



## **An Ethnomedicinal Survey among the Marakh Sect of the Garo Tribe of Mymensingh District, Bangladesh**

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**Abstract:** The Garos are one of the largest ethnic groups of Bangladesh residing in the north central districts of Tangail, Mymensingh, Netrakona, Gazipur and Sherpur of the country. Although in recent years, the Garos are rapidly converting to Christianity and intermingling with the majority Bengali-speaking population, they still, to some extent, preserve their own cultural identities including their language and traditional medicinal practices and quite often reside in villages separate from the mainstream population. The Garo traditional medicinal practitioners are reputed to possess considerable knowledge of medicinal plants, a knowledge which has been accumulated over centuries through practices and usages. The objective of the present study was to conduct an ethnomedicinal survey among the Garo traditional practitioners of two villages, namely Kal Shindu and Monca Para in Mymensingh district of Bangladesh. Notably, both villages were inhabited solely by the Garos and who still maintained their traditional culture and practices. After obtaining informed consent from the practitioners, interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method. A total of 46 medicinal plants distributed into 34 families were observed to be used by the practitioners. The Fabaceae family contributed four plants followed by the Lamiaceae and the Moraceae family with three plants each. Leaves were the major plant part used followed by fruits. The various ailments treated by the Garo practitioners included gastrointestinal disorders, respiratory tract disorders, hepatic disorders, cancer, diabetes, fever, wounds, cholera, sexually transmitted diseases, helminthiasis, rheumatism, piles, leprosy, hemorrhoids, menstrual problems, urinary disorders, chicken pox, skin problems and sexual disorders. Traditional medicinal knowledge of indigenous peoples has led to discovery of many modern drugs; from that view point, the medicinal plants of the Garos warrant further scientific studies.

**Key words:** Ethnomedicine, Garo, Marakh, Mymensingh, Bangladesh.

## **Introduction**

Human beings have used plants for medicinal purposes for centuries. It has been estimated that such use of medicinal plants possibly go back in time to around 3000 years B.P.<sup>1</sup> Traditional forms of medicine have existed and still exist in many countries of the world including countries in the Indian sub-continent like India, Pakistan and Bangladesh. The various alternative medicinal systems of India (Ayurveda, Unani, Siddha) uses more than 7500 plant species.<sup>2</sup> Bangladesh also has a number of traditional medicinal systems, which are being practiced even today side by side with allopathic medicine. These include homeopathy, Ayurveda, Unani and the folk medicinal system. Besides these, Bangladesh has various tribes, many of which have their own tribal medicinal practitioners, whose system may be described as a variant of the folk medicinal system with medicinal plants forming the major ingredient for formulations. Documentation of these traditional medicinal systems is important, for as like Balick and Cox<sup>3</sup> observed, a number of important modern pharmaceuticals have been derived from plants used by indigenous people. Modern drugs like aspirin, atropine, ephedrine, digoxin, morphine, quinine, reserpine and tubocurarine are examples, which were originally discovered through observations of traditional cure methods of indigenous people.<sup>4</sup>

The Garos are one of the largest tribes of Bangladesh residing in the north central districts of Tangail, Mymensingh, Netrakona, Gazipur and Sherpur of the country. Their last population estimate was in 1991, when the population was numbered at 68,210. The Garos believe that their present population size is around 120,000. Although known to the outside world as Garos, the Garos refer to themselves as Mandi or Aa'chik. Anthropologists believe that Garos are a Tibetan-Burmese sub-group of the Mongoloid race. They have their own language, which is known as Mandi Khusik.

The Garos are divided into four sects or sub-groups, namely, Sangma, Marakh, Momin, and Chatchi. Their society is matriarchal with daughters inheriting their mother's property. The original religion of the Garos used to be Sangsarek (a form of polytheism), but in recent years about 99% of the Garos have converted to Christianity and belong to various denominations like Roman Catholics, Baptists, Seventh Day Adventists, Presbyterians and Protestants. Originally, they were hunter-gatherers as well as practiced agriculture by clearing of forest lands through burning. Now-a-days, they are mainly agriculturalists. They have two main agricultural festivals per year known as Wangala and

Rongchugala. Their main diet consists of rice with vegetables. The various scattered Garo communities still depend on their own tribal medicinal practitioners for their medicinal needs; however, in recent years these ancient medicinal practices are starting to get lost because of the influence of Christian missionaries as well as frequent intermingling with the mainstream Bengali-speaking population.

