



## Research Article

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### PORTRAYAL OF FOLK MEDICINAL PRACTICES AMONG THE INDIGENOUS PEOPLE OF NORTH TRIPURA DISTRICT OF TRIPURA, INDIA

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#### ABSTRACT

North east India is the richest reservoir of plant diversity in India and one of the 'biodiversity hotspot' of the world. Tripura, which is a hilly state of this region, is also rich in plant diversity. North Tripura district of Tripura is comprising of mostly forest area and of which 82.67 % population living in rural areas has high practices of traditional medicine for different disease conditions. This study on folk medicinal practice was done in order to document the existing folk drugs and treatment procedures among the peoples of North Tripura district of Tripura with a view to provide lead material for the discovery of new drugs of natural origin. For this local health practitioner, village head, elderly experienced persons were interviewed during 2012-2013 in the medico-ethno botanical survey of North Tripura and folk medicinal claims were documented. Present study reveals first-hand information on 48 folk medicinal claims having plant parts, animal products and minerals. Enumeration of the claims were arranged according to disease condition wise providing information on scientific names of the used folk drugs followed by local name, Sanskrit name, parts used, method of use with dose and duration as informed by the claimants and their relevant properties as per Ayurvedic texts. The documented folk medicinal claims have both single herb preparation and compound formulations.

**Keywords:** Ayurvedic property, Folk medicinal claim, Herbal medicine, North Tripura district, Traditional healers.

#### INTRODUCTION

North east India is the richest reservoir of plant diversity in India and one of the 'biodiversity hotspot' of the world supporting about 50 % of India's biodiversity. Botanical Survey of India, Eastern circle Shillong has documented 194 plant species for 50 diseases and ailments for ethno-botanical uses by indigenous peoples of Tripura<sup>1</sup>. Instead of some already incorporated studies, much larger number of folk medicines remains endemic to the tribal pockets of North East India<sup>2</sup>. Tripura, located in the North-eastern part of India, is the third smallest hilly state of the country<sup>3</sup>. Tripura state lies between 22°56' to 24°32' North latitude and between 90°09' to 92°20' East longitudes and 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. The North Tripura District has a geographical area of 1,422.19 Sq. KM at the altitude of 12.80 meter and is divided into three sub-divisions, namely Dharmanagar, Kanchanpur and Panisagar with district headquarters at Dharmanagar<sup>4</sup>. As per Census of 2011, North Tripura had population of 693,947 of which male and female were 352,860 and 341,087 respectively. Out of this 82.67 % population of the district lives in rural areas<sup>5</sup>. Main tribes of the District are Tripuri, Kolo, Halam and Chakma. Two hill ranges, namely Jampui, Sakan run almost parallel to each other in the District. Deo, Manu, Longai and Juri are the main rivers of the district. Total Forest land of the North Tripura is about 960.27 Sq. KM<sup>4</sup>. With the 82.67 % of rural population there is high practice of traditional herbal medicine among the people of North Tripura. The traditional health

practitioners known as Ochai possess very rich experiences about the diagnosis and treatment of several minor to serious diseases. They are generally specialists in the art of traditional folk medicine among their community<sup>6</sup>. Present study on folk medicinal practice was done in order to document the existing folk drugs and treatment procedures among the peoples of North Tripura district of Tripura with a view to provide lead material for the discovery of new drugs of natural origin which are very effective for treatment of many diseases and conditions for which there are no satisfactory remedy available in modern medicine.

#### Study Area

The present study covers different areas of the North Tripura District of Tripura which lies in 24°36' North and 92°19' East<sup>4</sup>. North Tripura is bounded on the North and South by international border of Bangladesh, West by Dahali district and in East by Mizoram. The total geographical area of North Tripura district is 1,422.19 Sq. KM and total population of the District is 6.93 lacks.

#### MATERIALS AND METHODS

During 2012-2013 field trips were carried out in different areas of North Tripura district of Tripura (Figure 1) to gather information on local health tradition and health practices. For this local health practitioner, village head, elderly experienced persons were interviewed and folk medicinal claims were documented in the prescribed format adopting the methodology proposed by Jain and Rao<sup>7</sup>, Jain<sup>8</sup>, and Jain and Mudgal<sup>9</sup> as per Guideline of

CCRAS. The specimens of claimed medicinal plants are collected, processed and preserved in the Herbarium of North Eastern India Ayurveda Research Institute, Guwahati, India.

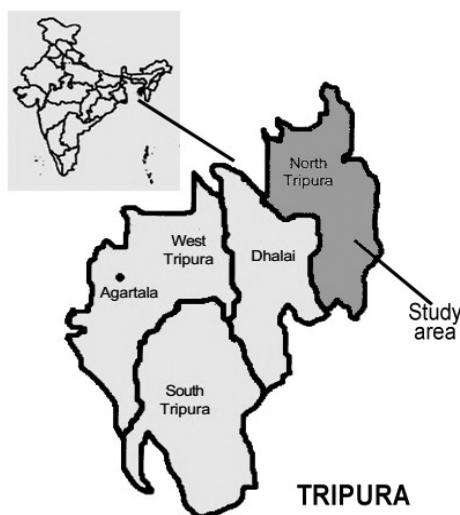


Figure 1: Study area- North Tripura district, Tripura

**Enumeration**

Folk medicinal claims have been arranged in groups of similar diseases (disease term mentioned by healer kept inside bracket) in Table 1 with Botanical/ Zoological/ English names and Field Book No./ Accession No.

followed by local name, Sanskrit name, part used, preparation and method of use with dose (as mentioned by healers) and relevant properties as per Ayurvedic texts<sup>10-26</sup>.

