

Underutilised Plants of Tripura used as Spices and Ethnomedicinal Purpose by Manipuri Community

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ABSTRACT

An ethnobotanical study focused on medicinal value of plants was carried out among the Manipuri community people of Tripura, North Eastern Region of India with aims to document the aromatic wild as well as cultivated spices and traditional knowledge of the medicinal plants used in various ailments. The information was based on normal interview, discussion and conversation with local kavirajs, maibas and elderly people of Manipuri community. In this study, a total of 27 plant species in 20 genera belonging to 14 families were described which have been used in the treatment of around 30 different diseases. Lamiaceae, Amaryllidaceae and Apiaceae are the most frequently used family in context to the number of species used by the Manipuri Community.

Highlights

- Identified few native plant species of Tripura used as spices by Manipuri community.
- Documented various plant species used as folk medicine against different common ailments.

Keywords: Manipuri community, spices, ethnomedicine, herbal remedies

Ethnobotanical studies are the complex interaction between (uses of) plants and cultures. The focal point of ethnobotany is on how plants have been used, supervised and recognized in human societies. Tribal people are the ecosystem people who live in harmony with the nature and maintain a close relationship between man and environment (Shah and Joshi 1971). All cultures have traditions of folkloric medicine that include the use of plants and other ethnopharmacological products. Ancient tribal people have used plants to cure a variety of ailments but they keep no records and the information is mainly passed on verbally from generation to generation. Even though incredible progress in synthetic drugs and medicine, a large number of people still believe on herbal drugs with hope of safety and efficacy (Sandberg and Corrigan 2001; Peter 2004; Salim *et al.* 2008). The survey conducted by World Health Organization (WHO),

revealed the fact that as many as 80% of the world's people depend on traditional medicine for their primary health care need (Azaizeh *et al.* 2003) due to the considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of several diseases. A variety of higher plants are well-known for drug therapy in conventional medicine (Martini-Bettolo 1980; Farnsworth *et al.* 1985; Akerele 1993; Aniyam 1995; Martin 1995; Ghorbani *et al.* 2006; Shanmugasundaram *et al.* 2011). Phyto-resources used as a remedy of various diseases were exercised by our ancestors, a process which must have started by trial and error but with the dawn of modern civilization such traditional knowledge about medicinal plants are broad-casted very scarcely from one generation to other or transmitted in fewer significant fractions (Kuhnlein and Receveur 1996; Sheng-Ji 2001; Ghosh *et al.* 2014). The precious



wisdom is therefore remains an unwritten asset and requires conservation and documentation. Several ethno-medicinal surveys were conducted in Tripura by different researchers (Shiland Dutta Choudhury, 2009; Majumdar *et al.* 2006; Majumdar and Datta 2007; Das *et al.* 2009; Das and Dutta Choudhury 2010; Sen *et al.* 2011; Das and Dutta Choudhury 2012; Das *et al.* 2014; Sharma *et al.* 2014; Chakraborty and Paul 2014).

Tripura is third smallest hilly State of India, lies between 22°56'N to 24° 32'N latitude and between 90° 09'E to 92°20'E longitudes covering an area of 10,491 sq.km and inhabited by the Tribal of Tibeto-Burman stock with as many as 19 different tribal communities (Deb Varman 1986). Tripura is also represented by other communities like Manipuri and Bengali since king dynasty in the state. This state is subdivided into 8 districts namely: North Tripura, West Tripura, South Tripura, Dhalai, Khowai, Unakoti, Sipahijala and Gomati. The climate of Tripura is characterized by intermediate temperature and highly humid atmosphere. During summer (April-May), maximum temperature reaches 38°C with relative humidity ranging from 50-75% while during monsoon it remains over 85%. The ethological diversity of this state reflects not only the sociological and cultural aspects but also reveals unique traditional food habit and rural herbal therapy (Mukharjee 2005). Many of these ethno-botanical species and their traditional knowledge of uses associated with health care system are to be explored scientifically. Several ethno-botanical studies (Deb 1968) in the state have documented various healing plants with folk recipes. But no survey is done among the people of Manipuri community of Tripura widely. Hence, the present survey and investigation has been formulated to identify and document the ethno-medicinal plants used by Manipuri community of Tripura.

