



Assessment of Traditionally Used Wild Edible Plants and Its Impact on Health and Livelihood among the Ethnic Communities of Tripura

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Authors' contributions

This work was carried out in collaboration between all authors. Author MC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors IP and SM managed the analyses of the study. Author PD managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Tripura is the third smallest state of India with 19 ethnic tribes. The local peoples of Tripura widely consume wild edible plants as vegetables in their daily diet to fulfil their nutritional need and sometimes as traditional medicine too. A survey was carried out in different parts of Tripura among the 19 ethnic communities. The selection criterion for the survey area included the presence of tribal communities. During the field survey, 61 species of wild edible plants belonging to 34 families and 53 genera were identified. These species were being used as food and medicine by the indigenous communities of Tripura. Out of 61 species, 25 are annual, and 36 are perennial. Herbaceous plants make up the highest proportion of edible plants followed by trees. The ethnic

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communities of Tripura largely depend on the wild vegetables and thus require sustainable management of the resources by some control on their harvest and use of the wild edible plant resources.

Keywords: Wild edible plants; health; livelihood; ethnic communities; Tripura.

1. INTRODUCTION

Wild vegetables are an important source of food, not only in the rural parts of Tripura but in the whole world. Wild edible plants refer to species that are harvested or collected from their wild natural habitats and used as food for human consumption [1]. They provide staple food for indigenous people, serve as supplementary food for non-indigenous people and are one of the primary sources of cash income for poor communities [1]. At present, about 90 % of global food production comes from less than 30 species and more than 85–90% of the total caloric intake is obtained from 12 domesticated species [2]. In future, this can be a reason of unbalanced pressure on agricultural food sources. The majority of the wild edible plants were neglected that grow naturally in the wild and does not have to be tended prior to producing edible parts [3]. Wild vegetables and spices were an important source of food for mankind before the dawn of civilisation. Cavemen in the forests also depended on these vegetables and spices and passed on valuable information of its utility from generation to generation [4]. Wild edible plants play an important role in ensuring food security and improve nutrition in the diets of many people in developing countries [1]. The tradition of using wild food is at risk of disappearing throughout the world [5,6]. Northeast India including Tripura is very rich in plants especially herbs because of plenty of rainfall and availability of dense forest. The state is rich with the traditional knowledge existing with the 19 tribal communities. The rich endowment of edible resources in forest kept the tribes of Tripura confined in living traditionally in forest areas. Over 9,500 wild plant species are used by ethnic peoples for meeting the varied requirements have been recorded so far. Out of which 7,500 wild plant species are used by tribal's for medicinal purpose, about 950 are found to be new claims and worthy of the attention of developed an alternative source of food that the world would need in near future [6]. Research on wild food plants is still active even during the present day. Such research is carried out in many countries and continents [7-10]. In the Indian subcontinent, 9500 wild plants are used for food, medicine, fodder, fibre, fuel,

essence, cultural and other purposes by over a 53 million tribes belonging to 550 different communities [11]. Ethnobotanical studies on wild food plants associated with tribal communities of central India, Tamil Nadu, Maharashtra, Northeastern India, etc. [12-15] are reported from India. The tribal communities of Tripura use over 41 wild plant species as their food by making different delicious recipes [12]. To record the traditionally used wild edible woody and non-woody plants used by ethnic communities, the economic importance of the species in the livelihood of the ethnic communities and the negative effects of these wild plants on the health of the ethnic people.

2. MATERIALS AND METHODS

2.1 Study Sites

The study was conducted in the state of Tripura in north-east India. The third-smallest state (Tripura) in the country covers 10,491 km² (4,051 sq mi) and is bordered by Bangladesh (East Bengal) to the north, south, and west, and the Indian states of Assam and Mizoram to the east. In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population. Indigenous communities, known in India as Scheduled Tribes, form about 30 per cent of Tripura's population. The Kokborok speaking Tripuri people are the major group among 19 tribes and many sub-tribes. The Bengali people form the ethnolinguistic majority in Tripura. Tripura has 8 district and 23 subdivisions. It extends from 22°56'N to 24°32'N and 91°09'E to 92°20'E. Its maximum extent measures about 184 km from north to south, and 113 km east to west. The state has a tropical savanna climate, designated A_w under the Köppen climate classification. The undulating topography leads to local variations, particularly in the hill ranges. The four main seasons is winter, from December to February; pre-monsoon or summer, from March to April; monsoon, from May to September; and post-monsoon, from October to November. During the monsoon season, the south-west monsoon brings heavy rains, which cause frequent floods. The average annual rainfall is 2100

