

## Tribal knowledge on wild edible plants of Meghalaya, Northeast India

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Received 7 September 2005; revised 20 June 2006

Documentation of tribal knowledge on wild edible plants of Meghalaya brought to light a number of wild plant species used as edibles. The plant parts, viz. roots, tubers, stems, leaves, flowers, fruits and seeds are used in raw or cooked forms. The present study records 110 wild growing plants, which are eaten whole or in part by the local people. The paper enumerates and discusses various aspects of the wild plants used by *Khasi*, *Jaintia* and *Garo* tribes of Meghalaya.

**Key words:** Wild edible plants, *Khasi* tribe, *Jaintia* tribe, *Garo* tribe, Meghalaya

**IPC Int. Cl.<sup>8</sup>:** A61K36/00, A01G1/00, A01G17/00, A47G19/00, A23L1/00, A23L1/06, A23L2/02

Meghalaya comprises of South Garo Hills, West Garo Hills, East Garo Hills, West Khasi Hills, East Khasi Hills, Ribhoi and Jaintia Hills districts lying between 25°47'-26°10' N latitude and 89°45'-92°45' E longitude, covers an area of 22,549 km<sup>2</sup>. It is bounded on the North, East and West by Assam, and on the South by Bangladesh (Fig.1). The altitude ranges from 50-1960 m. The state is having an estimated population of about 23, 57,510 with a density of 79 persons/sq km.

Meghalaya is ranked seventh among all states and union territories in respect of the percentage of state's geographic area under forest cover with 70 % of the state is forest area. Almost 90 % of the forest area of the state is outside the direct Government control and is owned by the clan and community. The state has 1112 sq km of reserved forest, 12 sq km of protected forest, and 8,372 sq km of unclassed forest. Meghalaya state has a dense forest area of 5,681 sq km (25.3% of the state forest area), while 9,903 sq km is open forest (44.2%) and the remaining is a non-forest area (3.0%). Dense forests are areas, where the foliage cover (canopy) is more than 40%, whereas in open forests, it is between 10 to 40% and in the non-forest area the foliage cover is below 10%.

The forests of Meghalaya provide a large number of plants whose fruits; seeds, tubers, shoots, etc. make an important contribution to the diet of the people, particularly those living near forests and other rural

areas<sup>1</sup>. These plants not only provide inexpensive food but several other useful products like medicine, fibre, fodder, dyes, etc. They also provide useful genes for crop improvement. The study of wild edible plants is important not only to identify the potential

