



COMMUNITY BASED CONSERVATION OF ETHNO-MEDICINAL PLANTS USED BY THE CHAKMA COMMUNITY OF TRIPURA, INDIA

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ABSTRACT

This paper reports an ethno-botanical study conducted during the year 2012 in the tribal areas of North and South districts of Tripura, India where *Chakma* tribe inhabits. The study was aimed to document the traditional folklore knowledge of the local people about the use of different plants or their products. A large number of people belonging to various districts and villages were interviewed during field trips and asked questions regarding the traditional use of plants. The data collected reveals that about 20 plant species belonging to 13 different families find use in day to day life including medicinal, aromatic and cultural purpose.

KEYWORDS: North East India, Medicinal plant, *Chakma* Tribe, Traditional knowledge, Ethno-botanical Survey



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INTRODUCTION

Tucked away in the hilly land of North-eastern region of India, Tripura is the inhabiting land of a number of tribes. 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 Chaimal, Halam, Jamatia, Lepcha, Riang, Tippera and the Tripura, contribute to the sum total of the existing culture and heritage of Tripura. And the most interesting part is their cordial relation amongst each other in balancing the tradition of wood carving, bamboo and cane works. Other than using the common 'Kokborok' conversing language, other beautiful dialects help them maintain the interactive session. The tribes of Tripura are highly inclined to religious and spiritual believes. With the presiding deity "Tripura Sundari" the tribal believes the place to be linked with the epic era of Mahabharata. The important tribal festival, Karchi Puja, dedicated to the 14 Gods is held every year during the month of July. In addition to the tribal folks, Bengali populace residing there also bows their head before the divine idols. The tribal women in Tripura are much more upgraded than their men. Women wrap the lower portion of the body with 'Ringai' whereas they cover the upper half with 'Risa' and 'Rikuttu'. The 'Ringai' pattern and the dangling silver and metal jewelry in their body is the way to differentiate one tribes from another. Tribes in Tripura are very much fond of non-vegetarian cuisines, specially made of fermented fish. The merriment includes the boiled meat of pork, chicken, mutton, beef, turtle, fish, crabs, prawns, frogs and even dogs⁷ Tripura, the main Schedule Tribe (ST) in the state from which the state has earned its name 'Tripura', alone accounts for more than half of the total Schedule Tribe population of the state. *Riang* (16.6%), *Jamatia* (7.5%), *Chakma* (6.5%), *Halam* (4.8%), *Mag* (3.1%), *Munda* (1.2%), *Kuki* Tribe (1.2%), and *Garoo* (1.1%) are the major Schedule Tribes in terms of population. Along with Tripura they constitute about 97% Schedule Tribe population of the state. The rest of the Schedule Tribes are small in population size. The Schedule Tribes in the state are predominantly rural (97.4%). One third of the

total Schedule Tribe population of the state is living in West Tripura district (39%), followed by South Tripura (29.1%), Dhalai (16.7%), and North Tripura (15.1%). Dhalai district, however, has recorded the highest proportion (54 %) of the Schedule Tribes population (Population census of Tripura, 2001). *Chakma* is the name of the largest tribe found in the hilly area of eastern Bangladesh known as the Chittong Hill Tracts. Their names were first used by British census-takers to describe certain hill people. When the British left India in 1947, the land was divided into two countries, Pakistan and India. The *Chakma* population is estimated to be around 550,000 (Population census of Tripura, 2001). The majority (approximately 300,000 people) are located in the Chittagong Hill Tracts of Bangladesh. There are also about 80,000 *Chakmas* in Mizoram State in India, and 20,000 in Burma (Myanmar). *Chakma* is one of the prominent Tripura tribes. The people belonging to *Chakma* tribe believe in the sermons of Lord Buddha. Udaipur, Kanchanpur, Kailsahar, Belonia, Sabroom and Amarpur sub-divisions of Tripura are the prime locations where *Chakma* tribes live. The 19 tribal groups of Tripura have their own festivals, rituals and customs, *Chakma* being undocumented has a remarkable tradition and is totally different from the co-tribes of the region inhabiting close to the nature and natural resources. Living on the land of Tripura from a long a time, the various tribes of the state are known for their peaceful existence. Agriculture is the main source of livelihood of all the major tribes of Tripura⁷. The current work is an effort to bring light on the ethno-botanical knowledge of the *Chakma* tribe of Tripura. Such work is indispensable for the conservation of diminishing traditional and cultural biodiversity today.