mm. During winter, temperatures range from 13 to 27°C (55 to 81 °F), while in the summer they fall between 24 and 36°C (75 and 97 °F). According to a United Nations Development Programme report, the state lies in "very high damage risk" zone from wind and cyclones.

3. METHODOLOGY

The site selection has been carried out based on the presence of the tribal community. The identification of the study area was done with the help of The Tribal Research Institute, Agartala, Tripura. The selected regions were depicted in Table 1.

The data were collected using participatory rural appraisal and questionnaire survey. The elder

persons, farmers, herdsmen, shepherds, women and children were contacted to collect data on the uses of plants. Local names, plant part used, a method of utilisation were gathered from them with regard to each plant. All plants were identified with the standard literature.

Table 1. Selection of study sites and its sub-stations

Sl. no.	Place	District
1	Shidhai Mohanpur	West Tripura
2	Bamutia	West Tripura
3	Bir Chandra Manu	South Tripura
4	Kuwaifung	South Tripura
5	Amarpur	Gumoti
6	Panisagar	North Tripura
7	Chailengta	Dhalai





Female members selling wild vegetables

Fig. 1. Photographs showing few glimpses of surveyed study

4. RESULTS AND DISCUSSION

Documentation carried out in different parts of Tripura it was observed that the region is rich in wild edible plants. In Tripura, several studies have been conducted on documentation of traditionally used plants by the ethnic communities and it was confirmed that the communities depend on it for their day-to-day life [15]. A total of 61 wild species belonging to 34

families and 53 genera have been documented from the village and local market survey. It was recorded in this survey that Fabaceae and Araceae are dominating plant Families used as wild vegetable among the ethnic communities of Tripura.

The list of plants along with their local name, life form, growth habit, parts consumed, mode of preparation is presented in Table 2.

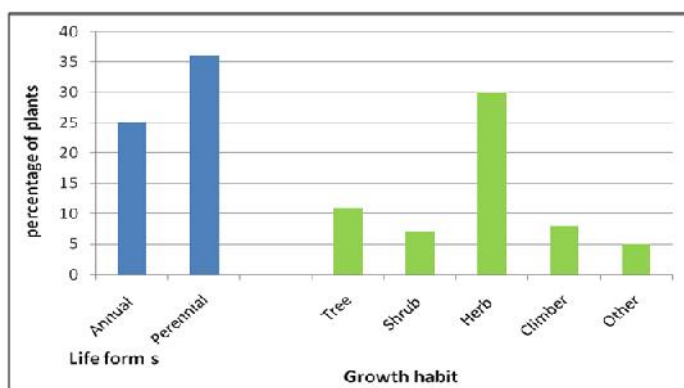


Fig. 2. Life form and growth habit of plant species utilised as wild vegetables by ethnic communities of Tripura

