ETHNOMEDICINAL PRACTICES OF CHAKMA AND GARO TRIBAL MEDICINAL PRACTITIONERS AT MADHUPUR OF TANGAIL DISTRICT, BANGLADESH

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ABSTRACT

Background. The Garo tribal people are a fairly large tribe residing in various districts of Mymensingh Division, Bangladesh. The Chakma tribe is the major tribe in the Chittagong Division; in recent years, they can also be found in various districts of Mymensingh Division. The objective of the present study was to document the use of medicinal plants by Garo and Chakma tribal medicinal practitioners (TMPs) practicing in Madhupur of Tangail district, Bangladesh. Methods. Interview of theTMPs were carried out with the help of a semi-structured questionnaire and the guided field-walk method. Results. The three TMPs interviewed used a total of 17 plants for treatment. The various diseases treated included gastrointestinal disorders, helminthiasis, cuts and wounds, Alzheimer’s disease, fever, pain, arthritis, urinary tract infection, hypertension, insomnia, pain, ringworm infections, snake bite, cold and coughs, eye infections, and skin disorders. One plant was also used as a female contraceptive. Conclusion. The medicinal plants used by the TMPs include some plants, which can prove scientifically interesting, especially plants used for treatment of hypertension, diabetes and Alzheimer’s disease.

KEYWORDS: Tribal medicine, medicinal plants, Garo, Chakma, Tangail, Bangladesh.

BACKGROUND

The Chakma and the Garo tribe are two of the largest tribes, respectively, in the southeastern part of Bangladesh (Chittagong Division) and the north central part of Bangladesh.
Mymensingh Division). Both tribes have to a large extent maintained their cultural identities, which includes their practice of traditional tribal medicine. The Chakma tribe, in recent years, has been spreading into regions once inhabited exclusively by the Garos, and a number of Chakma practitioners can be observed in recent days to practice among the Garo people. Since these parts of the country are forested to some extent, the two regions contain a diversity of flora, which are not found in other areas of Bangladesh. As such, since medicinal plants form the mainstay of tribal medicinal practitioners, it was of interest to document the medicinal practices of tribal medicinal practitioners (TMPs) belonging to these two tribes.

The area chosen was Madhupur in Tangail district in the north central part of the country where both Chakma and Garo TMPs can be found. Apart from Bengali-speaking settlers, the area is still forested and mostly inhabited by the Garos. Some Chakma TMPs practice among these Garo people. One of the objectives that we had been pursuing over the last six years is to document the folk and tribal medicinal practices prevalent within the country, for these practices are in reality the basis of various traditional medicinal practices of Bangladesh. As such, besides documentation of the phytotherapeutic practices of TMPs belonging to the two tribes, it was of further interest to note any differences in the plants chosen and diseases treated by the TMPs of the two tribes.

METHODS
The TMPs who were interviewed were named (I) Nakju Garo (Garo TMP), male, Kamlapur village, Madhupur, Tangail district, (II) Ween Chakma (Chakma TMP), male, Garo Bazar village, Madhupur, Tangail district, and (III) Saptalendu Chakma (Chakma TMP), Garo Bazar village, Madhupur, Tangail district. Prior informed consent was initially obtained from the TMPs. The TMPs were informed as to the nature of our visit and consent obtained to disseminate any information provided including his name both nationally and internationally. Actual interviews were conducted in the Bengali language, which was spoken fluently by the TMPs as well as the interviewers. The interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin and Maundu. In this method the TMPs took the interviewers on guided field-walks through areas from where they collected their medicinal plants or plant parts, pointed out the plants, and described their uses. All plant specimens were photographed and collected on the spot, pressed, dried and brought back to Bangladesh National Herbarium at Dhaka for identification. Voucher
specimens were deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

RESULTS
The Garo TMP, Nakju Garo, used a total of 6 plants distributed into 5 families in his treatment of gastric ulcer, insect bite, helminthiasis, wound infections, dysentery, Alzheimer’s disease, fever and arthritis. One plant was also used as a female contraceptive. Essentially, a single plant part or whole plant was used to treat a single disease. In one case, different plant parts from the same part were used to treat two different diseases. The leaves of *Mikania scandens* were used to treat gastric ulcer, while the roots of the same plant were used to treat insect bite. The results are shown in Table 1.

One of the Chakma TMPs, Ween Chakma, used a total of 6 plants distributed into 5 families for treatment of urinary tract infection, joint pain, hypertension, insomnia, toothache, cold, bad odor of mouth, fever, and ringworm infection in children. The results are shown in Table 2. For treatment of joint pain, two plants were used, namely seeds of *Amaranthus spinosus* and seed oil from *Sesamum indicum*. Similar to the Garo TMP, the Chakma TMP also used different plant parts from the same plant to treat different diseases. The leaves of *Amaranthus spinosus* were used to treat urinary tract infection, while seeds from the same plant were used to treat joint pain. Similarly, the leaves of *Rauvolfia serpentina* were used to treat hypertension, while the roots were used to treat insomnia. The leaves of *Senna tora* were used to treat fever, while roots were used to treat ringworm in children.