Because of influx of other non-Garo people in their original habitat, many Garos now speak Bengali besides their own language. Cultural traditions are also slowly disappearing, the same being the case with traditional medicinal practices. It is important to document these practices before they get lost, since much valuable knowledge can be lost in this manner. We had been conducting ethnomedicinal surveys among various tribal communities and folk medicinal practitioners of Bangladesh for the last few years.<sup>5-15</sup> During our various surveys, we noticed considerable differences in medicinal plants used for treatment of various ailments or even the same ailment by the folk and tribal medicinal practitioners of various regions of the country. These differences were present even when tribes or folk medicinal practitioners (otherwise known as Kavirajes) lived in adjoining villages with similar availability of medicinal plants. To get a comprehensive picture of the medicinal plants of Bangladesh and their usages, it was felt necessary to conduct as many ethnomedicinal surveys as possible throughout all regions of the country extending to sects of individual tribes and Kavirajes of individual villages. The objective of the present study was to conduct an ethnomedicinal survey among a homogenous population of Garo people belonging to the Marakh sect residing in two villages of Mymensingh district in north-central Bangladesh.

## **Materials and Methods**

The present survey was conducted in two villages, namely, Monca Para and Kal Shindu in Dhuba Ura Upazila (sub-district) of Mymensingh district, Bangladesh. Both villages were inhabited exclusively by the Marakh sect of the Garo tribe. The villages had two traditional Garo medicinal practitioners – Mr. Biresh Marakh Chamukug and Mr. Shatish. It is to be noted that while the first practitioner maintained his Garo name, the second practitioner's name is a common name among people of Hindu religion in Bangladesh. This suggests that although the Garos were exclusive inhabitants of the two villages surveyed, because of intermingling with the mainstream Bengali-speaking population (both

Muslims and Hindus), they have started adopting names from the mainstream population.

Informed consent was first obtained from the practitioners (Kavirajes) and the tribal Headman for conducting the survey. The practitioners were told in details as to the nature and purpose of the survey and consent particularly obtained to disseminate the survey results in national or international publications. Actual interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin<sup>16</sup> and Maundu.<sup>17</sup> In this method, the practitioners took the interviewers on guided field-walks through areas from where they collected their medicinal plants, pointed out the plants and described their uses. All information provided during daytime field walks were later double-checked with the practitioners in evening sessions. Interviews were conducted in the Bengali language, which was very well spoken and understood by the Garo practitioners. This again suggests that the Garo population surveyed do not lead an isolated existence but has extensive contacts with the Bengali-speaking population residing outside their villages. However, the practitioners maintained that their traditional medicinal formulations were exclusively their own, which they have used for ages, the knowledge being transmitted from generation to generation. They also mentioned that the traditional medicinal practices or being a Kaviraj is usually a family tradition.

Plant specimens as pointed out by the practitioners were collected and dried and brought back to Dhaka for identification by Mr. Manjurul Kadir Mia, ex-Curator and Principal Scientific Officer of Bangladesh National Herbarium. Plant specimens were deposited at the Medicinal Plant Collection Wing of the University of Development Alternative, where they are preserved and maintained.

## **Results**

It was observed that the Garo traditional medicinal practitioners used a total of 46 plants distributed into 34 families for treatment of a diverse variety of ailments. The Fabaceae family provided the largest number of plants with 4 plant followed by the Lamiaceae and Moraceae family with 3 plants each. The results are shown in Table 1. Leaves constituted the major plant part used, forming 31.3% of total uses. Leaves were followed by fruits, the latter constituting 29.2% of total uses. Other plant parts used beside whole plants were roots, stems, seeds, rhizomes, flowers and barks.