Table 1: Documented folk medicinal claims of North Tripura district of Tripura

| Disease / Uses for          | Botanical Name of the Drug [Field book No / Accession No]       | Local name     | Sanskrit Name            | Part used | Preparation /method of use with dose and duration  | Relevant property as per Ayurvedic texts  |
|-----------------------------|---|----------------|--------------------------|-----------|--|---|
| Traumatic pain              | <i>Datura metel</i> Linn. [1008, 1074]                          | Dhatura        | Dhattura                 | Leaves    | Fresh Dhatura ( <i>Datura metel</i> ) leaf paste is prepared and mixed with Til oil ( <i>Sesamum indicum</i> ). Quantity sufficient paste is lightly massaged and Akon ( <i>Calotropis gigantea</i> ) leaf is applied over till relief of symptoms.                              | Analgesic (Vedanasthapana), Antibacterial/ Antifungal (Jantughna)   |
|                             | <i>Sesamum indicum</i> Linn.                                    | Til oil        | Til tail                 | Seed oil  |  | Analgesic (Vedanasthapana)  |
|                             | <i>Calotropis gigantea</i> (Linn.) R.Br. [1289]                 | Akon pata      | Alarka                   | Leaves    |  | Analgesic (Vedanasthapana), Anti-inflammatory (Sothahara)   |
| Traumatic pain              | <i>Justicia gendarussa</i> Burm. f. [1064]                      | Visalya karani | Krishna Vaasaa           | Leaves    | Visalayakarani ( <i>Justicia gendarussa</i> ) leaves and Puisaak ( <i>Basella alba</i> ) leaves are crushed. Quantity sufficient applied locally for 4-5 hour or till relief of symptoms.  | Anti-inflammatory (Sothahara), Analgesic (Vedanasthapana), Antibacterial (Jantughna)                            |
|                             | <i>Basella alba</i> Linn.                                       | Puisaak        | Upodikaa, Potaki         | Leaves    |  | --  |
| Traumatic pain and swelling | <i>Curcuma longa</i> Linn. [1236]                               | Kacha haludh   | Haridra                  | Rhizome   | Kacha haludh ( <i>Curcuma longa</i> ) and Aatribo ( <i>Cyathea burmoniana</i> ) rhizome are taken in equal amount and paste is prepared and 1-2 tsf mastered oil is mixed and mildly heated. Quantity sufficient amount applied locally for 3-4 days or till relief of symptoms. | Analgesic (Vedanasthapana), Anti-inflammatory (Sothahara), Antiseptic (Branasodhan), Wound healer (Branaropana) |
|                             | <i>Cyathea burmoniana</i> (Wall. Ex Hook) Clarke & Baker [1085] | Aatribo        |                          | Rhizome   |  | --  |
|                             | <i>Brassica campestris</i> Linn.                                | Sarsapa taila  | Sarshapa                 | Seed oil  |  | Analgesic (Vedanasthapana)  |
| Cut injury                  | <i>Convolvulus arvensis</i>                                     | Refugee lata   |                          | Leaves    | Local application of crushed leaves for 2-4 hours.   | --  |
| Agun jala (Burn)            | <i>Shorea robusta</i> Gaertn. f. [Acc 4868]                     | Swet dhuna     | Ral, Shaala, Saalasaara  | Resin     | 250 gm of Swetdhuna powder and 1 liter of Til oil is heated for 20 minutes and mixed thoroughly in a mortar to form a fine paste and allowed to cool. Quantity sufficient local application 4-5 times daily for  | Antibacterial, Antiseptic, Antiseptic (Branasodhan), Wound healer (Branaropana)                                 |
|                             | <i>Sesamum indicum</i> Linn [1308]                              | Til tel        | Til Tail, Tila, Snehpala | Seed oil  |  | Analgesic (Vedanasthapana), (Promotes healing) Sandhaniya, Antiseptic (Branasodhan), Wound healer               |

