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Ethnobotanical uses of some plants by *Tripuri* and *Reang* tribes of Tripura

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Abstract

An ethno-medicinal survey of plants in Tripura state revealed that some less known medicinal plants have been used by the indigenous tribes. The valid scientific name, family, local name(s), habit, dosages and traditional formulation of 33 species belonging to 32 genera and 25 families are enumerated in the paper. The ethnic people of *Tripuri* and *Reang* communities of Tripura are involved in using these medicinal plants. Traditional beliefs, concepts, knowledge and practices among them for preventing, lessening or curing disease are accessible till now. Still they depend upon such traditional healthcare and the need for immediate documentation of such knowledge and conservation of these valuable plants are emphasized to secure it for our future generation.

Keywords: Medicinal plants, Reang tribes, Traditional herbal practice, Tripuri tribes, Tripura, India.

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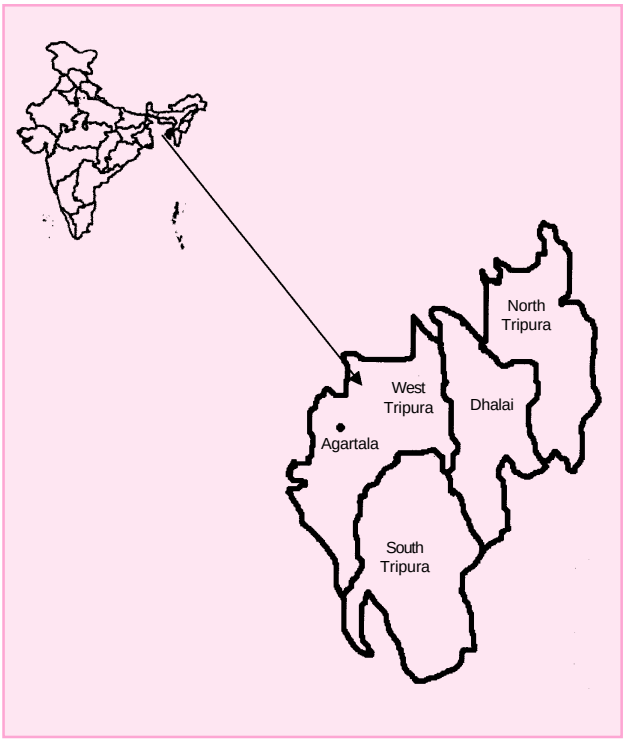
Introduction

Tripura is India's third smallest state located in the Bio-geographic zone of 9B-North East Hills between 22°56' and 24°32' N latitude and between 90°09' and 92°20'E longitude. The total area of the state is 10, 497.69 sq km. The forest covering area of the state is about 6292.681 sq km. Temperature ranges from 10-36°C and the annual rainfall about 247.9 cm. The state has four districts, viz. North, South, West Tripura and Dhalai. North-East India is very rich in plant diversity. Tripura is rich in its biological resources and possesses an extremely rich plant bio-diversity which is gradually decreasing.

Tribal people are the eco-system people who live in harmony with Nature and maintain a close link between man and environment. In India, out of 18, 864 (World Bank Report, 2004, 2007) species of higher plants, over 2000 species are documented and 1,100 species are used in different system of medicine. About 95% medicinal plants are obtained from wild sources and 150 species have only commercial uses[1].

In Tripura, 19 tribal communities are found, viz. *Tripuri*, *Reang*, *Noatia*, *Jamatia*, *Halam*, *Kuki*, *Chaimal* and *Uchai* are known to have migrated to this state from outside in the historical period as such they are regarded as the original settlers of Tripura. The list of the immigrant tribes includes the rest i.e. *Chakma*, *Magh*, *Garo*, *Lushai*, *Bhutia*, *Lepcha*, *Bhil*, *Munda*, *Oraon* and *Santhal*. Each community has their unique socio-cultural heritage, language, food habits. Although there are different dialect forms among the different communities but Kokborok is the standard spoken form among all



Map showing the location of the study area

these[2]. A rich diversity of both population and flora in the state has provided an initial advantage to its inhabitants since times immemorial for observing and scrutinizing the rich flora and fauna for developing their own traditional knowledge. Most of the tribal economies have been engaged in subsistence agriculture, jhum, piggery, fishery and hunting. With the passage of time, they have developed a great deal of knowledge on the use of plants and plant products in curing various ailments/diseases. They have a deep belief in their native folklore medicine for remedies. Acquired knowledge on native properties of plants against various diseases was transmitted from one generation to another only verbally. Due to modernization the traditional knowledge is vanishing rapidly day by day[3]. There is still very little work has been done in the field of ethno-medico-botany of Tripura. Though, some workers have reported several medicinal plants and their utilization by the indigenous tribes[4-8]. In the present study, an attempt has been made by the authors to investigate and document less known herbal practices by the *Tripuri* and *Reang* tribes.