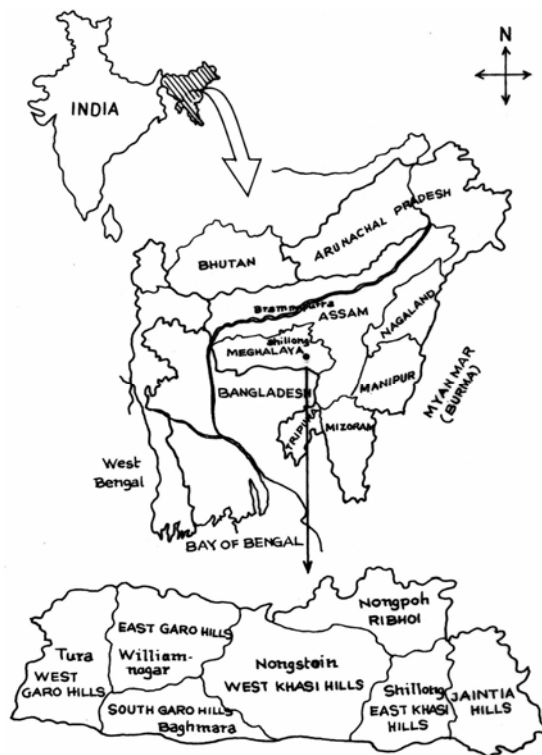


Fig. 1—Map showing study area

Table 1—Wild edible plants of *Khasi*, *Jaintia* and *Garo* tribes of Meghalaya

Plant name	Family	Local Names	Mode of Utilization
<i>Acanthopanax trifoliatum</i> Seem.	Araliaceae	<i>Kenbut</i> (G)	Young shoots cooked as vegetable
<i>Adhatoda vasica</i> Ness.	Acanthaceae	<i>Devglamch</i> (G)	Cooked as vegetable
<i>Alocasia indica</i> (Roxb.) Schott.	Araceae	<i>Kimchit nokam</i> (G)	Cooked as vegetable
<i>Amaranthus gangeticus</i> Linn.	Amaranthaceae	<i>Chantili</i> (G)	Cooked as vegetable
<i>Amblyanthus glandulosus</i> DC.	Myrsinaceae	<i>Jia herew</i> (J)	Cooked as vegetable
<i>Amorphophallus bulbifer</i> (Roxb.) Bl.	Araceae	<i>Jiathynrew</i> (J)	Cooked as vegetable
<i>Antidesma acidum</i> Retz.	Euphorbiaceae	<i>Aburok-arabok</i> (G)	Leaves eaten raw
<i>Argyrea nervosa</i> Burm.f.	Convolvulaceae	<i>Soh ring kang</i> (K)	Leaves eaten raw
<i>Artocarpus chapalasha</i> Roxb.	Moraceae	<i>Soh-phan</i> (K)	Cooked as vegetable
<i>Artocarpus heterophyllus</i> Lam.	Moraceae	<i>Soh-phan</i> (K) <i>Soh shram</i> (J)	Dried powdered seeds boiled with water are eaten as a substitute for rice during famine or scarcity.
<i>Azadirachta indica</i> A. Juss.	Meliaceae	<i>Neemu</i> (G)	Cooked as vegetable
<i>Baccaurea ramiflora</i> Lour.	Euphorbiaceae	<i>Soh ramdieng</i> (K), <i>Dojuka</i> (G)	Flower eaten raw
<i>Bauhinia purpurea</i> Linn.	Caesalpiniaceae	<i>Muyung-laphang</i> (K) <i>megong</i> (G)	Leaves and flowers cooked as vegetable
<i>Begonia josephi</i> Br.	Begoniaceae	<i>Jajew</i> (K)	Leaves cooked as vegetables.
<i>Begonia palmate</i> D. Don.	Begoniaceae	<i>Hurmaw</i> (G)	Young shoots cooked as vegetable
<i>Begonia roxburghii</i> (Miq.) DC.	Begoniaceae	<i>Kimchare</i> (G)	Leaves and shoots are cooked with dry fish
<i>Begonia rubrovenia</i> Hk.	Begoniaceae	<i>Johusia</i> (J)	Tender shoot is edible
<i>Buddleja macrostachya</i> Benth.	Buddijaceae	<i>Jalong krem</i> (J)	Bark is chewed with betel leaf
<i>Calamus acanthospathus</i> Griff.	Arecaceae	<i>Rie</i> (G)	Shoots are pounded, fermented, sun dried and stored for off season
<i>Calamus erectus</i> Roxb.	Arecaceae	<i>Soh thri</i> (K, J)	Fruits are eaten raw
<i>Cardamine macrophylla</i> Willd.	Brassicaceae	Unknown	Leaves are used as vegetable
<i>Casearia graveolens</i> Dalz.	Flacourtiaceae	<i>Bolong miandok</i> (G)	Leaves and twigs are cooked and used as vegetable
<i>Castanopsis indica</i> (Roxb.) DC.	Fagaceae	<i>Chhakku khokrok</i> (G)	Fruits are eaten raw
<i>Centella asiatica</i> Linn.	Apiaceae	<i>Kynbat moina</i> (K), <i>Brahmi</i> (G)	Roots and leaves are eaten raw or cooked as vegetable
<i>Chlorophytum arundinaceum</i> Baker.	Liliaceae	<i>Soh-kyian</i> (J)	Cooked as vegetable
<i>Cirsium involucreatum</i> DC.	Asteraceae	<i>Soh chlia</i> (J)	Seeds are aromatic, eaten raw
<i>Codonopsis parviflora</i> DC	Campanulaceae	<i>Ja tyndong</i> (J)	Leaves are cooked and eaten
<i>Coix lacryma jobi</i> Linn.	Poaceae	<i>Sohriew</i> (K)	Seed eaten raw or cooked
<i>Colocasia esculenta</i> Linn.	Araceae	<i>Matchitangong</i> (G)	Roots are cooked as vegetable
<i>Corchorus olitorius</i> Linn.	Tiliaceae	<i>Mehku</i> (G)	Leaves are cooked as vegetable
<i>Corchorus aestuans</i> Linn.	Tiliaceae	<i>Amalthchu</i> (G)	Roots are cooked as vegetable
<i>Crateva magna</i> (Lour.) DC.	Capparaceae	<i>Jong sia</i> (G)	Shoots are cooked and eaten
<i>Crinum pretense</i> FT.	Amaryllidaceae	<i>Amaltchu</i> (G)	Root are cooked as vegetable
<i>Croton oblongifolius</i> Roxb.	Euphorbiaceae	<i>Marthu arong</i> (G)	Leaves are used for fermenting liquor
<i>Croton tiglium</i> Linn.	Euphorbiaceae	<i>Runi bih</i> (G)	Fruits are used as antidote
<i>Cucurbita moschata</i> (Duch.) Poir.	Cucurbitaceae	<i>Pathaw</i> (K)	Cooked as vegetable
<i>Cyathocalyx martabanicus</i> Hk.f. & Th.	Annonaceae	Unknown	Ripe fruits is edible
<i>Dendrocalamus halmiltonii</i> Nees et Arn. Ex Munro.	Poaceae	<i>Binh</i> (G)	Shoot are pounded and used as pickle