|                                    |   |              |                       |                              |   |   |
|------------------------------------|---|--------------|-----------------------|------------------------------|---|---|
|                                    |   |              |                       |                              | 7-10 days or till heals up.   | (Branaropan)  |
| Cramps                             | <i>Ageratum haustonianum</i> Mill. [1076, 1106]   | Buthraaj     | Dochunty              | Root                         | Root piece is tied in the affected area till relief of symptoms.  | --  |
| Tooth ache                         | <i>Mimosa pudica</i> Linn. [1026]                 | Lajjabati    | Lajjaalu, Lajjaavanti | Root                         | Warmed root applied locally till relief of symptoms.  | Promotes healing (Sandhaniya), Hemostatic (Raktastambhak), Wound healer (Branaropana)               |
| Fracture                           | Hens egg (incubated)                              | Murgi Dim    | Kukku tanda           | Whole yolk and white portion | Incubated Hens egg and bark of Seng bisla ( <i>Litsea chinensis</i> ) is crushed to make a fine thick paste and applied over the fractured part after necessary manual reduction and tightly covered with cotton cloth strip or bandage to immobilize the affected part. This bandage is changed every 3-4 days and kept for 3-4 weeks.   | --  |
|                                    | <i>Litsea chinensis</i> [1273]                    | Sengbisla    |                       | Bark                         |   | --  |
| Fracture                           | <i>Cassia fistula</i> Linn. [1070]                | Bandarlathi  | Aragbadh              | Bark                         | Fine thick paste of Bandarlathi ( <i>Cassia fistula</i> ) bark along with small quantity of Adrak ( <i>Zingiber officinale</i> ) rhizome, Lang ( <i>Syzygium aromaticum</i> ), Golmarich ( <i>Piper nigrum</i> ) seed is prepared and applied over the fractured part followed by cover up with cotton cloth and crape bandage. Immobilization is done with bamboo sticks or concrete blocks as per required. The application is changed every 3-4 days. This is done for 15-45 days according to the nature of fracture. (Necessary reduction is done before bandage If external wound is there it treated with allopathic drugs.) | Anti-inflammatory (Sothahara), Analgesic (Vedanasthapan) (fruit pulp)                               |
|                                    | <i>Zingiber officinale</i> Rosc.                  | Adrak        | Sunthi                | Rhizome                      |   | Anti-inflammatory (Sothahara), Analgesic (Vedanasthapan)  |
|                                    | <i>Syzygium aromaticum</i> (Linn.) Merr. & Per.   | Lang         | Lavanga               | Flower bud                   |   | --  |
|                                    | <i>Piper nigrum</i> Linn. [1047]                  | Golmarich    | Marich                | Seed                         |   | Used in Edema (Sotha) and Pain (Vedana)   |
| Cough, Bronchitis                  | <i>Adhatoda vasica</i> Nees. [1066]               | Vasaka       | Vaasaa, Vaasaka       | Leaves                       | Dry powder of the herbs taken in equal amount mixed with equal amount of Honey and talmisri to prepare tablets of 500 mg. One tablet twice daily given to chew till relief of symptoms.   | Expectorant, Bronchodilator   |
|                                    | <i>Terminalia arjuna</i> (Roxb.) W. & A. [1029]   | Arjuna       | Arjuna, Dhananjaya    | Bark                         |   | Antitussive (Kaphaghna), used in (Cough Khayaja kash, (Hemoptysis) Raktapitta,                      |
|                                    | <i>Piper longum</i> Linn. [Acc 1148]              | Pippali      | Pippali               | Fruit                        |   | Cough reliever (Kasahar), Anti asthmatic (Swasahar), Antitubercular                                 |
|                                    | <i>Glycyrrhiza glabra</i> Linn.                   | Yastimadhu   | Yashti madhu          | Stem                         |   | Used in Cough (Kash), Asthma (Swash)  |
|                                    | <i>Piper cubeba</i> Linn                          | Kababchini   | Kankol                | Fruit                        |   | Kaphaghna, expectorant, used in Cough (Kash), Asthma (Swash)  |
|                                    | <i>Acorus calamus</i> Linn. [Acc 4565]            | Vachada      | Vachaa                | Rhizome                      |   | Cough reliever (Kashahara), Anti asthmatic (Swasahar), Kanthya                                      |
|                                    | <i>Tamarindus indica</i> Linn. [1140]             | Tetul        | AmlI, Amlikaa         | Fruit pulp                   |   | Used in cough   |
|                                    | Palm sugar candy                                  | Talmishri    |                       | Product                      |   | --  |
|                                    | Honey   | Madhu        | Sahad                 | Product                      |   | --  |
| Breathing difficulty and old cough | <i>Adhatoda vasica</i> Nees. [1066]               | Vasakpata    | Vaasaa, Vaasaka       | Stem bark                    | Vasakpata ( <i>Adhatoda vasica</i> ) stem bark and Aada ( <i>Zingiber officinale</i> ) rhizome are taken in equal amount to prepare 2-3 tsf juice with this 5 sand grain size Makaradhvaj is mixed. 2-3 tsf thrice daily for 7 days with Honey  | Antitussive (Sleshmahara), Cough suppressant (Kasahara), Anti asthmatic (Swasahara), Bronchodilator |
|                                    | <i>Zingiber officinale</i> Rosc.                  | Aada         | Aardraka              | Rhizome                      |   | Antitussive (Kaphaghna), Anti asthmatic (Swasahara)   |
|                                    | A preparation of Gold, Mercury and Sulpher        | Makara dhvaj | Makara dhvaj          | Product                      |   | Destructs all disease with Adjuvant (Anupana)   |
| Swas (Bronchial asthma)            | A preparation of Gold, Mercury and Sulpher [1047] | Makaradhwaj  | Makaradhwaj           | Product                      | 2-3 nos of Golmarich ( <i>Piper nigrum</i> ), 2 gm Ada ( <i>Zingiber officinale</i> ) and pinch of Makaradhvaj are crushed together with honey to fine paste. One dose at bed time for 2-3 days with Honey  | Rasayana, Anabolic (Brimhana)   |
|                                    | <i>Piper nigrum</i> Linn. [1047]                  | Golmarich    | Marich                | Seeds                        |   | Antitussive (Kaphaghna), Expectorant (Kaphanisarak)   |
|                                    | <i>Zingiber officinale</i> Rosc.                  | Ada          | Aardraka,             | Rhizome                      |   | Antitussive (Kaphagna), Anti-asthmatic (Swasahara)  |
|                                    | Honey   | Madhu        | Shahad                | Product                      |   |   |