Table 2. List of wild edible plants used for food and medicinal purposes

Scientific name	Family	Common name	Growth habit	Life form	Part used	Mode of preparation
<i>Acacia nilotica</i> L.	Fabaceae	Vachellia	Tree	Perennial	Fruits	Fruits are eaten as raw or mixing with dry fish
<i>Alocasia macrorrhizos</i> (L.) G.Don	Araceae	Giant Taro	Herb	Perennial	Rhizome	They are made into curry specially with fish. Rhizomes are boiled with dry fish and chilly
<i>Amaranthus spinosus</i> L.	Amaranthaceae	myra	Herb	Annual	Leaves, shoot	Cut finely and boiled. Their leaves are mainly used to make herbs without oil.
<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Araceae	Elephant foot yam	Herb	Perennial	Rhizome	Very firstly raw herb is processed with Khar pani and it converted into small pieces of processed batama. The pieces are fried and eaten with rice.
<i>Amorphophallus bulbifer</i> (Roxb.) Blume	Araceae	Devil's tongue	Herb	Perennial	Whole plant	Cooked with dry fish
<i>Artocarpus chaplasha</i> Roxb.	Moraceae	Bread fruit	Tree	Perennial	Fruit	Ripen fruit eaten as directly.
<i>Artocarpus heterophyllus</i> Lam	Moraceae	Jack fruit	Tree	Perennial	Fruit	Raw fruit is used to make labra(mix vegetable)
<i>Asparagus racemosus</i> Willd.	Asparagaceae	shatavari	Shrub	Perennial	Young shoots	Fried and consumed.
<i>Bacopa monnieri</i> (L.) Pennell	Plantaginaceae	Waterhyssop	Herb	Perennial	Leaves	Leaves can Fried or boiled with dry fish.
<i>Bambusa tulda</i> Roxb.	Poaceae	Bamboo	Other (Woody Grass)	Perennial	Young shoots	Used to make Gudak simply by boiling it with dry fish and chilly
<i>Basella alba</i> L.	Basellaceae	Malabar spinach	Herb	Perennial	Leaf, stem, fruit	Boiled with other vegetable and dry fish.
<i>Boerhavia diffusa</i> L.nom. cons	Nyctaginaceae	Red spiderling	Herb	Annual	Leaves	Fried and consumed.

Scientific name	Family	Common name	Growth habit	Life form	Part used	Mode of preparation
<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Pigeon pea	Shrub	Perennial	Seed , flower	Pods are boiled with potato and dry fish to make gudok.
<i>Centella asiatica</i> (L.) Urban	Apiaceae	Asiatic pennywort	Other (Creeper)	Annual	Leaf	Simply by making a paste with chilly.
<i>Chenopodium album</i> L.	Chenopodiaceae	Pigweed	Herb	Annual	Leaf	Fried
<i>Clerodendrum serratum</i> L.	Verbenaceae	Glorybower	Herb	Perennial	Leaf	Fried
<i>Clitocybe</i> sp.	Tricholomataceae	Mushroom	Other (Fungi)	Annual	Whole part	Used to make a special recipe called aundru. They like to take fried it too.
<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Scarlet gourd	Climber	Perennial	Fruits, leaves	By making shag, or by boiling.
<i>Colocasia esculenta</i> (L.) Schott	Araceae	Taro	Herb	Perennial	Whole plant	Curry especially with fish and sometimes simply by making a paste with chilly.
<i>Curcuma zedoaria</i> Rosc.	Zingiberaceae	White turmeric	Herb	Perennial	Flower	Fried form.
<i>Dillenia indica</i> L.	Dilleniaceae	Elephant apple	Tree	Perennial	Fruit	Fruit is used to make chutney with sugar. Also used with dal.
<i>Dendrocalamus longispathus</i> (Kurz) Kurz	Poaceae	Long-sheath bamboo	Other (Woody Grass)	Perennial	Young shoot	Used to make Gudok simply by boiling it with dry fish and chilly.
<i>Dioscorea alata</i> L.	Dioscoreaceae	Purple yam	Climber	Perennial	Tuber	Curry especially with fish.
<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Air potato	Climber	Perennial	Tuber	Curry especially with fish.
<i>Dioscorea esculenta</i> L.	Dioscoreaceae	Indiatic yam	Climber	Perennial	Tuber	Curry especially with fish.
<i>Dioscorea hamiltonii</i> Hook. f.	Dioscoreaceae		Climber	Perennial	Tuber	Curry especially with fish.
<i>Diplazium polypoides</i> Bory.	Athyriaceae	Vegetable fern	Herb (Fern)	Annual	Leaves	Fried
<i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	Water hyacinth	Herb	Annual	Stem	Fried
<i>Enhydra fluctuans</i> Lour.	Apiaceae	Buffalo spinach	Aquatic herb	Annual	Leaves	Fried and consumed
<i>Erygium foetidum</i> L.	Apiaceae	Culantro	Herb	Annual	Leaves	Used as spice.

