# A study on ethnomedicinal usage of plants among the folklore herbalists and Tripuri medical practitioners: Part-II

**Koushik Majumdar* and B K Datta**

Plant Taxonomy and Palynology Laboratory, Department of Life Science
Tripura University, Suryamaninagar, Agartala - 799 130, Tripura, India
*Correspondent author, E-mail: koushikmajumdar80@yahoo.co.in

*Received 3 January 2006; Accepted 3 October 2006*

**Abstract**

The paper deals with the ethnomedicinal applications of 50 plants by Tripuri tribes inhabiting hamlets on different hilly terrain and interior dense forest of South and West district of Tripura. These 50 plant species belong to 46 genera of 31 families. The species are enumerated in alphabetical order in tabular form. The ethnomedicinal information on the plants presented below is on the basis of folklore herbalists and Tripuri medical practitioners (*Ochai*) who are very familiar with different ailments, symptoms and the mode of treatment of these crude drugs. The local tribal people still believe and express their respect and honour to the knowledge of *Ochai* as it is essential for survival of those people who live in remote hilly terrain and can not afford costly allopathic drugs.

**Keywords**: Ethnomedicinal plants, Tripuri tribes, Folklore, *Ochai*, Tripura state, India.

**IPC code; Int. cl.**$^{8}$ — A61K 36/00, A23L 1/00

*Curculigo capitulata*

## Introduction

Tripura is India's third smallest hilly state, located in the North-eastern part of the country. It is bordered on the North, West and South by Bangladesh, on the East by the state Mizoram and on the North-East by the state Assam. Tripura state lies between 22°56′ to 24°32′ North latitude and between 90°09′ to 92°20′ East longitudes covering an area of 10,491 sq. km. The state is sub-divided into four districts West, South, North and Dhalai. According to the census report 2000-2001 the total population of the state was 31,91,168 of which more than 83% are the rural population. The climate is usually hot and humid; temperature ranges from 10-35°C. The maximum humidity is about 88% while the minimum is 40%. State receives an average of 247.9 cm rains within a year. About 63% of the annual rainfall is caused by the South-West monsoon. The soil is laterite in the hills and alluvial in the plains. The forests in the state are mainly tropical evergreen, semi evergreen and moist deciduous and cover 77.18% of total geographical area.

*Lasia spinosa*

In Tripura, 19 scheduled tribes are found to dwell, viz. *Tripuri*, *Mog*, *Riang*, *Shantal*, *Koki*, *Noatia*, *Lusai*, *Halam*, *Jamatia*, *Chakma* and others. Among all the tribal communities, the *Tripuri* is the largest in size, concentrated in interior forests and remote areas of West and South districts of Tripura.

*Tripuris* have their own dialects, beliefs, customs, tradition and cultural heritage. They build their house by bamboo and wood in hill tracts and cultivate cereals, pulses, fruits, etc. in *Jhum* fields. They also collect various plants from nearby forest for food, fodder,

*Monochoria vaginalis* (chisri) [arrow mark]

*Solanum anguivi* (Khamka) [arrow mark]

Tripuri tribes selling wild vegetables used as medicine

fuel, furniture and handicraft and for the treatment of different ailments, still they depend on local medical practitioners, popularly known as *Ochai*. The *Ochai* possess very rich experiences about the diagnosis and treatment of several serious to minor diseases; they are generally specialist in the art of traditional folk medicine among their community. But sometimes they perform various magical rites and worships for the treatment of several diseases by using flower, fruit, stem, leaf, bud or root of plants, sacrifices pigeon, hen, pig and goats, etc. and enchanting mantras[1]. Their knowledge is passed on from generation to generation through oral tradition. However, much of the traditional knowledge has remained secret with *Ochai*.

*Oroxylum indicum*

*Asclepias curassavica*

This area remained unexplored from ethnobotanical point of view. Very little work has been done expect few scattered report[2-4]. Therefore, it requires more investigation and research on this aspect. The purpose of this study is to record the utilization of plants used by *Tripuri* tribal medical practitioners (*Ochai*) for the treatment of several diseases. As this traditional knowledge of herbal medicine is diminishing, this ethnobotanical documentation will be helpful to preserve the rich tribal cultural heritages of this state.