Methodology

Ethno-botanical exploration was undertaken particularly in the isolated tribal inhabitant hilly dense forest areas where they live along with their own customs and traditions. During the ethno-botanical survey particularly in the West district several herbalists, medicine men and women of *Tripuri* and *Reang* community were first identified and visited several time to gathered information on medicinal usage of plants. Such study was carried out by adopting the methodology of Jain[9]. Periodical trips were undertaken to the different tribal hamlets to document the ethno-botanical information during 2006-2007. Details of information on the medicinal plants used, types of medication, disease treated and mode of treatment were collected. Direct observation, causal interaction and structured interviews were adapted to collected valid information from those herbal practitioners. Plants were identified by using various Floras[5, 10-12]. The data collected in the field were formatted and preserved carefully. Voucher specimens were prepared following conventional methods of Jain[9] and deposited in the herbarium of Botany Department, Tripura University.

Enumeration

The medicinal plant species are enumerated alphabetically, with their botanical name, family, vernacular name(s), followed by availability status, parts used, ailments, dosage and mode of administration are tabulated in Table 1.

Results and Discussion

In the present investigation, 32 Angiosperms and one Pteridophyte have been documented for folklore medicinal plants uses by *Tripuri* and *Reang* tribes of Tripura. Of these, 15 species are herbs, 10 woody trees and 5, 2 and 1 species listed as shrubs, climbers and fern, respectively. Among these medicinal plants, 6 species are cultivated around the huts and *jhum* land whereas the rest are collected from the wild habit and habitat. The analysis of data reveals that stem and bark are used in 6 ailments; root, rhizome and tuber used in 8 ailments; leaves used in 12 ailments; whole plant used in 7 diseases; fruit and seed used in 6 occasion and flower, petiole, shoot, twig used in 4 ailments. Maximum formulation are in complex mixture of two or more plant parts, preservatives such as honey, sugar, *Jowan, Hing, Ghee*, etc. are also used in several ailments. It is also noticed that same formulation is used in two or more different diseases. Some of the medicinal plant species mentioned in this paper were already reported in some earlier works but purposes and method of use are different, for example ***Euphorbia hirta*** is used for curing septic ulcer in the nail corner of the toes and increasing mother milk after delivery, ***Semecarpus anacardium*** in rheumatic pain, contraceptive and small pox, ***Asparagus racemosus*** in frigidity and sexual weakness and ***Cynodon dactylon*** in amenorrhoea, abnormal menstruation, fever, dysentery and nausea[8, 13-16].

The present survey concludes that the tribal of Tripura has detailed knowledge regarding ethno-medicinal plants and their utilization in various simple to critical diseases. The promising ethno-medicinal plants of Tripura are interesting and provide new medicinal plants for further ethno-pharmacological investigation on them. Such species may be utilized in the formation of new drugs after confirmation of their therapeutic efficacy on modern parameters. Recently revival of interest towards herbal drugs because of their efficacy against different ailments invites immediate attention towards herbal protection and conservation of such valuable medicinal plants, otherwise it will be too late. A few medicinal plants need immediate cultivation so that these could be source of revenue generation amongst the local people of this region.

