Indigenous medicinal practices: medicinal plants of Chakma tribal medicinal practitioners in Rangamati district

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ABSTRACT

The Chakma tribal community forms the largest tribal group in the Chittagong Hill Tracts and can be found in scattered communities of Rangamati, Khagrachaari, and Bandarban districts. Since the tribe mainly relies on its own traditional medicinal practitioners, it was of interest to document the traditional medicinal practices of three such practitioners practicing in three Chakma communities in Rangamati district. Interviews of the practitioners were carried out with the help of a semi-structured questionnaire and the guided field-walk method. The practitioners were observed to use a total of 33 plants distributed into 27 families in their practices. These plants were used to treat ailments like fever, pain, malaria, gastrointestinal disorders, liver complaints, spleen complaints, diabetes, phthisis, strangulation of intestine, alopecia, skin disorders, ear infection, hypertension, influenza, pneumonia, snake bite, jaundice, rheumatic fever, anemia, asthma, graying of hair, hernia, respiratory tract disorders, piles, cancer, kidney stone, tetanus, chest pain, epilepsy, scurvy, and menstrual disorders. This wide range of diseases treated suggests that the medicinal plants of the Chakma practitioners deserve scientific attention as to their drug discovery potential.

KEY WORDS
Tribal medicine, Chakma, medicinal plants, Rangamati, Bangladesh

INTRODUCTION

Indigenous medicinal practices have always played a role in discovery of drugs from medicinal plants. The Chakma tribe residing in Rangamati, Khagrachaari and Bandarban districts of the Chittagong Hill Tracts region in the southeastern part of Bangladesh is the largest tribe of the region and is known for their traditional medicinal practices. As the medicinal flora of the region is fast diminishing because of encroachment on forest land and the tribal members are switching increasingly to allopathic medicine, it is of importance to document their traditional medicinal practices before they are totally lost.

Adequate documentation of medicinal plants and their traditional uses can serve the valuable purposes of both discoveries of novel drugs as well as conservation of such plants. Towards such documentation, we had been conducting ethnomedical surveys among folk medicinal practitioners (FMPs) and tribal medicinal practitioners (TMPs) for a number of years (Nawaz et al., 2009; Rahmatullah et al., 2009a-c; Chowdhury et al., 2010; Hasan et al., 2010; Hossan et al., 2010; Mullik et al., 2010a,b; Rahmatullah et al., 2010a-i; Akber et al., 2011; Biswas et al., 2011a-c; Haque et al., 2011; Islam et al., 2011a; Jahan et al., 2011a,b; Rahmatullah et al., 2011a,b; Sarker et al., 2011; Shaheen et al., 2011; Das et al., 2012; Hasan et al., 2012; Hossan et al., 2012; Khan et al., 2012; Rahmatullah et al., 2012a-d; Sarker et al., 2012; Azam et al., 2013; Kabir et al., 2013; Khatun et al., 2013; Nahar et al., 2013; Rahmatullah et al., 2013a,b; Biswas et al., 2014; Hasan et al., 2014; Malek et al., 2014a,b; Moonmoon et al., 2014; Rana et al., 2014). Because of their ancient traditional practices,
which they had been continuing for possibly hundreds of years, the Chakma community can be a valuable source of information on traditional medicinal practices and medicinal plants of the Chittagong Hill Tracts region. It was therefore the objective of the present survey to document the plants and practices of three Chakma TMPs practicing in three different communities in Rangamati district.

MATERIALS AND METHODS

The three Chakma TMPs from Rangamati district were Notun Bihari Chakma, male, age 72 years, Buddhist, area - Champaknagar; Alik Bishwa Chakma, male, age 68 years, Buddhist, area - Banarupa; and Srikanda Kumar Chakma, male, age 86 years, Buddhist, area - Debashishnagar. Prior Informed Consent was first obtained from the TMPs. The TMPs were explained the full purpose of our visit and consent obtained to disseminate any information provided in both national and international venues. Actual interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin (1995) and Maundu (1995). In this method, the TMPs took the interviewers on guided field-walks through areas from where they collected their medicinal plants, pointed out the plants, and described their uses. Plant specimens were photographed and collected on the spot, pressed, dried and brought back to Dhaka to be identified at the Bangladesh National Herbarium. Interviews were carried out in the Bengali language, which was spoken by both the TMPs and the interviewers. It was noted that the TMPs collected most of their plants from forest areas adjoining their community residence areas.

