Some medicinal plant uses of a Santal community at Malar para village in Dinajpur district, Bangladesh

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Abstract
The Santal community represents the largest and possibly the oldest tribal community inhabiting the northwestern regions of Bangladesh. Due to their long acquaintance with their habitat, the Santal tribal medicinal practitioners have been found to be quite knowledgeable about therapeutic uses of medicinal plants. In recent years, however, because of loss of habitat and conversion of the community to other religions, the Santal medicinal practitioners have become dispersed and so is their phytotherapeutic knowledge, which is on the verge of becoming lost. Since plants have from ancient times formed excellent sources of modern drugs, the objective of the present study was to document the phytotherapeutic knowledge of a Santal medicinal practitioner (SMP) at Malar para village in Dinajpur district, which is at the northwestern part of Bangladesh. Although the SMP was found to use only eight plants distributed into eight families, the phytotherapeutic uses of the plants were quite novel thus justifying the need to document the medicinal practices of indigenous people. The various plants were used to treat ailments like respiratory tract disorders, pain, fever, diabetes, heart disorders, skin diseases, night blindness, and spleen disorders. The plants used for treatment of diabetes and heart disorders can prove useful in the treatment of these two complicated ailments. Cumulatively, the plants may prove useful in the discovery of new drugs.

Keywords: Santal, phytotherapy, Dinajpur, Bangladesh

Introduction
Ethnopharmacology, ethnomedicine and ethnobotany have proved to be powerful tools in the quest for new drugs to combat diseases. From their very advent, human beings most possibly have had diseases, and plants may have proved to be effective remedies against the diseases. These remedies have been documented from the time human beings learned to preserve information on various objects through writing or inscriptions. Egyptian, Mesopotamian, Indian, Chinese and other civilizations all developed their own unique medicinal systems with a common emphasis on phytotherapy [1]. Since ancient times, plants have proved themselves to be good sources of cure and discovery of new drugs because of the long association between human beings and plants. In fact, many modern drugs like reserpine, vincristine, vinblastine, taxol, and quinine, to name only a few have been discovered from close observations of the medicinal practices of indigenous peoples [2].

Documentation of medicinal plants has been for long a neglected area in Bangladesh. Yet, the country although small, has over 6000 floral species and a number of traditional medicinal systems co-existing with allopathic medicine. We had been conducting ethnomedical surveys for over ten years among mainstream folk medicinal practitioners (FMPs) and tribal medicinal practitioners (TMPs) as our primary informants but also collecting information on home remedies [3-22]. The objective of the present study was to document some medicinal plants used by a Santal medicinal practitioner (SMP) at Malar para village in Dinajpur district, Bangladesh. The Santals form the largest and possibly the most ancient tribal community and are presently scattered in various districts in the northwestern part of Bangladesh. They have a rich tradition of their medicinal practices, which is rapidly being forgotten because of loss of habitat and conversion of the tribe to other religions.
Materials and Methods
Information was obtained from the SMP Abraham (male, following conversion was given the name Abraham by Christian missionaries). Informed Consent was obtained from him to publish or disseminate the obtained information. The interviews were conducted with the help of a semi-structured questionnaire and the guided-field walk method of Martin [23] and Maundu [24]. In this method the SMP took the interviewers on guided field-walks through areas from where he collected his medicinal plants, pointed out the plants, and described their uses. Local plant names as given were in the Santal language. The plants were photographed, and voucher specimens collected, dried and identified by a competent botanist at the Bangladesh National Herbarium at Dhaka and accession numbers obtained. Plant specimens were deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