Crataeva nurvala

Typhonium trilobatum

Asparagus racemosus

Drynaria quercifolia

Phyllanthus acidus

Psidium guineense

A Riang medicinemen applying the paste on the fractured area of a child

A Tripuri Medicine practitioner showing *Euphorbia hirta* a medicinal plant

Table 1: Some ethno-medicinal plants of Tripura

S. No.	Botanical name / Family/Collection No.	Vernacular name (Bengali- B; Kokborak- K; Tripuri-T; Reang-R; English-E)	Availability status	Part(s) used	Ailments	Dosage and mode of administration
1.	***Alpinia allughas* Rosc.** Zingiberaceae/HBD,102	*Tara* (B); *Taruku* (K); *Taru* (R)	Occasionally cultivated	Stem, rhizome	Bronchitis and rheumatic pain	About 10 g of stem and 10 g of rhizome are boiled in 8 cups of water, reduced to half and strained, 10 g of powdered Moong pulse is boiled with this decoction by adding small amount of asafoetida (*Hing*), and it is prescribe to children for twice a day for one week to cure respiratory troubles. The same formulation is also prescribed during rheumatic pain.
2.	***Amomum dealbatum* Roxb.** Zingiberaceae/HBD,124	*Alach* (B), (K); *Alachi* (T)	Rarely cultivated	Fruits or seed	Muscular rheumatism	Fruits or seeds are powered and half teaspoon-ful powder is mixed with equal amount of honey and taken once a day for about one month in case of muscular rheumatism.
3.	***Amorphophallus bulbifer* (Roxb.) Bl.** /Araceae/KM,292	*Dadunga* (B); *Maimorang* (K); *Ul Hugu* (T)	Wild	Petiole, rhizome	Muscular and joint pain	Small pieces of fresh petiole and bulbils of this plant are cooked as vegetables with dry fish and taken with rice once a day for 10-12 days for rheumatic muscular or joint pain.
4.	***Asparagus racemosus* Willd.**/Liliaceae/HBD,165	*Satamuli* (B)	Cultivated	Tuberous roots	Epilepsy	Half cup tuberous root's decoction is diluted with equal amount of milk and taken once a day for three month as a remedy against epilepsy.
5.	***Barleria prionitis* Linn.** Acanthaceae/BKD,308	*Ziodi* (R)	Wild	Leaves	Pruritis, rubefacient and blotch	Equal amount of leaf of this mixed with the ashes of ***Terminalia chebula* Retz.** fruits and sulphur-di-oxide (*Gandhak*) are crushed and made into pills (500 mg) and then dried. About 1-2 pills are mixed with 100 ml of coconut oil and massaged everyday all over the body.
6.	***Careya arborea* Roxb.** Lecythidaceae/KM,187	*Kumbhira* (B); *Kumbhi* (K)	Wild, common	Flower, bark	Cough, mouth and throat infection	Equal amount of crushed fresh flower and bark are soaked overnight in one glass of water, patients are prescribed to gargle with the filtrate solution thrice a day.

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7.	***Chenopodium ambrosioides* Linn.** Chenopodiaceae/BKD, 233	*Bara bathu sag* (B); *Bara Bathua* (K); *Batto* (R)	Wild	Leaves, stem	Scabies	Leaves and stems are boiled in water, strained, cooled and then sponged all over the body.
8.	***Commelina obliqua* Buch.-Ham.** syn. *C. paludosa* Bl. /Commelinaceae /HBD, 113	*Kansira* (B)	Wild	Tender leaves	Boils, poisonous insects bite	In case of boils or infections due to poisonous insect bite, young leaves are pasted with ginger, and applied on the infected area as a thin smeare and bandaged with young banana leaf for 24 hours. Same formulation may be used 2-3 times and rest it for about one week in case of serious bite.
9.	***Crataeva nurvala* Buch.-Ham.** /Capparaceae HBD,117	*Barun* (B), (K)	Wild	Bark	Nephritic disorders	Decoction of bark is given orally twice a day for 8-10 days to the patient suffering from urinary disease. Same formulation is also very useful in case of stomach troubles.
10.	***Curculigo recurvata* Dryand.** /Hypoxidaceae KM,214	*Talmuli* (B); *Lengdi* (K)	Wild	Rhizome	Decreased density of semen and ulcer in vagina	About 5-7 g of fresh rhizome's decoction is mixed with 3-4 teaspoonful of milk and one spoonful of sugar and given orally twice a day for 20 days. Rhizome decoction is also applied locally to cure urinogenital ulcer.
11.	***Cynodon dactylon* (Linn.) Pers.** /Poaceae/HBD,121	*Durba* (B); *Dubba*(K); *Durbu* (T); Dub Grass (E)	Wild, frequent	Whole plant	Miscarriage	About 50 g of plant powdered with equal amount of unboiled rice (*Atap chal*) to form small pills and prescribed to take 2 pills for 3-4 days in a week after meal.
12.	***Drynaria quercifolia* (Linn.) J. Smith** Polypodiaceae/HBD,125	*Gundi* (K)	Wild (Epiphyte)	Leaves, rhizome	Intestinal worms and abdominal pain	Equal amount of leaf and rhizome are smashed and about 2 teaspoonful of juice are collected and given orally in early morning in empty stomach for one week to the patient suffering from intestinal worms and abdominal pain.
13.	***Enhydra fluctuans* Lour.** Asteraceae/ BKD,309	*Helencha* (B); *Titirdoga* (K)	Wild	Whole plant	Hypertension and excess bile secretion	One teaspoonful leaf juice of ***Enhydra fluctuans*** mixed with equal amount of ***Centella asiatica* Urban** and cucumber juice and taken twice daily for 15-20 days in case of hypertension and biliousness excess bile secretion.

