



Traditional uses of Medicinal Plants by Debbarma Tribes in West District Tripura, India

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ABSTRACT

A 36 ethno medicinal plant species, which includes 10 woody plants, 8 shrubs and 18 herbs used for different traditional herbal medicine formulations by Debbarma tribes in West Tripura district of Tripura. The knowledge on formulations of traditional herbal medicines were documented carefully with valid scientific name, part(s) used, availability status, ailments and mode of preparation and use. The source of information is based on the personal interviews with local herbalist (Debbarma), aged tribal men and women.

1. Introduction

Many plants are used as a source of medicine from time immemorial and acts as an important component in the health care system of India (Ripunjyoti 2013). Most of the practitioners formulate and dispense their own recipes in the Indian medicine systems; hence this requires proper documentation and validation (Chhetri *et al.*, 2005). In western countries also the use of herbal medicines is growing with approximately 40 per cent of population reporting use of herb to treat medical diseases within the past year (Majumdar and Datta 2013). General Public, academic and government interest in traditional medicines is increasing rapidly due to the more side effects of the allopathic drug and higher cost of the modern medicines. Therefore, medicinal and aromatic plants are useful resources but like many other forms of biodiversity, are threatened by over exploitation and unsustainable usage. Medicinal plants in India are used by about 60 per cent of the world's population. These are not only used for primary health care not just in rural areas in developing countries, but also in developed countries as well where modern medicines are predominantly used. While the traditional medicines are derived from medicinal plants, minerals, and organic matter, the herbal drugs are prepared from medicinal plants only.

The demand for medicinal plants is rising in the industrialized world, where people are resorting to natural health remedies more and more. The state Tripura has unique topography with varied phytogeographic and climatic conditions and has its own strength in terms of unique medicinal plant wealth that needs to be looked into and taken forward to the mainstream of medicinal plant industry (Majumdar and Datta 2013). Tripura is a small state located in the northeastern part of India. It has an international border with Bangladesh for about 839 kms, towards West, South and North and all three sides with rich biodiversity hot spot with huge variety of flora and fauna. It also shares boundary with Assam and Mizoram in the east. The geographical continuity with the Indian main land is maintained only in the north east with Karimganj sub-division in Cachar district of Assam (De and Debbarma 2011). The small geographical area however does not deprive Tripura in being one of the richest areas with regards to the biodiversity and biological Resources. The total area of the state is 10,497,697 Sq Km and located in the Biogeographic zone of 9B-North East Hills between 22°-56' to 24°-32' North latitude and between 90°-09' to 92°-20' East longitudes. Total forest covers an area of about 6292.689 Sq. Km, with the annual rainfall of about 222 cm and temperature ranging in between 10° C-35° C. Tripura is the inhabiting land of a number of tribes.

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Table 1. The tree species have medicinal value at West Tripura

S.N.	Botanical name	Family	Plant part used	Ailments/ disease/ disorders	Method of preparation and use
1.	<i>Aegle marmelos</i> Correa	Rutaceae	Leaves, gum from fruit, ripe fruit	Jaundice, dysentery	Leaves pounded to paste with equal quantities of leaves of <i>Cajanus cajan</i> and a little water and 1 cupful extract taken in the morning in empty stomach in combination with molasses in jaundice. One teaspoonful gum is taken once daily for 2 days in jaundice. Pulp of ripe fruit in dysentery. Fruit pulp as medicine and for prevention of dysentery.
2.	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Leaves and stem bark	Jaundice malaria and chicken pox	Leaves boiled in water to bathe patient with malaria and chicken pox. Smoke produced by burning leaves is used as mosquito repellent. Bark paste made to tablets and administered in severe jaundice.
3.	<i>Carica papaya</i> L.	Caricaceae	Root and fruit	Jaundice and stomachic	Extract of raw roots is administered 2 - 3 teaspoon thrice daily in jaundice. Unripe fruits is cooked as a vegetable, ripe fruit, eaten raw. Fruits are considered to be stomachic
4.	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Branches	Gum infections and high blood pressure.	The sap is applied locally in gum infections. Raw leaves are used in high blood pressure.
5.	<i>Psidium guajava</i> L.	Myrtaceae	Fruits and twigs	Dysentery, diarrhea and anaemia	Young twigs is chewed in empty stomach every morning for 1 week in dysentery and diarrhea. Fruit is used in anemia.
6.	<i>Terminalia chebula</i> Retzius	Combretaceae	Dried fruit	Stomachic and jaundice	Teaspoon extract is administered thrice daily as stomachic. Is a component of a multiple ingredient remedy for jaundice
7.	<i>Oroxylum indicum</i> (L.) Vent	Bignoniaceae	Stem bark and immature fruits	Jaundice, stomachic and anthelmintic	The cooled aqueous extract is taken with 2 tablespoons of sugar in 300 ml water as many times a day as possible in jaundice. Soup is used as stomachic and anthelmintic.
8.	<i>Gmelina arborea</i> Roxb	Verbenaceae	Fruit	Wounds	Decoction of fruits is applied in case of serious wounds.
9.	<i>Canavalia gladiata</i>	Papilionaceae	Pod	Jaundice	Soup of the tender pod is given to the patients suffering from jaundice.
10.	<i>Tectona grandis</i> Z.L.f.	Verbenaceae	fresh and dried leaves	itches of the skin.	The powdered leaves with water is applied as paste on swelled eyelids; also useful for acute dermatitis.

