

Medicinal Plants Used by Garo Tribe of West Garo Hills, Meghalaya

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Abstract The present study was conducted for 5 years in the West Garo Hills District of Meghalaya, India during 2010 to 2015 to identify and document the medicinal plants being used by the traditional health practitioners of Garo Tribe. The West Garo Hills situated between 26° and 25°20' North latitude and 90° 30' and 89° 40' East longitude is predominantly inhabited by the Garo Tribe following a matrilineal society. The belongs to the Bodo family of the Tibeto-Burman race Tribe. The research was carried out through extensive field survey, personal interviews and careful documentation of medicinal plants in the selected study area. In the present study 80 medicinal plant species under 65 genera belonging to 46 families were listed which were found to be used by the Garo Tribe. These plants were identified and tabulated with their botanical name, vernacular names, family, type of plant, parts used and their medicinal usage.

Keywords Wild edible plants, Medicinal plant, Traditional health practitioner, Garo Tribe.

Introduction

Search for new sources of food drugs and other life-supporting plant species has developed strong relationship between man and plants for sustenance and survival on this planet. Many wild edible plants are consumed as subsidiary food sources or for traditional home medicines since pre-historic times. Wild edible plants are potential substitute for food security during adverse conditions. During famine and other natural calamities or unfavorable conditions, these wild edible plants act as subsidiary food sources. Wild edible plants not only provide nutrition but also acts as medicines for the tribal communities who generally inhabit the hilly and other less accessible areas in both developed and developing countries.

Approximately 75 thousand species of plants world-wide are believed to be edible (Walter and Hamilton 1993). Over 675 wild edible species belonging to 384 genera and 149 families were reported from Indian Himalaya (Samant and Dhar 1997, Samant et al. 2001). Numerous wild edible plants are still lying either unknown to the modern world or underutilized. Each region of India has identified different kinds of wild edible plants. Many of these plants are not known to other parts of the country. Meghalaya has 850 spp. of medicinal plants and West Garo Hills district enjoys huge wealth of plant species that has great significance from ethnobotanical point of view. Therefore, wild edible plants have been in focus for many ethnobotanists in recent decades to document information on wild edible food sources (Bharucha and Pretty 2010). However, these plant resources

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and their indigenous use are in danger of being lost in areas where environmental and cultural transformations have led to changes in feeding practices. Many indigenous communities abandon or change their traditional customs and thereby lose their plant knowledge over time (Benz et al. 2000, Byg and Balslev 2001, Ladio and Lozada 2003).

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Materials and Methods

The present study was conducted in West Garo Hills District of Meghalaya, India during 2010 to 2015. West Garo Hills District of Meghalaya lies between 26° and 25°20' N latitude and 90°30' and 89° 40' E longitude. The West Garo Hills, abode of the Garo Tribe is one of the largest Districts of Meghalaya located in the western part of the state. The population is predominantly inhabited by the Garo Tribe following a matrilineal society belonging to the Bodo family of the Tibeto-Burman race Tribe. Other inhabitants

of the district are Hajong, Koch, Rajbangshi, Mechis, Kachari, and Dalu. The district is also inhabited by Bengali, Assamese, Nepali, Marwari, Bihari and people from other parts of India. The study was carried out through extensive field survey and careful documentation of medicinal plants. Data were collected from both primary secondary sources. Systematic collection of primary data, free listing, mode of utilization and identification of plants were conducted (Martin 1995). Local market survey, interview with community elders, traditional health practitioners i.e. *Oja* were carried out to collect the ethnobotanical information regarding use of medicinal plants of the region. Secondary data were collected from various published and unpublished literature on wild edible plants during the last 3 decades.

Results and Discussion

Various medicinal plants found in the West Garo Hills District of Meghalaya are recorded and presented in Table 1. The present study revealed that 80 medicinal plant species under 65 genera belonging to 46 families were found to be ethnobotanically important among the Garo Tribe. It was observed that 35 of these plants

Table 1. List of wild medicinal plants and its usage by Garo Tribe of Meghalaya.

