PLANTS AS MEDICINES: DOCUMENTATION OF MEDICINAL PLANTS USED BY A KHASIA TRIBAL PRACTITIONER IN HABIGANJ DISTRICT, BANGLADESH

Tamanna Zaman, Kanij Fatema Keya, Sumi Akter, Md. Hasanuzzaman Sagar, Md. Shamim Khan, Md. Bashar Bhuiyan, Ishita Malek, Mohammed Rahmatullah*

Department of Pharmacy, University of Development Alternative, Lalmatia, Dhaka-1207, Bangladesh.

ABSTRACT

Background: The Khasia tribal people are a fairly large tribe residing in various districts of Sylhet Division, Bangladesh. The objective of the present study was to document the use of medicinal plants by a Khasia tribal medicinal practitioner (TMP) practicing in Jagadishpur and Noyapara villages, Habiganj district, Sylhet Division, Bangladesh.

Methods: Interview of the tribal medicinal practitioner was carried out with the help of a semi-structured questionnaire and the guided field-walk method. Results: The tribal medicinal practitioner used a total of 15 plants distributed into 15 families for treatment. The various diseases treated included respiratory tract disorders, diabetes, leprosy, psoriasis, gastrointestinal tract disorders, urinary tract infection, loss of memory, cuts and wounds, heart disorders, impotency, tumor, rheumatism, anemia, and pain. The practitioner also used plants as diuretic, muscle relaxant, and nerve stimulant. Conclusion: The medicinal plant knowledge of the Khasia medicinal practitioner can contribute significantly to the health-care system in rural areas of Bangladesh.

KEYWORDS: Tribal medicine, medicinal plants, Khasia, Habiganj, Bangladesh.

INTRODUCTION

The plant kingdom, even in this era of synthetic drugs, has always formed an excellent source for novel drugs and lead compounds. Of the numerous species of plants present throughout the world, each and every species produces a multitude of phytochemicals, which can be
useful as lead compounds or drugs. However, the major problem lies with isolating and identifying the phytochemicals, which then has to be assessed individually against its efficacy against the thousands of diverse diseases that afflict human beings and animals.

An easier approach is to study the traditional medicinal practitioner’s methods of treatment. These practitioners, irrespective of their system used, mainly rely on medicinal plants for treatment of diseases. Thus, documentation of their medicinal practices can form a rapid approach for studying the therapeutic efficacy of a given plant species, because these traditional medicinal practices have been in vogue for hundreds and possibly thousands of years. As such, ethnomedicinal surveys are necessary, and we had been conducting ethnomedicinal surveys among folk medicinal and tribal medicinal practitioners for a number of years.\(^{[1-21]}\) The objective of the present study was to document the medicinal practices of a Khasia tribal medicinal practitioner (TMP), who practices in two villages of Habiganj district in Sylhet Division in Bangladesh. The Khasias are a large tribe who resides in the various districts of Sylhet Division in the northeast part of the country.

**METHODS**

The TMP who was interviewed was named Sri Bijoykrishna of the Khasia tribe, by gender male, and practiced in Jagadishpur and Noyapara villages of Habiganj district among the Khasia tribal community residing in the two villages. Prior informed consent was initially obtained from the TMP. The TMP was 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 TMP 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\(^{[22]}\) and Maundu.\(^{[23]}\)

In this method the TMP took the interviewers on guided field-walks through areas from where he collected his 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 tribal medicinal practitioner used a total of 15 plants distributed into 15 families for treatment. The various diseases treated included respiratory tract disorders, diabetes, leprosy, psoriasis, gastrointestinal tract disorders, urinary tract infection, loss of memory, cuts and wounds, heart disorders, impotency, tumor, rheumatism, anemia, and pain. The practitioner also used plants as diuretic, muscle relaxant, and nerve stimulant. The results are shown in Table 1.

Among the diseases treated, plants used for treatment of diabetes, heart disorders, impotency, tumor and rheumatism hold special interest. Cardiovascular disorder has become a leading killer disease throughout the world necessitating costly medical treatment including surgery.