From the number of plants used, it appeared that gastrointestinal disorders formed one of the major ailments of the Garos. This is not surprising,

considering the damp nature of their forest habitat and the in general unhygienic conditions of living, particularly absence of quality water for drinking and cooking. Twelve plants were used for treatment of gastrointestinal disorders; however, some of the formulations for treatment contained more than one plant species. Cholera, sexually transmitted diseases, and diabetes also were observed to be major ailments among the Garo population, each of the ailments being treated with 8 plants (once again some formulations contained more than one plant). The Garo practitioners had no clinical diagnostic procedures like measurement of blood sugar for diabetes. Diabetes was generally recognized through increasing weakness of a person, increased frequency of urination and thirst, and sweet smell and taste of urine. Diabetes was occasionally termed meho by the practitioners, who, however, made subtle distinctions between meho and diabetes. Meho apparently denoted a whole spectrum of endocrinological disorders (including diabetes) and which can be discerned by special symptoms, which the practitioners did not disclose. The practitioners also claimed to treat cancer. They had no words in Garo language for cancer, suggesting that the term has been picked up from outside. Cancer was diagnosed as cases where a person rapidly became very weak and there were visible signs of swelling on any part of the body. However, the Garo practitioners had separate formulations for swelling on the body due to a known cause like injury or inflammation.

Other ailments treated included urinary problems in women (burning sensations during urination, having difficulties in urinating), hepatic disorders (primarily jaundice), fever, wounds, respiratory disorders (coughs), helminthiasis, rheumatism, piles (hemorrhoids), leprosy, edema, formation of stones in body parts like kidney, stomach or gall bladder, sexual dysfunctions, excessive bleeding during menstruation, chicken pox, infections, skin diseases (scabies, eczema), bone fractures and tonsillitis. One of the formulations dealt exclusively with cattle indigestion and was not used for human purposes.

Formulations were usually either orally or topically administered. However, for treatment of jaundice, the method consisted of wearing garlands of *Achranthes aspera* whole plant around the neck. Some formulations were simple, e.g. for hepatic disorders, leaves of *Aloe barbadensis* were soaked in water followed by partaking of the water with sugar. However, complex formulations were observed to be used occasionally. For treatment of cancer, diarrhea or cholera, pills prepared from eight plant parts were orally taken (see serial number 1 in Table 1). What was notable in this case was that the same formulation

was used for treatment of three highly diverse ailments like cancer, diarrhea and cholera. Similarly, for treatment of urinary problems in women, fruits from three plants, namely *Aconitum napellus*, *Sansevieria hyacinthoides* and *Mucuna pruriens* were advised to be taken simultaneously. When fresh fruits were not available, dried fruits were substituted. The practitioners were observed to keep various dry whole plants or plant parts in their houses, which they substituted for fresh plants or plant parts when these plants could not be found due to seasonal unavailability or scarcity at any given time period.

The fruits of *Terminalia chebula*, and to a lesser extent, *Terminalia belerica*, were observed to be specially valued by the practitioners. The fruits of *T.*

*chebula*, by themselves, were supposed to be astringent, to curb excessive sexual desire, to increase intelligence, to increase eye sight, to increase longevity, and served as treatment for respiratory problems, coughs, piles, leprosy, edema, helminthiasis, breaking down of voice, chronic dysentery, constipation, tumor or swelling, jaundice, loss of appetite, and stone formation in any part of the body (see serial number 11, Table 1). Additionally, in combination with fruits of *T. belerica*, *Phyllanthus emblica* and *Swertia chirata* and leaves of *Cassia sophera*, the fruits of *T. chebula* were used for treatment of meho, gonorrhoea, and to increase taste of mouth.