MATERIALS AND METHODS

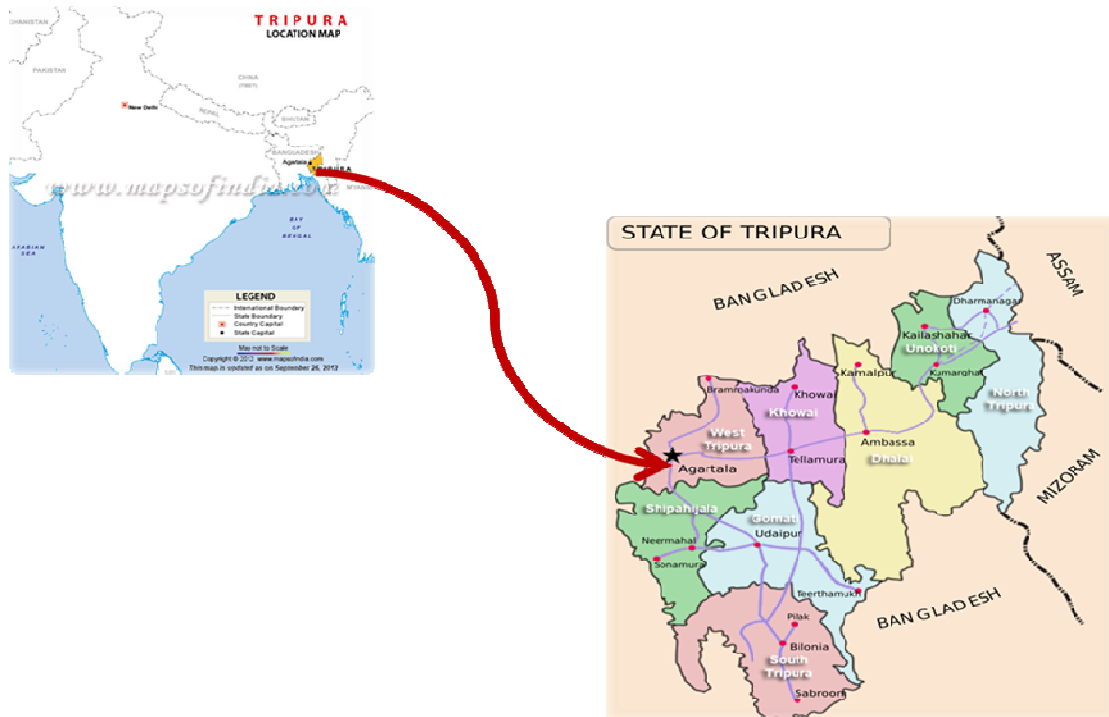
Study Area

Tripura is a landlocked hilly state having a traditional knowledge system for utilization of wild plants geographical area of 10,491 km is the second smallest state among the eight northeastern states of India. There are 19 ethnic groups viz. *Tripuri*, *Jamatia*, *Reang*,

Noatia, Chakma, Bhil, Bhutia, Chaimal, Garo, Halam, Khasia, Kuki, Lepcha, Lushai, Mag, Munda, Orang, Santhal and Uchai residing in this state. Each group has their own unique language, culture and food habit. It is rich with floristic diversity and falls under the biogeographic zone of North East hills. The

vast forest cover extends up to 57.73% of the state total geographical area. The flora comprises of 379 tree species, 320 shrubs, 581 herbs, 165 climbers, 16 climbing shrubs, 35 ferns and 45 epiphytes¹