Scientific name	Family	Common name	Growth habit	Life form	Part used	Mode of preparation
<i>Euryale ferox</i> Salisb.	Nymphaeaceae	Prickly Water Lily	Aquatic herb	Perennial	Tuber and seed	Seeds are eaten as raw and roasted. tuber and seeds are eaten by boiling with dry fish.
<i>Glycosmis pentaphylla</i> (Retz.) DC	Rutaceae	Gin Berry	Shrub	Perennial	Leaves	Fried and consumed.
<i>Hibiscus sabdariffa</i> L.	Malvaceae	Roselle	Shrub	Perennial	Flower, Fruit	By boiled with water they make a sour soup and consumed.
<i>Homalomena aromatica</i> Schott.	Araceae	Spreng	Herb	Perennial	Whole	Biled with dry fish or Extracting juice and preparing usually with fish.
<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Water spinach	Herb	Perennial	Leaves	As a vegatable
<i>Lablab purpureus</i> (L.) Sweet	Fabaceae	Hyacinth bean	Climber	Annua	Fruit (Pods and seed)	Used to make labra.
<i>Lasia spinosa</i> (L.) Thwaites	Araceae	Geli-geli	Herb	Annual	Leaves, Rhizome	Extracting juice and preparing curry.
<i>Leucaena leucocephala</i> (Lam.) de Wit	Fabaceae	River tamarind	Tree	Perennial	Fruits	Fried
<i>Azadirachta indica</i> A.Juss.	Meliaceae	Neem	Tree	Perennial	Leaf	Fried with chilly and salt and consumed.
<i>Melocanna baccifera</i> (Roxb.) Kurz	Poaceae	Forest bamboo	Other (Woody Grass)	Perennial	Young shoot	Used to make Gudok simply by boiling it with dry fish and chilly.
<i>Monochoria hastata</i> (L.) Solms	Pontederiaceae	Arrow leaf pondweed	Herb	Annual	Flower	Making snacks.
<i>Moringa oleifera</i> Lam	Moringaceae	Drumstick tree	Tree	Perennial	Leaves, bark and Fruit	Fruits are boiled and cooked. Leaves are fried and bark is grinded and make paste.
<i>Momordica charantia</i> L.	Cucurbitaceae	Bitter melon	Climber	Annual	Fruit	Fried.
<i>Momordica cochinchinensis</i> (Lour.) Spreng.	Cucurbitaceae	Chinese cucumber	Climber	Annual	Fruit	Fried

Scientific name	Family	Common name	Growth habit	Life form	Part used	Mode of preparation
<i>Musa acuminata</i> <i>Colla</i>	Musaceae	Banana	Herb	Annual	Fruit and flower bud, shoot	Used in Gudhak as an ingredient.
<i>Neptunia oleracea</i> Lour.	Fabaceae	water mimosa	Herb	Annual	Leaves and stem	Fried
<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Jasmine	Shrub	Perennial	Leaves	Fried
<i>Oroxylum indicum</i> (L.) Benth. ex Kurz	Bignoniaceae	Broken Bones Tree	Tree	Perennial	Fruit	Boiled and cooked.
<i>Oxalis corniculata</i> L.	Oxalidaceae	Creeping woodsorrel	Herb	Annual	Tender shoots	Boiled with water and sweet potato.
<i>Parkia javanica</i> (Lamk.) Merr.	Fabaceae	Tree Bean	Tree	Perennial	Fruit	In mixed vegetable which is locally called labra
<i>Polycarpon prostratum</i> (Forssk.) Ashers & Schweinf.	Caryophyllaceae	Polycarpon	Herb	Annual	Leaf	Fried
<i>Portulaca oleracea</i> L.	Portulacaceae	Common Purslane	Herb	Annual	Whole plant	Fried
<i>Sesbania grandiflora</i> (L.) Poiret.	Fabaceae	Vegetable hummingbird	Tree	Perennial	Flower	By making pokora.
<i>Solanum indicum</i> L.	Solanaceae	Brinjal	Herb	Annual	Fruit	Boiled with dryfish. Also fried with leafy vegetables.
<i>Solanum nigrum</i> L.	Solanaceae	Black nightshade	Herb	Annual	Fruit	Boiled with dryfish. Also fried with leafy vegetables
<i>Solanum torvum</i> Sw	Solanaceae	Tomato	Herb	Annual	Fruit	Fried
<i>Spilanthes acmella</i> (L.) L.	Compositae	Toothache plant	Herb	Annual	Flower, Leaves	Boiled to cook gudhok.
<i>Tamarindus indica</i> L.	Fabaceae	Tamarind	Tree	Perennial	Fruit	By making chutney with sugar
<i>Typhonium trilobatum</i> (L.) Schott	Araceae	Bengal arum	Herb	Annual	Tubers and leaves	Fried with dry fish and jackfruit seed.
<i>Vitex negundo</i> L.	Lamiaceae	Chinese chastetree	Shrub	Perennial	Leaf, root	By boiling it with dry fish.
<i>Zanthoxylum limonella</i> Alston.	Rutaceae	Prickly ash	Shrub	Perennial	Fruit	Fruit