## Materials and Methods

Field trips were carried out during 2003-2004 in different Tripuri tribal belts of South and West districts. The survey was conducted by adopting the methodology proposed by Jain & Rao[5], Jain[6], and Jain & Mudgal[7]. The ethnomedico-botanical information was collected by interviewing the *Ochai* and elderly persons. Voucher specimens were

*Costus speciosus*

collected with their help from the nearest forest area. The specimens were properly dried, mounted and preserved after identification using standard local and regional floras[8-10] and specimens were deposited in the herbarium of Botany Department, Tripura University.

## Results

As directed by *Ochai* and elderly persons *Tripuri* people collect the raw materials for medicine preparations from the nearby forests and fields. Medicines are prepared at home by boiling, crushing, mixing the materials and preparing the paste or decoction, etc. The ethno-medicinal plants are arranged alphabetically, giving information on valid botanical names, family, local names, availability status, parts used, ethno-medicinal uses, doses and their mode of administration in the Table 1.

**Table 1: Ethnomedicinal plants used by the *Tripuri* tribes**

| S. No. | Botanical name/Family | Local name Bengali (B), Kokborak(K) | Availab-ility status | Parts used | Uses |
|---|---|---|---|---|---|
| 1 | ***Ageratum conyzoides* Linn.** /Asteraceae | Uchandi (B); Ochanti (K) | Wild | Leaves | The juice obtained after crushing the tender fresh leaves is applied on old wounds to prevent infections and for quick healing. |
| 2 | ***Aloe barbadensis* Mill.** Liliaceae | Ghrita kumari (B); Ghrit kanchan (K) | Cultivated as garden plant | Leaves | Half glass of leaf decoction is given for about a fortnight to treat burning sensation during urine passing (Dysuria). |
| 3 | ***Amaranthus spinosus* Linn.** Amaranthaceae | Kanta nate, Kata myra (B); Kuttuila basu (K) | Wild | Whole plant | 1-2 Spoonfuls of fresh root infusion along with a pinch of common salt is given orally in throat infection. Leaves and stem are used as vegetable by tribals. |
| 4 | ***Ampelocissus barbata* (Wall.) Planch.**/Vitaceae | Duglyfang (K) | Wild | Tuberous root | Dried root powder (2 spoonfuls) mixed with a glass of luke warm water is taken orally for 10 days to get relief in hernia pain. |
| 5 | ***Aporusa dioica* Muell. -Arg.** /Euphorbiaceae | Bhanga pata (B); Amang (K) | Wild | Leaves | Leaf paste is applied in the form of plaster on the affected area during serious bone fracture. Sometimes 2-4 leaves are tied up on the injured area and changed alternately after 2 days until recovery. |
| 6 | ***Asclepias curassavica* Linn.** Asclepiadaceae | Kaktundi, Krishna-kali (B); Kali-sam (K) | Cultivated as well as wild | Root | Dried root powder of this plant is mixed with fresh leaves of ***Alternanthera sessilis* DC.** (Amaranthaceae) and bark of ***Bombax ceiba* Linn.** (Bombacaceae) in a ratio of 3:1:1. The crushed mixture is then soaked overnight in half glass of clean water; the filtered solution is given in empty stomach for the treatment of cholelithiasis (gall bladder stone). |
| 7 | ***Boehmeria platyphylla* D.Don** /Urticaceae | Uliatora (B); Rojanti (K) | Wild | Leaves | Half cup of leaf infusion along with little sugar is prescribed in case of acute dysentery. |
| 8 | ***Calamus viminalis* Willd.**/Arecaceae | Bet, Bettoni, Grola bet (B); Raisok, Raigorosum (K) | Cultivated as well as wild | Tender leaves | About one cup of leaf decoction along with half spoonful of black salt and one spoonful of honey is given for the treatment of asthma and cough. |