Sl. No.	Botanical name	English/Hindi/ Bengali name	Vernacular name	Family	Plant type	Parts used	Medicinal usage
1	<i>Abroma augusta</i> (L.) Lt	Devil's cotton	Bon Khapai	Sterculiaceae	Herb	Seed	The oil extract is given in fever and applied externally for ring worm and scabies.
2	<i>Acanthus lencostachysis</i> , Linn.	Holy mangrove	Sam sikal	Acanthaceae	Shrub	Leaves	Leaves and root are astringent, emollient. Used in dislocated joints and burns.
3	<i>Achyranthus aspera</i> , L.	Devil's horse whip	Minamkachi	Amaranthaceae	Herb	Shoot	The powder is mixed with crushed snails is applied to cure leprosy.
4	<i>Acorus calamus</i> L.	Sweet flag	Betse	Araceae	Shrub	Rhizome	Juice is used for cough and cold.
5	<i>Adhatodavasic</i> , Nees.	Malabarnut	Dev glanch	Acanthaceae	Shrub	Leaf, inflorescence	Leaves and inflorescence are used against cold, cough and fever.
6	<i>Aegle marmelos</i> , (L.) Correa ex Roxb.	Bael tree	Belethi	Rutaceae	Tree	Fruit	Decoction of root and bark are used as remedy for melancholies intermittent fevers and palpitation of the heart. Leaves are used for ophthalmia and ulcer.
7	<i>Ageratum conyzoides</i> , L.	Goat weed	Sambang guri	Asteraceae	Herb	Shoot, root	Used as nerve tonic as well as for cuts and wounds.
8	<i>Alocasia indica</i> , (Roxb.) Schott.	Swamp taro	Kimchit-nokam	Araceae	Herb	Periole, rhizome	Leaf juice is astringent. Rhizomes used as mild laxative and diuretic.

Table 1. Continued.

Sl. No.	Botanical name	English/Hindi/Bengali name	Vernacular name	Family	Plant type	Parts used	Medicinal usage
9	<i>Amaranthus gangeticus</i> , L.	Lovely bleeding	Chantli	Amaranthaceae	Herb	Shoot	Leaves are emollient and used as cooling agent.
10	<i>Anthocephalus chinensis</i> . (Lam) A. Rich. ex Walp.	Kadam/Bur flower	Miboi	Rubiaceae	Tree	Leaves, bark	Leaves decoction used for gargling in aphthea or stomatitis. Bark is astringent and febrifugal and anti diuretic.
11	<i>Antidesmaburnius</i>	Currant tree	Bolaforak/Arobakh	Euphorbiaceae	Tree	Leaves	The leaves are caten with rice for treating syphilitic ulcers and blood pressure.
12	<i>Aporusadioica</i>	Commo nettle	Chha molja	Euphorbiaceae	Tree	All plant parts	Used for stomach ache and gastric.
13	<i>Aquilariamalaccensis</i> -molja L.	Eagle wood	Agar wood	Thymelaeaceae	Tree	Leaf, bark	Used in diarrhea, vomiting and snake bite.
14	<i>Arisaemajacquemontei</i>	Cobra lily	Jinjok	Araceae	Herb	Rhizome	Tuberous extract is given for ringworms. It is also applied for various skin diseases.
15	<i>Aristolochiatagala</i> , Cham	Pepe vine	Esamul	Aristolochiaceae	Herb	Root, leave	Used against snake bite.
16	<i>Artemisia nilagirica</i> , (Clark) Pamp.	Indian birth wort	Sam kueng	Asteraceae	Herb	Leaf, fruit	Leaf extract used in acute stomach pain.
17	<i>Averrhoacarambola</i> , L.	Caram Bola	Amrenga	Averrhoaceae	Tree	Fruit	Fruit extract given in jaundice. Unripe fruit in fever, bleeding piles
18	<i>Bambusatulda</i> , Roxb.	Bamboo	Wati	Poaceae	Shrub	Young shoot	Boiled extract of leaves used in small pox, chicken pox and other skin diseases.
19	<i>Calotropis gigantean</i> W. A. Aiton	Giant milk weed	Ankot	Asclepiadaceae	Shrub	Latex, flower, leaves.	Boils, skin diseases.
20	<i>Centelaasiatica</i> , (Lam) Urban.	Indian penny wort	Mitch nachal	Apiaceae	Herb	Shoot	Fresh plant juice with honey given in ulcer and urinary troubles. Boiled plant extract useful in digestive complaints and dysentery.
21	<i>Centratherumanthelmiticum</i> , Walp.	Bitter black cumin	Not available	Asteraceae	Herb	Seed	Anti-oxidant, anti-diabetes.
22	<i>Cinnamomum zeylanicum</i> L.	Cinnamon	Tejibol	Lauraceae	Tree	Bark	Urinary disorder, diarrhoea, rheumatism, gonorrhoea, spleen enlargement.
23	<i>Cinnamomum tamala</i> , Nees.	Indian cassia	Chapat	Lauraceae	Tree	Leaf, bark	Urinary disorder, diarrhoea, rheumatism, gonorrhoea, spleen enlargement.
24	<i>Clerodendrum colebrao okianum</i> , Walp.	East India Glory bower	Agunjalai	Verbenaceae	Shrub	Root, bark	Root with bark used in bronchitis and asthma.
25	<i>Clerodendrum serratum</i> , Spreng.	Glory bower/Turks turban	Agunjalai	Verbenaceae	Shrub	Root	Root used in rheumatism and dyspepsia.
26	<i>Colocasia affinis</i> . L.	Taro	Matchitang ong	Araceae	Herb	Petiole	Juice of petiole is stimulant, Petiole and corm extract used in insect bite.
27	<i>Corchorus capsularis</i> , L.	Wild jute	Mekhu	Tiliaceae	Shrub	Leaves	Leaves are diuretic, tonic and stomachic.
28	<i>Costus speciosus</i> , Koenig.	Crepe ginger	Not available	Costaceae	Herb	Rhizome and shoot	Anti-diabetic, anti-pyretic, anthelmintic, antianemic, astringent. Used in cough, fever, skin disease, anemia.

