Therapeutic uses of medicinal plants in Naogaon district, Bangladesh

Md. Salahuddin Sarder, Tarana Afrooz, Shahanoor Rohani, Moutushi Khan Tuti and Mohammed Rahmatullah

Abstract
Folk medicinal practitioners (FMPs) in Bangladesh are mostly plant-based medical practitioners who practice on their own without recourse to any formal medical education. The objective of this study was to document the therapeutic uses of plants by three FMPs in Naogaon district, Bangladesh. The FMPs were observed to use 14 plants distributed into 13 families. The major thing about the phytotherapeutic uses of the plants by the three FMPs was the mostly uncommon use of the plants. As such, the information provided by them adds significantly to the folk medicinal literature of Bangladesh and can aid the scientist to develop new lines of pharmacological research on the plants.

Keywords: phytotherapy, folk medicinal practitioner, naogaon, Bangladesh

Introduction

Discovery of drugs from plants is not a new concept. Human beings have used plants for medicinal purposes from time immemorial. Archaeological evidence suggests that traditional healers have used plants in all countries of the world for therapeutic purposes\cite{1}. Information on the medicinal properties of plants used to be memorized and orally transmitted from generation to generation before the advent of writing and storage of written materials. The addition of modern medicine to traditional therapies is essentially the introduction of using the major therapeutic component or phytochemical of the plant in pure form to combat diseases. While the ‘one drug one therapy’ of allopathic medicine has successfully worked for over more than a hundred years, lately there has been a revival of interest in traditional medicines because of emergence of new diseases and rapid development of drug-resistance when a single drug is used.

To discover new medicines from plants, the foremost thing is to gather as much as possible knowledge on the ethnic or traditional medicinal uses of plants. Such knowledge gives the researcher an idea where to start with, and devise appropriate methodology to experiment properly and isolate the responsible phytochemical(s) through say bioactivity guided fractionation or other relevant methods. Bangladesh is lagging far behind other countries in documentation of folk and tribal medicinal practices and there is a distinct possibility that such knowledge will become irretrievably lost. As such, we had been collecting traditional phytotherapeutic information for over ten years with mainstream folk medicinal practitioners (FMPs) and tribal medicinal practitioners (TMPs) as our primary informants\cite{2-19}. The objective of the present study was to document the phytotherapeutic practices of three FMPs in Naogaon district, Bangladesh.

Materials and Methods

The documentation was carried out in 2017 with three FMPs in Naogaon district, Bangladesh. Details about the FMPs are given below.

i) Sreedam Chandra Prang, 55 years, male, practicing for 27 years, Shinga village, Naogaon district, learned from guru Mahim Haldar.

ii) Jasim Uddin, 83 years, male, practicing for unknown number of years, Kanchanpur village, Naogaon district, learned from guru Bashir Talukdar.

iii) Md. Ashraful Haq, 32 years, male, practicing for 5 years, Ruddhamukha village, Naogaon district.

Correspondence
Mohammed Rahmatullah
Department of Pharmacy, University of Development Alternative, Lalmatia, Dhaka, Bangladesh
Prior Informed Consent was first obtained from the FMPs. They were asked about the nature of our visit. Actual interviews were conducted in the Bengali language, which was spoken fluently by the FMPs 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 [20] and Maundu [21]. In this method the FMPs 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 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 also deposited with the Medicinal Plant Collection Wing of the University of Development Alternative. Two points are to be noted here; the first is that the second FMP (Jasim Uddin) expired shortly after being interviewed, and the second point is that accession numbers of several plants were not obtained from the Bangladesh National Herbarium because of their common nature and being easily recognized.

Results and Discussion

The three FMPs’ interviews were observed to use 14 plants distributed into 13 families. Considering that there were three FMPs, the numbers of plants used by them were not much, considering most of our previous studies. The major thing about the phytotherapeutic uses of the plants by the three FMPs was the mostly uncommon therapeutic use of the plants. Thus although the plants were mostly known plants and previously reported to have been used by other FMPs within Bangladesh, the Naogaon FMPs for the most part used them for treatment of diseases other than previously described. The fourteen plants were used in mono and polyherbal formulations for treatment of liver cirrhosis, helminthiasis, fever, vomiting tendency in pregnant women, premature ejaculation, meho, diabetes, abdominal pain, waist pain, pain due to gas formation, and bone fractures.

At least three complicated diseases were treated by the FMPs, namely, liver cirrhosis, diabetes, and meho. Liver cirrhosis is a costly disorder to treat and can be caused by hepatitis B and C viruses. Viral hepatitis has become common in Bangladesh [22]. Diabetes cannot be cured with allopathic medicine. Although various plants are used in Bangladesh to treat diabetes, like allopathic drugs, these plants merely serve to reduce elevated blood glucose. Thus another plant is always welcome for diabetes treatment in view of its possible lesser toxicity and greater efficacy. Meho is similarly difficult to treat and is becoming a major problem in the world.