Around 19 prominent hills of the state are clogged with tribal community and a rough estimate of 31 % of the state population counts the tribal folk. The Debbarma, Chaimal, Halam, Jamatia, Lepcha, Riang, Tippera and the Tripura, contribute to the sum total of the existing culture and heritage of Tripura. The suitable tropical climate supports luxuriant growth of various types of medicinal plants and other forest resources scattered all over the state from hilly

tract to plain (Majumdar *et al.*, 2012). The use of medicinal plants in the traditional system of folk medicine forms as integral part of the culture of the tribal people. The tribal peoples of the state are familiar with the medicinal properties of locally available medicinal plants that are used for common ailments (Majumdar and Datta 2013). The aim of the present study is to rejuvenate knowledge of use of the different medicinal plants in Tripura and to describe their

health-healing behaviors, with particular reference to the use of traditional medicine and to identify the important medicinal plant for their conservation and efficient utilization.

2. Materials and Methods

The study was conducted in the West district of Tripura, India during 2014–15. During the ethno botanical survey, several herbalists, medicine men and women of Debbarma tribe were first identified and visited several times to gather knowledge on use of medicinal plants. Such study was carried out by adopting the methodology of questionnaire where the detailed information on medicinal plants use, type of medication, disease treated and mode of treatment were collected. Direct observation, usual interaction and structured interviews were adopted to collect valid information from those herbal practioners.

The interviews were conducted individually as well as in groups with the respondents. However, while interviewing in the groups, participant observation method was also employed to observe the tribal's' perceptions and recording knowledge on importance and utility of different medicinal plants in their society. Several visits in the rural areas were conducted to collect the information and verification of these practices. The remedies listed in table 1-3 were collected from herbal practioners of two rural development blocks of West Tripura *i.e.*, (Lefunga and Hezamara).

Enumeration

The medicinal plants species classified as tree, shrub and herb are enumerated their botanical name, family; plant part used, ailments/ disease/ disorders; method of preparation and use under different tables given below.

Table 2. The shrub species have medicinal value at West Tripura

S.N.	Botanical name	Family	Plant part used	Ailments/ disease/ disorders	Method of preparation and use
1.	<i>Adhatoda zeylanica</i>	Acanthaceae	Shrub	Chicken pox	Leaves are pasted and the paste is applied on the affected part.
2.	<i>Cassia hirsuta</i>	Fabaceae	Shrub	Snake bite	Leaves are crushed and applied on the affected area.
3.	<i>Coccinia cordifolia</i>	Cucurbitaceae	Shrub	Diabetes, burning sensation	Leaves are crushed and its juice is consumed 2 tsp twice per day.
4.	<i>Iris ranchipur</i>	Iridaceae	Shrub	Setting bone fracture	Rhizomes and leaves are grinded into a semisolid paste and applied on to the affected area.
5.	<i>Mussaenda glabra</i>	Rubiaceae	Shrub	Anti-coagulant, pain	Whole plant is finely pasted and used as an ointment
6.	<i>Phlogacanthus thyrsiflorus</i>	Acanthaceae	Shrub	Cough and cold	Leaves are cleaned, crushed then subjected to hot iron along with the addition of salt and then consumed.
7.	<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Leaves and twigs	Weakness, and jaundice	Mature seeds are cooked as a pulse and given in weakness. Leaf and twig paste is applied throughout the body during jaundice. Soup of fresh leaves and twigs is administered in jaundice.
8.	<i>Clerodendrum viscosum</i> Vent	Verbenaceae	Leaves and root	Blood pressure and febrifuge	Extract is used as expectorant. Decoction of the leaves is used to check high blood pressure. Root extract is administered 1 teaspoon thrice daily as febrifuge