Out of these 61 species, 36 (59%) are perennial while 29 annual (41%). Their growth habits included tree, shrub, herb, climber and others (creeper, bamboo, fungi etc.). Herbaceous plants make up the highest proportion of edible plants with 30 species (49%), followed by trees with 11 species (18%) and climber with 8 species (13%).

Among 61 species 18 species are used as a vegetable as a whole or their maximum parts are used as a vegetable and 41 species have single part used as a vegetable. Among the edible parts, Fruit is dominant with 15 species (35%), followed by leaf 13 species (30%) and most of them are consumed as cooked vegetables that include boil, steam and fry. Previously Deb et al. [12] reported a total of 41 species of wild edible plants belonging to 36 genera and 22 families of through semi-structured interviews and preference ranking methods among three ethnic groups viz. Tripuri, Molsom and Rupini of Tripura. In a similar work Choudhury et al. [13] recorded 10 wild edible species of Tripura; Konsam et al. [16] documented a total of 68 wild edible vegetables belonging to 42 families which are being used by indigenous communities for nutritive and therapeutic purposes in Manipur,

NE India and Saikia [17] recorded a total of 51 wild edible vegetable plants belonging to 33 families in Assam, NE India.

4.1 Traditional Knowledge

Based on the survey it has been visualised and recorded that the ethnic communities use most of the wild plants as traditional herbal medicine. It was recorded that 41 species have traditional medicinal values (Table 3).

Upetry et al. [6] have also reported a similar finding. Phillips and Gentry [15] reported that WEP knowledge is gained early in life and increases with age. Wild vegetables and medicinal plants are the gift of nature for the ethnic communities because the poor hilly peoples can collect the vegetable from the forest and it is free of cost which they couldn't otherwise afford to get from the market due to their socio-economic condition. The vegetables help to upgrade the nutritional need of the ethnic communities. But the survey it was found that few wild vegetables also have a negative impact on the health of the peoples. The lists of the wild vegetables which have a negative impact on health are listed in Table 4.

Table 3. List of species recorded according to traditional medicinal values

Scientific name	Medicinal values	Community
<i>Acacia nilotica</i> L.	Fruits are eaten to take preventive measure against measles and smallpox.	Tripuri and Halam
<i>Alocasia macrorrhizos</i> (L.) G.Don	The rootstock is a cooling agent, used in inflammations.	Mog, Tripuri
<i>Amaranthus spinosus</i> L.	Leaves are eaten for constipation problem	Jamatia
<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	It is highly nutritional.	Kuki
<i>Artocarpus chaplasha</i> Roxb	Seeds are used in purging of bowels. The bark is grinded and used in removing pus.	Tripuri
<i>Asparagus racemosus</i> Willd.	It gives stamina, enhances fertility in both male and female.	Tripuri, Halam
<i>Azadirachta indica</i> A.Juss.	It is used in the treatment of allergy, malaria, fever, smallpox, diabetes etc.	Preferred by all the communities.
<i>Bambusa tulda</i> Roxb.	The decoction of roots taken internally to promote the flow of urine.	Halam
<i>Basella alba</i> L.	It helps to cure constipation problem.	
<i>Cajanus cajan</i> (L.) Millsp.	This plant is boiled to extract the juice which is used in curing jaundice, oedema, urinogenital disease, scanty and burning micturition. It helps to reduce gas and acidity problem.	Tripuri
<i>Centella asiatica</i> (L.) Urban	Paste prepared from the leaf is taken in Jaundice, Cough and gastritis.	Tripuri