Figure 1
Study Area



Target Groups

The study was conducted through extensive personal interviews, in-depth discussions and participant observations with the traditional medical practitioners and selected knowledge holders of the villages Belonia, Subroom, Amarpur of South Tripura district and Chamanu, Gandacherra, Kanchanpur, Machmara of North Tripura district. The healers were invited to attend a state level training program at the department of botany, Agartala Tripura University held in the month of February 2012, where people from above mentioned villages came and their traditional knowledge was documented. The target groups of the present study comprise elderly persons both male and female of the *Chakma* tribal community belonging to different age groups

(40-70 years), who practices the traditional health care systems. Some of them are folk healers and some are not. Total of 21 healers were interviewed and their knowledge was documented. They are usually cultivators and most of them are familiar about the traditional uses of indigenous plants in various purposes. Moreover, the housewives who collect different wild plants as vegetables for cooking purposes were also considered for interview.

Interactions

The questionnaires were prepared to get the direct information on the traditional knowledge that are prevailing and usually practiced in the community. The indigenous plant species used by the *Chakma* tribe were collected from the field as shown by the respondents and the

detail information about the plants and parts used in the treatment of different ailments were collected. Most of the plants were commonly occurring plants and known to most of the people. All the enumerated plant species were identified with the help of relevant and standard

literature^{2, 3, 4}. The data collected in the field were formatted and preserved carefully. Voucher specimens were prepared following the conventional methods of plant taxonomy and deposited in Botany Department of Tripura and one set to I-AIM, FRLHT, Bengaluru.

Figure 2
Female healers of Chakma Tribe, Tripura



Figure 3
State Level Training program with the local healers



Figure 4
Authentication of the plants collected with healers



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

Sl. No.	Botanical Name	Family	Habit	Local Name (Kokborok)	Plant Part Used	Uses
1.	<i>Ageratum conyzoides</i> Linn.	Asteraceae	Shrub	Khomorochwk & Shyamtulsi	Leaves & twigs	Root juice antilithic; leaf juice styptic, applied to cuts and sores, externally in ague.
2.	<i>Alocasia macrorrhizos</i> (Linn.) G.Don	Araceae	Shrub	Maitu bulai	Modified root	Leaves styptic, astringent, tuber useful in piles and constipation.
3.	<i>Alcea rosea</i> Linn.	Malvaceae	Shrub	Kumai	Seeds	Seed paste applied on children's the head during cold.
4.	<i>Areca catechu</i> Linn.	Areaceae	Tree	Chaali	Fruit	The fruit of <i>Areca catechu</i> and leaf of <i>Piper betle</i> is used as masticatory. The petiole of <i>Piper betle</i> leaf is browsed around the anus during constipation. The fruit of the former and leaf of the later together with fermented tobacco and lime is grinded and applied into the wounds to kill the larva present in cattle.
5.	<i>Bambusa sp.</i>	Poaceae	Tree	Waa-epahang	Entire plant	Powder of the green portion of stem is used as antihemorrhagic, astringent, anti-hemorrhagic, emolument, used in hematemesis, tonic useful in fever, cough, menorrhagia, nausea, vomiting, snake bite and given to horses in cough and cold.
6.	<i>Bryophyllum pinnatum</i> (Lam.) Oken	Crassulaceae	Herb	Khurojot	Leaves	Chewed raw with sugar to control dysentery and diarrhea, Juice of leaves