Table 3. The herb species have medicinal value at West Tripura

S.N.	Botanical name	Family	Plant part used	Ailments/ disease/ disorders	Method of preparation and use
1.	<i>Achyranthus aspera</i>	Amaranthaceae	Leaves	Stomach ache and Abortion	Leaves are finely crushed, pasted and taken with water (half glass).
2.	<i>Artimesia annua</i>	Asteraceae	Leaves	Diabetes	Leaves are grinded with Luke warm water and consumed in the form of a syrup twice a day.
3.	<i>Bryophyllum pinnatum</i>	Crassulaceae	Leaves	Vomiting and food poisoning	2-3 leaves are finely pasted and mixed with ½ liter Luke warm water and taken 4-5 times per day(for infants its only 2-3 times per day.)
4.	<i>Bryophyllum pinnatum</i>	Crassulaceae	Leaves	Small pox and chicken pox	Leaves are mixed with pig's teeth and horn of rhino then dipped in water and then that water is consumed thrice a day.
5.	<i>Curcuma caesia</i>	Zingiberaceae	Rhizomes	Sore Throat	Rhizomes are taken with honey in a semisolid form, thrice a day.
6.	<i>Litsea glutinosa</i>	Lauraceae	Leaves	Heart Disease	Leaves are mixed with the bark of <i>Terminalia arjuna</i> and boiled at 1000 C and are consumed (50 ml) 3 times per day.
7.	<i>Piper nigrum</i>	Piperaceae	Roots	Cold, Cough and Asthma	Roots are crushed, pasted and then consumed with honey, twice a day.
8.	<i>Aegeratum conyzoides</i> Linn.	Asteraceae	Leaves and twigs	anti hemorrhagic, expectorant	Fresh leaf extract used as anti hemorrhagic. Paste of leaves and twigs used as antihemorrhagic. Juice used as an expectorant.
9.	<i>Ananas comosus</i> (L.) Merrill	Bromeliaceae	Leaves	rheumatic swellings, diarrhea	Leaf extract with milk and sugar candy in rheumatic swellings. Extract of leaf base is taken 1 teaspoon thrice daily in diarrhea
10.	<i>Centella asiatica</i> (Linn.) Urban	Apiaceae	Leaves and entire shoot	Jaundice, dysentery and diarrhea	Eaten either as paste or cooked as a vegetable for dysentery and diarrhea. Decoction of the shoot part along with four other ingredients is used as a combination medicine for jaundice
11.	<i>Cynodon dactylon</i> (L.) Persoon	Poaceae	Shoot and roots	anti-haemorrhagic and rheumatic swellings	Shoot extract is anti-haemorrhagic. ½ cup of extract of roots is consumed thrice daily for 2 days to get rid of rheumatic swellings
12.	<i>Euphorbia nerifolia</i> Linn.	Euphorbiaceae	Leaves	Any sort of ear infection, fever, cough	Leaves are heated on any fire source and the juice is applied to the ear in any sort of ear infection. Vapor is inhaled as medicine during fever. Oven heated leaves are placed on the chest to control cough
13.	<i>Kaempferia rotunda</i> Linn	Zingiberaceae	Flower and rhizome	Skin infections. And jaundice	Flower decoction is used to bathe patient with skin infections. Aqueous decoction of rhizome is taken ½ cup a day for 1 week in jaundice
14.	<i>Kalanchoe pinnata</i> Pers.	Crassulaceae	Leaves	Jaundice, dysentery and diarrhea, skin infections and pimples	Chewed raw with sugar to control dysentery and diarrhea. Juice is administered in jaundice. Leaf paste is applied on skin infections and pimples. Juice of raw leaves is administered in dysentery and diarrhea
15.	<i>Leucas aspera</i> Spreng	Laminaceae	Leaves and twigs	Jaundice and cough	2 tablespoons of extract is taken thrice daily for 3 - 4 days in jaundice. One teaspoon is taken twice daily in cough.