Table 1—Wild edible plants of *Khasi*, *Jaintia* and *Garo* tribes of Meghalaya—(Contd)

Plant name	Family	Local Names	Mode of Utilization
<i>Desmodium triflorum</i> DC.	Fabaceae	<i>Memang-mong-arabak</i> (G)	Leaves are cooked with dry fish
<i>Dillenia indica</i> Linn.	Dilleniaceae	<i>Agachi</i> (G), <i>Dieng Soh Karbam</i> (K)	Unripe fruits are cooked with dry fruits
<i>Diplazium esculentum</i> (Retz.) Sw.	Athyriaceae	<i>Jhur Tyrkhang</i> (K)	FronDS cooked as vegetable
<i>Elaeagnus latifolia</i> Linn.	Elaeagnaceae	<i>Soh Shang</i> (K, J), <i>chhokhua</i> (G)	Fruit are eaten raw
<i>Elaeocarpus floribundus</i> Bl.	Elaeocarpaceae	<i>Jolpai</i> (G)	Fruits are edible and used for making pickle
<i>Elatostema dissectum</i> Wedd.	Urticaceae	<i>Jhur khlow</i> (J)	Leaves and fruits are edible, raw or cooked
<i>Eryngium foetidum</i> Linn.	Apiaceae	<i>Etucha-bellock</i> (G)	Leaves are cooked as vegetable
<i>Fagopyrum dibotrys</i> D. Don.	Polygonaceae	<i>Jarain</i> (K, J)	Tender shoot are cooked and eaten as vegetable
<i>Ficus clavata</i> Wall.ex Miq.	Moraceae	<i>Slileshiat</i> (J)	Leaves are eaten as vegetable
<i>Ficus hispida</i> Linn.	Moraceae	<i>Thamusa</i> (G)	Unripe fruits are cooked as vegetable and ripe ones are eaten raw
<i>Flemingia vestita</i> Backer.	Fabaceae	<i>Sohphlang</i> (K, J)	Tubers are eaten raw
<i>Garcinia pedunculata</i> D. Don.	Clusiaceae	<i>Soh danae</i> (K), <i>Thizou</i> (G)	Fruit are eaten raw
<i>Gaultheria fragrantissima</i> Wall.	Ericaceae	<i>La thynrait</i> (K, J)	Fruits edible, leaves used for tea
<i>Gnetum montanum</i> Mark.	Gnetaceae	<i>Jagingriube</i> (G)	The seeds are chewed as substitute for areca nut
<i>Gomphogyne cissiformis</i> Griff.	Cucurbitaceae	<i>Jhur thliem</i> (K)	Leaves cooked as vegetable
<i>Gynocardia odorata</i> Br.	Flacourtiaceae	<i>Sohliang</i> (K, J)	Fruit eaten raw
<i>Hedyotis diffusa</i> Willd.	Rubiaceae	<i>Mangaluk</i> (G)	Leaves are eaten with fish after childbirth
<i>Hibiscus pungens</i> Roxb.	Malvaceae	<i>Kaldha</i> (G)	Leaves are cooked as vegetable
<i>Hodgsonia macrocarpa</i> (Bl.) Cogn.	Curcubitaceae	<i>Soh-lyot</i> (K)	Seed edible, leaves as silk worm feed
<i>Homalomena aromatica</i> Sch.	Araceae	<i>Kimchit nokam</i> (G)	Petiole are cooked as vegetable
<i>Houttuynia cordata</i> Thunb.	Sauraceae	<i>Jamyrdoh</i> (K, J)	Whole plant eaten raw
<i>Ilex acuminata</i> Benth.	Aquifoliaceae	<i>Jiakeng</i> (J)	Leaves cooked as vegetable
<i>Ipomea racemosa</i> Roth.	Convolvulaceae	<i>Setre budu</i> (G)	Cooked as vegetable
<i>Ixeris gracilis</i> DC.	Asteraceae	<i>Khmut sim</i> (K)	Leaves as vegetable
<i>Ixora subsessilis</i> Wall.	Rubiaceae	<i>Sang rura</i> (G)	Cooked preferably mixed with dry fish
<i>Luffa acutangula</i> (L.) Roxb.	Cucurbitaceae	<i>Sohprew</i> (K)	Unripe fruit cooked as vegetable
<i>Luffa cylindrica</i> (L.) Roem.	Cucurbitaceae	<i>Sohprew</i>	Unripe fruit cooked as vegetable
<i>Mallotus philippinensis</i> (Lam.) Muell. Arg.	Euphorbiaceae	<i>Setre budie</i> (G)	Unripe fruits are cooked as vegetable
<i>Malvastrum tricuspdatum</i> Linn.	Malvaceae	<i>Som zalik</i> (G)	Seeds are cooked as vegetable and bark is used as condiments
<i>Monochoria hastate</i> (L.) Solms.	Pontederiaceae	<i>Garopaksi gachli</i> (G)	Petioles are cooked with dry fish
<i>Moringa oleifera</i> Lam.	Moringaceae	<i>Sajna</i> (G)	Leaves, flowers and fruits are usually cooked with dry fish
<i>Myrica esculenta</i> Ham. Ex D. Don.	Myricaceae	<i>Sohphie</i> (K)	Fruits are eaten raw or used as pickle
<i>Myrica nagi</i> Hook.f.	Myricaceae	<i>Sohphie</i> (K)	Eaten raw and also used for as pickle