Results and Discussion
The various plant species along with their therapeutic uses are shown in Table 1. Altogether eight plant species were used, which were distributed into eight families. The various plants were used to treat ailments like respiratory tract disorders, pain, fever, diabetes, heart disorders, skin diseases, night blindness, and spleen disorders. In three cases whole plants were used and the plants were used for treatment of diverse types of diseases. For instance, whole plants of Achyranthes aspera were used to treat coughs, cold, insect bite, toothache, shortness of breath. Thus two diverse forms of ailment like respiratory disorders and pain were treated with the same plant. This suggests that the SMP was quite aware that any given plant may have diverse therapeutic properties. The antinociceptive properties of leaves of Achyranthes aspera have been described [25], making the plant a good candidate for alleviating toothache. Traditional healers in India use the plant to treat coughs, cold and bronchitis [26].
Achyranthes aspera was used by the SMP to treat asthma, fever and rash. The anti-inflammatory and anti-pyretic properties of the plant have been reported [27]. The anti-diabetic properties of Coccinia grandis have also been reported [28]; notably, the SMP used the plant for treatment of diabetes, heart disorders, and scabies. Leaf extract of the plant has also been shown to give hypolipidemic effects, which can be beneficial in cardiovascular disorders [29]. In Unani system of medicine, the plant is also used to treat scabies [30]. The SMP used Cajanus cajan against diarrhea and toothache. Interestingly, leaves of the plant were used against diarrhea and roots used against toothache. Antibacterial activity of the plant has been found against coliforms [31]. Antinociceptive activity has been observed with seeds [32]; however, the SMP used roots against toothache.
The leaves of Ocimum sanctum were used against common cold, cough, dysentery and wound by the SMP. The anti-tussive action of the plant has been reported [33]. Activity of the plant against a number of enteric pathogens has been reviewed [34], suggesting that the plant may prove useful against gastrointestinal disorders like diarrhea and dysentery. Anti-microbial activity has been observed with Adiantum caudatum extracts [35], a plant used by the SMP against cough, fever, and skin diseases. Spermacoce hispida is considered an important herb in Siddha medicine of India, where among other uses the plant is also used for treatment of inflammation [36]. The SMP also used the plant as an anti-inflammatory agent. The SMP also used the plant against spleen disorders and more studies are needed to validate this particular use. Boehmeria nivea was used by the SMP as a diuretic and for treatment of fever. Boehmeria species are rich in antioxidants and so can prove useful in a variety of disorders [37].
Taken together, it becomes evident that age-old practices of indigenous medicinal practitioners have in recent years being continually validated through scientifically obtained evidences. Ethnopharmacology has become a valuable tool in the possibly forever quest for discovery of better drugs. As such, practices of indigenous medicinal practitioners, instead of being discarded, must be carefully documented before they get irretrievably lost.

Table 1: Medicinal plants and formulations of the Santal medicinal practitioner.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Scientific Name (Accession Number)</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>Achyranthes aspera L. (43737)</td>
<td>Amaranthaceae</td>
<td>Apank</td>
<td>Whole plant</td>
<td>Cough, cold, insect bite, toothache, shortness of breath. 50 ml of juice extracted from crushed whole plant is taken orally in the morning before meal for 5 consecutive days.</td>
</tr>
<tr>
<td>2</td>
<td>Costus speciosus (Koenig) Sm. (43747)</td>
<td>Costaceae</td>
<td>Kusaha</td>
<td>Whole plant</td>
<td>Asthma, fever, rash. 25 ml juice extracted from crushed whole plant is taken orally twice daily before meals for 5 consecutive days.</td>
</tr>
<tr>
<td>3</td>
<td>Coccinia grandis (L.) Voigt (43734)</td>
<td>Cucurbitaceae</td>
<td>Telakacho</td>
<td>Leaf</td>
<td>Diabetes. 100 ml of juice extracted from crushed leaves is taken orally once daily before meal in the morning for 15 consecutive days. Heart disorder. About 250g leaves are cooked and eaten with meal twice daily in the afternoon and evening for 1 month. Scabies. Paste of leaf is topically applied to affected area(s).</td>
</tr>
<tr>
<td>4</td>
<td>Cajanus cajan (L.) Millsp. (43474)</td>
<td>Fabaceae</td>
<td>Hor hor</td>
<td>Leaf, root</td>
<td>Diarrhea. Juice extracted from crushed leaf is orally taken in the morning before meal for 7 consecutive days. Toothache. Roots are attached to gums.</td>
</tr>
<tr>
<td>5</td>
<td>Ocimum sanctum L. (43741)</td>
<td>Lamiaceae</td>
<td>Kalo tuls</td>
<td>Leaf</td>
<td>Common cold, cough, dysentery, wound. 50 ml of juice extracted from crushed leaves is taken orally twice before meal in the morning and evening for 5 consecutive days.</td>
</tr>
<tr>
<td>6</td>
<td>Adiantum caudatum L. (43743)</td>
<td>Pteridaceae</td>
<td>Bidda pata</td>
<td>Whole plant</td>
<td>Cough, fever, skin diseases. 100 ml of juice extracted from crushed whole plant is taken orally twice daily in the morning and evening before meals for 5 days.</td>
</tr>
<tr>
<td>7</td>
<td>Spermacoce hispida L. (43738)</td>
<td>Rubiaceae</td>
<td>Madana</td>
<td>Leaf</td>
<td>Spleen disorders, night blindness, inflammation. Juice extracted from leaves is taken orally before meal at night once daily for 15 consecutive days.</td>
</tr>
<tr>
<td>8</td>
<td>Boehmeria nivea (L.) Gandich (43745)</td>
<td>Urticaceae</td>
<td>Chottar pata</td>
<td>Leaf</td>
<td>Diuretic, fever. 50 ml juice obtained from crushed leaves is taken orally twice daily before meal in the morning and evening for 5 consecutive days.</td>
</tr>
</tbody>
</table>
References