|  |  |                       |                      |         |  |   |
|--|--|-----------------------|----------------------|---------|--|---|
| Kash (Cough)                             | <i>Piper cubeba</i>  | Kababchini            | Kankol               | Fruit   | Kababchini ( <i>Piper cubeba</i> ) 50 gm and Taalmisri 100 gm crushed to fine powder. 1 tsf twice daily with Honey in empty stomach till relief of symptoms  | Expectorant (Slesmanisarak), Antitussive (Kaphaghna)  |
|  | Palm sugar candy   | Tal misri             |                      | Product |  | --  |
| Hyper acidity                            | <i>Centella asiatica</i> (Linn.) Urban. [1056]                                   | Thankuni              | Manduka parni        | Leaves  | 5-6 leaves to chew daily morning for 1 month.  | Appetizer (Agnideepak)  |
| Mouth ulcers                             | <i>Spilanthes calva</i> DC. (syn: <i>S. acmella</i> auct. non (L.) Murr.) [1109] | Desi Akarkaraa        | Marahatti kaa        | Flower  | 3-4 nos of fresh flower to chew and gurgle in morning for 3-4 days or up to heal up.   | --  |
| Jaundice                                 | <i>Azadirachta indica</i> A. Juss. [1030]  | Neem pata             | Nimba, Nimbaka       | Leaves  | Neem ( <i>Azadirachta indica</i> ) leaves, Sunya lata ( <i>Tinospora cordifolia</i> ) stem pieces and Aral ( <i>Cajanus cajan</i> ) leaves are taken in equal amount and boiled in water for 15-20 minutes. 1 cup (50 ml) once daily in the morning for 3-6 days with Sugarcane juice or Kaptenga juice. | Hepatic stimulant (Yakrit uttejak), Used in Liver disorder (Yakrit vikar)   |
|  | <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. f. & Thoms. [1256]           | Sunya lata            | Guduchi              | Stem    |  | Appetizer (Deepan), Digestive (Pachan), Cholagogue (Pittasarak), used in Used in Liver disorder (Yakrit vikar), Jaundice (Kamala) |
|  | <i>Cajanus cajan</i> (Linn.) Millsp. [1137]                                      | Aral                  | Aadhaki              | Leaves  |  | --  |
| Chronic Jaundice                         | <i>Homalomena aromatica</i> Schott. [1060]                                       | Gandhaka chu          | Sugandham antri      | Rhizome | One piece of rhizome soaked in one cup water overnight and water taken in morning for 5-7 days.  | --  |
| Amasha (Dysentery / Diarrhea with pain)  | <i>Centella asiatica</i> (Linn.) Urban. [1132]                                   | Thankuni              | Manduakap arni       | Leaves  | One handful of Thankuni ( <i>Centella asiatica</i> ) leaves with 2-3 Bandula pata ( <i>Eryngium foetidum</i> ) crushed to prepare 1/2 cup fresh juice. 30-40 ml juices given thrice daily with rice meal for 2-3 days or relief of symptoms.   | Used in Chronic dysentery (Grahani), Anti-ameobic   |
|  | <i>Eryngium foetidum</i> Linn. [1244]  | Bandula pata          |                      | Leaves  |  | --  |
| Amasha (Dysentery)                       | <i>Lawsonia inermis</i> Linn.  | Mehendi pata          | Madayanti            | Leave   | 30 ml leave juice twice of thrice daily for 1-2 days or till relief of symptoms with Cow milk (100 ml).  | Seeds Stambhan, used in Dysentery, Blood dysentery, Leaves used in Jaundice (Kamala)  |
| Amasha (Dysentery)                       | <i>Citrus maxima</i> (Burm.) Merrill.  | Jambura               | Madhukark atikaa     | Fruit   | 50 ml fruit juice till relief of symptoms with Sugar.  | --  |
| Krimi (Worm infestation)                 | <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. f. & Thoms. [1256]           | Aamguruch             | Guduchi              | Stem    | 20 -30 ml of juice (3 inch long stem piece crushed and soaked in water for overnight) in empty stomach for 2 days with water.  | Anthelmintic (Krimighna)  |
| Krimi (Worm infestation)                 | <i>Sterculia villosa</i> Roxb.   | Awal gach / Udal gach |                      | Bark    | Decoction of Bark 20 ml twice daily for 3-4 days.  | --  |
| Krimi (Worm infestation)                 | <i>Citrus aurantifolia</i> (Christm.) Swingle. [1045]                            | Lebu pata             | Nimbuka              | Leaves  | One mature Lebu ( <i>Citrus aurantifolia</i> ) leaf and 2-3 nos of Marich ( <i>Piper nigrum</i> ) crushed together to extract juices. One leaf juice given for one day.  | --  |
|  | <i>Piper nigrum</i> Linn. [1047]   | Marich                | Marich               | Seeds   |  | Anthelmintic (Krimighna)  |
| Krimi (Worm infestation)                 | <i>Vitex negundo</i> Linn. [Acc 1348]  | Nisindapata           | Nirgundi             | Leaves  | Fresh leaves juice 2 tsf twice daily (for adults) and 1 tsf twice daily (for child) for 7 days.  | Anthelmintic (Krimighna)  |
| Renal calculi                            | <i>Bryophyllum pinnatum</i> (Lam.) Kurz.   | Patharkuchi           | Parnabija, Airaavati | Leaves  | Fresh juice of Patharkuchi ( <i>Bryophyllum pinnatum</i> ), Aada ( <i>Zingiber officinale</i> ) and Kalatuli ( <i>Ocimum sanctum</i> ) leaves are taken in equal amount. 1 cup (50 ml) fresh juice thrice daily for 5-10 days or till removal of calculi.  | --  |
|  | <i>Zingiber officinale</i> Rosc.   | Ada                   | Aardraka             | Rhizome |  | --  |
|  | <i>Ocimum sanctum</i> Linn. [Acc 5075]   | Kalatuli              | Krishna-tuli         | Leaves  |  | Seeds Diuretic (Mutral)   |
| Dhatrangi (Reddish urination with semen) | <i>Sterculia urens</i> Roxb. [Acc 2870]  | Udal                  |                      | Bark    | 1½ cup juice (4 inch bark piece soaked overnight) in morning empty stomach for 3-4 days with Taal Mishri water.  | --  |
| Dhatu roga (Nocturnal emission)          | <i>Cinnamomum cecicodaphne</i> Meissn.   | Gandhsarai            |                      | Bark    | Gandhsarai ( <i>Cinnamomum cecicodaphne</i> ) bark, Tamul ( <i>Areca catechu</i> ) root, Hariataki   | --  |