**Table 1. Medicinal plants used and ailments treated by traditional medicinal practitioners of the Marakh sect of the Garo tribe in two villages of Mymensingh district, Bangladesh.**

Serial Number	Scientific Name	Family Name	Local Name	Utilized Part	Ailment
1	<i>Justicia adhatoda</i> L.	Acanthaceae	Bashok	Leaf	Cancer, diarrhea, cholera. Leaves of <i>Catharanthus roseus</i> , stems of <i>Eleusine coracana</i> and <i>Vitex negundo</i> , leaves of <i>Clerodendrum viscosum</i> , <i>Justicia adhatoda</i> , and <i>Myristica fragrans</i> , flowers of <i>Acacia catechu</i> , and fruits of <i>Morus alba</i> are macerated together and made into pills. The pills are orally taken daily till cure.
2	<i>Sansevieria hyacinthoides</i> (L.) Druce	Agavaceae	Mura biz	Fruit	Urinary problems in women (burning sensations during urination, having difficulty urinating). Fruits of <i>Aconitum napellus</i> , <i>Sansevieria hyacinthoides</i> and <i>Mucuna pruriens</i> are macerated together and taken orally.
3	<i>Aloe barbadensis</i> Mill.	Aloaceae	Dipti kanchon	Leaf	Hepatic disorders (usually jaundice). Leaves are cut into small pieces and soaked in water. The water is mixed with sugar and orally taken.
4	<i>Achyranthes aspera</i> L.	Amaranthaceae	Mimang khachi	Whole plant	Jaundice. Garland prepared from small pieces of whole plant is worn around the neck till cure.
5	<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	Noyon tara	Leaf	See Serial Number 1.
6	<i>Holarrhena antidysenterica</i>	Apocynaceae	Indro job	Fruit	Fever, gastric ulcer, appetite stimulant, indigestion. Pills (about

	(Roxb. ex Fleming) Wall. ex A. DC.				gram seed size) made from dried and powdered fruits are orally taken thrice daily.
7	<i>Mikania cordata</i> (Burm.f.) B. L. Robinson	Asteraceae	Jarman lota	Leaf	Wounds. Leaf juice is applied to wounds.
8	<i>Oroxylum indicum</i> (L.) Vent.	Bignoniaceae	Kanaidingi	Skin of fruit	Jaundice, swelling. Skin of fruit is soaked in water. The water is orally taken for jaundice and topically applied to swellings.
9	<i>Bombax ceiba</i> L.	Bombacaceae	Shimul	Root	Gonorrhoea. Seeds of <i>Hyptis suaveolens</i> along with roots of <i>Bombax ceiba</i> are taken orally during gonorrhoea.
10	<i>Terminalia belerica</i> (Gaertn.) Roxb.	Combretaceae	Bohera	Fruit	To increase taste of mouth, meho (usually denotes diabetes), gonorrhoea. Leaves of <i>Cassia sophera</i> are soaked in water along with fruits of <i>Phyllanthus emblica</i> , <i>Terminalia belerica</i> , <i>Terminalia chebula</i> and <i>Swertia chirata</i> . One cup of the water is orally taken thrice daily for 7 days. Astringent, coughs, biliary disorders, good for eyes and hair, helminthiasis, breaking down of voice, thirst, vomiting tendency, rheumatism. Fruits are regularly taken orally.
11	<i>Terminalia chebula</i> Retz.	Combretaceae	Horitoki	Fruit	See Serial Number 10. Astringent, excessive sexual desire, to increase intelligence, good for eyes, to increase longevity, respiratory problems, coughs, piles, leprosy, edema, helminthiasis, breaking down of voice, chronic dysentery, constipation, tumor or swelling, jaundice, loss of appetite, stone formation in any part of body. Fruits are orally taken regularly.
12	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Samjangi	Leaf	To increase libido, excessive bleeding during menstruation. Leaves are wrapped in banana leaf and put in hot ashes till they become soft and half-boiled. The juice extracted from these squeezed leaves is taken orally.
13	<i>Brassica campestris</i> L.	Cruciferae	Shorisha	Seed	Watery discharge from pregnant woman. Nutmeg and mace obtained from <i>Myristica fragrans</i> is mashed with bark of <i>Cinnamomum verum</i> , and seeds of <i>Sesamum indicum</i> and <i>Brassica campestris</i> . Pills made from the mashed mixture are taken orally.