						styptic; seed on fresh cuts and abrasions, bruises, burns and superficial ulcers, given in bilious diarrhoea, lithiasis.
7.	<i>Cajanus cajan</i> (Linn.) Millsp.	Fabaceae	Shrub	Khokhlaing	Leaves & Twigs	Paste of leaves and twigs applied throughout the body in jaundice. Seeds in snake-bite; paste of seeds and leaves used to control milk flow.
8.	<i>Carica papaya</i> Linn.	Caricaceae	Tree	Paypay	Fruits	Fruits are used as stomachic. Latex of unripe fruits used to remove freckles and blemishes from skin, anthelmintic; ripe fruits stomachic, carminative, diuretic; seeds vermifuge, emmenagogue, used to quench thirst.
9.	<i>Cordia dichotoma</i> G.Forst.	Boraginaceae	Tree	Buwal	Bark	Stomach problem, gastritis.
10.	<i>Cynodon dactylon</i> (Linn.) Persoon	Poaceae	Herb	Dubba	Young twigs and Shoots	Shoot extract is anti-haemorrhagic, Decoction of roots diuretic in dropsy, secondary syphilis; root infusion in piles, crushed roots in chronic gleet; plant juice astringent, useful in cuts and wounds, diuretic, used in dropsy and anasarca, useful in diarrhoea, dysentery, nervous diseases and eye troubles.
11.	<i>Drymaria cordata</i> (Linn.) Willd. ex Schult.	Caryophyllaceae	Herb	Gundi	Leaves and Rhizome	Equal amount of leaf and rhizome are smashed and about 2 teaspoonful of juice are collected and given orally in morning in empty stomach for one week to the patient suffering from intestinal worms and abdominal pain.
12.	<i>Entada phaseoloides</i> (Linn.) Merr.	Fabaceae	WoodyC limber (liana)	Gila	Stems, seeds	Stem is crushed and mixed with warm water and then taken 2 tsp thrice a day to cure liver disorder.
13.	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Herb	Dudhi	Entire Plant	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.
14.	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Shrub	Girogaachh	Branches and seeds	Small pieces of branches used as tooth brush (datun); sap is thought to be very good for gum infections, Seeds and roasted nuts purgative; latex useful in scabies, eczema and ringworm; leaves lactagogue, rubefacient.
15.	<i>Litsea glutinosa</i> (Lour.) C.B. Rob.	Lauraceae	Tree	Kukurchik	Leaves and Bark	Fresh leaves are pounded and 1-2 teaspoonful mucilaginous juice is taken early in the morning in empty stomach for one week in case of white

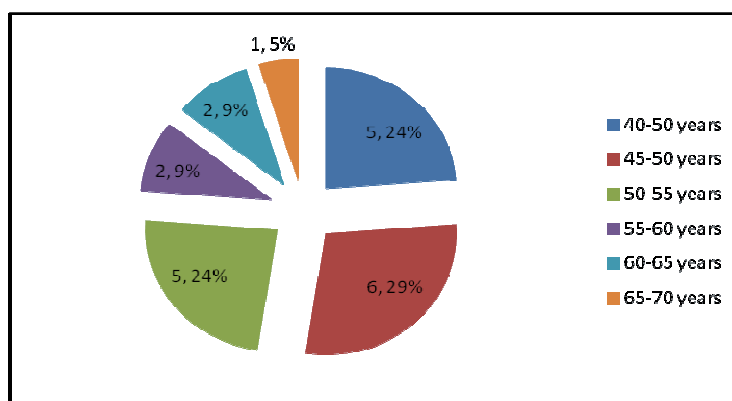
16.	<i>Mimosa pudica</i> Linn.	Mimosaceae	Herb	Cheaken laite	Entire plant	discharge. Leaf paste applied on acne and pimples, Leaves and roots used in piles and fistula; leaf paste applied to hydrocele; leaf and stem used in scorpion sting.
17.	<i>Phyllanthus acidus</i> (Linn.) Skeels	Euphorbiaceae	Tree	Horboroi	Fruits	Fruits are taken either raw or dry as liver tonic; Sometime dry fruits are preserved and taken with warm water for the same purposes.
18.	<i>Plumbago zeylenica</i> Linn.	Plumbaginaceae	Shrub	Sweta Chita	Root	Half cup of root decoction once for three days is prescribed to the 2-3 months pregnant woman, if abortion is necessary.
19.	<i>Psidium guineense</i> Swartz	Myrtaceae	Shrub	Bangayam	Leaves and twigs	About 100-200 gm 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.
20.	<i>Semecarpus anacardium</i> Linn.f.	Anacardiaceae	Herb	Vela	Fruits and seeds	Decoction of seeds is applied externally on the scalp before one hour of bath to prevent baldness or excessive falling of hair.