| S. No. | Botanical name/Family | Local name Bengali (B), Kokborak(K) | Availab-ility status | Parts used | Uses |
|---|---|---|---|---|---|
| 9 | ***Calotropis gigantea* (Linn.) R.Br. ex Ait.** /Asclepiadaceae | Aman, Akanda (B); Abung (K) | Wild | Leaves and latex | Mature leaves (2-3) after warming on open fire placed for several time on the affected area of the body during suffering from rheumatic pain. Latex also locally applied as antiseptic on wounds, particularly to treat serious nail decay during rainy season. |
| 10 | ***Casearia elliptica* Willd.** Flacourtiaceae | Auari (K) | Wild | Leaves | Leaf decoction (1-2 cup) with black pepper is given as medicine for stomach pain and for the treatment of intestinal worms. |
| \11 | ***Cinnamomum obtusifolium* Nees** /Lauraceae | Ram tejpata, Ban tejpata (B); Kallfu (K) | Wild | Bark | One cup of fresh bark after boiling in water is given with one spoonful of sugar and half spoonful of salt for stomach disorder. |
| 12 | ***Cissus repens* Lamk.** Vitaceae | Marmarialata (B); Koffre (K) | Wild | Leaves and young shoot | Young shoot and leaves are cooked as tribal food called *Godhak* along with crabs and dry fish to reduce sleepiness. A special type of curry prepared from the tender leaves is taken for diarrhoea and dysentery. |
| 13 | ***Coix gigantea* Koenig ex Roxb.** /Poaceae | Jumer gam, Kunch (B); Mygra, Marku (K) | Wild as well as cultivated | Seeds | Dry seeds (2-3) are tied up with a cotton string around the neck of children when suffering from vomiting. Sometimes 1-2 fresh seeds are chewed after meals for good digestion. Dry seed powder is used along with boiled water for dysentery. Some *Ochai* also prescribe the seed decoction as an abortifacient. |
| 14 | ***Commelina paludosa* Blume** /Commelinaceae | Kanshira, Kannya lata (B) | Wild | Whole plant | Small blue flowers are rubbed on the body during itching. Leaves are crushed into paste with little turmeric powder and applied on wounds and fracture of domestic cattle. |
| 15 | ***Costus speciosus* (Koenig) Smith** /Costaceae | Keo, Bandhugi (B); Mailuma kathama (K) | Wild | Young shoot and rhizome | Young shoot is crushed and boiled with a pinch of salt and given orally (1-2 cup) twice a day for 15 days to cure child cough. Fresh rhizome is crushed and the extract is mixed with a glass of boiled milk for adults who take it thrice a day for five days to cure cold, cough, asthma and dyspepsia. |
| 16 | ***Crinum asiaticum* Linn.** Amaryllidaceae | Ban piyaj (B); Makal, Takha (K) | Cultivated as ornamental | Bulbs | Fresh bulbs are grinded to extract juice and the juice after sun dry is prescribed to rub with a soft cotton on the areas of tonsillitis. |
| 17 | ***Curculigo capitulata* (Lour.) Kuntze** syn. *C. recurvata* Dryand. Hypoxidaceae | Lengdi pata (B); Lydom (K) | Wild | Rhizome | A part of fresh rhizome is used after removing the epidermis to stop the bleeding of a cut area. Some time dried rhizome powder is directly used on boils for quick healing. |