**Table 1: Medicinal plants and formulations of the three FMPs of Naogaon district**

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Scientific Name (English name) Accession Number</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Aliments and mode of medicinal use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Andrographis paniculata</em> (Burn.f.) (King of bitters) 43897</td>
<td>Acanthaceae</td>
<td>Kalomegh</td>
<td>Leaf, flower</td>
<td>Liver cirrhosis. Juice obtained from leaves or flowers is mixed with fruit of <em>Piper nigrum</em>, a slice of <em>Piper peepuloides</em> fruit, and dried thizome of <em>Zingiber officinale</em>. Paste prepared from the mixture is orally taken on a daily basis. Helminthiasis. One spoonful of leaf juice is taken orally every morning.</td>
</tr>
<tr>
<td>2</td>
<td><em>Achyranthes aspera</em> L. (Prickly chaff flower) 43905</td>
<td>Amaranthaceae</td>
<td>Dhan shisha</td>
<td>Stem</td>
<td>Fever. Half glass juice obtained from crushed stems is orally taken in the morning for 3-4 days. Vomiting tendency in pregnant women. Juice obtained from crushed stem is orally taken with juice obtained from crushed <em>Cynodon dactylon</em> leaves. Premature ejaculation. Juice obtained from young leaves of <em>Punica granatum</em> is mixed with stem juice of <em>Achyranthes aspera</em> and orally taken.</td>
</tr>
<tr>
<td>3</td>
<td><em>Allium sativum</em> L.</td>
<td>Amaryllidaceae</td>
<td>Roshun</td>
<td>Clove</td>
<td>Meho (metabolic syndrome). Bark juice or exudates of bark is mixed with lime water (diluted solution of calcium hydroxide) and taken orally. One spoonful of juice or exudates is placed inside the mouth and 2 drops of lime water added and the mixture immediately swallowed. This is continued for 7 consecutive days.</td>
</tr>
<tr>
<td>4</td>
<td><em>Mangifera indica</em> L. (Mango) 43899</td>
<td>Anacardiaceae</td>
<td>Aam</td>
<td>Bark, Exudate</td>
<td>Diabetes. Every day either 200g whole plant is chewed and orally taken or dried and powdered whole plant is orally taken. This is done for a month. Abdominal pain (from any cause). Paste of leaves or whole plant and <em>Zingiber officinale</em> rhizomes is orally taken (1 spoonful every day for 2-3 days).</td>
</tr>
<tr>
<td>5</td>
<td><em>Rauwolfia serpentina</em> (L.) Benth. ex Kurz (Indian snakeroot) 43908</td>
<td>Apocynaceae</td>
<td>Sharpagandha</td>
<td>Whole plant, leaf</td>
<td>See <em>Achyranthes aspera</em>.</td>
</tr>
<tr>
<td>6</td>
<td><em>Punica granatum</em> L. (Pomegranate)</td>
<td>Lythraceae</td>
<td>Dalim</td>
<td>Leaf</td>
<td>See <em>Achyranthes aspera</em>.</td>
</tr>
<tr>
<td>7</td>
<td><em>Piper nigrum</em> L. (Black pepper)</td>
<td>Piperaceae</td>
<td>Kalo gol morich</td>
<td>Fruit</td>
<td>See <em>Rhyynchostylis retusa</em>.</td>
</tr>
<tr>
<td>8</td>
<td><em>Cynodon dactylon</em> (L.) Pers. (Bermuda grass)</td>
<td>Poaceae</td>
<td>Durba</td>
<td>Leaf</td>
<td>See <em>Achyranthes aspera</em>.</td>
</tr>
<tr>
<td>9</td>
<td><em>Paederia foetida</em> L. (Skunk vine) 43901</td>
<td>Rubiaceae</td>
<td>Gondho vadal</td>
<td>Leaf</td>
<td>Waist pain. Paste of one leaf and one clove of <em>Allium sativum</em> is taken orally each day.</td>
</tr>
<tr>
<td>10</td>
<td><em>Datura metel</em> L. (Angel’s Trumpet)</td>
<td>Solanaceae</td>
<td>Dhutura</td>
<td>Root</td>
<td>See <em>Rhyynchostylis retusa</em>.</td>
</tr>
<tr>
<td>11</td>
<td><em>Datura stramonium</em> L. (Jimsonweed) 43898</td>
<td>Solanaceae</td>
<td>Kalo dhutura</td>
<td>Stem</td>
<td>Pain due to gas formation, bone fractures. Stems are made into a paste. Pills are prepared from the paste and then dried. One pill is taken orally after dinner each night. This alleviates pain and induces good sleep.</td>
</tr>
</tbody>
</table>
Meho or meha is a difficult term to interpret. Ayurvedic practitioners have described meho as endocrinological disorders, diabetes, combination of diabetes with other disorders, and even gonorrhea [23]. Although meho is derived in Sanskrit from what appears to mean profuse watering (urination), a condition of diabetic patients, in Ayurveda diabetes is more known as madhumeha or sweet tasting urine. The leaves of Andrographis paniculata have previously been reported by us to be used in liver disorders and hepatitis B, but not the flowers [24]. Use of leaves to treat liver disorders and helminthiasis has also been reported [25]. However, the polyherbal formulation containing Andrographis paniculata, Piper nigrum, Piper peepuloides, and Zingiber officinale for treatment of liver cirrhosis, is to our knowledge, the first of its kind. Roots of Achyranthes aspera have been reported by us for treatment of pain by FMPs [26], which use and the part of the plant used is different from the presently reported uses. With the exception of Cissus quadrangularis to treat bone fracture, the therapeutic uses and mode of use of the other plants by the FMPs are mostly new to our knowledge. Thus these plants merit potential for scientific studies towards discovery of more efficacious therapeutic agents.

References

\[ \text{References} \]