The second Chakma TMP, Saptalendu Chakma, used a total of 5 plants distributed into 4 families for treatment of snake bite, cold, colic, lack of energy, ear ache, eye infection, diabetes, skin eruptions, wounds, coughs, and as insect repellent. The results are shown in Table 3. Similar to the other TMPs, this TMP also used different parts from the same plant to treat different diseases. The fruits of *Physalis minima* were used to treat lack of energy, while leaf juice was used to treat ear ache. The flowers of *Solanum torvum* were used to treat eye infections and the leaves were used to treat diabetes. On the other hand, the rhizomes of *Curcuma longa* were used to treat diverse diseases like skin eruptions, wounds, cold and coughs.
Table 1. Medicinal plants and formulations of the Garo TMP.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Scientific Name</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Ailments and mode of medicinal use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mikania scandens (L.) Willd.</td>
<td>Asteraceae</td>
<td>Assam lota</td>
<td>Leaf, root</td>
<td>Gastric ulcer. Leaf juice is taken orally with lukewarm water every morning for a month. Insect bite. Root paste is applied topically to bitten area and then washed out after 15 minutes.</td>
</tr>
<tr>
<td>2</td>
<td>Leucas aspera (Willd.) Linn.</td>
<td>Lamiaceae</td>
<td>Dom kolosh</td>
<td>Flower</td>
<td>Helminthiasis in children. Flowers are chewed and taken orally.</td>
</tr>
<tr>
<td>3</td>
<td>Scoparia dulcis L.</td>
<td>Scrophulariaceae</td>
<td>Mishri dana</td>
<td>Whole plant</td>
<td>Female contraceptive. Whole plant is put in hot water and the decoction taken as tea for 3 consecutive days during menstruation. Wound infections. Whole plant juice is topically applied.</td>
</tr>
<tr>
<td>4</td>
<td>Centella asiatica (L.) Urban</td>
<td>Umbelliferae</td>
<td>Thankuni</td>
<td>Whole plant</td>
<td>Dysentery. Whole plant juice is taken orally with water twice daily (one spoonful juice with one glass water). Alzheimer’s disease. Leaves are cooked and eaten regularly.</td>
</tr>
<tr>
<td>5</td>
<td>Laportea aestuans (L.) Chew</td>
<td>Urticaceae</td>
<td>Chitura pata ghash</td>
<td>Root</td>
<td>Fever. Root juice is taken orally with honey and warm water every 6 hours during fever till temperature subsides.</td>
</tr>
<tr>
<td>6</td>
<td>Urtica dioica L.</td>
<td>Urticaceae</td>
<td>Pahari gach</td>
<td>Leaf</td>
<td>Arthritis. Leaf juice along with camphor is massaged to painful areas in the morning and night.</td>
</tr>
</tbody>
</table>
### Table 2. Medicinal plants and formulations of the first Chakma TMP.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Scientific Name</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Ailments and mode of medicinal use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Amaranthus spinosus</em> L.</td>
<td>Amaranthaceae</td>
<td>Huira kanta</td>
<td>Leaf, seed</td>
<td>Urinary tract infection. Leaves are cooked and taken orally. Joint pain. Dried and powdered seeds are warmed with sesame oil (oil from seeds of <em>Sesamum indicum</em>) and applied topically to painful joints.</td>
</tr>
<tr>
<td>3</td>
<td><em>Spilanthes acmella</em> Murr.</td>
<td>Asteraceae</td>
<td>Akarkara</td>
<td>Leaf, flower</td>
<td>Toothache. About 1 chatak (local measure, 16 chataks approximate 1 kg) leaf and flower paste is used to brush teeth.</td>
</tr>
<tr>
<td>4</td>
<td><em>Glycyrrhiza glabra</em> L.</td>
<td>Fabaceae</td>
<td>Josti modhu</td>
<td>Leaf, root, seed</td>
<td>Cold, bad odor of mouth. Leaves, roots and seeds are chewed and taken orally.</td>
</tr>
<tr>
<td>5</td>
<td><em>Senna tora</em> (L.) Roxb.</td>
<td>Fabaceae</td>
<td>Aras, Kheladhula</td>
<td>Leaf, root</td>
<td>Fever. Leaves are cooked and eaten. Ringworm in children. Root paste is taken orally along with lemon juice.</td>
</tr>
<tr>
<td>6</td>
<td><em>Sesamum indicum</em> L.</td>
<td>Pedaliaceae</td>
<td>Til</td>
<td>Seed</td>
<td>See <em>Amaranthus spinosus</em>.</td>
</tr>
</tbody>
</table>