|  |  |               |                                       |             |  |  |
|--|--|---------------|---------------------------------------|-------------|--|--|
|  | <i>Areca catechu</i> Linn. [1050]  | Tamul         | Puga                                  | Root        | <i>(Terminalia chebula)</i> seed, Bhamora ( <i>Terminalia bellerica</i> ) seeds are taken in equal proportion and powder is prepared. 1 tsf daily morning for 15 days or till relief of symptoms with Water  | Fruit used in Spermaturia (Sukrameha)  |
|  | <i>Terminalia chebula</i> Retz. [Acc 5114]   | Haritaki      | Haritaki                              | Seeds       |  | Aphrodisiac (Vrishya), used in Spermaturia (Sukrameha)   |
|  | <i>Terminalia bellerica</i> (Gaertn.) Roxb. [1254]   | Bhamora       | Bibhitaki                             | Seeds       |  | Aphrodisiac (Vajikarana)   |
| Dhaturoga (Nocturnal emission)           | <i>Kydia calycina</i> Roxb. [Acc 2389]   | Cheng phisla  |                                       | Bark        | One 3x4 inch piece of bark soaked in one cup water overnight and water taken in morning for 10-15 days with Water or milk.   | --   |
| Dhaturoga (Nocturnal emission)           | <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. F. & Thoms. [1256]                                     | Guruch        | Guduchi                               | Stem        | Guduch ( <i>Tinospora cordifolia</i> ) stem pieces (5 inch long) and Arjun ( <i>Terminalia arjuna</i> ) bark piece (2x3 inch) crushed and soaked in water for overnight and filtered. With 1 cup water in morning daily for 2 months.  | Aphrodisiac (Brishya), used in Sukradaurbalya  |
|  | <i>Terminalia arjuna</i> (Roxb.)W. & A. [1029]   | Arjun         | Arjuna                                | Bark        |  | Stambhan, used in (Spermaturia) Sukrameha  |
| Syphilis                                 | Borax (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O) (Sodium tetraborate decahydrate) | Suhaga        | Tangkan                               | Product     | Suhaga 20 gm, Chalk mati 20 gm and quantity sufficient Coconut oil along with few pinches of Nisadal and Kapur mixed thoroughly to form a fine paste for Local application twice daily for 4-5 days. May continue up to 15 days.   | Antibacterial (Jantughna), Healing (Ropana)  |
|  | Calcium carbonate  | Chalk mati    | Khatika                               | Product     |  | --   |
|  | Ammonium Chloride (NH <sub>2</sub> Cl)   | Nishadal      | Navasadara                            | Product     |  | --   |
|  | <i>Cinnamomum camphora</i> (Linn.) Nees & Eberm.   | Kapur         | Karpura                               | Product     |  | Antibacterial (Jantughna), used in Puyameha, Locally-Analgesic (Vedanasthapan), Kothaprasamana                                       |
|  | <i>Cocos nucifera</i> Linn.  | Coconut oil   | Naarikela tel                         | Product     |  | Useful in ulcers with other drugs.   |
| Uterine Bleeding                         | <i>Clerodendrum infortunatum</i> Linn. [1139]  | Bhati pata    | Bhaandira                             | Leaf bud    | 10 ml fresh juices twice daily till relief of symptoms with cold water.  | --   |
| Excessive uterine bleeding (Menorrhagia) | <i>Mangifera indica</i> Linn. (Anacardiaceae) [1093]   | Aamgach       | Amra                                  | Bark        | ½ cup fresh bark juice in morning empty stomach for 3 days (can be continued up to 5 days) with ½ cup cow milk (un boiled).  | Anti-inflammatory to uterus (Garbhasya Sothahara), used in Leucorrhoea (Swetapradara) Menorrhagia (Raktapradara)                     |
| Menorrhagia                              | <i>Mangifera indica</i> Linn. [1093].  | Aam           | Aamra, Amb                            | Bark        | 1x3 inch size Aam ( <i>Mangifera indica</i> ) bark is soaked overnight in lime water ½ tsf on 1st day, ½ tsf in 2nd day 1 tsf in 3rd day with 30 ml water. One dose in morning empty stomach for 3 days with water.  | Garbhasya sothahara, used in Leucorrhoea (Swetapradar) and Menorrhagia (Raktapradar)   |
|  | Lime (CaO)/ Ca(OH) <sub>2</sub>  | Chuna-jal     |                                       | Lime water  |  | Samak, Stambhak  |
| Female Infertility                       | <i>Syzygium aromaticum</i> (Linn.) Merr & Per  | Lang          | Labanga                               | Flower bud  | Lang ( <i>Syzygium aromaticum</i> ), Golmarich ( <i>Piper nigrum</i> ), Jaiphal ( <i>Myristica fragans</i> ), Khedabapta ( <i>Coccinia indica</i> ) 7 tender twig, Katanote ( <i>Amaranthus spinosus</i> ) root all are taken in equal amount grinded and tablet is formed in pea seed size. 1 tablet daily after the end of the menstrual cycle for 7 days with warm water. | Aphrodisiac (Vajikarana), Galactagogue (Stanyajan) and Stanyasodhan  |
|  | <i>Piper nigrum</i> Linn [1047]  | Golamarich    | Marich                                | Seeds       |  | Stimulant (Uttejak), Regularizes menstruation (Artavajanan)  |
|  | <i>Myristica fragrans</i> Houtt.   | Jaiphal       | Jatiphal                              | Seeds       |  | Aphrodisiac (Brishya), Stimulant (Uttejak)   |
|  | <i>Coccinia indica</i> W. & A. [Acc 5210]  | Kheda bapta   | Bimbi                                 | Tender twig |  | --   |
|  | <i>Amaranthus spinosus</i> Linn. [Acc 4715]  | Katanote      | Tanduliya, Tandulaka                  | Root        |  | --   |
| Sutika rog (Postpartum disorder)         | <i>Hyoscyamus niger</i> Linn. (Solanaceae)   | Jain (Ajwain) | Paarsika-yavaani, Yavaani, Madkaarini | Seeds       | Jain, Kalojira, Jaiphal, Hing, Baro elachi seeds, Baro haritaki, Kamala, Saindhav lavan, Suhaga are taken together (Jain and Kalojira taken in more quantity and suhaga is taken few pinches) and grinded with little amount of Jatrik (a market product) to form tablet of pea seed size and kept dry. One tablet given thrice daily after food.                            | Hypnotic (Nidrajanan), Analgesic (Vedanasthapan), used in Dysmenorrhoea (Rajakriccha), Menorrhagia (Pradara), Irregular menstruation |
|  | <i>Nigella sativa</i> Linn.  | Kalojira      | Kaalaajaaji                           | Seeds       |  | Uterine contractor (Garbhasya samkochak), postpartum use for uterine purification, increases breast milk                             |
|  | <i>Myristica fragrans</i> Houtt.   | Jaiphal       | Jaatiphala                            | Fruit       |  | Used in Amenorrhoea (Rajaavarodha), Dysmenorrhoea (Kastartava), Artavajanan  |