Contd

Table 1—Wild edible plants of *Khasi*, *Jaintia* and *Garo* tribes of Meghalaya—(Contd)

Plant name	Family	Local Names	Mode of Utilization
<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Soh dkhiew (K)	Plant as vegetable
<i>Oxyspora paniculata</i> DC.	Melastomataceae	Long tang (K)	Stem and leaves eaten as vegetable
<i>Passiflora edulis</i> Sims.	Passifloraceae	Sohbrab (K)	Ripe fruit are eaten raw
<i>Pedicularis carnosa</i> Wall.	Scrophulariaceae	Sam dipo (G) samthapar (K)	Leaves and roots are cooked as vegetable
<i>Peperomia pellucida</i> (L.) HBK.	Peperomiaceae	Bithe (G)	Leaves are cooked as vegetable
<i>Phlogacanthus thyrsoiflorus</i> (Roxb.) Nees.	Acanthaceae	Verua kain cheit (G), Jia merembut (J)	Leaves and flowers are cooked with fish and meat
<i>Phrynium capitatum</i> Willd.	Zingiberaceae	Balgate (G)	Roots are cooked as vegetable
<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	Bon bakeri (G)	Fruits are eaten raw also mixed with curry
<i>Phyllanthus parvifolius</i> Ham.	Euphorbiaceae	Jala mat kha (K), memang ambri (G)	Fruits are eaten raw also mixed with curry
<i>Piper diffusum</i> Vahl.	Piperaceae	Sohmrit (K)	Fruit as spice
<i>Plectranthus incanus</i> Link.	Acanthaceae	Chichittoni (G)	Leaves are cooked as vegetable
<i>Polygonum chinense</i> Linn.	Polygonaceae	U niuh-tmar (K)	Shoots are pounded, fermented, and sun dried for off season use
<i>Polygonum muricatum</i> HK.f.	Polygonaceae	Jabuit (K)	Leaves as vegetable
<i>Polygonum nepalense</i> Meissn.	Polygonaceae	Ja-ut (K)	Leaves as vegetable
<i>Polygonum orientale</i> Linn.	Polygonaceae	Jalynnoh (K)	Leaves as vegetable
<i>Portulaca oleracea</i> Linn.	Portulacaceae	Stilchi (G) Jiahusia (K)	Leaves are cooked as vegetable
<i>Potentilla fulgens</i> HK.	Rosaceae	Lynniang (K, J)	Root chewed with betel nut
<i>Prunus nepalensis</i> (Ser.) Steud. Ed.	Rosaceae	Sohiong (K, J)	Fruits edible
<i>Pyrus communis</i> Linn.	Rosaceae	Sohphoh (K, J)	Fruits edible
<i>Rhododendron arboretum</i> Sm.	Ericaceae	Tiew saw (K, J)	Flower are eaten raw
<i>Rhus semialata</i> Murr.	Anacardiaceae	Sohsma (K, J)	Fruits edible
<i>Rhynchochotum ellipticum</i> (Wall ex Dietr) DC.	Gesneriaceae	Regong (G)	Leaves are cooked with dry fish
<i>Rhynchochotum vestitum</i> Hk.f. & T.	Gesneriaceae	Regong-chu (G)	Leaves are cooked as vegetable along with sodium bicarbonate
<i>Rubus ellipticus</i> Sm.	Rosaceae	Soh shiah (K,J)	Fruits edible
<i>Rubus niveus</i> Thunb.	Rosaceae	Soh khawiong (K)	Fruits edible
<i>Rubus rugosus</i> Sm.	Rosaceae	Soh nepbah (K)	Fruits edible
<i>Rumex nepalensis</i> Spr.	Polygonaceae	Jhur sniang (J)	Tender shoots used as vegetable
<i>Smilax perfoliata</i> Lour.	Smilacaceae	Shiah krot (K, J)	Shoot are pounded, fermented, extracted and then sun dried for off season use
<i>Solanum ferox</i> Linn.	Solanaceae	Soh khasi (K)	Fruits used as food; seeds for local drink
<i>Solanum nigrum</i> Linn.	Solanaceae	Soh ngang (K,J)	Fruits cooked as vegetables
<i>Sonchus asper</i> Linn.	Asteraceae	Jalynniar (K, J)	Leaves as vegetable
<i>Sonchus oleraceous</i> Linn.	Asteraceae	Soh lamjew (K)	Fruits are eaten raw
<i>Strobilanthus coloratus</i> T. Anders	Acanthaceae	Samoong (G)	Leaves are cooked as vegetable
<i>Taxus baccata</i> Linn.	Taxaceae	Sehblei (K, J)	Fruits are eaten raw
<i>Viburnum foetidum</i> Wall.	Caprifoliaceae	Sohlang (K, J)	Fruits edible
<i>Zanthoxylum acanthopodium</i> DC.	Rutaceae	Jaiur khlaw (K)	Pungent and spicy fruits are used as spice
<i>Zanthoxylum armatum</i> DC.	Rutaceae	Jaiur (K, J)	Fruits are aromatic and used as spice
<i>Zanthoxylum khasianum</i> DC.	Rutaceae	Sumet-cheng (G), Jaiur khasi (K, J)	Leaves as vegetable, fruits aromatic, gives a tingling sensation and usually used for chutney /spice
<i>Zanthoxylum limonella</i> (Dennst.) Alst.	Rutaceae	Hajor (G)	Leaves as vegetable and the spine is of medicinal importance