14	<i>Momordica charantia</i> L.	Cucurbitaceae	Korolla	Leaf	Chicken pox. For chicken pox, juice obtained from macerated stems of <i>Tinospora cordifolia</i> is mixed with juice obtained from macerated leaves of <i>Momordica charantia</i> and taken orally.
15	<i>Cycas pectinata</i> Buch.-Ham.	Cycadaceae	Moni raj	Fruit, fruit stalk	Meho (usually denotes diabetes). The soft pulp within the fruit together with juice obtained from crushed fruit stalk is orally taken thrice daily (two teaspoonful each time) for 5-6 days.
16	<i>Dillenia indica</i> L.	Dilleniaceae	Thigi	Fruit	Fever. Juice obtained from fruit is mixed with water and sugar and orally taken as a cooling beverage.
17	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Amloki	Fruit	See Serial Number 10.
18	<i>Acacia catechu</i> (L.f.) Willd.	Fabaceae	Khoyer	Flower	See Serial Number 1.
19	<i>Cassia sophora</i> L.	Fabaceae	Shona pata	Leaf	See Serial Number 10.
20	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Shish gach	Leaf	Excessive sweating. Roots of <i>Asparagus racemosus</i> are mixed with leaves of <i>Dalbergia latifolia</i> and orally taken in the mashed form.
21	<i>Mucuna pruriens</i> (L.) DC.	Fabaceae	Alkushi	Fruit	See Serial Number 2.
22	<i>Swertia chirata</i> (Roxb. ex Fleming) H. Karst.	Gentianaceae	Chirota	Fruit	See Serial Number 10.
23	<i>Clerodendrum viscosum</i> Vent.	Lamiaceae	Baik	Leaf	See Serial Number 1.
24	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Tokma	Seed	See Serial Number 9.
25	<i>Ocimum sanctum</i> L.	Lamiaceae	Tulshi	Leaf	Whooping cough. Leaf juice is orally taken.
26	<i>Asparagus racemosus</i> Willd.	Liliaceae	Shoptomul	Root	See Serial Number 20.
27	<i>Cinnamomum verum</i> J. Presl.	Lauraceae	Darchini	Bark	See Serial Number 13.
28	<i>Hibiscus rosa sinensis</i> L.	Malvaceae	Joba	Leaf	Stomach upset, dysentery. Leaves are orally taken.
29	<i>Sida cordifolia</i> L.	Malvaceae	Berela	Bark of root	To increase strength, biliary problem (bile turns the color of blood), blood purifier, infections, diabetes. Powdered bark of root is taken for all disorders; for diabetes root bark powder is orally taken with milk and a little sugar.
30	<i>Aphanamixis</i>	Meliaceae	Pitraj	Seed oil,	Skin diseases. Oil is applied

	<i>polystachya</i> (Wall.) R. Parker			wood	topically. Wood is used for construction of house frames.
31	<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thoms.	Menispermaceae	Aam garanch	Stem	Bone fracture. Mashed stems are applied to fractured area. Helminthiasis, rheumatism, chicken pox. For helminthiasis and rheumatism, stems are soaked in water overnight and the water taken the following morning. For rheumatism, the dose is 1 chatak (local measure = 58g). For chicken pox, see Serial Number 14.
32	<i>Tinospora crispa</i> (L.) Hook.f. & Thoms.	Menispermaceae	Guntai	Whole plant	Low sperm count. Juice obtained from crushed whole plant is orally taken in the morning once daily for 7 days.
33	<i>Ficus benghalensis</i> L.	Moraceae	Botia	Leaf bud	Diarrhea. Juice obtained from squeezed leaf buds is orally taken.
34	<i>Morus alba</i> L.	Moraceae	Tuth	Fruit	See Serial Number 1.
35	<i>Streblus asper</i> Lour.	Moraceae	Shaora phang	Root bark	Dysentery. Paste of root bark is orally taken during dysentery.
36	<i>Myristica fragrans</i> Houtt.	Myristicaceae	Dai fol, Jai fol (kernel of fruit known in English as nutmeg), Jayatri (a thin leathery tissue between the stone and the pulp known in English as mace)	Leaf, fruit kernel, tissue between seed stone and fruit pulp)	See Serial Number 1. See Serial Number 13.
37	<i>Oxalis corniculata</i> L.	Oxalidaceae	Kampret	Leaf	Indigestion in cattle. Fried leaves are orally administered to cattle in case of indigestion. The fried leaves along with a paste of garlic and ginger are rubbed on the tongue of cattle to increase appetite.
38	<i>Sesamum indicum</i> L.	Pedaliaceae	Til	Seed	See Serial Number 13.
39	<i>Eleusine coracana</i> (L.) Gaertn.	Poaceae	Dutle	Stem	See Serial Number 1.
40	<i>Panicum miliaceum</i> L.	Poaceae	Gondo chirno	Fruit	Urinary problem in women. Fruits are orally taken.
41	<i>Aconitum napellus</i> L.	Ranunculaceae	Kata biz	Fruit	See Serial Number 2.
42	<i>Anthocephalus chinensis</i> (Lam.) A. Rich. ex	Rubiaceae	Kodom phang	Stem bark	Diabetes. Decoction of stem bark is taken orally during diabetes. Decoction is prepared by boiling