|                               |   |                |                      |                  |  |  |
|-------------------------------|---|----------------|----------------------|------------------|--|--|
|                               | <i>Syzygium aromaticum</i> (Linn.)Merr. & Perry.  | Lang           | Labanga              | Clove            |  | Galactagogue (Stanyajanan), Stanya sodhan  |
|                               | <i>Ferula foetida</i> Regel.  | Hing           | Hingu                | Oleagum-resin    |  | Artavajanan, postpartum use for uterine purification   |
|                               | <i>Amomum subulatum</i> Roxb.   | Boro elachi    | Sthula-elaa, Bhadraa | Seeds            |  | Appetizer (Deepan), Digestive (Pachan), Antipyretic (Jwaraghana), Antipoison/ Antidote (Visaghna).           |
|                               | <i>Terminalia chebula</i> Retz. [Acc 5114]  | Boro Haritaki  | Haritaki             | Fruit            |  | Garbhasaya sothahara, Prajasthapa, Appetizer (Deepan), Digestive (Pachan), Hepatic stimulant (Yakrituttejak) |
|                               | <i>Citrus aurantium</i> Linn.   | Kamala         |                      | Fruit peel (dry) |  | --   |
|                               | Himalayan Rock salt   | Saindhav lavan | Saindhav lavan       | Salt             |  | Used in Anorexia (Aruchi), Indigestion (Ajirna), Pain (Shool)  |
|                               | Borax (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> . 10H <sub>2</sub> O) (Sodium tetraborate decahydrate) | Suhaga         | Tangkan              | Product          |  | Artavajanan, used in (Amenorrhoea) Rajavarodha   |
| Sutika (Post partum disorder) | <i>Cuminum cyminum</i> Linn.  | Pancha jeera   | Shveta-jiraka        | Seeds            | All the ingredients are taken dry in equal amount with little amount of Kasturi and fine powder is prepared. This powder is mixed with sufficient amount of Tulsi leaves juice and crushed. After drying of the mixture small (dry pea seed) size tablet is prepared and kept in container. 1 tablet given twice daily for 1 month with Menguni ( <i>Centela asiatica</i> ) juice. | Uterine purification (Garbhasaya visodhana), Galactagogue (Stanyajanan), Tonic (Balavardhana)                |
|                               | <i>Nigella sativa</i> Linn.   |                | Kaalaajaaji          | Seeds            |  | Uterine purification (Garbhasayasodhana), Galactagogue (Stanyavardhana), Uterine contractor                  |
|                               | <i>Trigonella foenum-graecum</i> Linn.  |                | Methikaa             | Seeds            |  | Galactagogue (Stanyajanan)   |
|                               | <i>Foeniculum vulgare</i> Mill.   |                | Mishreyaa            | Seeds            |  | Galactagogue (Stanyajanan)   |
|                               | <i>Trachyspermum ammi</i> (Linn.) Sprague   |                | Yavani               | Seeds            |  | --   |
|                               | <i>Averrhoa carambola</i> Linn. [1069]  | Karanga        | Karma ranga          | Bark             |  | --   |
|                               | <i>Syzygium aromaticum</i> (Linn.)Merr. & Perry.  | Lang           | Lavanga,             | Clove            |  | Galactagogue (Stanyajanan), Stanyasodhan   |
|                               | <i>Aegle marmelos</i> (L.) Correa ex Roxb. [1108]   | Bela           | Bilva                | Bark             |  | Used in (Uterine Edema (Garbhasaya sotha), Puerperal disease (Sutika roga)                                   |
|                               | <i>Allium sativum</i> Linn.   | Rasun          | Lashuna, Rasona      | Bulb             |  | Regularizes menstruation (Artavajanan)   |
|                               | <i>Piper nigrum</i> Linn. [1047]  | Golmarich      | Marich               | Seeds            |  | Regularizes menstruation (Artavajanan), Tonic (Balya)  |
|                               | <i>Mangifera indica</i> Linn. [1093]  | Aam            | Aamra, Amb           | Bark             |  | Garbhasaya sothahara, used in Menorrhagia (Raktapradar) and Leucorrhoea (Swetapradar)                        |
|                               | <i>Hibiscus abelmoschus</i> Linn. [1217]  | Lataa Kasturi  | Lataa kasturi        | Seeds            |  | --   |
|                               | <i>Ocimum sanctum</i> Linn. [Acc 5075]  | Tulsi pata     | Tulsi                | Leaves           |  | Antipyretic (Jwaraghna), Blood purifier (Raktasodhak), Anti-inflammatory (Sothahara)                         |
| Diabetes                      | <i>Trigonella foenum-graecum</i> Linn.  | Methika        | Methikaa, Methi      | Seeds            | Methika ( <i>Trigonella foenum-graecum</i> ) seed 10 kg, Pashanbhed ( <i>Bergenia ligulata</i> ) 2.5 kg, Golmarich ( <i>Piper nigrum</i> ) 2.5 kg, Neem leaf ( <i>Azadirachta indica</i> ) 2.5 kg Nisinda ( <i>Vitex negundo</i> ) leaf 2.5 kg are made in to fine powder. 500 mg given twice daily in empty stomach 6 months or till relief of symptoms.                          | Appetizer (Deepan), Digestive (Pachan)   |
|                               | <i>Bergenia ligulata</i> (Wall.) Engl. [Acc 4491]   | Pashanbhed     | Paashaana bheda      | Leaf             |  | --   |
|                               | <i>Piper nigrum</i> Linn. [1047]  | Golmarich      | Maricha              | Fruit            |  | Appetizer (Deepan), Digestive (Pachan), Liver stimulant (Yakrituttejak)                                      |
|                               | <i>Azadirachta indica</i> A. Juss. ( <i>Melia azadirachta</i> Linn.) [1030]                                 | Neem           | Nimba                | Leaf             |  | Used in Polyuria (Bahumutrata), Diabetes (Madhumeha)   |