| S. No. | Botanical name/Family | Local name Bengali (B), Kokborak(K) | Availab-ility status | Parts used | Uses |
|---|---|---|---|---|---|
| 18 | ***Curculigo orchioides* Gaertn.** /Hypoxidaceae | Talmuli (B); Lyssrup (K) | Wild | Under ground parts | According to local medicine men the drug is prescribed to control the ejaculation of semen and is also employed to get relief from menstrual pain. Two spoonfuls of underground part's decoction are taken orally during menstrual cycle. |
| 19 | ***Curcuma aromatica* Salisb.** Zingiberaceae | Amada, Ban hallud (B); Balang sillik (K) | Wild | Rhizome | Fresh rhizome is crushed into paste and is applied locally to cure itches. |
| 20 | ***Curcuma zedoaria* Rosc.** Zingiberaceae | Sathi, Hallka (B); Thaktirajak (K) | Wild | Rhizome | About 100 g of rhizome is crushed into paste and mixed in a cup of goat milk; after 1-2 hour this paste is applied for massaging on scabies. The decoction of rhizome is prescribed to increase sexual vitality. |
| 21 | ***Dalbergia volubilis* Roxb.** Fabaceae | Darbari (B); Lamchama (K) | Wild | Root | Small pieces of fresh root are ground to make paste and chewed with a pinch of salt to cure dental pain and caries. |
| 22 | ***Dendrophthoe falcata* (Linn.f.) Etting.** Loranthaceae | Amgurag (B); Bandha (K) | Wild | Bark | The swollen part is crushed and the half cup of extract is given along with boiled milk to treat rheumatism and to induce deep sleep. |
| 23 | ***Dischidia rafflesiana* Wall**. Asclepiadaceae | Batt pata (B); Bandi-kuri (K) | Wild | Leaves | Infusion from the succulent leaf is prescribed for respiratory disorders and the paste of the leaf is used to get relief from muscle pain. |
| 24 | ***Elephantopus scaber* Linn.** Asteraceae | Go-jibba, Poramulo, Shyamdulum (B); Sank-bobmai (K) | Wild | Whole plant | Root paste is mixed with few black peppers to make into small pills and taken twice daily after meal to treat leucoderma. At the same time leaf juice is also advised to be rubbed on the spotted area. |
| 25 | ***Eupatorium cannabinum* Linn.** /Asteraceae | Sinjhu-pata (B); Muikhumu (K) | Cultivated | Leaves | Leaves decoction is taken orally in fever. It is also prescribed for liver complaints. |
| 26 | ***Eupatorium odoratum* Linn.** /Asteraceae | Durki, Maricha (B); Mychongdi, Muju (K) | Wild | Tender leaves | Leaves are grinded and the paste is taken to stop bleeding from cuts and wounds. |
| 27 | ***Hibiscus surattensis* Linn.** Malvaceae | Sarba-ameli (B) | Wild | Leaves | Special type of curry is made from its tender leaves which is given to the patients suffering from jaundice. |
| 28 | ***Homalomena aromatica* Schott.** /Araceae | Gandhuri (K) | Wild | Leaves and rhizome | Fresh rhizomes are crushed and paste is applied on body to treat inflammation. Leaves are also cooked as vegetable which is good in digestive disorders. |
| 29 | ***Houttuynia cordata* Thunb.** /Saururaceae | Mach pata (B); Aishla (K) | Cultivated | Twigs and leaves | A special type of soup is prepared by boiling the leaves and a cup of soup is given three times a day to cure dysentery. |

| S. No. | Botanical name/Family | Local name Bengali (B), Kokborak(K) | Availab-ility status | Parts used | Uses |
|---|---|---|---|---|---|
| 30 | ***Hyptis suaveolens*** **Poit.** Lamiaceae | Tokma (B); Tukkma (K) | Wild | Seeds | Dry seeds are soaked overnight in a glass of water and taken in the morning in empty stomach along with small amount of sugar for about a week in case of burning sensation during urine pass (Dysuria) and other urinary complaints. |
| 31 | ***Kalanchoe pinnata*** **(Lamk.) Pers.** /Crassulaceae | Patharkunchi (B); Musihanta, Kusakathang (K) | Cultivated as garden plant | Leaves | One cup of leaf decoction with a pinch of common salt is given 2-3 times a day to cure blood dysentery. The same medicine is further prescribed in case of kidney stone. |
| 32 | ***Lagerstroemia microcarpa*** **Wight** /Lythraceae | Miuching (K) | Wild | Leaves | It is reported that the leaves' decoction is very useful if taken orally twice a day in case of diarrhoea and dysentery. |
| 33 | ***Lasia spinosa*** **Thw.** /Araceae | Kata kachu, Kattush, Kattish (B) | Wild | Rhizome and tender leaves | Paste from tender leaves is made for external use in burns. Decoction of rhizome is also useful in gastric and stomach problems. |
| 34 | ***Markhamia stipulata*** **(Wall.) Seem.** Bignoniaceae | Kom gach (B); Choang (K) | Wild | Leaves and bark | Leaves decoction with 5-7 black pepper (in the form of tablets) is given as tonic for after delivery complaints. Some paste of bark along with mustard oil is applied in case of muscular pain and rheumatic disorders. |
| 35 | ***Mikania cordata*** **(Burm.) Robins.** /Asteraceae | Refugi lata (B); Kumos latt (K) | Wild | Leaves | The leaves are used as antiseptic on wounds and to stop bleeding. It is locally used as a good tonic for domestic cattle. |
| 36 | ***Monochoria vaginalis*** **Presl.** /Pontederiaceae | Kochuri, Kashori (B); Chisri (K) | Wild | Whole plant | Decoction of fresh root is given in nausea. Whole plant is cooked by the tribal people and useful in digestive disorders. |
| 37 | ***Mucuna nigricans*** **(Lour.) Steud.** /Fabaceae | Militari lata (B); Sanchu (K) | Wild | Leaves and root | A special type of ash is made by burning the tuberous roots and the powdery ash is applied to cure eczema and scabies. Leaves (2-3) are crushed into paste which is applied to check bleeding from cuts and wounds. |
| 38 | ***Mucuna pruriens*** **(Linn.) DC.** /Fabaceae | Alakushi, Banariola, Dandakarynna, Burir lata (B); Bomppy latt (K) | Wild | Leaves and seeds | Leaves' decoction is used externally on boils and scabies. Leaves paste is also applied on cuts and wounds. Dry seed powder (1-2 spoonfuls) along with one glass of warm water is taken empty stomach to check intestinal worms. |
| 39 | ***Mussaenda incana*** **Wall.** Rubiaceae | Ban-mussunda (B); Khumurmhu (K) | Wild | Tender leaves | About 2-3 spoonfuls of leaves decoction is given to children to cure viral fever. It is taken three times a day until recovered. |
| 40 | ***Neptunia prostrata*** **(Lamk.) Baill.** Mimosaceae | Panilajuk (B); Khari (K) | Wild | Whole plant | The whole plant is a very good tonic particularly for those who are suffering from jaundice. |
| 41 | ***Ocimum americanum*** **Linn.** /Lamiaceae | Ban tulsi (B); Banta (K) | Wild | Leaves | Leaves decoction is prescribed in stomach complaints. |