Tumors, which can lead to cancer, are also important from the medical point of view, for cancer is a disease afflicting millions of people throughout the world, and which cannot be cured unless detected in the early stages. Moreover the cure is costly and adverse side-effects are a consequence of both chemotherapy and radiotherapy treatments for the disease. Rheumatism cannot be cured by modern allopathic medicine. Such medicine provides mostly symptomatic treatment for pain, which is a common feature of rheumatism. A simple but effective cure for impotency is also beneficial to the mostly poor rural folks of Bangladesh.

Diabetes is also becoming endemic throughout Bangladesh because of possible changes in life style and food habits. The disease is characterized by high blood glucose levels, cannot be cured by allopathic medicine, and which disease can progressively lead to more serious complications like cardiovascular disorders, diabetic neuropathy, diabetic nephropathy, and diabetic retinopathy. As such, the mostly monoherbal preparations used by the TMP can be safe and effective remedies for treatment of diseases following appropriate scientific validations.
Table 1. Medicinal plants and formulations of the Khasia TMP of Habiganj district, Bangladesh.

<table>
<thead>
<tr>
<th>S. N.</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>Justicia adhatoda L.</td>
<td>Acanthaceae</td>
<td>Bashok</td>
<td>Leaf</td>
<td>Coughs. Leaf juice is taken orally with honey.</td>
</tr>
<tr>
<td>2</td>
<td>Acorus calamus L.</td>
<td>Acoraceae</td>
<td>Kadar gach</td>
<td>Rhizome</td>
<td>Diabetes. Rhizome extract is taken orally.</td>
</tr>
<tr>
<td>3</td>
<td>Centella asiatica (L.) Urb.</td>
<td>Apiaceae</td>
<td>Thankuni</td>
<td>Leaf</td>
<td>Leprosy, psoriasis, diarrhoea, urinary tract infection, memory enhancer. Leaf juice is taken orally with opium. Alternately, tincture of leaf is used at a dose of one teaspoon thrice daily for 1 week.</td>
</tr>
<tr>
<td>4</td>
<td>Areca catechu L.</td>
<td>Arecaecae</td>
<td>Supari</td>
<td>Nut</td>
<td>See Smilax perfolieta.</td>
</tr>
<tr>
<td>5</td>
<td>Tagetes erecta L.</td>
<td>Asteraceae</td>
<td>Gada</td>
<td>Leaf</td>
<td>To stop bleeding from external cuts and wounds. Leaf juice is topically applied.</td>
</tr>
<tr>
<td>6</td>
<td>Terminalia arjuna Wight &amp; Arn.</td>
<td>Combretaceae</td>
<td>Arjun</td>
<td>Bark, leaf</td>
<td>Diabetes, heart disease. Bark is soaked in water and the water is then taken orally. Alternately, leaves are taken orally by chewing.</td>
</tr>
<tr>
<td>7</td>
<td>Costus speciosus (Koen.) Sm.</td>
<td>Costaceae</td>
<td>Bon kushiar</td>
<td>Whole plant</td>
<td>Impotency. Whole plant extract is taken orally twice daily on an empty stomach.</td>
</tr>
<tr>
<td>8</td>
<td>Bryophyllum pinnatum (Lam.) Oken</td>
<td>Crassulaceae</td>
<td>Pathorkuchi</td>
<td>Leaf</td>
<td>Diuretic, muscle relaxant, tumor, rheumatism, abdominal pain. A red hot iron rod is dipped in leaf juice and 2 teaspoons of the juice is taken orally thrice daily for a week.</td>
</tr>
<tr>
<td>9</td>
<td>Momordica charantia L.</td>
<td>Cucurbitaceae</td>
<td>Korolla</td>
<td>Fruit</td>
<td>Diabetes, stomach disorder, anemia, asthma. Five teaspoons of leaf juice is taken orally once daily. Alternately, fruits are cooked and eaten as vegetable.</td>
</tr>
<tr>
<td>10</td>
<td>Azadirachta indica A. Juss.</td>
<td>Meliaceae</td>
<td>Neem</td>
<td>Leaf</td>
<td>To help prevent diseases. Leaves are chewed and taken orally daily. Wounds. Leaf paste is topically applied.</td>
</tr>
<tr>
<td>11</td>
<td>Stephania japonica (Thunb.) Miers</td>
<td>Menispermaeae</td>
<td>Akando bindu</td>
<td>Root</td>
<td>Pain. Paste of roots of Stephania japonica along with fruits of Piper nigrum and wood of Santalum album is taken orally twice a day on an empty stomach.</td>
</tr>
<tr>
<td>12</td>
<td>Piper nigrum L.</td>
<td>Piperaceae</td>
<td>Gol morich</td>
<td>Fruit</td>
<td>See Stephania japonica.</td>
</tr>
<tr>
<td>13</td>
<td>Santalum album L.</td>
<td>Santalaceae</td>
<td>Shet chandan</td>
<td>Wood</td>
<td>See Stephania japonica.</td>
</tr>
<tr>
<td>14</td>
<td>Smilax perfoliata Lour.</td>
<td>Smilacaceae</td>
<td>Ramdatun</td>
<td>Leaf</td>
<td>Impotency in male. Leaf extract of Smilax perfoliata is taken orally with leaf extract of Areca catechu nuts.</td>
</tr>
<tr>
<td>15</td>
<td>Camellia sinensis (L.) Kuntze</td>
<td>Theaceae</td>
<td>Cha</td>
<td>Leaf</td>
<td>Nerve stimulant. Leaf decoction is taken orally with sugar.</td>
</tr>
</tbody>
</table>
DISCUSSION