MATERIALS AND METHODS

According to the Census-2011, total population of Manipuri community people of this state is nearly 25,000. The Manipuri people of Tripura are grouped into Meiteis and Bishnupriyas. Their settlements are scattered in Tripura, although they are mostly concentrated in the West Tripura district and North Tripura district. Most of them rely on forest products and medicinal plants for sustaining their

life (Majumdar *et al.* 2009). From ancient period, people made use of plants for their livelihood and medicare. Out of which some plants they use are cultivated while others grow in wild conditions. The Manipuri people depend predominantly on plants for food, medicine, agricultural implements, art and crafts and for other requirements.

Exhaustive field survey has been undertaken in different villages of Tripura covering all the seasons, specially, during January to May of the year 2014-2017 for gathering information on each and every species specially the less known aromatic spices used meticulously by Manipuri community people of Tripura and also useful in herbal medicine among them. The information on medico-botanical aspects were collected by questionnaires from the traditional practioners, Kavirajs, Maibas and elderly people of Manipuri community. The plants were collected from the study area, dried, preserved and identified consulting authentic floristic literatures like Flora of Tripura (Deb 1983), Flora of Assam (Kangilal and Dev 1939) and Flora of British-India (Hooker 1882). Cross examination of the species was done consulting with Dr. Nalini Kanta Chakraborty, Retired Professor, Department of Botany, Maharaja Bir Bikram College, Agartala. Finally, voucher specimen was prepared following conventional methods (Jain and Rao 1977), deposited in the departmental herbarium.

RESULTS AND DISCUSSION

Taxonomic enumeration of twenty-seven plant species, collected from different districts of Tripura, has been done in the present study. Some of these species are used as traditional spice crops whereas some others are used as folk medicine. These plants were found to be commonly used by the Manipuri Community of Tripura for treatment of different disease in their own traditional method. The plants are arranged alphabetically along with their family/habit, vernacular name (Manipuri), plant part/s used and mode of administration in various disease. The Majority of plant species belong to families *Lamiaceae*, *Amaryllidaceae*, *Apiaceae*, *Zingiberaceae*, *Asteraceae*, *Araceae*, *Euphorbiaceae*, *Lauraceae*, *Hypoxidaceae*, *Rubiaceae*, *Saururaceae*, *Polygonaceae* and *Rutaceae*. Among these 27 aromatic cultivated/ wild plant species, 19 belongs to dicots and 8 belongs to monocots (Table 1).

Table 1: List of plants used as spices and against various human ailments by Manipuri community people of Tripura

Sl. No.	Botanical Name/ Habitat	Family/Habit	Manipuri name	Parts used	Mode of administration in disease	Figures of individual plants cited
A. Dicotyledons						
1	<i>Ageratus conyzoides</i> /Wild Sheet No:	Asteraceae /Shrub	Ochanti / Khongjai napi	Tender Leaf	The juice obtained after crushing the tender fresh leaves is applied on old wounds to prevent infections and for quick healing	
2	<i>Blumea aeromatica</i> / Wild	Asteraceae /Shrub	Kukur sunda/ Leikhaman	Leaf	Fresh and fully expanded leaves are used as vegetables and leafy spice.	
3	<i>Blumea lacera</i> / Wild	Euphorbiaceae /Shrub	Amang	Leaf	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.	
4	<i>Cinnamomum tamala</i> / Cultivated	Lauraceae /Tree	Tejpata	Leaf	Decoction of leaf is taken against cough, headache and dizziness. Bark and leaf are given in rheumatism, colic, diarrhoea and dysentery.	
5	<i>Coriandrum sativum</i> / Cultivated	Apiaceae /Tree	Phadigom	Leaf and Young stalk	Fruit is given in dyspepsia and fruit aroma makes feel appetite. Salty juice is given in colic	
6	<i>Cinnamomum zeylanicum</i> /Wild	Lauraceae /Shrub	Ushingsha	Fruit and Bark	Fruit is taken for cough relief. It is used for vitalizing alimentary canal. Bark is used as astringent and carminative	
7	<i>Elsholtzia blanda</i> /Wild	Lamiaceae /Shrub	Lomba	Leaf and dried in- florescence	Fresh rhizome is crushed into paste and is applied locally to cure itches.	