| S. No. | Botanical name/Family | Local name Bengali (B), Kokborak(K) | Availab-ility status | Parts used | Uses |
|---|---|---|---|---|---|
| 42 | ***Oroxylum indicum* Vent.** /Bignoniaceae | Thana, Sona, Sanpati, Sahana (B); Takkharum, Thakhuru (K) | Wild | Leaves and bark | Leaves decoction is prescribed by *Ochai* to treat the weakness due to low blood pressure. The fresh bark of this plant is mixed with immature seeds of ***Carica papaya* Linn.** in the ratio of 2:1 and the mixture is grinded into paste and made into small pills; 2-3 pills are given with betel leaf in case of menstruation complaints. |
| 43 | ***Paederia foetida* Linn.** Rubiaceae | Gandha bhadali, Gandal (B); Dukupui (K) | Wild | Twigs and leaves | Special type of curry is prepared with leaves and twigs along with fish and crabs and taken with rice to reduce rheumatic pain particularly during eclipse. Leaves are also prescribed as blood purifier. |
| 44 | ***Polycarpon prostratum* (Forssk.) Ashers & Scheweinf.** /Caryophyllaceae | Gimai shak (B); Bukhate (K) | Wild | Whole plant | About 1-2 cup of plant decoction is given in empty stomach during suffering from malarial fever. |
| 45 | ***Pongamia pinnata* (Linn.) Pierre** /Fabaceae | Karanga (B); Patia (K) | Wild as well as road side avenue tree | Bark | 1-2 Spoonfuls of bark infusion is given with a cup of warm water thrice a day during blood dysentery. |
| 46 | ***Solanum anguivi* Lamk.** /Solanaceae | Ban-begun (B); Khamkha (K) | Wild | Fruit | The fresh yellow ripe fruits are crushed and an extract is made with water and is taken one cup daily in empty stomach to cure gastric troubles. Fruits are locally used by tribal people in various dishes. |
| 47 | ***Spilanthes paniculata* Wall. ex DC.** /Asteraceae | Ossundui (K) | Wild | Whole plant | Fresh roots and leaves are given to chew with warm water to cure toothache. |
| 48 | ***Sterculia villosa* Roxb.** Sterculiaceae | Udal (B); Lambag (K) | Wild | Petiole | About 4-5 fresh petioles cut in small pieces are soaked overnight in half glass of water and is given empty stomach to the woman suffering from leucorrhoea and also during painful menstruation. |
| 49 | ***Wendlandia tinctoria* (Roxb.) DC.** /Rubiaceae | Khunshu (K) | Wild | Leaves | Fresh leaves' paste is used for healing wounds particularly caused by any poisonous bite. |
| 50 | ***Ziziphus funiculosa* Buch.-Ham. ex Wall.** Rhamnaceae | Banbarai (B); Chiyang bufang (K) | Wild | Root | Decoction is prepared from the old root bark of this plant and is used as eardrop in case of earache. |