sources, which could be utilized as alternative food or in times of scarcity but also to select promising types for domestication. Recently, the role of ethnobotanical studies in trapping the old traditional folk knowledge as well as in searching new plant sources of food, drugs, etc. has been emphasized<sup>2,3</sup>.

The purpose of the study was not only the collection of first hand information about the relationship of wild edible plants with the tribals but also to verify the already published data. The study indicated the presence of a large number of wild edible plants in the state; however, the present paper enumerates only those species, which are used as food or spice by the tribals of this region.

### Methodology

Studies were carried out among the *Khasi*, *Jaintia* and *Garo* tribes of the state. Ethnobotanical surveys were conducted among these tribal groups for gathering information on edible plants traditionally used by them. The plants were identified using relevant floras and by matching the specimens in the herbaria of Botanical Survey of India, Shillong and North Eastern Hill University, Shillong. Wherever necessary, interpreters were employed. Tribal markets or weekly *haats* were also visited to study the plants and plant products sold there. As the rural folk of the region are largely dependent on wild plants and plant products for their existence, their local markets are full of wild vegetables and fruits. These markets are either permanent as in Shillong, Sohra, Nongstoin, Jowai, Nongpoh, Tura or other big towns, or are held on a fixed day each week in small villages. These weekly *haats* are tapped for their rich source of

information. Vegetables and fruits collected from the wild & their products are the commonest commodity in these tribal markets as well as the domesticated variety of crops and animals.

### Results and Discussion

From the ethnobotanical surveys, it was noted that the tribals are consuming the edible plants in raw or cooked form. The present study records 110 wild growing plants, along with their family, local names, parts used and mode of usage, which are eaten whole, or in part by the local people (Table 1). Documentation of such wild edible plants forms from ethnobotanical approach is important for enhancing the understanding of indigenous knowledge systems. These plants resources are genetically important for future agricultural research.

### Acknowledgement

Author is grateful to the North Eastern Council, Shillong, for financial assistance to the North Eastern Biodiversity Research Cell (NEBRC), NEHU, Shillong and to Dr P B Gurung, Department of Botany, NEHU, for identification of most of the wild edible plants of the state and to the Head, Department of Botany, NEHU for providing laboratory facilities.

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