8	<i>Elsholtzia ciliate</i> /Wild	Lamiaceae /Shrub	Tekta	Leaf	Dried inflorescence is used against fever, cough, tonsil and menstrual disorder. It is useful in chronic diarrhoea.	
9	<i>Eryngium foetidum</i> /Wild	Apiaceae /Shrub	Awa phadigom	Leaf except old inflorescence	Leaf decoction is taken for antibacterial and anti allergic. It is used as astringent and carminative	
10	<i>Paderina foetida</i> Wild	Rubiaceae /Shrub	Gandhabadhali	Leaf	Leaf is useful in dysentery and fever	
11	<i>Euphorbia hirta</i> Wild	Euphorbiaceae /Shrub	Phakhang ton	Young twig and inflorescence	Leaf extract is applied in skin disease and used as mouth wash.	
12	<i>Foeniculum vulgare</i> /Cultivated	Apiaceae /Shrub	Pakhon	Leaf	Leaf is given in colic, intestinal worm, digestive problem. It is used as anti-inflammation.	
13	<i>Homalomena aromatica</i> /Wild	Araceae /Shrub	Gandhuri	Leaf and rhizome	Fresh rhizomes are crushed and paste is applied on body to treat inflammation.	
14	<i>Houttuynia cordata</i> /Cultivated	Saururaceae / Shrub	Tonikhok/ Toningkhok	Whole part except flower	Leaf extract is given to dysentery and muscle sprain	
15	<i>Lasia spinosa</i> /Wild	Araceae/Shrub	Kattush	Tender leaf and rhizome	Paste from tender leaves is made for external use in burns. Decoction of rhizome is also useful in gastric and stomach problems.	



16	<i>Meriandra benghalens</i> /Wild	Lamiaceae/ Shrub	Kanghuman	Leaf	Leaf juice is used in cholera and dysentery. It is also useful in measles, eye and skin troubles. Rhizome is taken in peptic ulcer	
17	<i>Ocimum canum</i> /Wild	Lamiaceae/ Shrub	Mayang ton	Young shoot and inflorescence	Leaf extract is applied against fever	
18	<i>Polygonum posumba</i> /Wild	Polygonaceae/ Shrub	Phakpai	Tender shoot	Leaf juice in a glass of warm water is used for gastric problem. Leaf decoction is consumed for reducing sugar level	
19	<i>Zanthoxylum aromatum</i> /Wild	Rutaceae/Tree	Mukthubi	Young leaf and fruit	Leaf and seed are taken to get relief from cough and asthma. Leaf is eaten with meal to cure tasteless and false smell. Leaf and seed are taken in chronic fever and dyspepsia. Aromatic seed is used in toothache. Seed oil is applied in rheumatism	
B. Monocotyledons						
20	<i>Allium ascalonium</i> /Cultivated	Amaryllidaceae /Shrub	Tilhaomacha	Leaf and Bulb	Crushed the bulk with garlic and applied to the infected area of the skin. Smashed bulk is applied in the toothache	
21	<i>Allium hookeri</i> / Cultivated	Alliaceae /Shrub	Maroi Napakpi	Leaf	Leaf decoction/paste is applied on forehead in excessive body temperature. It helps for reducing high blood pressure. Salty leaf juice is consumed in stomach ulcers	
22	<i>Allium odorum</i> / Cultivated	Amaryllidaceae /Shrub	MaroiNakupi	Leaf	Leaf decoction is taken for urinary disorder. Leaf paste is applied on head for improving hair growth	