### Table 3. Medicinal plants and formulations of the second Chakma TMP.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Scientific Name</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Ailments and mode of medicinal use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Aristolochia tagala</em> Cham.</td>
<td>Aristolochiaceae</td>
<td>Horin kan shak lota</td>
<td>Root, leaf</td>
<td>Snake bite. 10-20 ml of leaf juice is applied to the snake-bitten area 6-7 times daily. Malaria. 5 ml root juice is orally taken thrice daily.</td>
</tr>
<tr>
<td>2</td>
<td><em>Ageratum conyzoides</em> L.</td>
<td>Asteraceae</td>
<td>Miali moti</td>
<td>Whole plant</td>
<td>Colic. Whole plant is boiled in water and the decoction while slightly warm is topically applied around the navel. Cold. One cup of whole plant juice is warmed and...</td>
</tr>
<tr>
<td></td>
<td><strong>Species</strong></td>
<td><strong>Family</strong></td>
<td><strong>Part Used</strong></td>
<td><strong>Uses</strong></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td><em>Physalis minima</em> L.</td>
<td>Solanaceae</td>
<td>Fruit, leaf</td>
<td>Orally taken with honey twice daily. Insect repellent. Leaves are burnt and the smoke used to repel mosquitoes and flies.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><em>Solanum torvum</em> Sw.</td>
<td>Solanaceae</td>
<td>Leaf, flower</td>
<td>Ear ache. Two drops of leaf juice mixed with mustard oil are slightly warmed and applied inside the ears.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><em>Curcuma longa</em> L.</td>
<td>Zingiberaceae</td>
<td>Rhizome</td>
<td>Skin eruptions. Rhizome paste is mixed with milk and honey and topically applied. Wounds. Rhizome paste is topically applied followed by tying the area with a bandage. Cold, coughs. One spoon of rhizome paste is added to warm milk and orally taken.</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

Overall, the various TMPs differed not only in the selection of plants but also differed considerably in the selection of diseases treated. The results suggest that the TMPs specialize in treatment of diseases, much like allopathic doctors specialize in treatment of various disorders. Even when TMPs treated the same disorder, like the Garo TMP treating wound infections, he used *Scoparia dulcis*, while the second Chakma TMP used *Curcuma longa*. Fever was treated by the first Chakma TMP with *Senna tora*, but was treated by the Garo TMP with *Laportea aestuans*. It is possible that the Chakma TMPs brought some of their treatment methods from the Chakma way of treating diseases with medicinal plants, and which can vary considerably from the Garo traditional treatment with medicinal plants. This calls for further studies as to whether treatment with medicinal plants depend on floristic diversity of plants found in the vicinity of residence of the traditional healers, as has been claimed in one report. [24] An interesting question in this regard is then how TMPs discover plants of medicinal value when they start residing in a different area quite some distance away from their original residence, as is the case in the present study with the Chakma TMPs. A further question that is yet to be addressed is as to how traditional healers select medicinal plants in the first place. Organoleptic properties (odor, taste) of plants have been mentioned as major selection criteria for selection of medicinal plants to treat various diseases by indigenous healers of Popoluca, Mexico. [25]

The use of different plant parts to treat different diseases by the TMPs suggests that the TMPs were well aware of the medicinal properties of different parts from the same plant. Different plant parts of the same plant will contain different phytochemicals, which may differ both quantitatively as well as in their chemical nature. Thus different plant parts from the same plant may have different pharmacological properties and different disease curing ability or even different toxicological properties. Thus various plant parts may be used to cure diverse types of diseases, which were observed with the TMPs in the present study.

Another interesting question regarding the indigenous medicinal practices is as to how much are the uses of medicinal plants for treatment of diseases have been validated through modern scientific methods. Just to cite a few instances, *Centella asiatica* was used by the Garo TMP for treatment of both dysentery and Alzheimer’s disease. The plant has been shown to inhibit a number of enteric pathogens. [26] The plant is also shown to enhance memory, which can be helpful in Alzheimer’s disease. [27]
Amaranthus spinosus was used by the first Chakma TMP to relieve joint pain. Analgesic activity has been reported for extract of the whole plant. [28] The use of Rauvolfia serpentina for treatment of hypertension by the TMP has also been scientifically validated. [29] Solanum torvum was used by the second Chakma TMP for treatment of diabetes. The antihyperglycemic and antidiabetic effect of methyl caffeate isolated from the plant has been demonstrated in streptozotocin-induced diabetic rats. [30] Thus, scientific reports suggest that the TMPs use of at least a number of plants are scientifically validated in their uses and as so, the other plants used by the TMPs merit scientific attention.

CONCLUSION

The plants used by the Garo and Chakma TMPs comprised of a diverse group of plants. Among the plants used, those used for treatment of diseases like diabetes, Alzheimer’s disease, and snake bite calls for further scientific research, for these plants may prove to be breakthrough plants for simple and affordable cure of these disorders.

Conflicts of interest

The authors declare that there are no conflicts of interest.

REFERENCES