S. No.	Botanical name / Family/Collection No.	Vernacular name (Bengali- B; Kokborak- K; Tripuri-T; Reang-R; English-E)	Availability status	Part(s) used	Ailments	Dosage and mode of administration
14.	***Euphorbia hirta* Linn.** Euphorbiaceae/HBD, 115	*Dudhi* (B)	Wild	Whole plant	Gonorrhoea and to increase lactation	About 4 - 5 teaspoonful of plant juice and one teaspoonful sugar in one cup of warm milk is taken once daily for 7-8 weeks as a remedy for gonorrhoea and lactation.
15.	***Glycosmis arborea* (Roxb.) DC.**/Rutaceae KM, 222	*Phatikhira* (B); *Blang jambura* (K)	Wild	Whole plant	Jaundice, anaemia, worms and vomiting	Fresh bark is pounded and half cup of bark decoction is given orally in every morning and evening for about three weeks in case of jaundice and anaemia. About 15-20 g of fresh leaf and 10 g of root pounded and half cup of juice administered twice a day in case of vomiting or intestinal worms.
16.	***Lasia spinosa* (Linn.) Thw.** /Araceae/KM,179	*Banaitya* (B); *Gaittara* (K)	Wild	Rhizome, leaves	Chronic rheumatism	Young leaves, rhizome and other vegetative parts of this plant are cooked as vegetable and eaten during chronic rheumatism for about one month.
17.	***Lawsonia inermis* Linn.** Lythraceae/DKD,234	*Mehendi* (B); *Mendi* (T)	Occasionally cultivated	Flower	Nephritic disorders	About 250 g of flowers of this plant is mixed with equal amount of seeds of ***Syzygium cuminii* (Linn.) Skeels** and young shoots of ***Melocanna baccifera* Kurz** are boiled in half litre of cow milk. The mixture is then completely dried and powdered, and prescribed to take 1-2 teaspoonfuls with cold water twice for 3 weeks.
18.	***Litsea glutinosa* (Lour.) C. B. Robins/** Lauraceae HBD,161	*Menda* (B); *Kukurchik* (K)	Wild	Leaves, bark	White discharge	Fresh leaves are pounded and 1-2 teaspoonful mucilaginous juice is taken early morning in empty stomach for one week in case of white discharge.
19.	***Meyna spinosa* Roxb.** Rubiaceae/DR,190	*Monkata* (B)	Wild common	Tender leaves	Skin irritation	About 40-50 g of leaves crushed with little amount of ginger, the paste is rubbed on the infected areas.

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20.	***Mussaenda roxburghii* Hook. f.** /Rubiaceae/DR,171	*Mussaenda* (B); *Kuthoikhum* (K)	Wild	Leaves	Bone fracture	Approx. 100 g matured fresh leaves are crushed and one egg (Hen's) mixed with it and made into paste, warmed up and then applied on the fractured area of the body and covered with a young banana leaf and bandaged with some hard materials (bamboo stick). After seven days bandaged should be open and repeat the treatment with the above formulation at least three times or more.
21.	***Neptunia prostrata* (Lamk.) Baill.** Mimosaceae/HBD,178	*Haraisag* (K); *Panya lajuri (*T)	Wild	Young shoot	Acidity, gastritis and constipation	Crushed twigs are mixed with paste of un boiled rice (*Atap chal*) and made into large sized pills, fried and taken orally or with meals to prevent gastritis, acidity and constipation.
22.	***Passiflora foetida* Linn.** Passifloraceae/DR,116	*Ban kamala, Fok Fok gula* (R)	Wild	Leaves, fruits	Blood purifier, burns and scabies	Ash of the leaves mixed with *ghee* and applied in burns and scabies, to heal the wounds and immediate relief from pain. Ripe fruits are prescribed to take raw as a blood purifier.
23.	***Phyllanthus acidus* (Linn.) Skeels** Euphorbiaceae/BKD,211	*Horboroi* (T)	Cultivated	Fruits	Liver problem and blood purification	Fruits are taken either raw or dry as liver tonic. Some time dry fruits are preserved and taken with warm water for the same purposes.
24.	***Plumbago zeylanica* Linn.** Plumbaginaceae/HBD,154	*Sweta chita* (R)	Wild	Root	Abortion	Half cup of root decoction once for three days are prescribed to the 2-3 months pregnant woman, if abortion is necessary.
25.	***Psidium guineense* Swartz** Myrtaceae/KM,243	*Bangayam, Jarbogoyam* (R)	Wild	Leaves and twigs	Scurvy, dentrities	About 100-200 g of fresh leaves and twigs are boiled with two glasses of water and reduced to one glass, given as mouth wash to the patient suffering from scurvy. Young leaves chewed and teeth are brushed with twig or young stem to make the gum strong and prevent untimely falling of teeth.
26.	***Semecarpus anacardium* Linn. f.** /Anacardiaceae KM,244	*Vela* (B), (K)	Wild	Fruits, seeds	Excessive hair loss	Decoction of seeds is applied externally on the scalp before one hour of bath to prevent baldness or excessive falling of hair.