## Conclusion

The present paper provides the ethnomedico-botanical use of 50 medicinal plant species by *Tripuri* community for the treatment of both chronic and temporary diseases. They are familiar with surrounding plants wealth and their exploitations. The study reveals that among the medicinal plant about five plants are used as antiseptic on wounds and cuts for quick healing, four plants for kidney and urinal disorders, seven plants for muscle and rheumatic pain, six plants for menstruation and other sexual diseases, five for diarrhoea and dysentery, three for fever, cough and respiratory disorders, two plants for disease like jaundice and dental pains and singly for disease like serious bone fracture, gall bladder stone, throat infection, tonsillitis, hernia, nail decay, leucoderma, earache, liver complaints, etc. Among these plants, ***Cissus repens* Lamk.** (*Koffre*) is used to reduce sleepiness so that they can work at a stress for a long period while ***Dendrophthoe falcata* (Linn. f.) Etting.** (*Bandha*) is used to induce deep sleep. During the survey it is also found that ***Aporusa dioica* Muell.-Arg.** *(Amang)* is used for the same purpose (i.e. for joining the bones) by three dissimilar communities namely *Tripuri*, *Jamatia* and *Santhal.* Data presented in this paper also indicate that out of 50, 19 medicinal plants are also used by Tripuri tribe as supplements to vegetables. But in most cases local tribe consumes all 19 medicinal plants without suffering from any particular disease as those plants serves two fold benefits. They also believe that if these medicinal plants were consumed previously, they would not have suffered from those particular diseases.

Besides, when they suffer from any serious unknown disease they go to *Ochai*. They are well versed with different types of ailments and symptoms and the traditional medicine provided to the patients have been proven in their community since time immemorial by trial and error methods. The local tribe shows the honour to the knowledge of *Ochai* as it is very cheap and faithful and also related to their religious emotions.

Based on the above information modern scientific experiments can evaluate further for validating these uses.

## Acknowledgement

The authors are grateful to P. Biswas (IFS), Divisional Forest Ofiicer and Chief Executive Officer, Medicinal Plant Board of Tripura, Forest Research Division, Agartala for constant encouragement and necessary facilities. Special thanks are also due to Mr. S. R. Poddar, Senior Range Officer, Forest Research Division, Agartala, who provided moral support and valuable suggestions for present work. We also express our sincere gratitude to all *Ochai* and Tribal informants for their cooperation and help during the study.

## References

1. Barman DDP, Treatise Traditional Social Institutions of the Tripuri Community, Directorate of Tribal Research, Government of Tripura, 1983.
2. Deb DB, Medicinal plants of Tripura State, *Indian For*, 1968, **94**, 753-765.
3. Majumdar Koushik, Saha Reema, Datta BK and Bhakta T, Medicinal plants prescribed by different tribal and non-tribal medicine men of Tripura state, *Indian J Trad Knowledge*, 2006, **5** (4), 559-562.
4. Singh HB, Hynniewta TM and Bora PJ, Ethnomedico Botanical Studies in Tripura, India, *Ethnobotany*, 1997, **9**, 56-58.
5. Jain SK and Rao RR, A Handbook of Field and Herbarium Methods, Today and Tomorrow's Printers and Publishers, New Delhi, 1977.
6. Jain SK, Methods and Approach in Ethnobotany, National Botanical Research Institute, Lucknow, 1989.
7. Jain SK and Mudgal VA, Hand Book of Ethnobotany, Bisen Singh Mahendra Pal Singh, 23- A, New Connaught Place, Dehradun , 1999.
8. Deb DB, The Flora of Tripura state, Vols. 2, Today and Tomorrow's Printers and Publishers, New Delhi, 1983, 1989.
9. Hooker JD, The Flora of British India, Vols. I-VII, L Reeve & Co. Ltd, Kent, 1872-1897.
10. Prain D, Bengal Plants, Vols. 2, Botanical Survey of India, Calcutta, 1963.