RESULTS AND DISCUSSION

The TMPs were observed to use a total of 33 plants distributed into 27 families in their practices. These plants were used to treat ailments like fever, pain, malaria, gastrointestinal disorders, liver complaints, spleen complaints, diabetes, phthisis, strangulation of intestine, alopecia, skin disorders, ear infection, hypertension, influenza, pneumonia, snake bite, jaundice, rheumatic fever, anemia, asthma, graying of hair, hernia, respiratory tract disorders, piles, cancer, kidney stone, tetanus, chest pain, epilepsy, scurvy, and menstrual disorders. The results are shown in Table 1.

It was of interest that the TMPs treated a difficult disease like tumor. The various plants used to treat tumors were 

- *Pancratium maritimum*, *Lisea monopetala*, and *Cissus quadrangularis*. Tumors were not diagnosed with any modern diagnostic procedures. Unexplained swellings were classified as tumors. It is however, noteworthy that the TMPs were aware that tumors can turn into cancers and that certain tumors can be cancerous. Interestingly, the first plant has been reported to contain components like pancrin and pancrichromone, together with 2,4-dihydroxy-6-methoxy-3-methyl acetophenone, 5-formylfurfuryl acetate, 7-beta-D-glucosyl-5-hydroxy-2-methylchromone, and ethyl-beta-D-glucopyranoside. 7-beta-D-glucosyl-5-hydroxy-2-methylchromone reportedly displayed antiproliferative activities against the highly metastatic human prostate cancer cell line (PC-3M) (Ibrahim et al., 2014). Pancritamine B and N-methyl-8,9-methylenedioxyphenanthridine, isolated from fresh flowers and bulbs from the same plant showed antiproliferative and antimigratory activity against the highly metastatic human prostate cancer cell line PC-3 cells without cytotoxicity (Ibrahim et al., 2013). Stem extract of *Cissus quadrangularis* has also been reported to induce apoptosis in A431 skin cancer cells (Bhujade et al., 2013). Thus out of the three plants used by the TMPs, two have been reported for containing anticancer constituents or activities.

Altogether eight plants were used to treat snake bite. These plants were *

- *Typhonium trifoliatum*, *

- *Momordica cymbalaria*, *

- *Desmodium triquetum*, *

- *Curculigo latifolia*, *

- *Curculigo orthoides*, *

- *Hypitis capitata*, *

- *Parabaena sagittata*, and *

- *Datura metel*. Residing in forested areas where various venomous snakes are fairly common, snake bites are also fairly common occurrences among the Chakma communities. The various plants used by the TMPs to treat snake bites, if scientifically validated, can not only prove to be useful sources of anti-venom drugs but also offer a readily affordable and available means to treat bites of venomous snakes.

Some other plants used by the TMPs like some plants to treat pain have been scientifically validated. The efficacy of *

- *Andrographis paniculata* for treatment of fever, pain, and malaria has been reviewed (Jarukamjorn and Nemoto, 2008). The ameliorative potential of *

- *Vernonia cinerea* has been observed on chronic constriction injury of sciatic nerve induced neuropathic pain in rats (Thiagarajan et al., 2014). The analgesic activity of ethanolic extract of leaves of *

- *Stephania japonica* has also been described (Rahman et al., 2011). The analgesic activity of methanolic extract of *Stephania japonica* leaves has also been reported (Islam et al., 2011b). Analgesic activity has been shown for ethanol leaf extract of *

- *Cymbidium aloifolium* (Howlader et al., 2011). The analgesic activity of methanol extract of *

- *Plumbago indica* has also been shown (Paul and Saha, 2012).

Overall it can be concluded that the medicinal plants used by the Chakma TMPs deserve scientific attention. Indigenous medicinal plants can with proper scientific validation be an affordable and available source for medical treatment. At the same time, awareness of the medicinal potential of these plants can raise awareness about their conservation.
Table 1: Medicinal plants, formulations and disease(s) treated by the Chakma TMPs.