	Walp.				stem bark in water.
43	<i>Centella asiatica</i> (L.) Urb.	Umbelliferae	Misisam	Whole plant	Excessive bleeding during menstruation. Plant juice is orally taken.
44	<i>Vitex negundo</i> L.	Verbenaceae	Nishinda	Stem	See Serial Number 1.
45	<i>Cissus quadrangularis</i> L.	Vitaceae	Harjora	Rhizome	Inflammation of tonsils (tonsillitis). ½ - 1 chatak (29 – 58g) rhizome is orally taken.
46	<i>Amomum subulatum</i> Roxb.	Zingiberaceae	Elach	Leaf, seed	Coughs, sexually transmitted diseases. Ashes of burnt leaves are mixed with mustard oil and taken twice daily for 7 days. Seeds are used as spice.

### Discussion

While allopathic medical practitioners often look down with disdain on traditional medicinal practices of indigenous communities, it is interesting to note that a number of plants used by the Garo traditional practitioners have been validated in their traditional usages through modern scientific studies. Monoterpenoid indole alkaloids, isolated from *Catharanthus roseus*, continue to be the most important natural drugs in chemotherapeutic treatments for a range of human cancers.<sup>18</sup> Notably, the plant forms a component of the formulation used by the Garos for treatment of cancer. Antidiabetic and antioxidant activity (the latter can be beneficial in ameliorating diabetic symptoms and progression) have been reported for fruits of *T. belerica*<sup>19</sup>, which is used by the Garo practitioners for treatment of meho (diabetes). Antidiabetic effects have also been observed with relevant plant parts of *T. chebula*, *Phyllanthus emblica*, and *Swertia chirata*<sup>20-22</sup>, fruits from all of these plants being used for treatment of diabetes by the Garo practitioners. Taken together, modern scientific findings warrant further studies on the other plants used by the Garo practitioners for their

potential in discovery of newer and more efficacious drugs.

The Garo practitioners are heavily dependent on adjoining forest areas for meeting their medicinal plant needs. Of the 46 plants used by the practitioners, we observed that only two plants, namely, *Brassica campestris* and *Momordica charantia* were cultivated by them. Several other plants or plant parts were usually gathered from the wild or from Bengali-speaking farmers, who cultivated these plants for commercial purposes. These plants were *Bombax ceiba*, *T. belerica*, *T. chebula*, *Dillenia indica*, *P. emblica*, *Acacia catechu*, *S. chirata*, *Cinnamomum verum*, *Centella asiatica*, and *Amomum subulatum*. The rest of the plants were collected from the wild. The increasing loss of forest habitat due to human encroachment is making collection of all medicinal plants difficult for the Garo practitioners. Added to this is the increasing influence of the mainstream population and the missionaries, which is more and more turning particularly the young generation of Garos to forget their own cultures and traditions. It is important that the ancient culture and knowledge is somehow preserved for human beings and science will lose greatly for instance if the traditional medicinal knowledge of the Garos are once forgotten.

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