Scientific name	Medicinal values	Community
<i>Chenopodium album</i> L.	It is medicinally used in stomach problems locally used as liver tonic. It is an anti-ageing tonic.	Tripuri, Noatia
	Leaf juice is taken in Digestive, Dysentery, Gastritis problem.	Chakma
<i>Coccinia grandis</i> (L.) Voigt	It is antifungal, helps in healing of oral ulcer, itching etc. leaves are helpful for curing diabetes.	Orang, Tripuri
<i>Colocasia esculenta</i> (L.) Schott	The latex of Stem is used to treat Bee or ant bite	Chakma
<i>Curcuma zedoaria</i> Rosc.	The decoction of the rhizome is prescribed to increase sexual vitality.	Tripuri
<i>Dillenia indica</i> L.	Fleshy calyx is used for stomach disorder	Garo , Tripuri
<i>Dioscorea alata</i> L., <i>Dioscorea esculenta</i> L., <i>Dioscorea hamiltonii</i> Hook. f.	It is very nutritive and increases weight.	Munda, Bhill , Halam , Tripuri
<i>Dioscorea bulbifera</i> L.	It is used as the cure of piles, dysentery and applies to ulcers. It is very nutritive and increases weight.	Tripuri, Chaimal
<i>Enhydra fluctuans</i> Lour.	It is diuretic, useful in skin, neural disease and in insomnia.	Tripuri, kuki
<i>Euryale ferox</i> Salisb.	Very nutritious.	Bhill
<i>Hibiscus sabdariffa</i> L.	It is used in dysentery, diarrhoea and high blood pressure.	Uchai
<i>Homalomena aromatica</i> Schott.	Paste of fresh rhizome is applied on the body to treat inflammation.	Tripuri
	Leaves are good in digestive disorder.	Halam
<i>Lasia spinosa</i> (L.) Thwaites	Paste from tender leaves is made for external use in burns. Rhizome is also useful in gastric and stomach problems.	Tripuri
<i>Melocanna baccifera</i> (Roxb.) Kurz	Alkali water prepared from it used in stomach trouble and it is an anti-malarial medicine.	Mog
<i>Monochoria hastata</i> (L.) Solms	Extract of leaves is used in curing boils and the plant is used as an alternative medicine to correct bodily disorder of nutrition, in the tonic, cooling. It is also used as medicine in jaundice and laxative.	Chakma
<i>Moringa oleifera</i> Lam	The bark is useful for a cough and cold. Leaves are also medicinal.	Tripuri
<i>Momordica cochinchinensis</i> (Lour.) Spreng.	Juice prepared from the bark is taken with Sugar for Jaundice.	Chakma
	The fruit is bitter, useful for skin diseases.	Tripuri
<i>Musa acuminata</i> Colla	Fruits are used for chronic dysentery. The flower and shoot increase the haemoglobin and iron level in blood.	Tripuri , Reang
<i>Neptunia oleracea</i> Lour.	Juice of the stem and roots are used for jaundice purposes.	Tripuri
<i>Nyctanthes arbor-tristis</i> L.	The leaves have been used for arthritis, fever, and as a laxative.	Kuki
<i>Oroxylum indicum</i> (L.) Benth. ex Kurz	Edible tender fruit acts an anti-flatulent and as a reliever of colic.	Boro
	The bark is used in diarrhoea and dysentery. Powdered bark is used acute rheumatism.	Jamatia