|   |   |                              |                           |                    |   |   |
|---|---|------------------------------|---------------------------|--------------------|---|---|
|   | <i>Vitex negundo</i> Linn. [Acc 1348]                                       | Nisinda                      | Nirgundi                  | Leaf               |   | --  |
| Diabetes mellitus                                       | <i>Hibiscus mutabilis</i> Linn.   | Sthala padma (Sadha)         | Sthala-Padam, Sthal-Kamal | Leaves             | 10 leaves soaked in water and filtered water is taken in morning for 20-30 days.  | --  |
| Diabetes mellitus                                       | <i>Aloe barbadensis</i> Mill.   | Ghrita kumari                | Kumaari                   | Leaf pulp          | One leaf is mild roasted and pulp is taken in the morning for 1 month   | --  |
| Anemia  | <i>Curcuma longa</i> Linn. [1236]   | Kacha Haludh                 | Haridra                   | Rhizome            | Paste of wet rhizomes of Haludh ( <i>Curcuma longa</i> ) and 1 tsf Laali (an Ikshu product) is mixed. 50 gm given daily morning 1 month or till relief of symptoms.   | Hematonc  |
|   | <i>Saccharum officinarum</i> Linn.  | Laali                        | Ikshu product             | Product            |   | --  |
| Malaria fever   | <i>Nyctanthes arbor-tristis</i> Linn. [1128]                                | Sepali pata                  | Paarijaata, Shephaali     | Leaves             | 1 cup fresh leaf juice twice daily after food for 3 days with Sugar.  | Antipyretic (Jwaraghna), Used in Chronic fever (Jima Jwar)  |
| Hypertension, Insomnia, Neural disorders                | <i>Convolvulus pluricaulis</i> Choisy.                                      | Sankha puspi                 | Shankha pushpi            | Aerial Part        | Dry plants are powdered and decoction is prepared with this decoction jaggary and honey is mixed and kept for fermentation up to 6 months. This syrup is given 10-20 ml twice daily after food for 3-6 months.                                  | Intellect promotional (Medhya), Brain and nerve tonic, Hypnotic (Nidrajanan), Anti hypertensive (Raktabhar samak)   |
|   | <i>Bacopa monnieri</i> (Linn.) Penn. [Acc 2992]                             | Brahmi                       | Braahmi                   | Aerial Part        |   | Intellect promotional (Medhya)  |
|   | <i>Centella asiatica</i> (Linn.) Urban. [1132]                              | Thankuni                     | Manduuka parni            | Leaves             |   | Intellect promotional (Medhya), Increases memory  |
|   | <i>Catharanthus roseus</i> (Linn.) G.Don. [Acc 214]                         | Nayantara                    | Sadaa pushpaa             | Tender twig        |   | --  |
| Rakta pinas (Nasal bleeding)                            | Deer  | Boro harina sing             |                           | Horn               | Boro harina (deer) horn, Vaish (buffalo) horn pieces and a small piece of Haati data (ivory) with Biyang (cloth making tool) pieces Burnt in hukka to take puff. 3-4 puffs are frequently taken till relief of symptoms.                        | --  |
|   | Buffalo   | Vaish sing                   |                           | Horn               |   | --  |
|   | Elephant  | Haati data                   |                           | Teeth              |   | --  |
|   | Bamboo material   | Biyang (a cloth making tool) |                           | Tool part          |   | --  |
| Alopasia areata   | <i>Azadirachta indica</i> A. Juss. ( <i>Melia azadirachta</i> Linn.) [1030] | Neem                         | Nimba                     | Leaves             | Neem ( <i>Azadirachta indica</i> ) leaves, Nisinda ( <i>Vitex negundo</i> ) leaves and Rasun ( <i>Allium sativum</i> ) bulb taken in equal amount and fine paste is prepared and applied locally for a period of 2-3 hours daily for 7-15 days. | Antibacterial, Antifungal (Jantughna), oil is beneficial for Nasya (Nasal drop) in Alopecia areata and Hair graying |
|   | <i>Vitex negundo</i> Linn. [Acc 1348]                                       | Nisinda                      | Nirgundi                  | Leaves             |   | Hair vitalizer (Keshya), Antibacterial (Jantughna), oil used in Hair graying  |
|   | <i>Allium sativum</i> Linn.   | Rasun                        | Lashuna                   | Bulbs              |   | Raktokleshak, Reduces Itching   |
| Skin Allergy  | <i>Tinospora cordifolia</i> (Willd.) Miers. [1256]                          | Amguruch                     | Guduchi                   | Stem               | Amguruch ( <i>Tinospora cordifolia</i> ) stem pieces and Haldhi ( <i>Curcuma longa</i> ) rhizome are crushed juice is squeezed out adding little water. 20 ml daily given in morning empty stomach for 10-15 days with Water.                   | Kusthaghna, Blood purifier  |
|   | <i>Curcuma longa</i> Linn. [1236]   | Haldhi                       | Haridra                   | Rhizome            |   | Kusthaghna, used in Urticaria (Sitapitta), Allergy (Kandu)  |
| Bikash (Papules with itching and discharge bellow knee) | <i>Diplezium esculentum</i> (Retz.) Sw. [1054]                              | Dhekisak                     |                           | Rhizome part       | Root of Dheki sak ( <i>Diplezium esculentum</i> ) is roasted and grinded to get fine paste. This paste is mixed with little Suhaga (Borax) and Butter. Quantity sufficient Local application thrice daily till heal up.                         | --  |
|   | Sodium tetraborate decahydrate  | Suhaga                       | Tankan                    | Product            |   | Antibacterial (Jantughna), Ropana, used in Ulcer (Bran)   |
|   | Butter  | Makhan                       | Nabaneet                  | Product            |   | --  |
| Ear ache  | <i>Costus speciosus</i> (Koen) Sm. [1304]                                   | Maaladik                     | Kebuka, Kembuka           | Stem part          | Warm stem juice doped in the ear once daily for 4-5 days or till relief of symptoms.  | --  |
| Reduced Memory in children                              | <i>Cocos nucifera</i> Linn.   | Daab jal                     | Naarikela                 | Water inside fruit | 1 cup daily for 1 month.  | --  |