<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>Andrographis paniculata (Burm.f.) Wall. Nees.</td>
<td>Acanthaceae</td>
<td>Chirata</td>
<td>Whole plant, leaf</td>
<td>Fever, pain. Leaf juice is orally taken. Malaria, fever, diabetes, stomachic, tonic, alterative, helminthiasis, cholagogue, general debility, dysentery, certain forms of dyspepsia, liver complaints mainly of children, flatulence, diarrhea in children, spleen complaints, colic, strangulation of intestine, constipation, diarrhea, cholera, phthisis. Whole plant juice is orally taken for all the ailments except diarrhea in children. For children, leaf juice is mixed with cardamoms, cloves and cinnamon, dried in the sun and made into little globules, which are administered to children for diarrhea, gripes, irregular stools and loss of appetite in children.</td>
</tr>
<tr>
<td>2</td>
<td>Acorus calamus L.</td>
<td>Acoraceae</td>
<td>Paan raja, Boss</td>
<td>Leaf root</td>
<td>Constipation. Two teaspoons of leaf juice is orally taken twice daily. Alopecia. Root paste is mixed with coconut oil and applied topically to scalp.</td>
</tr>
<tr>
<td>3</td>
<td>Adiantum philippense L.</td>
<td>Adiantaceae</td>
<td>Goyali lota</td>
<td>Leaf</td>
<td>Fever, dysentery. Leaf extract is taken orally.</td>
</tr>
<tr>
<td>4</td>
<td>Cyathula prostrata (L.) Blume</td>
<td>Amaranthaceae</td>
<td>Uvo langera</td>
<td>Leaf, root</td>
<td>Itching. Paste of leaf and root is topically applied to affected area.</td>
</tr>
<tr>
<td>5</td>
<td>Pancratium maritimum L.</td>
<td>Amaryllidaceae</td>
<td>Khobarun</td>
<td>Leaf</td>
<td>Tumor. Leaf juice is orally taken.</td>
</tr>
<tr>
<td>6</td>
<td>Catharanthus roseus L.</td>
<td>Apocynaceae</td>
<td>Japani rose</td>
<td>Leaf</td>
<td>Ear infection. One drop of leaf juice is applied inside infected ear daily.</td>
</tr>
<tr>
<td>7</td>
<td>Rauwolfia serpentina (L.) Benth. ex Kurz.</td>
<td>Apocynaceae</td>
<td>Sursang</td>
<td>Leaf, root</td>
<td>High blood pressure. Half teaspoon leaf and root juice is taken orally.</td>
</tr>
<tr>
<td>8</td>
<td>Syngonium podophyllum Schott</td>
<td>Araceae</td>
<td>Patabahar</td>
<td>Leaf</td>
<td>Snake bite. Quarter to half cup of leaf juice is orally taken.</td>
</tr>
<tr>
<td>9</td>
<td>Vernonia cinerea L.</td>
<td>Asteraceae</td>
<td>Dondo utphong</td>
<td>Leaf</td>
<td>Rheumatic pain. Leaf paste is applied topically.</td>
</tr>
<tr>
<td>10</td>
<td>Oroxylum indicum Vent.</td>
<td>Bignoniaceae</td>
<td>Kanai dinga</td>
<td>Bark</td>
<td>Jaundice, rheumatic fever. Bark paste is prepared with warm water and topically applied to chest.</td>
</tr>
<tr>
<td>11</td>
<td>Terminalia bellirica Roxb.</td>
<td>Combretaceae</td>
<td>Bohera</td>
<td>Fruit, bark</td>
<td>Anemia, asthma, gray hair. Infusion of fruit is taken orally. Abdominal disease. Bark is boiled in water and ¼ cup of the water is taken once daily orally.</td>
</tr>
<tr>
<td>12</td>
<td>Costus speciosus (J. Koenig) Sm.</td>
<td>Costaceae</td>
<td>Ranga bishoma, Ketoki</td>
<td>Leaf</td>
<td>Hernia. Leaf paste is topically applied.</td>
</tr>
<tr>
<td>13</td>
<td>Bryophyllum pinnatum (Lam.) Oken</td>
<td>Crassulaceae</td>
<td>Jwash</td>
<td>Leaf</td>
<td>Pneumonia, cough. Leaf paste is mixed with 250 ml warm water and the solution is taken orally thrice daily.</td>
</tr>
<tr>
<td>14</td>
<td>Pedilanthus tithymaloides (L.) Poir.</td>
<td>Euphorbiaceae</td>
<td>Khedatol</td>
<td>Leaf</td>
<td>Snake bite, piles. One teaspoon leaf juice is orally taken once daily.</td>
</tr>
<tr>
<td>15</td>
<td>Desmodium trifoliatum (L.) DC.</td>
