

Importance of certain tribal edible plants of Tripura

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Tribal people of Tripura are used to eat few parts of certain plants. The form of eating and the review on their phytochemical and medicinal importance of those parts of plants are reported.

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Northeast India including Tripura is very rich in plant and herbs because of plenty of rainfall and availability of deep forest. Above all the state is rich with the knowledge of tribal communities including 19 Scheduled tribes of Tripura¹. The rich endowment of edible resources in forest kept the tribes of Tripura confirmed in living traditionally in forest areas. Over 9,500 wild plant species used by tribals for meeting the varied requirements have been recorded so far. Out of 7,500 wild plant species used by tribals for medicinal purpose, about 950 are found to be new claims and worthy of attention of developed as alternative source of food that the world would need in near future². Vegetables have a major role to provide the fuel in regulation of body function and these vegetables are marketed and identified as different type of foods to the people in individual sector. The commercial status of wild food resources in Tripura state has come to the notice that a few items of forest like bamboo shoots, roots, tubers and wild plantain flowers, stems, etc. are brought by the tribal in the village markets of tribal dominated areas and the same is mostly purchased in a lot by the vegetables vendors of the urban areas. It has been observed that non-traditional forest resources, which are used by the hills people of Tripura have not yet attained the significance of economic use and botanical value despite their immense potentialities to serve as useful vegetables resources of the state with nutritive value³. Moreover, one cannot avoid the

medicinal importance of the edible parts of wild plants used by tribal people of Tripura. Therefore, a few representatives of wild edible plants of Tripura tribes must be searched for observing their therapeutic level.

The state of Tripura, a land locked hilly state in the Northeastern India is surrounded on the North, West and South by Bangladesh. It is accessible to the rest of the country only through the Cachar district of Assam and Aizawl district of Mizoram in the East. Summer temperature of the state is max 36.6°C, min 17.9°C and in winter max 28.9°C, min 7.7°C with the density per sq km of 305, 60% of the total area is under hills and forests, inhabited largely by 19 tribes, *Bengali* and *Manipuri* etc. communities. The state extends between 22°56' and 24°32' N latitudes and 90°09' and 92°10' E longitudes. Its maximum stretch measures about 184 km from North to South and about 113 km from East to West. With an area of 10,492 sq km or 0.32% of the total geographical area of India, Tripura is the third smallest state of the country. It has an international land frontier with Bangladesh of about 839 km., which constitutes nearly 84% of the total perimeter of the state. On the other hand, the land frontier with Cachar district of Assam is only 53 km. And that of Mizoram 109 km. Administratively, the state is divided into four districts and further in 14 sub-divisions. Districts are Dhalai, North Tripura, South Tripura and West Tripura^{4,5}. In the study, 10 plants that the tribal people of Tripura are utilizing as edible plant has been described. Generally, tribal people of all communities,

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particularly *Tripuri* community are using these plants. The form of eating of plant parts, phytochemicals present and their medicinal importance have been reported.

Methodology

Tribal people of Tripura are using a few plants as edible plant. Information on commonly used 10 plant species by visiting villages of Agartala and Khowai sub-division of West Tripura district and 4 tribal dominated markets followed by interviewing at least 75 tribal personnel about these plants during June-December, 2006 are presented. The plants were identified and authenticated by the Tribal Research Institute, Government of Tripura, Agartala. Botanical name, family along with the local name in *Kokborok* (dialect of *Tripuri* tribal community), parts used, and uses have been enumerated.

Results

Monochoria hastata Linn., (Pontederiaceae), Local name: *Chichiri* or *Kichiri*

Stems and leaves are used as vegetable; available throughout the year; an ingredient of a special dish of tribal people, named as *Gudak*. Various fractions of leaf protein concentrate (LPC) showed a protein content ranging from 47.4 - 89.4% of dry matter and digestibility ranging from 40.2 to 85.4% of protein. The amino acid content of LPC was found to be nutritionally adequate, except for the sulphur containing amino acids⁶.

Diplazium polypodioides Bl., (Athynaceae), Local name: *Muikhun Chak/ Mukhaindebusa*

Tender Leaves are used as vegetables, it is cooked with dry fish to prepare tribal dish *Loitka*. It is available during March-September.

Alocasia odora Roxb., (Araceae), Local name: *Gandrui*

Stems are used by tribals to prepare *Berama batui*, a dish using dry fish. It is available throughout the year. The chemical composition, starch and raphides of the stem of this plant were investigated for its use in pesticide formulations. The stem moisture was as high as 95.5%. The starch content of a fresh sample was 1.59% while that of an air dry sample was 40.42%. The irritant raphides which precipitated with the starch granules could be removed by dilute acid treatments⁷.

Musa paradisiaca Linn., (Musaceae), Local name: *Chupui*

The ash of soft immature buds is used to prepare alkali water. By this, they prepare their dishes,

Chakhai/ Gudak/ Masideng. It is available throughout the year. Hypoglycemic effect of methanolic extract of green fruits of plant was observed in normal and diabetic mice⁸.

Ipomoea aquatica Linn., (Convolvulaceae), Local name: *Kalmi hak*

Twigs and leaves are used to prepare *Gudak*, a special dish. It is available during June-October. Leaf of the plant showed antioxidant property⁹⁻¹¹. Cytotoxic property of leaf was also observed¹². This leafy vegetable is a rich source of vitamins, amino acids and proteins^{10,13}. Whole plant extract including leaf showed hypoglycaemic activity in wistar rats¹⁴.

Dioscorea hamiltonii Hook, (Dioscoreaceae), Local name: *Tha Ganga*

Tubers are cooked along with other vegetables and served as mixed vegetable dish. It is available during September-December.

Solanum torvum Swartz., (Solanaceae), Local name: *Khamka sikum*

Fruits are eaten as vegetable; from the mature fruits, tribals take out the seeds and cook dish, *Gudak* or simply fry. This is available throughout the year. Three unusual 22- β -O-23-hydroxy-(5 α)-spirostanol glycosides from the fruits have been isolated¹⁵. Torvanol A, torvoside H exhibited antiviral activity against *Herpes simplex* virus type1¹⁶. Methanolic extract of fruits showed a wide spectrum of antimicrobial activities against human and animal clinical isolates¹⁷.

Solanum indicum Linn. (Solanaceae), Local name: *Khamka*

Tender fruits are eaten by frying; available throughout the year. Fruits extract showed marginal hepatoprotective activity in rats¹⁸.

Canavalia gladiata Jacq., (Papilionaceae), Local name: *Baikang*

Fruits used as vegetable, is generally cooked with dry fish; available during October-February. Fruits are good sources of protein and dietary fiber¹⁹. A lectin with specificity toward mannose, glucose and rhamnose has been isolated from the legumes²⁰. Three major serine proteinase inhibitors were purified from the seeds²¹. Further, the chemical composition and the nutritional quality of protein and carbohydrates of mature seeds were evaluated²²⁻²⁴. Gibberellin A59 was isolated from immature seeds²⁵.

Lasia spinosa Linn., (Araceae), Local name: *Pachak*

Tender stems and leaves used as vegetable, is generally used to prepare *Gudak* and *Chakhai* – two dishes of tribal people. It is available throughout the year.

Conclusion

In a preliminary phytochemical screening, it was observed that all the edible parts were containing alkaloids and the methanolic extracts were showing analgesic activity in mice, whereas edible parts of *Solanum torvum* Swartz showed almost at par analgesic activity in compare to standard drug Aspirin. No extracts showed hypnotic activity in mice^{26,27}.

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