## DISCUSSION

The survey study on ethno botanical aspect shows that North Tripura district, India has extensive folk medicinal practice in both urban and rural areas. Though the modern health care facility is available, but still people seeks aid from the traditional healers and consider the traditional medicine as safe and affordable. Moreover their faith is very high on the traditional medicine as they are used by generations. The district is rich in medicinal herbs and the traditional healers collect most of their medicinal herbs from their surroundings and nearby forest area. Few herbs which are not easily available in the forest and mineral ingredients are purchased from the market. In this survey of North Tripura district of Tripura, 48 folk medicinal claims were collected and are documented out of which 20 are of single herb preparation, 28 compound formulations and 1 claim among these contains product of animal origin like Haati data (Elephant teeth), Vaish sing (Buffalo horn) and Boro harina sing (Deer horn). One folk medicinal claim is on bone setting. The information on folk claims of plants have been compared with published literature and Ayurvedic texts<sup>10-26</sup> and found that herbs like *Diplezium esculentum*, *Steculia villosa*, *Cyathea burnonianiana*, *Ageratum haustonianum*, *Homalomena aromatica* are not mentioned for any medicinal use. Some of the plants though mentioned in the Ayurvedic texts, yet their reported use like *Basella alba* (in Traumatic pain), *Convolvulus arvensis* (in Cut injury), *Spilanthes calva* (in Mouth ulcers), *Cajanus cajan* (in Jaundice), *Eryngium foetidum*, *Citrus maxima* (in Dysentery / Diarrhea), *Sterculia villosa*, *Citrus aurantifolia* (in Worm infestation), *Sterculia urens* (in Spermaturia) *Cinnamomum cecicodaphne*, *Kydia calycina* (in nocturnal emission), *Clerodendrum infortunatum* (in Uterine Bleeding), *Coccinia indica*, *Amaranthus spinosus* (in Female Infertility), *Bergenia ligulata*, *Vitex negundo*, *Hibiscus mutabilis*, *Aloe barbadensis* (in Diabetes), *Costus speciosus* (in Ear ache), *Cocos nucifera* (in Reduced Memory of children) are different and seems to be new. Many of the herbs of the folk claims shows reasonable conformity with Ayurvedic text regarding their properties but the compound formulation found to be new and unique. Since the healers claim these formulations very effective and reports a high success rate prevailing years after years, it is ought most necessary to subject these folk drugs to comprehensive experimental and clinical study in order to integrate these formulations in Ayurvedic medicines.

## CONCLUSION

The ethno medico-botanical survey of North Tripura district of Tripura, India brought in to light that the common people are highly dependent on traditional healers and folk medicine is widely practiced. The documented 48 folk medicinal claims for treatment of different diseases and conditions show the variety of use of traditional medicine in both single herb and compound formulation in different modes. Uses of mineral product by the traditional healers were also seen. These traditional treatment demands thorough evaluation in scientific parameters in order to mainstream these treatment for a healthy mankind.

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