<td>Fabaceae</td>
<td>Lori pata kher, Salfani</td>
<td>Leaf</td>
<td>Snake bite, dysentery. Leaf juice is taken orally.</td>
</tr>
<tr>
<td>16</td>
<td>Curculigo latifolia Dryand.</td>
<td>Hypoxidaceae</td>
<td>Meloni pata</td>
<td>Leaf</td>
<td>Cancer, piles, snake bite. Leaf juice is taken orally.</td>
</tr>
<tr>
<td>17</td>
<td>Curculigo orthoides</td>
<td>Hypoxidaceae</td>
<td>Dubo meloni</td>
<td>Leaf</td>
<td>Snake bite. Leaf juice is taken orally.</td>
</tr>
<tr>
<td>Gaertn.</td>
<td>Lamiaceae</td>
<td>Chitra baishak</td>
<td>Leaf</td>
<td>Snake bite. Leaf juice is administered orally.</td>
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</tr>
<tr>
<td>21</td>
<td>Hyptis capitata (Jacq.</td>
<td>Lauraceae</td>
<td>Shurjo pata, Boro kukurchita</td>
<td>Leaf</td>
<td>Tumor. One teaspoon of leaf juice is taken orally once daily.</td>
</tr>
<tr>
<td>22</td>
<td>Litsea monopetala (Roxb.) Pers.</td>
<td>Marantaceae</td>
<td>Arraroot</td>
<td>Stem</td>
<td>Kidney stone. Freshly obtained stem extract is mixed with water and taken orally.</td>
</tr>
<tr>
<td>23</td>
<td>Maranta arundinacea L.</td>
<td>Menispermacea e</td>
<td>Hoiccholodi</td>
<td>Leaf</td>
<td>Fever. Leaf juice is taken orally.</td>
</tr>
<tr>
<td>24</td>
<td>Campylus sinensis Lour.</td>
<td>Menispermacea e</td>
<td>Horin kan</td>
<td>Leaf</td>
<td>Snake bite. Leaf juice is taken orally.</td>
</tr>
<tr>
<td>25</td>
<td>Parabaena sagittata Miers</td>
<td>Menispermacea e</td>
<td>Thanda alu</td>
<td>Leaf</td>
<td>Stomach pain. Two teaspoons of leaf juice is taken orally.</td>
</tr>
<tr>
<td>26</td>
<td>Stephanira japonica (Thunb.) Miers</td>
<td>Orchidaceae</td>
<td>Somacchi</td>
<td>Leaf, stem</td>
<td>Piles. Leaves and stems are cooked as vegetable and taken with meals.</td>
</tr>
<tr>
<td>27</td>
<td>Cymbidium aloifolium (L.) Sw.</td>
<td>Orchidaceae</td>
<td>Surimas</td>
<td>Leaf, whole plant, root, seed</td>
<td>Fever. Leaf extract (about ½ cup) is taken orally thrice daily.</td>
</tr>
<tr>
<td>28</td>
<td>Plumbago indica L.</td>
<td>Plumbaginacea e</td>
<td>Agunitita</td>
<td>Leaf</td>
<td>Chest pain. Leaves are rubbed on a stone and the paste topically applied to chest.</td>
</tr>
<tr>
<td>29</td>
<td>Drynaria quercifolia (L.) J. Sm.</td>
<td>Polypodiaceae</td>
<td>Baddonath pata</td>
<td>Whole plant, root</td>
<td>See Cymbidium aloifolium.</td>
</tr>
<tr>
<td>30</td>
<td>Datura metel L.</td>
<td>Solanaceae</td>
<td>Kalo dhutra</td>
<td>Leaf</td>
<td>Snake bite, anesthetic purposes. Leaf juice is orally taken in small quantities for snake bite.</td>
</tr>
<tr>
<td>31</td>
<td>Clerodendrum indicum L.</td>
<td>Verbenaceae</td>
<td>Bamanhatsi</td>
<td>Leaf</td>
<td>Epilepsy, sudden bouts of unconsciousness. Two teaspoons of leaf juice is administered orally twice daily.</td>
</tr>
<tr>
<td>32</td>
<td>Cissus quadrangularis L.</td>
<td>Vitaceae</td>
<td>Harjora lota</td>
<td>Stem, leaves, young shoot</td>
<td>Bone fracture. Paste of stems and leaves is applied over fractured area and covered with a bandage. The area is cleaned every 2-3 days and paste reapplied. Laxative, stomachic, tonic, analgesic, piles, tumor, loss of appetite, constipation, complaints of back and spine, otorrhea, epistaxis, scurvy, irregular menstruation. Stem juice is orally taken. Asthma. Stem paste is orally taken. Stomachic. Stem boiled in limewater is orally taken. Dyspepsia, bowel complaints. Young shots burnt to ashes are orally taken. Alterative. Juice from leaves and young stems is orally taken.</td>
</tr>
</tbody>
</table>

**REFERENCES**