Scientific name	Medicinal values	Community
	Treated for the weakness due to low blood pressure.	Tripuri
	Juice prepared from the bark is mixed with Sugar and taken to treat Jaundice.	Chakma
<i>Oxalis corniculata L</i>	It helps in to increase food crave after fever.	Lusai
	It is considered medicinal in dysentery and blood pressure.	Reang
<i>Polycarpon prostratum (Forssk.) Ashers & Scheweinf.</i>	Whole plant is useful in case of malarial fever.	Tripuri
<i>Sesbania grandiflora (L.) Poiret.</i>	Flower in headache, dimness of vision.	Chakma
<i>Solanum indicum L</i>	It is used in worm infection, skin diseases, cough etc.	Garo
<i>Solanum nigrum L.</i>	It kills intestinal worms.	Tripuri
<i>Spilanthes acmella (L.) L.</i>	Whole plant is useful to cure toothache	Tripuri
<i>Tamarindus indica L.</i>	It is digestive, used in cough, fever, rheumatism etc.	Boro
	Ripen fruit are directly taken for Headache, High pressure	Chakma
<i>Typhonium trilobatum (L.) Schott</i>	It is diuretic.	Kuki
<i>Vitex negundo L.</i>	Juice of the leaves are used in arthritis	Chakma
<i>Zanthoxylum limonella Alston.</i>	Roots are used in dysentery and piles; Flowers are used in diarrhoea, fever and lever troubles; leaves are used as tonic.	Reang

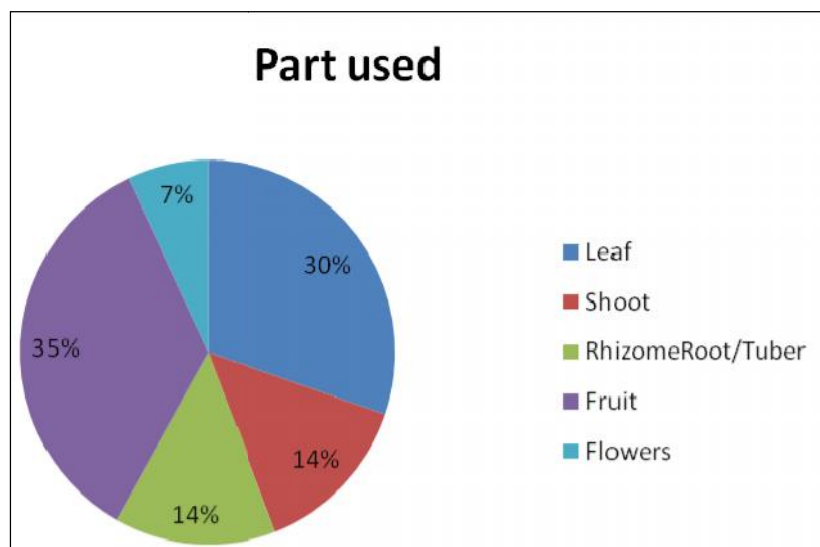


Fig. 3. Plant part Used by ethnic communities of Tripura

Table 4. Some forest products have negative effects on the health of tribal peoples

Health problems	Causative wild vegetables
Skin problems, allergy	<i>Alocasia indica</i> , <i>Colocasia esculenta</i> , <i>Dioscorea sp</i>
Pain in joints	<i>Erygium foetidum</i>
Gastric problem	<i>Artocarpus heterophyllus</i>
Itching in mouth	<i>Colocasia esculenta</i> , <i>Alocasia indica</i>
Sleeping tendency	Shoot of <i>Bambusa tulda</i>
Loose motion	Raw fruit of <i>Tamarindus indica</i> , <i>Alocasia macrorrhizos</i>
Sometimes poisonous	<i>Clitocybe sp.</i>

5. CONCLUSION

The Utilization of wild plant resources and its popularity in the day-to-day life of people in urban areas has been declining in recent years due to loss of cultural practices. It is seen that people from present generation have migrated from their native place to urban areas. Many people of the ethnic groups from present generation have started having food in hotels/restaurants belonging to other communities which have led to their change in taste and preferences. The urgent need to maintain and popularise this important source of non-conventional food is needed so as to keep the traditional knowledge intact. For this steps need to be taken at the policy level by the government for their sustainable use and management.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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