S. No.	Botanical name / Family/Collection No.	Vernacular name (Bengali- B; Kokborak- K; Tripuri-T; Reang-R; English-E)	Availability status	Part(s) used	Ailments	Dosage and mode of administration
27.	***Solanum stramoniifolium* Jacq.** /Solanaceae/HBD,129	*Ram begun* (K); *Tide Begal* (T)	Wild, occasional	Whole plant	Chest pain, asthma	About 250 g of whole plant is boiled in one litre of water till it reduces into paste. About 1-2 teaspoonful of this paste is taken with little honey twice a day for one week.
28.	***Solanum xanthocarpum* Schrad.**/Solanaceae/BDK,271	*Kantikari* (B)	Wild	Whole plant	Asthma	About 250 g stem juice is boiled in 2 litres of water, reduced to half litre, which is further evaporated into a thick viscous liquid. Equal amount of honey is added to preserve it. About 1-2 spoonfuls are taken 4-5 times a day as a remedy against asthma.
29.	***Sterculia villosa* Roxb.** Sterculiaceae/HBD,166	*Udal* (B); *Phatibarak* (K)	Wild	Petiole, bark	Seminal weakness	3-4 young petioles are cut into small pieces and soaked in a glass of water over night. Half of the liquid is administered orally in early morning and other half in the evening for 20-25 days.
30.	***Typhonium trilobatum* (Linn.) Schott** /Araceae HBD,181	*Kharkan* (K), (B)	Wild	Leaves, tubers	Bleeding piles, rheumatism	Leaves and tubers are cooked as vegetable and given to the patients suffering from piles and rheumatism.
31.	***Wedelia chinensis* Merrill** Asteraceae/DR,107	*Bhringaraj* (B); *Bhimraj* (K)	Rarely cultivated	Whole plant	Hydrophobia	Equal amount of this plant, ***Eclipta prostrata* Linn.**, ***Coriandrum sativum* Linn.**, Cumin (*Jeera*), inflorescence of ***Ocimum sanctum* Linn.**, *Ganja*, *Jaiphal* and *Jain* are crushed to prepare small pills. One pill is given orally in early morning in empty stomach for 3 days in case of hydrophobia (caused by dog bite).
32.	***Zanthoxylum limonella* (Dennst.) Alston** /Rutaceae BKD,284	*Bajna* (B); *Bajrong* (K)	Wild	Bark, fruits	Lower abdominal pain, dysuria	About half cup root decoction is mixed with 4-5 drops of honey and given twice a day for about one week to relieve lower abdominal pain and dysuria. Fruits are also prescribed as sexual stimulant.
33.	***Ziziphus rugosa* Lam.** Rhamnaceae/HBD,111	*Ban baroi* (B)	Wild	Leaves, fruits	Dropsy	100 g of fresh tender leaves made into paste dilute with 250-300 ml of water, shake properly to generate foam, which is applied gently on the swelling of eyelid in case of dropsy.

Conclusion

The tribal living in the forest or in close proximity of the forest are dependent upon herbal practices due to lack of communication and negligence from both sides, cost of allopathy and have deep faith upon their old treaties and tradition. The plant parts such as root, leaf, flower, fruit and seeds are used by tribals as a medicine and their knowledge of practice has come down through generations. But now-a-days this flow of indigenous knowledge from elder to younger generation is interrupted as the young generation is reluctant to learn about traditional medicinal practices. The younger generation often leaves their villages because of the profound economic changes. Indigenous practices and knowledge regarding the sustainable harvest and utilization of plant resources as medicine should be documented and preserved before they disappear.

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