RESULTS AND DISCUSSION

In present investigation, 20 angiosperms have been documented for folklore medicinal plants used by *Chakma* tribe of Tripura. Of these 20 angiosperms 7 are shrubs, 6 are herbs, 6 tree species and 1 woody climber has been

documented. Total 21 local healers were documented during the field visits. Out of these 21 healers, 15 healers were male and 6 were female belonging to different age groups.

Graph 1
Number and Percentage of the healers belonging to different age groups



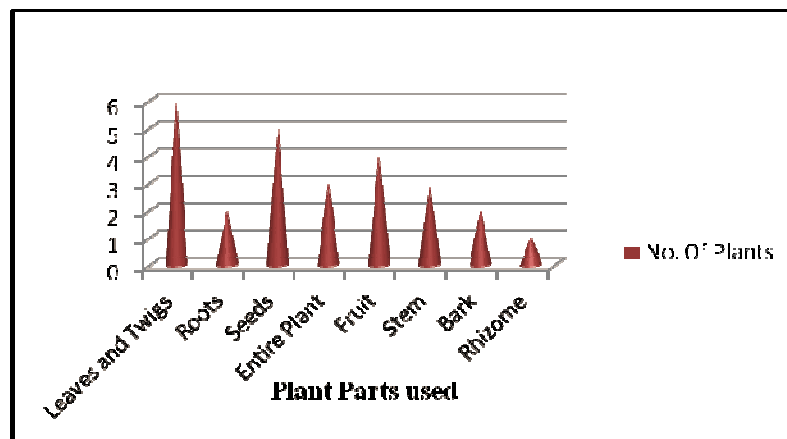
The 20 documented indigenous plant species belong to 13 different families out of which 3 plants belong to the family Euphorbiaceae, 2 plants belong to the family Fabaceae and 2

plants belong to the family Poaceae. The analysis reveals of the 20 documented indigenous plant species according to IUCN red list criteria showed the following results

Table 2
Analysis of IUCN category of Plant species

IUCN Red List Category	No. of Plants
Endangered	12
Vulnerable	3
Threatened	2
Critically Endangered	2
Safe	1

Graph 2
Number of plant parts used



Some of the medicinal plants species mentioned in this paper were already reported in some earlier works but purposes and methods 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, *Cynodon dactylon* in amenorrhoea, abnormal menstruation, fever, dysentery and nausea^{5, 6, 9}. The present survey concludes that the tribal of Tripura has detailed knowledge regarding ethno-medicinal plants and their utilization in various diseases. The

promising ethnomedicinal 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 because their efficacy against different ailments invites immediate attention towards herbal protection and conservation of such valuables medicinal plants. A few medicinal plants need immediate cultivation like *Phlogacanthus thyriflorus* so that these could be sources of revenue generation amongst the local people of this region.

Figure 5
Indigenous plants used by Chakma Tribe of Tripura



CONCLUSION

The tribal living in the forest or in the 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 tribal community 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. In the study it is found that the *Chakma* ethnic tribe had a remarkable tradition and is totally different from the co-tribes of the region. It is also found that the tradition of the *Chakma* tribe is advance in comparison to other tribes of Tripura. The family system and society generally reflects the culture of a tribe and in the study it is found that the *Chakmas* had a patriarchal family and the marriage system is notable though the age at marriage is quite low. Some references of games and sports of the tribe with their pastime was also studied and it is found that since they are traditionally cultivators they do not have enough time to spare for all these activities. However, they generally fish out time for the mentioned games also at some time of the year. The study proves the hypothesis that the culture of the *Chakma* ethnic tribe is remarkable. The *Chakmas* practice Jhum cultivation. Therefore, they do

not have much leisure time to display their traditional games and sports, dance, music and other pastime. But they have very interesting traditional games and sports of their own. Polla Polli Khara, Ijibiji Khara, Mala Khara etc are the games played by the community in groups. They catch fishes and hunt animals for their own consumption during the leisure time. Hengarang, Dhuduk, Dhul (Drum) etc are some of the musical instrument used by the *Chakmas* to amuse them. The people also spend their leisure time not in their traditional attire but in some other modern ways and as such the traditional pattern of recreation and activities are rapidly waning off from the society.

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