Table 1. Continued.

Sl. No.	Botanical name	English/Hindi/Bengali name	Vernacular name	Family	Plant type	Parts used	Medicinal usage
29	<i>Curcuma longa</i> , L.	Turmeric	Haldi	Zingiberaceae	Herb	Rhizome	Rhizome is aromatic, tonic, stimulant, blood purifier, carminative, externally applied to sprain and wounds.
30	<i>Cuscuta</i> sp.	Dodder	Nawangbibik	Cuscutaceae	Herb	Whole plant	Whole plant is used to treat jaundice.
31	<i>Cycas revoluta</i> , Thunb.	Cycas	Cycas	Cycadaceae	Shrub	Tender leaves	Young leaves and shoot are used as vegetable as they are good appetizer.
32	<i>Dillenia indica</i> Linn	Elephant apple	Teddike	Dilleneaceae	Tree	Bark, leaves	Diarrhoea.
33	<i>Dillenia scabrella</i> Roxb.	Elephant apple	Agachi	Dilleneaceae	Tree	Bark	Snake bite.
34	<i>Dioscorea alata</i> L.	Asiatic yam	Yam	Dioscoreaceae	Herb	Tuber	Tubers used in leprosy, pile and gonorrhoea.
35	<i>Dioscorea deltoidea</i> , Wall ex Thunb.	Yam	Yam	Dioscoreaceae	Herb	Tuber	Tubers are tonic and used in swelling.
36	<i>Eupatorium triplinerve</i> , Vahl.	Ayapan	No name	Asteraceae	Herb	Leave,	Fresh juice given in stomach ulcer.
37	<i>Fagopyrum dibotrys</i>	Buch wheat	No name	Polygonaceae	Herb	Leave, rhizome	Anthelmintic, anodyne.
38	<i>Ficus auriculata</i> , Linn.	Fig	The-bol	Moraceae	Tree	Leaves, Fruit, bark	Leaves are used in ringworms. Latex in boils, fruits and seed in dysentery.
39	<i>Gloriosa superba</i> , Linn.	Flame lily	Not available	Colchicaceae	Herb	Tuber, leaf, rhizome	Stomachic, anti-malaria, purgative, anthelmintic. Used in renal problem, gout, infertility, snake-bite, ulcer, pile, colic.
40	<i>Gynacardia odorata</i> , King & H.E. Robins	Mogra	Not available	Achariaceae	Tree	Fruit, pulp, seed	Anthelmintic, useful in bronchitis, ulcer, skin diseases, leprosy, piles, fever, diabetes.
41	<i>Hauttuynia cordata</i> Thunb.	Stink grass	Matcha Duri	Saururaceae	Herb	Leave, root	Leaves used in dysentery, gonorrhoea. Extract of root is diuretic.
42	<i>Hedychium coronarium</i> , Koenig	Dulalchampa	Eching	Zingiberaceae	Herb	Rhizome	Rhizome extract is given in bronchitis. Decoction of leave and rhizome is used in tonsillitis and as a mouth wash.
43	<i>Hedychium spicatum</i> , Buch-Ham.	Canna	Eching	Zingiberaceae	Herb	Rhizome	Rhizome extract is given in bronchitis. Decoction of leave and rhizome is used in tonsillitis and as a mouth wash.
44	<i>Hedyotis diffusa</i> , Willd.	White flower snake tongue grass	Manga Luk	Rubiaceae	Herb	Leave, root	Decoction of plant given in intermittent fever and jaundice.
45	<i>Hibiscus rosasinensis</i> , Linn.	China rose	Jubakusum	Malvaceae	Shrub	Bark	Roots used in gonorrhoea and fever.
46	<i>Holarrhena antidysenterica</i>	Ivory tree	Mik toksi	Apocynaceae	Tree	Seed bark	Used against dysentery.
47	<i>Ipomea aoleracia</i> , Linn.	Swamp cabbage	Stre-budu	Convolvulaceae	Herb	Shoot	Used in snake bite.
48	<i>Ligustrum robustum</i> , (Roxb.) Bl.	Wild privet	Jathong	Oleaceae	Small tree	Planted as live pest	Analgesic, anti-oxidant, digestive, anti-inflammatory. Used in arthritis, bronchitis.