Three plants, namely *Acorus calamus*, *Terminalia arjuna*, and *Momordica charantia* were used by the TMP individually for diabetes treatment. Interestingly, the antidiabetic activity of *Acorus calamus* rhizome extract has been reported in streptozotocin diabetic rats.\(^{[24]}\) The antidiabetic effect of *Terminalia arjuna* bark has also been reported for alloxan induced diabetic rats.\(^{[25]}\)

The fruits of *Momordica charantia* have been described as an alternative therapy for diabetes mellitus.\(^{[26]}\) The TMP also used the bark of *Terminalia arjuna* to treat heart disorders. The potential benefits of bark of this plant in cardiovascular diseases have been described.\(^{[27]}\)

The memory enhancing effect of *Centella asiatica* has been reviewed.\(^{[28]}\) The plant was used by the Khasia TMP as a memory enhancer. The TMP also used the plant against diarrhea. Notably, the plant has been reported to inhibit a number of enteric pathogens.\(^{[29]}\) The plant was also used by the TMP against leprosy. A phytochemical constituent of the plant, asiaticoside, has been found to be effective against leprosy.\(^{[30]}\) The TMP used *Justicia adhatoda* for cough treatment; the antitussive action of the plant has been shown.\(^{[31]}\) All these go on to show that the plants used by the TMP are not without scientific validations.

*Bryophyllum pinnatum*, otherwise known as *Kalanchoe pinnata* is an interesting plant because it was used by the TMP as diuretic, muscle relaxant, and for treatment of tumor, rheumatism, and abdominal pain. Analgesic activity of the plant extract has been observed in mice and antiinflammatory activity in rats.\(^{[32]}\) Thus the plant can prove beneficial in both abdominal pain and rheumatism. The leaves of the plant have also been shown to be inhibitory for human cervical cancer cells.\(^{[33]}\) The available scientific reports on a number of plants used by the TMP suggest that these plants deserve scientific attention towards possible drug discoveries.

CONCLUSION

The plants used by the TMP can be a readily affordable and available means for disease treatment and at the same time open up possibilities for discovering lead compounds and new drug.

**Conflicts of interest:** The authors declare that there are no conflicts of interest.
REFERENCES