23	<i>Allium sativum</i> / Cultivated	Amaryllidaceae /Shrub	Chanam Macha	Leaf and Bulb	Bulk fried in master oil is applied on chest, back and joint pain as massage to get relief pain and from cough. Bulk paste is applied on injuries to remove pus	
24	<i>Curcuma aromatic</i> / Cultivated	Zingiberaceae /Shrub	Banhallud	Rhizome	Rhizome juice is given to cure pile and urinary tract infection. Paste is applied on wound area for its antiseptic property and it is used as face pack for glow	
25	<i>Curcuma longa</i> / Cultivated	Zingiberaceae/ Shrub	Yaingang	Rhizome	It is used for the treatment of skin inflammation	
26	<i>Curculigo orchioides</i> / Cultivated	Hypoxidaceae/ Shrub	Talmuli/ Lyssrup	Rhizome	Two spoonfuls of rhizome decoction are taken orally during menstrual cycle to get relief from pain and also prescribed to control the ejaculation of semen.	
27	<i>Zingiber officinale</i>	Zingiberaceae/ Shrub	Ing	Rhizome	Rhizome extracted juice with honey is used for cough and asthma. Leaf or rhizome extract is used for digestion	

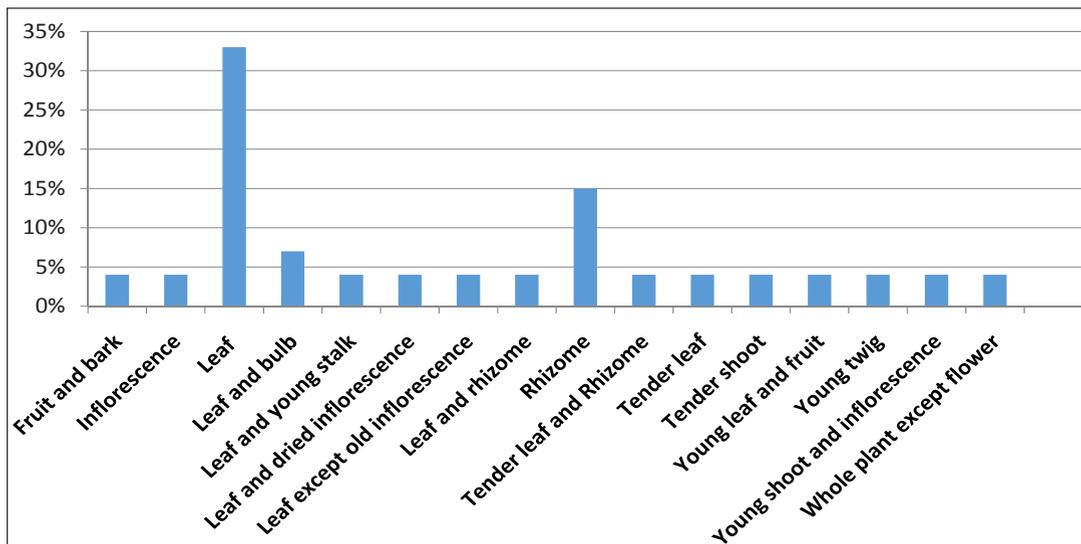


Fig. 1: Relative share of plant parts used as folk medicine in the Manipuri community of Tripura