Table 1. Continued.

Sl. No.	Botanical name	English/Hindi/Bengali name	Vernacular name	Family	Plant type	Parts used	Medicinal usage
49	<i>Litsea cubeba</i> , (Lour) Pers.	May chang/ Kukurcita	Zeng-jir	Lauraceae	Shrub	Dry fruit	Bark, leaves are used in diarrhoea, dysentery rheumatism.
50	<i>Lycopodium clavatum</i> , L.	Wolf's foot/ Queensland tassel fern	No name	Lycopodiaceae	Herb	Shoot, root	Decoction of plant used in cough and chest complaints.
51	<i>Meyna lexiiflora</i> , Robyns.	Moina	Thitch King	Rubiaceae	Tree	Leave, fruit	Fresh leaves are blood purifier, powder of dry leaves is good for diphtheria. Dry fruits are narcotic and used for boils and dysentery. Bark used for tanning.
52	<i>Murrayakoenigii</i> , Spreng.	Curry patta	Sam-khatsi	Rutaceae	Shrub	Leaves, lbark	
53	<i>Nepenthes khasiana</i> , Hook. f.	Pitcher plant	Miming koksi	Nepenthaceae	Herb	Shoot, stock	Astringent, diuretic, stimulant, tonic. Root stock used in small pox. Stimulate appetite and improves digestion.
54	<i>Oroxylum indicum</i> , (Lam) Vent.	Indian trumpet tree	Kiring	Bignoniaceae	Tree	Pod	Leaves used in epilepsy, decoction of leaves and bark used in muscular pain and general weakness.
55	<i>Paedaria foetida</i> L.	Skun vine	No name	Rubiaceae	Herb	Leave, flower	Leaf extract given in stomach disorder, dysentery, piles, rheumatic pain.
56	<i>Panaxschinseng</i> Neep.	Ginseng	Ginseng	Araliaceae	Herb	Root	Used as stimulant. Used in dyspepsia, vomiting and anti-pyretic.
57	<i>Passiflora edulis</i>	Passion fruit	Passiten fruit	Passifloraceae	Herb	Fruit	Powdered leaves and seed possess insecticidal properties. Roots are purgative.
58	<i>Piper longum</i> , L.	Long pepper	Long	Piperaceae	Herb	Fruit/Berries	Seed powder used in cough and cold. Unripe fruit used as tonic. Roots are antidote to snake bite.
59	<i>Perilla ocimoides</i> , L.	Beafsteakmint	Arim	Lamiaceae	Herb	Shoot	Paste of shoot applied to wounds. Herb is sedative and used to cough. Stimulant and stomachic.
60	<i>Piper nigrum</i>	Black pepper	Kali mirch	Piperaceae	Herb	Fruit/Berries	
61	<i>Plantago ovata</i> forsk.	Blonde psyllium	No name	Plantaginaceae	Herb	Seed, husk of seed	Leaves after warming applied to boils and injuries. Leaves and root used in fever.
62	<i>Rauvolfia serpentina</i> (L.) Benth ex Kurtz.	Rauvolfia/ Indian snake root	Dogrikme	Apocynaceae	Shrub	Root,	It is given to post-pregnant women stem as it improves lactation.
63	<i>Rhus hookeri</i> , Sahni & Bahadur	Crab's claw	Khitma	Anacardeaceae	Tree	Leave, fruit, seed	Fruit and leaves used in colic and bark in dysentery.
64	<i>Rubiocordifolia</i>	Indian madder	Not available	Rubiaceae	Shrub	Root, stem	Roots are tonic and anti dysenteric.
65	<i>Solanum ferrox</i> ,	Night shade	Khim Kha	Solanaceae	Shrub	Fruit	Fruits and leaves used in fever and cold
66	<i>Solanum khasianum</i> , var.	Night shade	Khim Kha	Solanaceae	Shrub	Berries	Berries and leaves used in fever and cold
67	<i>Solanum kurjii</i> , Br.	Khim-kha	Solanaceae	Shrub	Berries	Berries and leaves used in fever and cold.	
68	<i>Solanum unigrum</i> , Swartz.	Black night shade	Khim-kha	Solanaceae	Shrub	Berries	Berries and leaves used in fever and cold.
69	<i>Solanum torvum</i> , L.	Prickly night shade	Khim-kha	Solanaceae	Shrub	Berries	Berries used in cough, tonsil, liver and spleen enlargement.