3. Results and Discussions

In present investigation, a total of 36 plant species have been documented for medicinal used by Debbarma tribes of Tripura. Among 36 species 10 are woody plants, 8 are shrubs and 18 are herbs (Pandey *et al.*, 2014). Analysis of data showed that, herb (49%) was used more by Debbarma tribes followed by tree (30%) and shrub (21%) as given in figure 1. The analysis of data reveals that a total of 38 ailments/disease/disorder were treated by 36 plant species preparation. Of these ailments, 12 were cured by trees, 13 by shrubs and 26 by herbs (Pandey *et al.*, 2014). This was also showed that the herb had more value in rural medicine than trees and shrubs. During the study, among the ailments, jaundice was found major problem. Jaundice was treated by more number of plants irrespective of trees, shrub and herbs. Plant species treated the Jaundice are includes *Aegle marmelos* Correa, *Azadirachta indica* A. Juss, *Carica papaya* L., *Terminalia chebula* Retzius, *Oroxylum indicum* (L.) Vent, *Canavalia gladiata*, *Cajanus cajan* (L.) Millsp, *Kaempferia rotunda* Linn, *Kalanchoe pinnata* Pers, *Leucas aspera* Spreng, *Marsilea quadrifolia* Linn and *Mimosa pudica* Linn. (Majumdar *et al.*, 2006). However, among the plants, use of tree was found more 50% for treating the jaundice followed by herbs (42%) and shrub (8%) as given in figure 2. Maximum formulations are in complex mixture of preservatives such as water, honey, salt, some other plant parts, animal products. It is also noticed that same formulation is used in two or more different diseases (Pandey *et al.*, 2014). Some of the medicinal plants species mentioned in this paper were already reported in some earlier works but purposes and method of use are different. The present survey concludes that the tribal of Tripura has detailed knowledge regarding ethno-medicinal plants, their utilization in various simple to critical diseases (Pandey *et al.*, 2014).

Conclusion

The plant part such as roots, leaves, stems, rhizomes of different medicinal plants are used by tribal as medicines and their knowledge of practice has come from generations to generations. These indigenous practices and knowledge about the sustainable utilization of plant resources must be documented and preserve for future generations, also it should be encouraged and valued for its worth and spread to all the masses to protect the medicinal plants from over exploitation and unsustainable and promote the use of traditional medicine and also to identify the important medicinal plant for their conservation and efficient utilization.

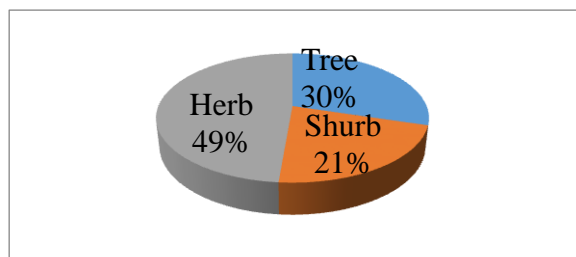


Figure 1. Contribution of different plant species in medicinal value in study area

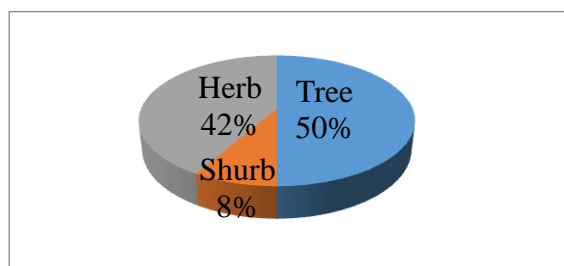


Figure 2. Contribution of different plant species in cure of jaundice in study area

References

- Chhetri DR., Basnet D, Chiu PF, Kalikotay S, Chhetri G, Parajuli S (2005). Current status of ethnomedicinal plants in the Darjeeling Himalaya. *Current Science* 89(2): 264-268.
- Majumdar K., Datta B.K (2013). Practice Pattern of Traditional Pharmaceutical Formulations by the Tribes of Tripura, Northeast India. *Global Journal of Pharmacology* 7(4): 442-447.
- Majumdar K., Saha R, Datta BK, Bhakta T (2006). Medicinal plants prescribed by different tribal and nontribal medicine men of Tripura state. *Indian Journal of Traditional Knowledge* 5(4): 559-562.
- Majumdar K., Datta BK, Shankar U (2012). Ten new additions of tree species to the Tripura. state, North East India: *Distribution of extension and geographic map*. *Nebio*, 3(1): 17-24.
- Pandey A., Rajashree G, Mavinkurve (2014). Ethno-Botanical usage of Plants by the Chakma Community of Tripura, Northeast India. *Bulletin of Environment, Pharmacology and Life Sciences* 3(6): 11- 14.
- Ripunjy Sonowal (2013). Indigenous knowledge on the utilization of medicinal plants by the sonowal kachari tribe of Dibrugarh District in Assam, North-East India. *International Research Journal of Biological Sciences* 2(4): 44-50.
- De B., Debbarma T (2011). Impact of Biodiversity in Tribal life of Tripura. *Current World Environment*, 6(2), 301-302.