
37	Poniol	Indian coffee plum	Flacourtia jangomas (Lour.); Family: Flacourtiaceae	Tree	Fruits, leaf, root and bark; make powder of the dry fruit, decoction of leaves and bark	Powder of the fruits with turmeric rubbed over body after child birth to relieve pain. Raw fruits are ujsed in bilious condition. Leaves and bark are used in diarrhoea and general weakness. Dried leaves are effective in bronchitis, roots suppress toothache.
38	Omora	Amora	Spondias pinnata (Kurz); Family: Anacardiaceae	Tree	Fruits, bark and leaf; fruits are eaten raw, juice of leaves is made	Fruits are astringent, used in stomach trouble, dyspepsia and dysentery. Bark used in rheumatism, also good dysentery, juice of leaves used in earache.
39	Sewali	Night- flowering jasmine, parijat	Nyctanthes arbor-tristis; Family: Oleaceae	Small tree	Leaf, 5-6 leaves boil in 500 ml of water till it decreases into 200 ml.	In case of malaria and dengue the mixture is effective (twice in a day)
40	Narikol	Narkel, narial, coconut	Cocos nucifera (Linn.); Family: Arecaceae	·	Fruit, eaten raw or dry	Tender fruit of coconut contains liquid called coconut water which is recommended to serious cases of body dehydration due to diarrhoea and vomiting. It increases the circulation of blood in kidneys and causes profuse dieresis.
41	Keyan bon	Nagarmot ha, nut grass	Cyperus rotundus (L.); Family: Cyperaceae	Gramin oid	Leaf, make paste of the leaves	Used to treat cuts and wounds. Anti-inflammatory, anti-dysenteric.
42	Chitronola ghah	Lemon grass, bhustrina	Cymbopogon citratus; Family: Poaceae	Gramin oid	Leaf, oil of leaves applied	Used to treat cold, menstrual disorders, ringworm infections, muscle pain and bone

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						pain, it helps in bring the body temperature into normal in case of fever.
43	Kuhinyar	Ganna, kuhiar, sugarcane , aakh, kuishar	Saccharum officinarum; Family: poaceae	Gramin oid	Stem, juice of the stem is drunk	It is used to treat low blood pressure, jaundice (1 glass juice of sugarcane mix with 1tsp lemon juice, daily).
44	Banh	Bash, bamboo	Bambusa vulgaris; Family: poaceae	Gramin oid	Tender shoot, eaten raw or cooked	It is used to treat asthma (bamboo shoot decoction along with honey), piles, vomiting, cuts and wounds. A poultice of the shoots is used for cleaning wounds and healing infections.
45	Tioh	Cucumber , tiho	Cucumis sativus; Family: Cucurbitaceae	Climber	Fruit, eaten raw or cooked, or juice.	It is used to maintain the blood sugar level (juices of 1 bitter melon, 1 tomato 2-3 leaves of nayantora phool and 1 cucumber, drink 1 glass in a day), to remove the dark circles around eyes.
46	Jaati lau	Lao, bottle gourd, panilao	Lagenaria vulgaris; Family: Cucurbitaceae	Climber	Fruit, make paste of the outer layer of the fruit, and juice of the fruit	The paste is used to take out the sting in case of insect or bee-bite. The juice of the fruit is used to cure heart diseases, constipation, high blood pressure, urinary trouble, acidity in blood, it purifies blood.
47	Jaaluk	Black pepper, golmoris	Piper nigrum; Family: Piperaceae	Climber	Seeds, either row or by making tea, as powder or paste of the seeds	Black pepper mixed with lemon grass juice is used in cases of painful and difficult menstruation.

Discussion

The present study revealed that the village Belpara, Rangjuli is rich in medicinal plants, there are a wide variety of plants for every day common ailments and diseases. Some of the plants which have medicinal property are used as food by the local community. But most of the plants used by these traditional healers are administrated orally. However, the use of shoot i.e. the upper part of the plant parts (leaf, stem, flower etc.) have been found to be higher than the root or rhizome parts.

It is observed that, most of the remedies consist of single plant part and more than one method of preparation. However, some of the remedies consisted of different parts of the same plant species to treat single or more diseases. It is also observed that the maximum number of plant species is utilized as a combination of more than one species of plants. On the other hand it is also found that a single plant is used to cure more than one type of disease.

Conclusion

It can be seen from the observations made that there are a wide variety of plants present in the study area (Belpara, Rangjuli), for every day common ailments and diseases. The knowledge has not been documented yet because it is passing orally from one generation to another. The present survey will provide

new motivation to the traditional healers and also will helpful for the researchers to find out the other medicinal uses of plants which would be useful to modern healthcare system. However, recently it seems that the knowledge on traditional medicine is vanishing from the modern society since the younger generations are not interested to carry on this tradition. On the other hand, due to over exploitation and many other reasons this traditional knowledge has been declining. It was found that among the traditional healers who were interviewed was falling within the age range of 50-70 years. Therefore there is a clear need to document and preserve this traditional knowledge on medicinal plant usage for the betterment of future mankind and before it becomes lost to future generations.

Suggestion

Since the younger generation is not interested to learn about the traditional knowledge or least concerned about the uses of medicinal plants, so there is need to motivate the younger generation to attain the knowledge on medicinal uses of plants otherwise it will disappear with time.

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