Table 1. Continued.

Sl. No.	Botanical Nme	English/Hindi/Bengali name	Vernacular name	Family	Plant type	Parts used	Medicinal usage
70	<i>Swertiacharayita</i> , Buch Ham.	Chirota	Chirota	Gentianaceae	Shrub	Whole plant	Anti-oxidant anti-cancer. Used to treat malaria, stomach problem, skin diseases.
71	<i>Taxusbaccata</i> , L.	Common Yews	No name	Taxaceae	Tree	Leaves, seed	Leaves and seed are sedative and antiseptic. Used in asthma, bronchitis
72	<i>Taxuswallichiana</i>	Yew	No name	Taxaceae	Tree	Stem	Used in asthma, bronchitis.
73	<i>Terminaliaarjuna</i> , (Roxb.) W.A.	Arjuna	Aritak	Combretaceae	Tree	Bark	Used in diabetes, asthma, bronchitis, piles, fever and diarrhoea.
74	<i>Terminaliachebula</i> , Retz.	Yellow myrobalan /Haritaki	Aritak	Combretaceae	Tree	Fruit	Fruit is used in chronic ulcer, toothache, bleeding gum. Bark is diuretic.
75	<i>Terminaliabelirica</i>	Behera	Behera	Combretaceae	Tree	Fruit	Fruit used in stomach disorder, piles, leprosy, fever. Bark is diuretic.
76	<i>Thysanolaena maxima</i> , (Roxb.) O. Ktze	Broom grass	Simu	Poaceae	Herb	Panicles, leaves	Decoction of roots used as mouth-wash in fever.
77	<i>Viburnum foetidum</i> , Wall.	Himalayan evergreen vibernum	Not available	Adoxaceae	Shrub	Fruit	Decoction of bark used in making mild beverages.
78	<i>Withaniasomnifera</i> (Linn.) Dunal	Ashwagandha	Ashwagandha	Solanaceae	Herb	Root	Tonic, anti-stress, sedative, diuretic, nerve tonic used in stress reduction, anxiety, depression.
79	<i>Zanthoxylumatum</i> , Roxb.	Prickly ash	Sumitcheng	Rutaceae	Shrub	Leave, inflorescence	Used to make medicine to cure urine infection.
80	<i>Zanthoxyllumarmatum</i> , D.C.	Wing leaf-prickly ash	Sumitcheng	Rutaceae	Shrub	Leave, inflorescence	Used to make medicine to cure urine infection.

belong to herbaceous group of plants followed by 23 shrubs and 22 trees. These plants were identified and listed with their botanical name, vernacular names, family, type of plant, parts used and their medicinal usage. The Garo Tribe of West Garo Hills District of Meghalaya consumes many wild edible plants and its parts as subsidiary food sources and medicines. These plants play an important role against mal-nutrition and thus the tribal community greatly depends on these wild edible plants especially during adverse situations such as flood, famine, epidemics. They are also extensively used by the traditional health practitioners for preparing traditional medicines to cure many seasonal diseases and epidemics. These traditional medicines are popular among the Garo Tribes especially in the rural area where modern medicines are not easily available. However, these plant resources of the region and their indigenous use are in danger of being lost due to gaining popularity of modern medicines. Many of these plants

are not known to other parts of the country. Due to ignorance, unawareness, extensive deforestation, unscrupulous exploitation and lack of enough conservation measures many of the wild edible plants are in the verge of extinction from this region. The people started to abandon or change their traditional customs and thereby lose their plant knowledge over time. Therefore, it is necessary to take up appropriate measures for preservation and conservation of these wild edible plants and the knowledge of its traditional usage. The current research findings may open up scope for further research and exchange of ideas and knowledge across the boundaries. The paper highlights only a preliminary report and leaves room for further scientific and analytical research.

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