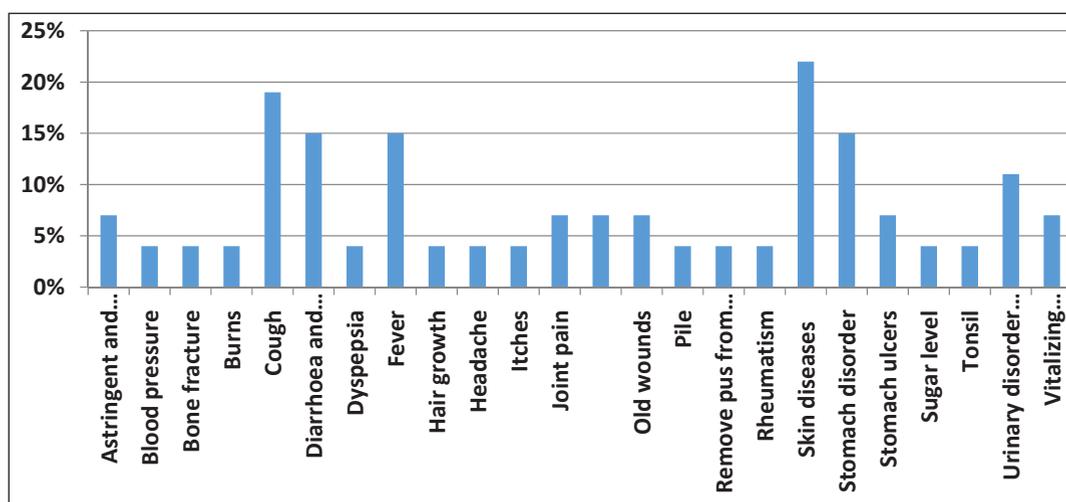


Fig. 2: Comparative analysis of different plant species used for healing various diseases in the Manipuri community of Tripura

The most common part of plant utilized by Manipuri community is leaf followed by rhizome, bulb and so on (Fig. 1). The majority utilized plant parts for the preparation of folk medicine is leaf which is 33.3%, then rhizome 14.8%, leaf and bulb 7.4% and 3.7% in all other forms like tender leaf, tender shoot, fruit and bark, leaf and young stalk, young leaf and fruit, leaf and dried inflorescence, leaf and rhizome, young twig and inflorescence, tender leaf and rhizome, young shoot and inflorescence and whole plant except flower. The study showed that leaf, rhizome, bulb and leafy young plant parts have been used in formulation of folk medicine is more than 50% for the cure of diseases. Aerial parts of the plant (leaf, flower, fruit, and seed) can be used without uprooting the plant, which is an outstanding way to conserve them.

Among all species under the study, leaves of 16 species are used for treatment against various ailments. Fruit and bark of *Cinnamomum zeylanicum*, *Citrus latipes* and *Zanthoxylum armatum* are used for the treatment of cough, colic and used as vitalizing alimentary canal, appetizer and carminative and applied for rheumatism. The older people generally used those plant species to cure some diseases namely headache, cough, toothache, asthma, blood pressure, diabetes, rheumatism, urinary problem, digestive problem, colic, diarrhoea, constipation, pile, etc. as a home remedy. Plant species are also used to prevent reproductive health, liver problems, fever, arthritis, dysentery, hair growth, to remove pus from injury, bone fracture etc.

Comparative analysis of different plant species used for healing various diseases in the Manipuri community of Tripura is presented in Fig. 2. Various ailments viz. skin diseases (22.2%), cough (18.5%), fever (14.8%), urinary disorder and colic (11.1%), diarrhoea and dysentery (14.8%), stomach disorder (14.8%), old wounds, stomach ulcers, joint pain, vitalizing alimentary canal, astringent and carminative, menstrual cycle and control of ejaculation of semen and in blood pressure, hair growth, to remove pus from injury, bone fracture, headache, rheumatism, dyspepsia, pile, itches, tonsil, burns, sugar level are treated by different parts of the plant using their indigenous traditional knowledge. Commonly used forms of folk-medicine are juice, extract, paste, pills etc. Both external use and oral intake methods of folk-medicine have been recommended.

CONCLUSION

Now-a-days people rarely follow the folk medicinal practice of traditional knowledge. It is a high time to explore immense potential of few native plant species for traditional herbal purpose in scientific way and document their medicinal values. Scientific cultivation, conservation and sustainable use of plant species by ethnic communities would be highly advantageous for socio-economic growth, in conservation of rare and unexplored plant species and the indigenous knowledge for the future generations.

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